NOTE: All Bids are to be accompanied by Dredge Data Sheets and Equipment Schedule. 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.
### SHELL ISLAND EAST BERM BARRIER ISLAND RESTORATION PROJECT (BA-110)

**BID PROPOSAL ATTACHMENT A1 - EQUIPMENT SCHEDULE**

**EQUIPMENT CATEGORY:**

<table>
<thead>
<tr>
<th>Type</th>
<th>Capacity</th>
<th>Manufacturer</th>
<th>Age &amp; Condition</th>
<th>Location</th>
</tr>
</thead>
<tbody>
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</tr>
</tbody>
</table>

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.

(THIS PAGE SHOULD BE COMPLETED AND RETURNED WITH CONTRACTOR BID)
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:

Beach and Dune Fill ______________ cubic yards/day

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.: ___________________
DAILY PROGRESS REPORT

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

PROJECT: Shell Island West NRDA Restoration Project (BA-111)

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: ______________________

Borrow material (sand or marsh fill) being dredged: ______________________

Location of discharge: Station _______

Dressing operations complete: Station _______

Contractor/Subcontractor and area of responsibility:

1. Work Performed Today: (Indicate location and description of work performed. Provide beach/dune or 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. **Daily Patrol for Protected Birds:** (Describe number and extent of patrols and if any protected birds or protected bird nests were observed. If protected birds or protected bird nests were observed, identify type and location.)

12. **Progress Summary:**

<table>
<thead>
<tr>
<th></th>
<th>This Day</th>
<th>To Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worked Hours</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Downtime Hours (Explain Below)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length of Discharge Advance (Ft.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sand Volume Pumped (Estimated c.y.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marsh Volume Pumped (Estimated c.y.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beach/Dune/Sand Flat Volume Pay (c.y. accepted sections only)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marsh Volume Pay (c.y. accepted sections only)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linear % Completed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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.
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.

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

```
<Profile Name #2> <Number of Points>  Easting of Origin  Northing of Origin,  Azimuth of Origin  Date>
<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:

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

**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_PI1 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:**

<table>
<thead>
<tr>
<th>Easting</th>
<th>Northing</th>
<th>Elevation</th>
<th>Profile Line Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>3832117.8</td>
<td>280412.5</td>
<td>-3.0</td>
<td>SG1</td>
</tr>
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<td>3832100.0</td>
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<td>SG1</td>
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<td>SG1</td>
</tr>
<tr>
<td>3832087.5</td>
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<td>SG1</td>
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<td>280263.1</td>
<td>-9.0</td>
<td>SG1</td>
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<tr>
<td>3832076.8</td>
<td>280259.1</td>
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<td>SG1</td>
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<tr>
<td>3832076.3</td>
<td>280257.1</td>
<td>-11.9</td>
<td>SG1</td>
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<tr>
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<td>280221.5</td>
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<td>SG1</td>
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<td>-15.5</td>
<td>SG1</td>
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APPENDIX IV  GEOTECHNICAL REPORTS

PROVIDED ELECTRONICALLY at the following link:
ftp://ftp.coastal.la.gov/BA-111/Appendices/
DEPARTMENT OF THE ARMY PERMIT

Permittee: Coastal Protection and Restoration Authority

Permit No. MVN-2012-0922-EFF

Issuing Office: New Orleans District

OCT 23 2012

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transeree. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description: Excavate and deposit fill to construct the Shell Island Barrier Island Restoration Project (BA 110/111), in accordance with the drawings attached in sixty-three sheets dated February 1, 2012.

Project Location: In Plaquemines Parish, south of Highway 23, within Bastian Bay, at the Gulf of Mexico, near Empire, Louisiana.

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on OCT 31, 2017. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least 1 month before the above date is reached.

2. 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 in compliance with General Condition 4 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.

3. 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.
4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. 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. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions: See Attached.

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

(X) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).
(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).

2. Limits of this authorization.
   a. This permit does not obviate the need to obtain other Federal, State, or local authorizations required by law.
   b. This permit does not grant any property rights or exclusive privileges.
   c. This permit does not authorize any injury to the property or rights of others.
   d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:
   a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.
   b. 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.
   c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.
   d. Design or construction deficiencies associated with the permitted work.
e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

   a. You fail to comply with the terms and conditions of this permit.

   b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

   c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

X [Signature]  X 10-11-2012
(PERMITTEE) CPRP Project Manager  (DATE)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

[Signature]  October 23, 2012
Michael V. Farabee, Chief Eastern Evaluation Section
(DATE)

for Edward R. Fleming, District Commander

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

[TRANSFEREE]  [DATE]
SPECIAL CONDITIONS: MVN-2012-0922-EFF

7. This authorization does not obviate the permittee from obtaining any necessary approvals from other pertinent federal, state, and/or local authorities.

8. Construction activities shall be confined to the proposed work areas shown on the attached drawings. Mechanized land clearing or filling in wetlands for access and/or project construction, unless expressly identified on the attached drawings, is not authorized. Any alterations or changes in scope of the proposed project not covered under this authorization would require a separate Department of the Army permit review and decision, prior to commencing that work.

9. The permittee shall assure that any contractors and/or workers associated with construction of the permitted project are equally aware of the conditions and restrictions associated with this approval.

10. The permittee is aware that future site visits and inspections may be conducted to the project area by this office and/or other resource agencies in order to assess project compliance with this authorization and requirements associated herewith.

11. 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.

12. Your use of the permitted activity must not interfere with the public's right to free navigation on all navigable waters of the United States. The proposed work shall be coordinated with the US Coast Guard, in order to address and potential navigation issues associated with project construction.

13. You must install and maintain, at your expense, any safety lights, signs and signals prescribed by the US Coast Guard, through regulations or otherwise, on your authorized facilities.

14. 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 the waterway, you are advised to notify the US Coast Guard 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 US Coast Guard, Sector New Orleans Command Center, 200 Hendee Street, New Orleans, Louisiana 70114, about 1 month before you plan to start work. Telephone inquiries can be directed to (504) 365-2281.
SPECIAL CONDITIONS: MVN-2012-0922-EFF

15. 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 applicant will contact the Chitimacha Tribe of Louisiana at Post Office Box 661, Charenton, LA 70523, and the Army Corps of Engineers, New Orleans District (CEMVN) Regulatory Branch. CEMVN, Regulatory Branch 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.

16. To the greatest extent, the permittee shall avoid negative impacts to existing vegetated wetlands at the site. Disturbance and/or rutting of existing vegetated wetlands during mobilization and/or construction activities shall be restored to pre-existing elevations at the earliest practicable time frame. The use of timber mats may be utilized where feasible, in order to avoid and minimize impacts to marsh.

17. To the greatest extent, the permittee shall avoid impacts to existing natural shorelines. Any rutting and/or ground disturbance in these areas must be restored immediately to pre-project conditions.

18. If archaeological materials and/or human remains are discovered during ground disturbing activities you shall cease and desist all activities in the project area and contact this office and Mr. Dennis Jones of the Louisiana Office of Cultural Development, Division of Archaeology at (225) 342-8160.

19. Our Real Estate Division has indicated that your project is located in an area over which the federal government holds real estate interest. No work may be performed under this permit until a real estate instrument is issued by our Real Estate Division. If you require further information regarding real estate matters, call (504) 862-1701. The real estate instrument will be initiated by our Real Estate Division without further action required on your part.

20. The permittee depicts excavation and stockpiling immediately adjacent to the Empire Waterway. Therefore, any effects to the waterway shall be restored to a minimum of pre-project conditions, upon completion of construction activities.

21. Any damage to the levees resulting from the applicant's activities will be repaired at the permittee's expense.

22. The proposed work shall not restrict the Levee District/Parish's maintenance operations or any potential flood fight activities at the levees, nor shall it obstruct or impede inspection access.

23. Earthen material placed on the levee slope shall be fertilized and seeded to promote new grass growth. In addition, all other disturbed areas on the levees resulting from the project must be restored to its original condition.
SPECIAL CONDITIONS: MVN-2012-0922-EFF

24. Any materials placed onto the levees must be removed from the area upon completion of the project and the area must be returned to its original state of existence or better.

25. Should changes in the location or section of the existing levees and/or river, or in the generally prevailing conditions in the vicinity, be required in the future in the public interest, the permittee shall make changes in the project concerned, or in the arrangement thereof, as may be necessary to satisfactorily meet the situation and shall bear the cost thereof.

26. The proposed dredging work within the Mississippi River would be located within areas known to be inhabited by the Pallid sturgeon (Scaphirhynchus albus). The cutterhead shall remain completely buried in the bottom material during dredging operations. If pumping water through the cutterhead is necessary to dislodge material or to clean the pumps and/or cutterhead, etc., the pumping rate shall be reduced to the lowest possible until the cutterhead is at mid-depth, where the pumping rate can then be increased. During dredging, the pumping rates should be reduced to the slowest speed feasible while the cutterhead is descending to the channel bottom. The permittee shall contact this office (504-862-2766) and the US Fish and Wildlife Service (USFWS) Lafayette Field office (337-291-3100), with any further questions about the Pallid sturgeon or should a sturgeon be observed. The permittee shall cease work if a sturgeon is observed within the subject area and until consultation has been finalized with this office and the USFWS.

27. The proposed island restoration work would occur within areas that are known to be inhabited by the West Indian manatee (Trichechus manatus). The permittee shall adhere to the GUIDELINES FOR ACTIVITIES IN PROXIMITY TO MANATEE AND THEIR HABITAT, attached to this authorization as (Attachment I), during all phases of in-water work for the duration of the project as well as any future in-water maintenance work. The permittee shall contact this office (504-862-2766) and the USFWS Lafayette Field Office of Louisiana (337-291-3100), with any further questions about the West Indian manatee, the subject guidelines, or should a manatee be sighted. The permittee shall cease work if a manatee is observed within the subject area and until consultation has been finalized with this office and the USFWS.

28. The proposed project occurs within an area impacted by the Deepwater Horizon Oil Spill in the summer of 2010 and activities such as yours could potentially re-suspend oiled sediments that may be located in the area. It is also noted that cleanup crews associated with the US Coast Guard’s Deepwater Horizon Response are potentially working in multiple sites located throughout the Louisiana coastal area. In order to coordinate and mitigate potential re-suspension of oiled sediments, adverse impacts to fish and wildlife species, and safety issues related to cleanup operations; the permittee shall contact and coordinate with LT David R. Simonson, US Coast Guard Deepwater Horizon Response (504-252-8748 or david.r.simonson@uscg.mil), prior to commencement of work.
GUIDELINES FOR ACTIVITIES IN PROXIMITY TO MANATEES AND THEIR HABITAT

I. General Guidance for In-water Work Activities

A. All personnel associated with the project should be informed of the potential presence of manatees, manatee speed zones, and the need to avoid collisions with and injury to manatees. Such personnel instruction should also include a discussion of the 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.

B. All contract and/or construction personnel are responsible for observing water-related activities for the presence of manatee(s).

C. Temporary signs should be posted prior to and during all construction/dredging activities to remind personnel to be observant for manatees during active construction/dredging operations or within vessel movement zones (i.e., work area), and at least one sign should be placed where it is visible to the vessel operator.

D. Siltation barriers, if used, should be made of material in which manatees could not become entangled, and should be properly secured and regularly monitored. Barriers should not impede manatee movement.

E. If a manatee is sighted within 100 yards of the active work zone, special operating conditions should be implemented, including: no operation of moving equipment within 50 feet of a manatee; all vessels should operate at no wake/idle speeds within 100 yards of the work area; and siltation barriers, if used, should be re-secured and monitored. Once the manatee has left the 100-yard buffer zone around the work area on its own accord, special operating conditions are no longer necessary, but careful observations would be resumed.

F. Any manatee sighting should be immediately reported to the U.S. Fish and Wildlife Service’s (Service) Lafayette, Louisiana, Field Office (337/291-3100) and the Louisiana Department of Wildlife and Fisheries (LDWF), Natural Heritage Program (225/765-2821).

II. Guidelines to Minimize and/or Avoid Manatee Entrapment

A. Pre-construction:
Water control structures, trash rakes, barriers and other devices that may entrap manatees (even temporarily) within a closed waterway could result in harm or death to the entrapped manatee. At least 90 days prior to installing a structure that may be a barrier or impediment to manatee movement, advanced consultation with the Service and the LDWF should occur. When a manatee-accessible waterway is proposed to be closed to manatees (exclusion area), aerial and ground surveys should be conducted to ensure that manatees are not entrapped in a closed system.

1. Aerial Survey:
Prior to installing the last section of any barriers (temporary or permanent) that could result in the entrapment of manatees within the waterway, the project proponent should contact the Service and LDWF to determine whether an aerial survey of the proposed exclusion area should be conducted. The extent of the survey area should be identified by the Service and LDWF. Both the Service and LDWF should be contacted to participate in any aerial surveys. It is recommended that the surveys be conducted by helicopter.

ATTACHMENT I
2. Waterway Closure:
If no manatees are sighted within the exclusion area, the waterway should be closed off immediately following that survey. If manatees are sighted within the exclusion area, they should be observed to see if they move beyond the proposed barrier. If they do not move out of the waterway within 10 days, the project proponent should consult with the Service and LDWF to determine if the barrier should be put in place. Manatees should not be herded, poked, prodded or harassed in any way to move them along the waterway.

B. Post-construction:
Once the barrier has been installed, the barrier and waterway should be monitored by land once daily for a period of one week to check for the presence of manatees. If manatees are sighted within the exclusion area, the Service (337/291-3100) and LDWF (225/765-2821) should be contacted for further guidance.

III. Guidance for Activities Related to Pipe or Culvert Installation

A. For pipes and/or culverts installed in areas with potential manatee access, measures that minimize both project installation- and structure-related risks must be adopted to avoid or minimize their effects on manatees and any suitable habitat.

B. Pursuant to the “General Guidance for In-Water Work Activities”, all project-related personnel must be instructed about manatees and measures needed to ensure the manatees’ protection during the installation of these structures.

C. Structures with openings that exceed 8 feet in diameter at both ends and have average water depths of at least three feet, mean low water (MLW), generally do not pose a threat to manatees. Wherever possible, structures (such as box culverts) with these features should be used to reduce the risk of manatees drowning or becoming entrapped in these structures.

D. Where pipes and culverts between 8 inches and 8 feet in diameter are required, bars or gratings spaced less than 8 inches apart in horizontal, diagonal, or vertical configurations should be placed over the openings to prevent adult manatees and calves from accessing these structures.

E. Manatees can become stranded in culverts during periods of low tide. Therefore, when planning for new culverts in tidal waters, a minimum 3-foot depth of water in the culvert at low tide stage is recommended.

IV. Guidance for Docks or Other Structures Constructed in or over Submerged Aquatic Vegetation, Marsh, or Mangrove Habitat

A. Submerged Aquatic Vegetation (SAV)
1. Avoidance – the pier should be aligned so as to minimize the size of the footprint over SAV beds.
2. The height of pier should be a minimum of 5 feet above MHW/OHW as measured from the top surface of the decking.
3. The width of the pier should be limited to a maximum of 4 feet. A turnaround area is allowed for piers greater than 200 feet in length. The turnaround is limited to a section of the pier no more than 10 feet in length and no more than 6 feet in width. The turnaround should be located at the midpoint of the pier.
4. Over-SAV bed portions of the pier should be oriented in a north-south orientation to the maximum extent practicable.

5. If possible, terminal platforms should be placed in deep water, water-ward of SAV beds, or in an area devoid of SAV beds.

6. If a terminal platform is placed over SAV areas and constructed of grated decking, the total size of the platform should be limited to 160 square feet. The grated deck material should conform to the specifications stipulated below. The configuration of the platform should be a maximum of 8 feet by 20 feet. A minimum of 5 feet by 20 feet should conform to the 5-foot height requirement; a 3-foot by 20-foot section may be placed 3 feet above mean high water (MHW) to facilitate boat access. The long axis of the platform should be aligned in a north-south direction to the maximum extent that is practicable.

7. If the terminal platform is placed over SAV areas and constructed of planks, the total size of the platform should be limited to 120 square feet. The configuration of the platform should be a maximum of 6 feet by 20 feet of which a minimum 4-foot-wide by 20-foot-long section shall conform to the 5-foot height requirement. A section may be placed 3 feet above MHW to facilitate boat access. The 3 feet above MHW section should be cantilevered. The long axis of the platform should be aligned in a north-south direction to the maximum extent practicable. If the 3 feet above MHW section is constructed with grating material, it may be 3 feet wide.

8. One uncovered boat lift area is allowed. A narrow catwalk (2-feet-wide if planks are used, 3-feet-wide if grating is used) may be added to facilitate boat maintenance along the outboard side of the boat lift and a 4-foot-wide walkway may be added along the stern end of the boat lift, provided all such walkways are elevated 5 feet above MHW. The catwalk should be cantilevered from the outboard mooring pilings (spaced no closer than 10 feet apart).

9. Pilings should be installed in a manner which will not result in the formation of sedimentary deposits ("donuts" or "halos") around the newly installed pilings. Pile driving is the preferred method of installation, but jetting with a low pressure pump may be used.

10. The spacing of pilings through SAV beds should be a minimum of 10 feet on center.

11. The gaps between deck boards should be a minimum of ½ inch.

B. Marsh

1. The structure should be aligned so as to have the smallest over-marsh footprint as practicable.

2. The over-marsh portion of the dock should be elevated to at least 4 feet above the marsh floor.

3. The width of the dock should be limited to a maximum of 4 feet. Any exceptions to the width must be accompanied by an equal increase in height requirement.

C. Mangroves

1. The width of the dock should be limited to a maximum of 4 feet.

2. Mangrove clearing should be restricted to the width of the pier.

3. The location and alignment of the pier should be through the narrowest area of the mangrove fringe.
APPENDIX VI    LDNR COASTAL USE PERMIT
LOCATION: Plaquemines Parish, LA
Shell Island East (Pt. 250): Lat 29° 16' 38.24"N / Long -89° 37' 43.91"W; Shell Island West (Pt. 240): Lat 29° 17' 49.45"N / Long -89° 39' 51.73"W; Coordinates for Borrow Areas on permit plats; Section 39-41, T20S-R28E; Section 16-21, 26-28, 34, 35, 13, 24, T21S-R28E; West of Empire Waterway Bastian Bay area.

DESCRIPTION: Shell Island East Restoration Berm Enhancement Project and Shell Island West NRDA Restoration Project (BA-110/111) for the proposed creation of +/- 615 acres of beach/dune habitat and +/-343 acres of brackish marsh habitat along the Barataria Basin Barrier Shoreline. Project includes the dredging of +/-12.9 M c.y. of sediment from potential borrow areas MR-A, MR-B, MR-E, 35E, and 9 (MR-B and MR-E previously permitted under P20101416 -Scofield Island Restoration Project / BA-40). Conveyance of sediment within a submerged/buried 30" pipeline proposed from borrow sources MR-A, MR-B, and MR-E along an existing dredge pipeline corridor follows the Empire Waterway (previously permitted under P20101416) and from Areas 35E and 9 with estimated losses in sediment due to transfer anticipated. Proposed fill required for the creation of dune habitat is +/- 6.4M c.y. and +/- 1.8M c.y. for the creation of marsh habitat. Project also includes the excavation of +/- 467,900 c.y. for access channels and subsequent placement on both sides to a height conducive to marsh establishment, excavation of +/- 865,000 c.y. for the construction of the primary dikes for containment of marsh creation areas, the placement 250 c.y. of gravel for dredge pipeline levee crossings, and the excavation of +/- 21,400 c.y. for navigational crossings and booster pump locations.

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:
This permit does not convey any property rights, mineral rights, or exclusive privileges; nor does it authorize injury to property.

Permittee shall, prior to commencement of the herein permitted activities, contact Rhonda Braud (phone: 225-342-4553, email: rhonda.braud@la.gov) to determine if a construction permit will be required from the local levee district.

Submerged sediment/dredge pipeline must be marked/lighted in accordance with U. S. Coast Guard regulations.

Permitted activities shall not interfere with navigation and project operations shall be coordinated with the USCG prior to initiation of activities permitted under this authorization.

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.

The following conditions have been provided by the Louisiana Dept. of Wildlife and Fisheries, LA 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.

Our database indicates the presence of bird nesting colonies within one mile of this proposed project. Please be aware that entry into or disturbance of active breeding colonies is prohibited by the Louisiana Department of Wildlife and Fisheries (LDWF). In addition, LDWF prohibits work within a certain radius of an active nesting colony.

Nesting colonies can move from year to year and no current information is available on the status of these colonies. If work for the proposed project will commence during the nesting season, conduct a field visit to the worksite to look for evidence of nesting colonies. This field visit should take place no more than two weeks before the project begins. If no nesting colonies are found within 400 meters (700 meters for brown pelicans) of the proposed project, no further consultation with LDWF will be necessary. If active nesting colonies are found within the previously stated distances of the proposed project, further consultation with LDWF will be required. In addition, colonies should be surveyed by a qualified biologist to document species present and the extent of colonies. Provide LDWF with a survey report which is to include the following information:

1. qualifications of survey personnel;
2. survey methodology including dates, site characteristics, and size of survey area;
3. species of birds present, activity, estimates of number of nests present, and general vegetation type including digital photographs representing the site; and
4. topographic maps and ArcView shapefiles projected in UTM NAD83 Zone 15 to illustrate the location and extent of the colony.

Please mail survey reports on CD to:
Louisiana Natural Heritage Program
La. Dept. of Wildlife & Fisheries
P.O. Box 98000
Baton Rouge, LA 70898-9000

To minimize disturbance to colonial nesting birds, the following restrictions on activity should be observed:

- For colonies containing nesting wading birds (i.e., herons, egrets, night-herons, ibis, roseate spoonbills, anhingas,
and/or cormorants), all project activity occurring within 300 meters of an active nesting colony should be restricted to the non-nesting period (i.e., September 1 through February 15).

- For colonies containing nesting gulls, terns, and/or black skimmers, all project activity occurring within 400 meters (700 meters for brown pelicans) of an active nesting colony should be restricted to the non-nesting period (i.e., September 16 through April 1).

g. No 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) has compiled data on rare, endangered, or otherwise significant plant and animal species, plant communities, and other natural features throughout the State of Louisiana. 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.

h. Project Teams for BA 110/111 (Shell Island Barrier Island Enhancement Project) will continue monthly coordination with NOV Project Team for BA-67 (New Orleans to Venice) to monitor schedule progress to avoid potential conflicts.

i. Permittee shall obtain a Water Quality Certification, should one be required, from the LA Department of Environmental Quality prior to initiation of any construction activities.

j. 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.)

k. The requirement for compensatory mitigation for impacts to marsh habitat resulting from the referenced project will be determined after one full growing season (March 1 to November 1) following the completion of the permitted activities. This assessment shall include both primary impacts and secondary impacts which may result from the permitted activities.

If OCM determines that compensatory mitigation is required, permittee shall submit a compensatory mitigation plan for approval within 30 days of notification of the compensatory mitigation requirements by OCM. All necessary approvals shall be obtained for the compensatory mitigation plan and the plan shall be implemented as directed by OCM. Permittee should be aware that compensatory mitigation projects may be required to be maintained for as many as 20 years for marsh mitigation projects and 50 years for forested wetland mitigation projects. A processing fee will be assessed for the determination of compensatory mitigation requirements and evaluation of the proposed compensatory mitigation plan in accordance with LAC Title 43, Part I, Chapter 7, §724.D. This fee shall apply regardless of which compensatory mitigation option is selected and does not include the cost incurred to implement the required compensatory mitigation.

l. Permittee shall notify OCM Field Scientist, Frank Cole, at 225-280-4064 or frank.cole@la.gov no later than ten (10) days prior to initiation and following completion of activities permitted under this authorization.

m. Permittee shall provide to OCM within 30 days following project completion as-built drawings and/or plats that include the actual borrow sources utilized for the completion of the permitted activity and the entire dredged material placement area.

n. 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.

o. 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.

p. The area where the project is located is all part of the aboriginal homelands of the Chitimacha Tribe of Louisiana. As such, large villages, burial sites, and sacred sites were in place in that entire area. If at any time during the course of the work, any traditional cultural properties are discovered, Permittee shall immediately contact Kimberly S. Walden (Cultural Director) or Melanie Aymond (Research Coordinator) at (337) 923-9923 or (337) 923-4395. Office hours are Monday through Thursday from 7:30 A.M. - 5:00 P.M. and on Friday between 7:30 A.M. - 11:30 A.M. If traditional cultural properties are discovered on the weekend or after business hours, the notification shall be made the next business morning.

q. Permittee is subject to all applicable state laws related to damages which are demonstrated to have been caused by this action.

r. 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.

s. 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.

t. 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.

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.
I affix my signature and issue this permit this 23rd day of August, 2012.

THE DEPARTMENT OF NATURAL RESOURCES

[Signature]

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) P20120216 Final Plats 05/03/2012
2) P20120216 Final Plats 05/03/2012

cc: Pete Serio, COE w/attachments
    Dave Butler, LDWF w/attachments
    Jessica Diez, OCM w/attachments
    Frank Cole, OCM/FI w/attachments
    Plaquemines Parish w/attachments
STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY

SHELL ISLAND
BARRIER ISLAND RESTORATION PROJECT
BA-110/111
PLAQUEMINES PARISH

GRAPHIC SCALE IN FEET

STATE OF LOUISIANA
INSET MAP
PLAQUEMINES PARISH

SHELL ISLAND
WEST
BASTIAN
BAY
SHELL ISLAND
EAST
EMPIRE WATERWAY
GULF
OF
MEXICO
PELICAN
ISLAND

6000'
3000'
0'
6000'
12000'

COASTAL PLANNING & ENGINEERING, INC.
2401 N.W. 64TH STREET
MIAMI, FLORIDA 33166
PH. (305) 396-1052
FAX (305) 396-1047
G.C.P.E., FL, DBA
G.C.P.E., CA, DBA

APPLICATION BY:
COASTAL PROTECTION AND RESTORATION AUTHORITY
450 LAUREL ST., SUITE 1200
BATON ROUGE, LOUISIANA 70801
PH: (225) 342-1477
FAX: (225) 342-6801

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

SHELL ISLAND
BARRIER ISLAND RESTORATION PROJECT

STATE PROJECT NUMBER: BA-110/111

COVER SHEET

DATE: 2/1/12

DRAWN BY: G KRYSYNIAK
DESIGNED BY: D SWAGLER
APPROVED BY: G THOMSON
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</tr>
<tr>
<td>17-19</td>
<td>WEST PROJECT PLAN VIEWS</td>
<td>53</td>
<td>BORROW AREA MR-B CROSS SECTION J-J' (1 OF 2)</td>
</tr>
<tr>
<td>20-25</td>
<td>EAST PROJECT CONSTRUCTION PROFILES</td>
<td>54</td>
<td>BORROW AREA MR-B CROSS SECTION K-K'</td>
</tr>
<tr>
<td>26-28</td>
<td>WEST PROJECT CONSTRUCTION PROFILES</td>
<td>55</td>
<td>BORROW AREA MR-B CROSS SECTION L-L'</td>
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<tr>
<td>29-30</td>
<td>CONSTRUCTION ACCESS CHANNEL TYPICAL SECTIONS</td>
<td>56</td>
<td>BORROW AREA MR-B CROSS SECTION M-M'</td>
</tr>
<tr>
<td>31</td>
<td>EMPIRE WATERWAY CROSSING DETAIL</td>
<td>57</td>
<td>BORROW AREA MR-E BATHYMETRY CONTOURS</td>
</tr>
<tr>
<td>32</td>
<td>EMPIRE WATERWAY CROSSING CROSS SECTION</td>
<td>58</td>
<td>BORROW AREA MR-E VIBRACORES AND ANOMALIES</td>
</tr>
<tr>
<td>33</td>
<td>SUBMERGED PIPELINE CORRIDOR TYPICAL SECTIONS</td>
<td>59</td>
<td>BORROW AREA MR-E CROSS SECTION N-N'</td>
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<tr>
<td>34</td>
<td>SAND FENCE DETAIL</td>
<td>60</td>
<td>BORROW AREA COORDINATES</td>
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<td>35</td>
<td>SETTLEMENT PLATE DETAIL</td>
<td>61</td>
<td>APPENDIX A RIVERINE SAND MINING/SCOFIELD ISLAND RESTORATION PROJECT (BA-40) PREVIOUSLY PERMITTED APPLICABLE PERMIT PLATS</td>
</tr>
<tr>
<td>36</td>
<td>VEGETATIVE PLANTINGS DETAIL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>BORROW AREA MR-A BATHYMETRY CONTOURS</td>
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<tr>
<td>38</td>
<td>BORROW AREA MR-A VIBRACORES AND ANOMALIES</td>
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<td>39</td>
<td>BORROW AREA MR-A CROSS SECTION C-C'</td>
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<tr>
<td>40</td>
<td>BORROW AREA MR-A CROSS SECTION D-D'</td>
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<td></td>
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</table>
RIVER DREDGING PROCEDURES NARRATIVE

1. INTRODUCTION

THE COASTAL PROTECTION AND RESTORATION AUTHORITY (CPRA) HAS APPLIED FOR A PERMIT TO CONSTRUCT THE SHELL ISLAND BARRIER ISLAND RESTORATION PROJECT (BA-110/111). THIS PROJECT INTENDS TO CREATE APPROXIMATELY 958 ACRES OF BARRIER ISLAND HABITAT ALONG THE BARATARIA BASIN BARRIER SHORELINE. DUE TO THE PROJECT’S CLOSE PROXIMITY TO THE MISSISSIPPI RIVER, IT IS INTENDED TO UTILIZE THE RENEWABLE SEDIMENT RESOURCE FROM THE MISSISSIPPI RIVER TO ACCOMPLISH THESE OBJECTIVES. IN THE SPRING OF 2010, MISSISSIPPI RIVER SEDIMENT WAS USED SUCCESSFULLY TO COMPLETE THE CONSTRUCTION OF THE COASTAL WETLANDS PLANNING, PROTECTION, AND RESTORATION ACT (CWPPRA) PROJECT, MISSISSIPPI RIVER SEDIMENT DELIVERY SYSTEM - BAYOU DUPONT (BA-39). THIS NARRATIVE WILL PRESENT THE PROPOSED PROTOCOLS FOR MINING THE SEDIMENT FROM THE PROPOSED MISSISSIPPI RIVER BORROW AREAS AND THE PROPOSED SEDIMENT DELIVERY SYSTEM TO THE PROJECT AREA.

2. BORROW AREA


THE DIMENSIONS OF THE DESIGNATED BORROW AREAS ARE LISTED IN TABLE 1:

<table>
<thead>
<tr>
<th>BORROW AREA</th>
<th>APPROXIMATE LENGTH (FT.)</th>
<th>AVERAGE WIDTH (FT.)</th>
<th>MAXIMUM DEPTH OF EXCAVATION (FT. NAVD88)</th>
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</thead>
<tbody>
<tr>
<td>MR-A</td>
<td>6,300</td>
<td>800 TO 1,500</td>
<td>-75 TO -80</td>
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<tr>
<td>MR-B</td>
<td>14,800</td>
<td>150 TO 600</td>
<td>-80</td>
</tr>
<tr>
<td>MR-E</td>
<td>8,900</td>
<td>300 TO 1,000</td>
<td>-80</td>
</tr>
</tbody>
</table>

TABLE 1. DIMENSIONS OF PROPOSED MISSISSIPPI RIVER BORROW AREAS

BORROW AREAS MR-B AND MR-E ARE PROPOSED TO BE DREDGED FOR THE RIVERINE SAND MINING/SOICIELD ISLAND RESTORATION (BA-40) PROJECT AND HAVE BEEN PERMITTED PREVIOUSLY. ANY SEDIMENT REMAINING AFTER THE CONSTRUCTION OF BA-40 IS PROPOSED TO BE UTILIZED FOR THE SHELL ISLAND PROJECT. THE VOLUMES REFLECTED IN THE PERMIT APPLICATION INCLUDE TOTAL AVAILABLE VOLUMES PRIOR TO ANY DREDGING FOR THE BA-40 PROJECT.

a. DREDGING OPERATIONS

CPRA REQUESTS TO PERMIT APPROXIMATELY 13,674,000 CUBIC YARDS OF MISSISSIPPI RIVER SEDIMENT. 8,350,000 CUBIC YARDS OF THIS VOLUME IS PERMITTED FOR THE BA-40 PROJECT. THE SHELL ISLAND PROJECT PROPOSES TO EXCAVATE THE REMAINING VOLUME. THE MATERIAL WILL BE HYDRAULICALLY DREDGED USING A CUTTERHEAD OR HOPPER DREDGE IN MR-A, MR-B AND MR-E.

b. DREDGING SAFETY

i. FLOATING SEDIMENT PIPELINE. THE DREDGE PIPELINE WILL CONTAIN A FLOATING SEGMENT BETWEEN THE DREDGE AND THE SHORELINE PIPE. THE CONTRACTOR WILL BE REQUIRED TO PROVIDE THE LOCATION OF THE FLOATING SEDIMENT PIPELINE IN THE WORK PLAN, DAILY COMMUNICATION PLAN. SEGMENTS OF FLOATING SEDIMENT PIPELINE SHALL BE CLEARLY MARKED WITH DREDGING AIDS AND LIGHTS IN SUCH A WAY AS TO NOT OBSTRUCT OR CONFUSE NAVIGATION. ALL DREDGING AID MARKERS AND LIGHTS SHALL COMPLY WITH THE REGULATIONS SET FORTH IN COMMANDANT U.S. COAST GUARD (USCG) INSTRUCTION M16672.2, NAVIGATION RULES: INTERNATIONAL-INLAND (COMDTINST M16672.2), OR 33 CFR 81 APPENDIX A (INTERNATIONAL) AND 33 CFR 84 THROUGH 33 CFR 89 (INLAND) AS APPLICABLE.

ii. COMMUNICATION. THE CONTRACTOR WILL BE REQUIRED TO SUBMIT A DAILY COMMUNICATION PLAN TO THE OWNER, THE USACE, AND THE MARITIME NAVIGATION SAFETY AUTHORITY (MNSA). THE DREDGE WILL COMMUNICATE WITH THE MAIN CONTROL STATIONS USING BRIDGE-TO-BRIDGE RADIOTELEPHONES CAPABLE OF TRANSMITTING AND RECEIVING ON THE FREQUENCIES WITHIN THE 156 TO 162 MEGAHERTZ BAND USING THE CLASS OF EMISSIONS DESIGNATED BY THE FEDERAL COMMUNICATIONS COMMISSION FOR THE EXCHANGE OF NAVIGATIONAL INFORMATION. DURING MOBILIZATION, CONSTRUCTION, AND DEMOBILIZATION, AN OFFICER SHALL BE REQUIRED TO BE PRESENT ON THE DREDGE. THE OFFICER SHALL BE REQUIRED TO IMPLEMENT OPERATIONAL SAFETY OF ALL VESSELS ASSOCIATED WITH THE PROJECT AND WILL BE REQUIRED TO MONITOR THE MARINE RADIO CHANNELS FOR VESSEL-TO-VESSEL COMMUNICATIONS.
iii. DREDGE LOCATION CONTROL. THE DREDGE SHALL BE REQUIRED TO OPERATE ELECTRONIC POSITIONING EQUIPMENT THAT SHALL SEND CLEAR AND FREQUENT DREDGE POSITION UPDATES SO AS TO ENSURE ACCURATE AND CONTINUOUS ACCESSIBILITY TO THE LOCATION OF THE DREDGE. THE CONTRACTOR'S DAILY COMMUNICATION PLAN SHALL INCLUDE THE DELINEATION OF THE DREDGE, ATTENDANT PLANT, ANCHORS, BUOYS, AND FLOATING PIPELINE.

iv. INTERFERENCE WITH MISSISSIPPI RIVER TRAFFIC. BASED ON THE DELINEATION OF THE CUTTERHEAD DREDGE WORK AREA, THERE SHOULD BE NO INTERFERENCE WITH MISSISSIPPI RIVER TRAFFIC. THE BORROW AREA LIMIT IS GREATER THAN 150 FEET FROM THE BOUNDARY OF THE NAVIGATION CHANNEL. THE DREDGE SHALL BE REQUIRED TO ATTACH BUOYS TO ITS ANCHOR LINES TO ALERT RIVER TRAFFIC OF THE ANCHORS' LOCATIONS WITHIN THE DREDGE ANCHOR LIMITS SHOWN ON THE PERMIT DRAWINGS. THIS INFORMATION WILL BE PROVIDED DAILY TO THE MNRA.

v. OBSTRUCTION OF NAVIGABLE WATERWAYS. IN ORDER TO KEEP THE MISSISSIPPI RIVER FREE OF OBSTRUCTIONS, ANY ITEM (MATERIAL, PLANT, MACHINERY, OR APPLIANCE) WHICH IS MISPLACED OVERBOARD SHALL BE PROMPTLY MARKED IN ACCORDANCE WITH USCG REGULATIONS. USCG - EIGHTH DISTRICT SHALL BE NOTIFIED IMMEDIATELY SO AS TO INCLUDE THE DESCRIPTION AND LOCATION IN THE "LOCAL NOTICE TO MARINERS" ISSUED WEEKLY. THE OBSTRUCTIONS SHALL THEN BE RECOVERED AND REMOVED AS QUICKLY AS POSSIBLE.

vi. PIPELINE CROSSINGS. ALL PETROLEUM PIPELINES AT THIS LOCATION IN THE MISSISSIPPI RIVER ARE OUTSIDE OF THE CUTTERHEAD DREDGE WORK AREA. NO HYDRAULIC DREDGING WILL TAKE PLACE WITHIN 500 FEET OF ANY EXISTING PIPELINE OR SUBMERGED TRANSMISSION LINE.
**SUMMARY OF ESTIMATED QUANTITIES**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>UNIT</th>
<th>ESTIMATED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MOBILIZATION AND DEMOBILIZATION</td>
<td>LUMP SUM</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>JACKED CASING PIPES</td>
<td>LINEAR FEET</td>
<td>440</td>
</tr>
<tr>
<td>3</td>
<td>EMPIRE CANAL CROSSING</td>
<td>EACH</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>NAVIGATIONAL CROSSINGS</td>
<td>EACH</td>
<td>7</td>
</tr>
<tr>
<td>5</td>
<td>BOOSTER PUMP LOCATIONS</td>
<td>LUMP SUM</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>BEACH AND DUNE FILL</td>
<td>CUBIC YARD</td>
<td>6,410,000</td>
</tr>
<tr>
<td>7</td>
<td>MARSH FILL</td>
<td>CUBIC YARD</td>
<td>1,728,000</td>
</tr>
<tr>
<td>8</td>
<td>PRIMARY CONTAINMENT DYES</td>
<td>LINEAR FEET</td>
<td>19,950</td>
</tr>
<tr>
<td>9</td>
<td>SAND FENCING</td>
<td>LINEAR FEET</td>
<td>21,130</td>
</tr>
<tr>
<td>10</td>
<td>SHOAL NAVIGATION SIGNS</td>
<td>EACH</td>
<td>84</td>
</tr>
<tr>
<td>11</td>
<td>SETTLEMENT PLATES</td>
<td>EACH</td>
<td>25</td>
</tr>
<tr>
<td>12</td>
<td>PRE-CONSTRUCTION SURVEYS</td>
<td>LUMP SUM</td>
<td>1</td>
</tr>
<tr>
<td>13</td>
<td>AS-BUILT SURVEYS</td>
<td>LUMP SUM</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>VEGETATIVE PLANTINGS</td>
<td>LUMP SUM</td>
<td>1</td>
</tr>
</tbody>
</table>

**BENCHMARK CONTROL POINT**

<table>
<thead>
<tr>
<th>MONUMENT</th>
<th>LATITUDE</th>
<th>LONGITUDE</th>
<th>ELEVATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCOFIELD 2</td>
<td>29°15’20.49302”</td>
<td>89°36’14.24868”</td>
<td>4.475</td>
</tr>
</tbody>
</table>

Note: Monument is located east of Empire Waterway and not within the Project area shown in the plans. Locations are referenced to Geodetic NAD 1983. Elevations are referenced to NAVD88, U.S. Survey feet, Geod 2009.

**TIDAL DATUMS AT GRAND ISLE, LOUISIANA**

<table>
<thead>
<tr>
<th>TIDAL DATUM</th>
<th>ELEVATION</th>
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</thead>
<tbody>
<tr>
<td>MEAN HIGHER HIGH WATER (MHWW)</td>
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</tr>
<tr>
<td>MEAN HIGH WATER (MHW)</td>
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</tr>
<tr>
<td>MEAN SEA LEVEL (MSL)</td>
<td>1.08</td>
</tr>
<tr>
<td>MEAN TIDE LEVEL (MTL)</td>
<td>1.08</td>
</tr>
<tr>
<td>MEAN LOW WATER (MLW)</td>
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</tr>
<tr>
<td>MEAN LOWER LOW WATER (MLLW)</td>
<td>0.54</td>
</tr>
</tbody>
</table>


**GENERAL NOTES**


2. The beach fill borrow areas contain approximately 16,572,000 cubic yards of beachfill material. It is estimated that 9,815,000 cubic yards will need to be dredged to construct the 6,410,000 cubic yard beachfill template. The borrow area volume 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 anomalies that may be encountered, to allow for inconsistencies in the quality of material, for limitations of the contractor's equipment, etc.

3. The marsh fill borrow areas contain approximately 15,052,000 cubic yards of material. It is estimated that 3,242,250 cubic yards will need to be dredged to construct the 1,728,000 cubic yard marsh fill template and backfill the fill source for the primary dike. The borrow area volume 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 anomalies that may be encountered, to allow for inconsistencies in the quality of material, for limitations of the contractor's equipment, etc.

4. The primary dike fill sources contain approximately 433,500 cubic yards of material. It is estimated that 268,000 cubic yards will need to be dredged to construct the primary dikes. The fill source for primary dike excavation volume exceeds the primary dike template volume to allow the contractor flexibility in primary dike construction methodology. Due to water depth during construction of the primary dike, the excavation bottom elevation and width of the fill sources for Shell Island East, STA 86+22, the fill source has a bottom elevation of -10.0 feet NAVD88, and a width of 225 feet. East of and including station 86+22, the fill source has a bottom elevation of -7.0 feet NAVD88, and a width of 150 feet. CPRA requests to permit this volume to account for consolidation of the primary dike and to allow the contractor to excavate material based on his equipment or unforeseen inconsistencies in the quality of the borrow material.

5. Upon completion of the project, the contractor will be required to grade material placed in the rehandling and disposal areas adjacent to the primary fill to an elevation not to exceed +3.0 feet NAVD88, which is conducive for wetland establishment.

6. Upon completion of the project the contractor will be required to grade material placed in the access channel spoil areas to within 0.5 feet of the existing elevation. This will be completed for navigational safety.

7. Excavation is not required along the entire length of access channels. Spoil areas were not provided along portions of the channel where the elevation of existing bathymetry is below -7.0 feet NAVD88, and excavation is not required.

8. CPRA will provide as-built excavation and placement volumes upon the completion of construction.

9. Previously permitted features from the Riverine Sand Mining/Scofield Island Restoration Project (BA-40) will be used during the construction of this project. Applicable sheets from the BA-40 permit are included in this permit drawing set.
### Construction Ass Channel Coordinates

<table>
<thead>
<tr>
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<th>Latitude</th>
<th>Longitude</th>
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<td>2E</td>
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<td>3E</td>
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<td>4E</td>
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<td>6E</td>
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<td>7E</td>
<td>29°17'41.17617&quot; N</td>
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<td>8E</td>
<td>29°18'14.32198&quot; N</td>
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<td>9E</td>
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<tr>
<td>10E</td>
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### Settlemnt Plate Locations

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<td>-12+26</td>
<td>Center line of dike</td>
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<td>-3+74</td>
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</tr>
<tr>
<td>45+54</td>
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</tr>
<tr>
<td>60+54</td>
<td>-6+55</td>
<td>Center line of dike</td>
</tr>
<tr>
<td>60+54</td>
<td>2+33</td>
<td>Berm</td>
</tr>
<tr>
<td>86+22</td>
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</tr>
<tr>
<td>86+22</td>
<td>0+52</td>
<td>Berm</td>
</tr>
<tr>
<td>107+88</td>
<td>-6+31</td>
<td>Center line of dike</td>
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<td>107+88</td>
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<td>133+40</td>
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### Marsh Deewatering Locations

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<td>29°17'37.84723&quot; N</td>
<td>89°38'12.4262&quot; W</td>
</tr>
<tr>
<td>29°16'42.65143&quot; N</td>
<td>89°37'22.72181&quot; W</td>
</tr>
<tr>
<td>29°16'44.2880° N</td>
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</tr>
<tr>
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</tr>
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### Sand Fence Layout Points

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<tr>
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</tr>
<tr>
<td>29°17'31.08118&quot; N</td>
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<td>29°17'31.08118&quot; N</td>
<td>89°38'18.86410&quot; W</td>
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### Profiles

<table>
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<th>Latitude</th>
<th>Longitude</th>
<th>Azimuth</th>
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</thead>
<tbody>
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<tr>
<td>35+54</td>
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</tr>
</tbody>
</table>

### Notes

1. Locations are referenced to geographic, NAD 1983.
2. The deewatering location extends 200 feet on each side of the coordinate along the primary dike alignment.

---

**Coastal Planning & Engineering, Inc.**
2401 N. HWS, BOCA RATON, FLORIDA 33431
Phone: (954) 334-3002 / Fax: (954) 334-1147
Website: CoastalPlanning.net

**Application By:**
Coastal Protection and Restoration Authority
450 Laurel Street
Baton Rouge, Louisiana 70801
Phone: (225) 342-1477
Fax: (225) 342-6801

**Designed By:** D. S. F. M. 
**Drawn By:** G. Krynych

---

**Coastal Protection & Restoration Authority**
450 Laurel Street
Baton Rouge, Louisiana 70801

BARRIER ISLAND RESTORATION PROJECT

**Shell Island**

**Profession Notes:**

STATE PROJECT NUMBER: BA-110/111

DATE: 2/1/12

SHEET 6 OF 81
### Construction Access Channel Coordinates

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**NOTES:**

1. LOCATIONS ARE REFERENCED TO GEOGRAPHIC, NAD 1983.
2. THE DEWATERING LOCATION EXTENDS 200 FEET ON EACH SIDE OF THE COORDINATE ALONG THE PRIMARY DIKE ALIGNMENT.
SHELL ISLAND EAST PROJECT FILL VOLUMES
BEACH FILL VOLUME = 4.2M CY
MARSH FILL VOLUME = 1.0M CY
PRIMARY DIKE VOLUME = 0.2M CY

AREA OF FILL = 613 ACRES
AREA OF CONSTRUCTION ACCESS CHANNEL = 55 ACRES
AREA OF TEMPORARY SPOIL & REHANDLING = 79 ACRES

SHELL ISLAND WEST PROJECT FILL VOLUMES
BEACH FILL VOLUME = 2.2M CY
MARSH FILL VOLUME = 0.8M CY
PRIMARY DIKE VOLUME = 0.08M CY

AREA OF FILL = 345 ACRES
AREA OF CONSTRUCTION ACCESS CHANNEL = 44 ACRES
AREA OF TEMPORARY SPOIL & REHANDLING = 55 ACRES

SHELL ISLAND PROJECT EXCAVATION VOLUMES
DELINEATED BORROW AREA VOLUMES
BORROW AREA MR-A VOLUME = 5,324,000 CY; 173 ACRES
BORROW AREA MR-B VOLUME = 3,961,000 CY; 130 ACRES
BORROW AREA MR-E VOLUME = 6,509,000 CY; 169 ACRES
BORROW AREA 35-E VOLUME = 15,052,000 CY; 516 ACRES
BORROW AREA 9 VOLUME = 778,000 CY; 163 ACRES

SHELL ISLAND PROJECT EXCAVATION VOLUMES
BEACH EXCAVATION VOLUME = 9.6M CY
MARSH EXCAVATION VOLUME = 3.3M CY
PRIMARY DIKE EXCAVATION VOLUME = 855,000 CY
ACCESS CHANNEL EXCAVATION VOLUME = 0.5M CY
ACCESS CHANNEL TEMPORARY SPOIL & REHANDLING VOLUME = 0.6M CY

NOTES:
1. EASTINGS AND NORTINGS SHOWN ALONG DRAWING BOUNDARY FOR GRID REFERENCE.
2. SEE SHEETS 14-17 AND 19 OF APPENDIX A FOR DETAILS ON PREVIOUSLY PERMITTED CONVEYANCE CORRIDOR.
3. SEE SHEETS 25-37 OF APPENDIX A FOR DETAILS ON PREVIOUSLY PERMITTED MISSISSIPPI RIVER LEVEE CROSSING, HIGHWAY 11 CROSSING, EMPIRE HARBOR CANAL CROSSING, HIGHWAY 23 CROSSING, HURRICANE PROTECTION LEVEE CROSSING, EMPIRE WATERWAY NAVIGATION CROSSING AND BOOSTER PUMP SITE LOCATION.
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### Notes:
1. Locations are referenced to geographic, NAD 1983.
1. COORDINATES ARE IN FEET BASED ON LOUISIANA STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NORTH AMERICAN DATUM OF 1983 (NAD83).
2. AERIAL PHOTOGRAPHY IS FROM THE 2010 NATIONAL AGRICULTURAL IMAGERY PROGRAM.
3. EASTINGS AND NORTHINGS SHOWN ALONG DRAWING BOUNDARY FOR GRID REFERENCE.
4. NO DREDGING REQUIRED WITHIN ACCESS CHANNEL WHERE THE EXISTING BATHYMETRY IS LESS THAN -7.0 FEET NAVD88.
NOTES:

1. COORDINATES ARE IN FEET BASED ON LOUISIANA STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NORTH AMERICAN DATUM OF 1983 (NAD83).
2. AERIAL PHOTOGRAPHY IS FROM THE 2010 NATIONAL AGRICULTURAL IMAGERY PROGRAM.
3. EASTINGS AND NORTHTINGS SHOWN ALONG DRAWING BOUNDARY FOR GRID REFERENCE.

LEGEND:

- MARSH FILL
- FILL SOURCE FOR PRIMARY DIKE
- SPOIL AREA
- SETTLEMENT PLATE
- PIPELINE OBTAINED FROM DATABASE
- PIPELINE FIELD VERIFIED
- EMPIRE WATERWAY RIGHT-OF-WAY
- SURVEY MONUMENT
- TEMPORARY SHOAL SIGN

SCOFIELD 2
E 3832299.8
N 2789856.6
ELEV. 4.74 FT (NAVD88)
NOTES:

1. COORDINATES ARE IN FEET BASED ON LOUISIANA STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NORTH AMERICAN DATUM OF 1983 (NAD83).
2. AERIAL PHOTOGRAPHY IS FROM THE 2010 NATIONAL AGRICULTURAL IMAGERY PROGRAM.
3. EASTINGS AND NORTHEINGS SHOWN ALONG DRAWING BOUNDARY FOR GRID REFERENCE.
4. NO DREDGING REQUIRED WITHIN ACCESS CHANNEL WHERE THE EXISTING BATHYMETRY IS LESS THAN -7.0 FEET NAVD88.
LEGEND:
- --- --- --- PIPELINE OBTAINED FROM DATABASE
- - - - PIPELINE FIELD VERIFIED

NOTES:
1. COORDINATES ARE IN FEET BASED ON LOUISIANA STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NORTH AMERICAN DATUM OF 1983 (NAD83).
2. AERIAL PHOTOGRAPHY IS FROM THE 2010 NATIONAL AGRICULTURAL IMAGERY PROGRAM.
3. EASTINGS AND NORTHTINGS SHOWN ALONG DRAWING BOUNDARY FOR GRID REFERENCE.
4. NO DREDGING REQUIRED WITHIN ACCESS CHANNEL WHERE THE EXISTING BATHYMETRY IS LESS THAN -7.0 FEET NAVD88.
NOTES:

1. COORDINATES ARE IN FEET BASED ON LOUISIANA STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NORTH AMERICAN DATUM OF 1983 (NAD83).
2. AERIAL PHOTOGRAPHY IS FROM THE 2010 NATIONAL AGRICULTURAL IMAGERY PROGRAM.
3. EASTINGS AND NORTHINGS SHOWN ALONG DRAWING BOUNDARY FOR GRID REFERENCE.
NOTES:

1. COORDINATES ARE IN FEET BASED ON LOUISIANA STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NORTH AMERICAN DATUM OF 1983 (NAD83).
2. AERIAL PHOTOGRAPHY IS FROM THE 2010 NATIONAL AGRICULTURAL IMAGERY PROGRAM.
3. EASTINGS AND NORTINGS SHOWN ALONG DRAWING BOUNDARY FOR GRID REFERENCE.
4. NO DREDGING REQUIRED WITHIN ACCESS CHANNEL WHERE THE EXISTING BATHYMETRY IS LESS THAN -7.0 FT NAVD88.

LANDWARD LIMIT OF FILL

GULF OF MEXICO

SPOIL AND REHANDELING
AREA

MARSH DEWATERING LOCATION

PRIMARY DIKE CREST

SHELL WEST PROJECT
BASELINE

SPOIL AREA

SUBMERGED PIPELINE CORRIDOR

SEAWARD LIMIT OF FILL

FILL SOURCE FOR PRIMARY DIKE

LIMIT OF MARSH FILL

SAND FENCE

SEAWARD DUNE CREST

BREAK IN SLOPE

CONSTRUCTION ACCESS CHANNEL (SEE NOTE 4)
NOTES:

1. COORDINATES ARE IN FEET BASED ON LOUISIANA STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NORTH AMERICAN DATUM OF 1983 (NAD83).

2. AERIAL PHOTOGRAPHY IS FROM THE 2010 NATIONAL AGRICULTURAL IMAGERY PROGRAM.

3. EASTINGS AND NORTHINGS SHOWN ALONG DRAWING BOUNDARY FOR GRID REFERENCE.

4. NO DREDGING REQUIRED WITHIN ACCESS CHANNEL WHERE THE EXISTING BATHYMETRY IS LESS THAN -7.0 FT NAVD88.

ACCESS CHANNEL
(SEE NOTE 4)

SUBMERGED PIPELINE CORRIDOR

GULF OF MEXICO
1. ELEVATIONS SHOWN HEREON ARE IN FEET BASED ON NAVD88.
GEOID 2008.
2. LAYOUT ALL FILL AREAS BY CROSS-SECTION ELEVATIONS AND RANGES.
3. POSITIVE RANGES ARE SOUTH OF BASELINE. NEGATIVE RANGES ARE NORTH OF BASELINE.

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C.O.A.: L-6403
C.O.A.: L-1230

APPLICATION BY:
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450 LAUREL STREET
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PH: (225) 342-1477
FAX: (225) 342-3803

DESIGNED BY: D. SWIGLER
APPROVED BY: G. THOMSON

SHELL ISLAND BARRIER ISLAND RESTORATION PROJECT
EAST PROJECT CONSTRUCTION PROFILE

STATE PROJECT NUMBER BA-110111
DATE: 2/1/12
SHEET 20 OF 61
NOTES:

1. ELEVATIONS SHOWN HEREON ARE IN FEET BASED ON NAVD88.
   GEOID 2003.

2. SPOIL AREAS SHALL BE MARKED AS REQUIRED BY U.S. COAST GUARD,
   AS LONG AS THE GRADE ELEVATION IS MORE THAN 0.5' ABOVE THE
   PRE-CONSTRUCTION GRADE.

LEGEND:
- **SPOIL AREA**
- **CONSTRUCTION ACCESS CHANNEL**

- EL. = +3.0' NAVD88
- EL. = -7.0' NAVD88
- 200'
- 150'
- 2' ALLOWABLE OVERDREDGE
- MHW = +1.50' NAVD88
- MLW = +0.55' NAVD88

VERTICAL SCALE IN FT HORIZONTAL SCALE IN FT

0 2.5 5
-0 100 200

STATE PROJECT NUMBER  BA-110111  DATE: 2/1/12
CONSTRUCTION ACCESS
CHANNEL TYPICAL SECTION A-A'

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

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RESTORATION AUTHORITY
450 LAUREL ST., SUITE 1220
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DRAWN BY:  G KRYSYNIAK
DESIGNED BY:  D SWIGLER
APPROVED BY:  G THOMSON

SHELL ISLAND
BARRIER ISLAND RESTORATION PROJECT

SHEET 29 OF 61
SUBMERGED PIPELINE CORRIDOR 485'  

MUD LINE ELEVATION VARIES FROM -7 TO -10 NAVD88

TYPICAL SECTION O-O'

30" PIPE

SEE SHEET 42 FOR LOCATIONS.

SUBMERGED PIPELINE CORRIDOR 489'

MUD LINE ELEVATION VARIES FROM -7 TO -10 NAVD88

TYPICAL SECTION P-P'

30" PIPE

0 2.5 5

VERTICAL GRAPHIC SCALE IN FEET

0 100 200

HORIZONTAL GRAPHIC SCALE IN FEET

APPLICATION BY:  
COASTAL PROTECTION AND RESTORATION AUTHORITY  
450 LAUREL STREET  
BATON ROUGE, LOUISIANA 70801  
PH: (225) 342-1477  
FAX: (225) 342-6801

DESIGNED BY:  
G KRYSYNIAK

APPROVED BY:  
G THOMSON

SHEET 33 OF 81
FENCE PLAN VIEW GAPPING DETAIL

NOT TO SCALE

3.75" O.C.

13 GAUGE STEEL
GALVANIZED WIRE STRANDS

4" WOOD SLATS
8"x1-1/2" (60% POROSITY)

EXISTING GRADE
(4' OF POST ABOVE
EXISTING GRADE)

8"x4"x4" SQUARE POSTS
OR 8"x4" ROUND POSTS

4' O.C.

FENCE ELEVATION DETAIL

NOT TO SCALE
SETTLEMENT PLATE DETAIL
NOT TO SCALE

NOTES:
1. SETTLEMENT PLATES SHALL BE BUILT USING ASTM A36 STEEL AND HOT-DIPPED GALVANIZED AFTER FABRICATION.
2. A 6" LONG HH/8 HOT-DIPPED GALVANIZED BOLT & WASHER SHALL BE INSTALLED 3' ABOVE PROPOSED GRADE.
1. ELEVATIONS SHOWN HEREON ARE IN FEET BASED ON NAVD88.
GEOID 2009.
2. LAYOUT ALL FILL AREAS BY CROSS-SECTION ELEVATIONS AND RANGES.
3. POSITIVE RANGES ARE SOUTH OF BASELINE. NEGATIVE RANGES ARE NORTH OF BASELINE.

STATION 10+57
MAY 2011
DESIGN
MHW = +1.60' NAVD88
MLW = +0.55' NAVD88

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

STATE PROJECT NUMBER: BA-110/111
DATE: 2/1/12

VEGETATIVE PLANTINGS

SHELL ISLAND BARRIER ISLAND RESTORATION PROJECT

COASTAL PLANNING & ENGINEERING, INC.
2411 N.W., BOCA RATON 33431
BOCA RATON, FLORIDA 33431
FAX: (561) 334-3176
E-MAIL: info@CoastalPlanning.net

APPLICATION BY:

DREW BY: H VOLLME
DESIGNED BY: D SWIGLER
APPROVED BY: G THOMSON

SHEET 36 OF 81
BORROW AREA MR-A  
TOTAL VOLUME = 5,324,000 C.Y.

LEGEND:
- ANCHOR BUOY LIMITS
- USACE REVETMENTS
- USACE BATHYMETRY
- BA COORDINATE ID
- BA BOUNDARY

NOTES:
1. COORDINATES ARE IN FEET BASED ON LOUISIANA STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NORTH AMERICAN DATUM OF 1983 (NAD83).
2. ELEVATIONS ARE IN FEET REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
5. EASTINGS AND NORTHTINGS SHOWN ALONG DRAWING BOUNDARY FOR GRID REFERENCE.

COASTAL PROTECTION & RESTORATION AUTHORITY
450 LAUREL STREET
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SHELL ISLAND BARRIER ISLAND RESTORATION PROJECT

BORROW AREA MR-A BATHYMETRY CONTOURS

STATE PROJECT NUMBER: BA-110/111
DATE: 02/01/12

DRAWN BY: KD  DESIGNED BY: ML  APPROVED BY: G. THOMSON  SHEET 37 OF 61
DREDGING NOTES:
1. THE CONTRACTOR WILL BE REQUIRED TO ANCHOR WITHIN THE DREDGE ANCHOR LIMITS SHOWN ON THE DRAWINGS. ANCHORING BEYOND THE DREDGE ANCHOR LIMITS SHOWN ON THE DRAWINGS IS NOT ALLOWED.
2. THE DREDGE ANCHOR LIMIT COORDINATES AND ALL DREDGE ANCHORS SHALL BE MARKED WITH BUOYS DURING DREDGING OPERATIONS.
3. THE CONTRACTOR WILL BE REQUIRED TO STAY WITHIN THE BORROW AREA LIMITS SHOWN ON THE DRAWINGS. DREDGING BEYOND THE BORROW AREA LIMITS SHOWN ON THE DRAWINGS IS NOT ALLOWED.
BORROW AREA MR-A CROSS SECTION C-C'

NOTES:

1. SEE SHEETS 37-38 FOR LOCATION OF CROSS SECTION LINE.
2. ELEVATIONS ARE IN FEET REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
3. CORES MAY NOT FALL DIRECTLY ON CROSS SECTION LINE, BUT ARE LOCATED SUFFICIENTLY CLOSE TO CONTAIN SIMILAR MATERIAL.
4. WIDTH OF LAYERS IS REPRESENTATIVE ONLY. ACTUAL MATERIAL MAY VARY.
5. MAXIMUM DEPTH OF EQUIPMENT (MDE) IS THREE FEET BELOW PERMITTED DEPTH.
BORROW AREA MR-A CROSS SECTION D-D'

NOTES:
1. SEE SHEETS 37-38 FOR LOCATION OF CROSS SECTION LINE.
2. ELEVATIONS ARE IN FEET REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
3. CORES MAY NOT FALL DIRECTLY ON CROSS SECTION LINE, BUT ARE LOCATED SUFFICIENTLY CLOSE TO CONTAIN SIMILAR MATERIAL.
4. WIDTH OF LAYERS IS REPRESENTATIVE ONLY. ACTUAL MATERIAL MAY VARY.
5. MAXIMUM DEPTH OF EQUIPMENT (MDE) IS THREE FEET BELOW PERMITTED DEPTH.

BORROW AREA MR-A CROSS SECTION D-D'

COASTAL PROTECTION & RESTORATION AUTHORITY
450 LAUREL STREET
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PH. (225) 342-1477
FAX. (225) 342-9801

STATE PROJECT NUMBER: BA-110/111
DATE: 02/01/12

SHEET 40 OF 61
BORROW AREA MR-A CROSS SECTION E-E'

NOTES:
1. SEE SHEETS 37-38 FOR LOCATION OF CROSS SECTION LINE.
2. ELEVATIONS ARE IN FEET REFERENCED TO THE NORTH
   AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
3. CORES MAY NOT FALL DIRECTLY ON CROSS SECTION LINE, BUT
   ARE LOCATED SUFFICIENTLY CLOSE TO CONTAIN SIMILAR MATERIAL.
4. WIDTH OF LAYERS IS REPRESENTATIVE ONLY. ACTUAL MATERIAL MAY VARY.
5. MAXIMUM DEPTH OF EQUIPMENT (MDE) IS THREE FEET BELOW PERMITTED DEPTH.

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

SHELL ISLAND BARRIER ISLAND RESTORATION PROJECT
STATE PROJECT NUMBER: BAI10/111

BORROW AREA MR-A CROSS SECTION E-E'

DATE: 02/01/12

DRAWN BY: KD  DESIGNED BY: ML  APPROVED BY: G. THOMSON

VERTICAL SCALE IN FT  HORIZONTAL SCALE IN FT
0  25  50  0  400  800
LEGEND:
- TAR 2010/11 MAGNETIC ANOMALIES
- TAR 2010/11 SONAR ANOMALIES
- TAR 2010/11 SIGNIFICANT BUFFERS
- PIPELINES
- BA BOUNDARY

NOTES:
1. COORDINATES ARE IN FEET BASED ON LOUISIANA STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NORTH AMERICAN DATUM OF 1983 (NAD83).
2. EASTINGS AND NORTHINGS SHOWN ALONG DRAWING BOUNDARY FOR GRID REFERENCE.
BORROW AREA 35E CROSS SECTION F-F'

NOTES:
1. SEE SHEET 43 FOR LOCATION OF CROSS SECTION LINE.
2. ELEVATIONS ARE IN FEET REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
3. CORES MAY NOT FALL DIRECTLY ON CROSS SECTION LINE, BUT ARE LOCATED SUFFICIENTLY CLOSE TO CONTAIN SIMILAR MATERIAL.
4. WIDTH OF LAYERS IS REPRESENTATIVE ONLY. ACTUAL MATERIAL MAY VARY.
5. MAXIMUM DEPTH OF EQUIPMENT (MDE) IS THREE FEET BELOW PERMITTED DEPTH.
BORROW AREA 35E CROSS SECTION G-G'

NOTES:
1. SEE SHEET 43 FOR LOCATION OF CROSS SECTION LINE.
2. ELEVATIONS ARE IN FEET REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
3. CORES MAY NOT FALL DIRECTLY ON CROSS SECTION LINE, BUT ARE LOCATED SUFFICIENTLY CLOSE TO CONTAIN SIMILAR MATERIAL.
4. WIDTH OF LAYERS IS REPRESENTATIVE ONLY. ACTUAL MATERIAL MAY VARY.
5. MAXIMUM DEPTH OF EQUIPMENT (MDE) IS THREE FEET BELOW PERMITTED DEPTH.
BORROW AREA 9 CROSS SECTION H-H'

NOTES:
1. SEE SHEETS 46-47 FOR LOCATION OF CROSS SECTION LINE.
2. ELEVATIONS ARE IN FEET REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
3. CORES MAY NOT FALL DIRECTLY ON CROSS SECTION LINE, BUT ARE LOCATED SUFFICIENTLY CLOSE TO CONTAIN SIMILAR MATERIAL.
4. WIDTH OF LAYERS IS REPRESENTATIVE ONLY. ACTUAL MATERIAL MAY VARY.
5. MAXIMUM DEPTH OF EQUIPMENT (MDE) IS THREE FEET BELOW PERMITTED DEPTH.
BORROW AREA 9 CROSS SECTION I-I'

NOTES:
1. SEE SHEETS 46-47 FOR LOCATION OF CROSS SECTION LINE.
2. ELEVATIONS ARE IN FEET REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
3. CORES MAY NOT FALL DIRECTLY ON CROSS SECTION LINE, BUT ARE LOCATED SUFFICIENTLY CLOSE TO CONTAIN SIMILAR MATERIAL.
4. WIDTH OF LAYERS IS REPRESENTATIVE ONLY. ACTUAL MATERIAL MAY VARY.
5. MAXIMUM DEPTH OF EQUIPMENT (MDE) IS THREE FEET BELOW PERMITTED DEPTH.
DREDGING NOTES:
1. THE CONTRACTOR WILL BE REQUIRED TO ANCHOR WITHIN THE DREDGE ANCHOR LIMITS SHOWN ON THE DRAWINGS. ANCHORING BEYOND THE DREDGE ANCHOR LIMITS SHOWN ON THE DRAWINGS IS NOT ALLOWED.
2. THE DREDGE ANCHOR LIMIT COORDINATES AND ALL DREDGE ANCHORS SHALL BE MARKED WITH Buoys DURING DREDGING OPERATIONS.
3. THE CONTRACTOR WILL BE REQUIRED TO STAY WITHIN THE BORROW AREA LIMITS SHOWN ON THE DRAWINGS. DREDGING BEYOND THE BORROW AREA LIMITS SHOWN ON THE DRAWINGS IS NOT ALLOWED.

NOTES:
1. COORDINATES ARE IN FEET BASED ON LOUISIANA STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NORTH AMERICAN DATUM OF 1983 (NAD83).
2. ELEVATIONS ARE IN FEET REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
5. EASTINGS AND NORTHINGS SHOWN ALONG DRAWING BOUNDARY FOR GRID REFERENCE.

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COASTAL PROTECTION & RESTORATION AUTHORITY
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SHELL ISLAND BARRIER ISLAND RESTORATION PROJECT

BORROW AREA MR-B BATHYMETRY CONTOURS

STATE PROJECT NUMBER: BA-110/111
DATE: 02/01/12

DRAWN BY: KD DESIGNED BY: ML APPROVED BY: G. THOMSON
SHEET 50 OF 61
BORROW AREA MR-B
TOTAL VOLUME = 3,961,000 C.Y.

BATHYMETRY BOUNDARY:
CPE BATHY INSIDE BOUNDARY
USACE BATHY OUTSIDE BOUNDARY

MISSISSIPPI RIVER TOE OF LEVEE
USACE OUTER BATHYMETRY

DREDGING NOTES:
1. THE CONTRACTOR WILL BE REQUIRED TO ANCHOR WITHIN
   THE DREDGE ANCHOR LIMITS SHOWN ON THE DRAWINGS.
   ANCHORING BEYOND THE DREDGE ANCHOR LIMITS SHOWN
   ON THE DRAWINGS IS NOT ALLOWED.
2. THE DREDGE ANCHOR LIMIT COORDINATES AND ALL
   DREDGE ANCHORS SHALL BE MARKED WITH BUOYS DURING
   DREDGING OPERATIONS.
3. THE CONTRACTOR WILL BE REQUIRED TO STAY WITHIN THE
   BORROW AREA LIMITS SHOWN ON THE DRAWINGS.
   DREDGING BEYOND THE BORROW AREA LIMITS SHOWN ON
   THE DRAWINGS IS NOT ALLOWED.
4. THE CONTRACTOR WILL BE REQUIRED TO SUBMIT A DAILY
   COMMUNICATION PLAN TO THE OWNER, THE USACE
   OPERATIONS DIVISION, AND MNSA Delineating the
   LOCATION OF THE DREDGE, ATTENDANT PLANT, ANCHOR
   BUOYS, AND FLOATING PIPELINE AS PER THE OWNER
   SPECIFICATIONS.

NOTES:
1. COORDINATES ARE IN FEET BASED ON
   LOUISIANA STATE PLANE COORDINATE
   SYSTEM, SOUTH ZONE, NORTH AMERICAN
   DATUM OF 1983 (NAD83).
2. ELEVATIONS ARE IN FEET REFERENCED TO
   THE NORTH AMERICAN VERTICAL
   DATUM OF 1988 (NAVD88).
3. DATE OF CPE BATHYMETRIC SURVEY:
4. DATE OF USACE BATHYMETRIC SURVEY:
   2004.
5. EASTINGS AND NORTHINGS SHOWN
   ALONG DRAWING BOUNDARY FOR GRID
   REFERENCE.

COASTAL PROTECTION & RESTORATION
AUTHORITY
455 LAUREL STREET
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BORROW AREA MR-B
VIBRACORES AND ANOMALIES

DRAWN BY: KD
DESIGNED BY: ML
APPROVED BY: G. THOMSON

STATE PROJECT NUMBER: BA-110/111
DATE: 02/01/12
SHEET 51 OF 61
DREDGING NOTES:
1. THE CONTRACTOR WILL BE REQUIRED TO ANCHOR WITHIN THE DREDGE ANCHOR LIMITS SHOWN ON THE DRAWINGS. ANCHORING BEYOND THE DREDGE ANCHOR LIMITS SHOWN ON THE DRAWINGS IS NOT ALLOWED.
2. THE DREDGE ANCHOR LIMIT COORDINATES AND ALL DREDGE ANCHORS SHALL BE MARKED WITH BUOYS DURING DREDGING OPERATIONS.
3. THE CONTRACTOR WILL BE REQUIRED TO STAY WITHIN THE BORROW AREA LIMITS SHOWN ON THE DRAWINGS. DREDGING BEYOND THE BORROW AREA LIMITS SHOWN ON THE DRAWINGS IS NOT ALLOWED.

NOTES:
1. COORDINATES ARE IN FEET BASED ON LOUISIANA STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NORTH AMERICAN DATUM OF 1983 (NAD83).
2. ELEVATIONS ARE IN FEET REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
5. EASTINGS AND NORTHINGS SHOWN ALONG DRAWING BOUNDARY FOR GRID REFERENCE.

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SHELL ISLAND BARRIER ISLAND RESTORATION PROJECT

BORROW AREA MR-B VIBRACORES AND ANOMALIES

STATE PROJECT NUMBER: BA-110/111
DATE: 02/01/12

DRAWN BY: KD
DESIGNED BY: ML
APPROVED BY: G. THOMSON

SHEET 52 OF 61
BORROW AREA MR-B CROSS SECTION J-J' (1 OF 2)

NOTES:
1. SEE SHEETS 50-52 FOR LOCATION OF CROSS SECTION LINE.
2. ELEVATIONS ARE IN FEET REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
3. CORES MAY NOT FALL DIRECTLY ON CROSS SECTION LINE, BUT ARE LOCATED SUFFICIENTLY CLOSE TO CONTAIN SIMILAR MATERIAL.
4. WIDTH OF LAYERS IS REPRESENTATIVE ONLY. ACTUAL MATERIAL MAY VARY.
5. MAXIMUM DEPTH OF EQUIPMENT (MDE) IS THREE FEET BELOW PERMITTED DEPTH.
BORROW AREA MR-B CROSS SECTION J-J' (2 OF 2)

NOTES:

1. SEE SHEETS 50-52 FOR LOCATION OF CROSS SECTION LINE.
2. ELEVATIONS ARE IN FEET REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
3. CORES MAY NOT FALL DIRECTLY ON CROSS SECTION LINE, BUT ARE LOCATED SUFFICIENTLY CLOSE TO CONTAIN SIMILAR MATERIAL.
4. WIDTH OF LAYERS IS REPRESENTATIVE ONLY. ACTUAL MATERIAL MAY VARY.
5. MAXIMUM DEPTH OF EQUIPMENT (MDE) IS THREE FEET BELOW PERMITTED DEPTH.
BORROW AREA MR-B CROSS SECTION K-K'

NOTES:
1. SEE SHEETS 50-52 FOR LOCATION OF CROSS SECTION LINE.
2. ELEVATIONS ARE IN FEET REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
3. CORES MAY NOT FALL DIRECTLY ON CROSS SECTION LINE, BUT ARE LOCATED SUFFICIENTLY CLOSE TO CONTAIN SIMILAR MATERIAL.
4. WIDTH OF LAYERS IS REPRESENTATIVE ONLY. ACTUAL MATERIAL MAY VARY.
5. MAXIMUM DEPTH OF EQUIPMENT (MDE) IS THREE FEET BELOW PERMITTED DEPTH.
BORROW AREA MR-B CROSS SECTION L-L'

NOTES:
1. SEE SHEETS 50-52 FOR LOCATION OF CROSS SECTION LINE.
2. ELEVATIONS ARE IN FEET REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
3. CORES MAY NOT FALL DIRECTLY ON CROSS SECTION LINE, BUT ARE LOCATED SUFFICIENTLY CLOSE TO CONTAIN SIMILAR MATERIAL.
4. WIDTH OF LAYERS IS REPRESENTATIVE ONLY. ACTUAL MATERIAL MAY VARY.
5. MAXIMUM DEPTH OF EQUIPMENT (MDE) IS THREE FEET BELOW PERMITTED DEPTH.
BORROW AREA MR-E CROSS SECTION M-M'

NOTES:
1. SEE SHEETS 57-58 FOR LOCATION OF CROSS SECTION LINE.
2. ELEVATIONS ARE IN FEET REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
3. CORES MAY NOT FALL DIRECTLY ON CROSS SECTION LINE, BUT ARE LOCATED SUFFICIENTLY CLOSE TO CONTAIN SIMILAR MATERIAL.
4. WIDTH OF LAYERS IS REPRESENTATIVE ONLY. ACTUAL MATERIAL MAY VARY.
5. MAXIMUM DEPTH OF EQUIPMENT (MDE) IS THREE FEET BELOW PERMITTED DEPTH.
BORROW AREA MR-E CROSS SECTION N-N'

NOTES:
1. SEE SHEETS 57-58 FOR LOCATION OF CROSS SECTION LINE.
2. ELEVATIONS ARE IN FEET REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
3. CORES MAY NOT FALL DIRECTLY ON CROSS SECTION LINE, BUT ARE LOCATED SUFFICIENTLY CLOSE TOContain SIMILAR MATERIAL.
4. WIDTH OF LAYERS IS REPRESENTATIVE ONLY. ACTUAL MATERIAL MAY VARY.
5. MAXIMUM DEPTH OF EQUIPMENT (MDE) IS THREE FEET BELOW PERMITTED DEPTH.
Shell Island Project Information

Shell Island East
- Beach/Dune Excavation Volume = 6.3 M cy
- Beach/Dune Fill Volume = 4.2 M cy
- Beach/Dune Area = 415 acres
- Marsh Excavation Volume = 1.8 M cy
- Marsh Fill Volume = 1.0 M cy
- Marsh Area = 175 acres

Shell Island West
- Beach/Dune Excavation Volume = 3.3 M cy
- Beach/Dune Fill Volume = 2.2 M cy
- Beach/Dune Area = 200 acres
- Marsh Excavation Volume = 1.5 M cy
- Marsh Fill Volume = 0.8 M cy
- Marsh Area = 135 acres

Shell Island Restoration Project Total Excavation Volumes
- Beach/Dune Excavation Volume = 9.6 M cy
- Marsh Excavation Volume = 3.3 M cy
- Access Channel Excavation Volume = 467,900 cy
- Primary Dike Excavation = 865,000 cy
- Pipeline Conveyance Corridor Excavation = 21,400 cy

Total Excavation Volumes = 14.3 M cy

Shell Island Restoration Project Total Fill Volumes
- Beach/Dune Fill Volume = 6.4 M cy
- Marsh Fill Volume = 1.8 M cy
- Primary Dike Fill Volume = 289,000 cy
- Temporary Spoil and Rehandling Volume = 639,000 cy
- Temporary Fill for Pipeline Conveyance Corridor = 250 cy

Total Fill Volumes = 9.1 M cy

Shell Island Restoration Project Total Areas
- Beach/Dune Total Area = 615 acres
- Marsh Total Area = 343 acres

Shell Island Restoration Project Delineated Borrow Areas
- Total Delineated Beach/Dune Borrow Area Volume = 16.6 M cy
  (includes MR-A, MR-B, MR-E, and Area 9)
- Total Delineated Marsh Borrow Area Volume = 15.1 M cy
  (includes 35-E)
Shell Island Project Information

The volume that will be excavated for beach/dune fill will be approximately 9.6 million cubic yards, with 6.4 millions to be placed within the beach/dune fill templates. The total excavation for the marsh material is approximately 3.3 million cubic yards, and the total to be placed within the marsh fill template is approximately 1.8 million cubic yards. The difference in excavation volume and fill volume is an estimate of losses that occur during the hydraulic dredging process and conveyance of material in a slurry pipeline. The total excavation volume includes the volumes to be excavated for beach/dune and marsh fill, as well as the excavations for primary dike construction, access channels, and the pipeline conveyance corridor from Mississippi River to the project area.

The volumes that will be excavated for the marsh fill will be excavated from the one (1) borrow area delineated for marsh fill material, Borrow Area 35-E. The total delineated volume for the marsh fill is based on the volume that is within the area that was previously delineated and used as a rehandling site during the Emergency Barrier Berm construction. The beach/dune fill will be excavated from one (1) or a combination of multiple borrow areas. The beach/dune borrow areas are delineated as MR-A, MR-B, and MR-E located within the Mississippi River, and Area 9 located offshore of the project fill area. The delineation of a borrow area defines the borrow area boundaries determined to avoid pipelines and cultural resources or other debris and to include the best quality material for the type of fill needed. The delineated borrow area volumes exceed the total amount to be excavated to allow construction method options for the contractor, which will in turn allow the state a more competitive bid process and more economical bid to be received, as well as to allow the contractor to avoid areas with inconsistent material for the specified type of fill, and allow avoidance of any anomalies that may be encountered. The total fill volume includes beach/dune, marsh, temporary spoil and rehandling, and primary dike volumes.

The area to be excavated to construct the primary dike will be filled with marsh fill material during the project construction. Therefore any existing marsh that may be impacted due to construction of the primary dike will be replaced with new marsh fill before construction is complete. The areas of the spoil and rehandling from access dredging will temporarily impact approximately 1 acre of existing wetlands, but this material will be placed at +3.0 feet NAVD or be graded to an elevation of +3.0 feet NAVD88 at the end of construction. It has been determined that this elevation is conducive to wetland establishment.
Coastal Protection and Restoration Authority  
450 Laurel Street, Suite 1200  
Baton Rouge, LA 70801  

Attention: Chad Chauvin  

RE: Water Quality Certification (WQC 120410-01/Al 181424/CER 20120001)  
Corps of Engineers Permit (MVN-2011-2935-EFF)  
Coastal Management Permit (P20120216)  
Plaquemines Parish  

Dear Mr. Chauvin:  

The Louisiana Department of Environmental Quality (the Department) has reviewed your application to dredge waterbottoms and place spoil material for the restoration of barrier islands (Shell Island East and West), approximately 8.5 miles south of Empire, Louisiana.  

Based on the information provided in the application, the Department made a determination that the requirements for a Water Quality Certification have been met and concludes that the placement of the fill material will not violate water quality standards of Louisiana as provided for in LAC 33:IX.Chapter 11. Therefore, the Department hereby issues a Water Quality Certification to Coastal Protection and Restoration Authority.  

If you have any questions, please call Jamie Phillippe at 225-219-3225.  

Sincerely,  

Melvin C. Mitchell, Sr.  
Administrator  
Water Permits Division  
MCM/jjp  

Cc: Corps of Engineers- New Orleans District  
Coastal Management Division
LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES

FILL MATERIAL LICENSE

LICENSE NO. WLF201331

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: Louisiana Coastal Protection & Restoration Authority
P.O. Box 44027, Capitol Station
Baton Rouge, LA 70804

License Site Location: (1) Mississippi River; Lat. 29° 23' 40.7"; Long. 89° 35' 37.8"; Plaquemines Parish
(2) Gulf of Mexico; Lat. 29.205742°; Long. 89.649384°; Plaquemines Parish

Project Description: approximately 16,276,000 cubic yards of fill material and/or fill sand will be dredged from the Mississippi River to re-establish and maintain the functional barrier island ecosystem at Shell Island. Marsh fill will be dredged from the Gulf of Mexico.

The rights and privileges shall begin on the 22nd day of February 2013 and expires on the 31st day of December 2013 or until you reach the amount applied for.

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
General Decision Number: LA100015 03/12/2010  LA15

Superseded General Decision Number: LA20080015

State: Louisiana

Construction Type: Heavy Dredging

Counties: Louisiana Statewide.

**DREDGING PROJECTS ALONG THE GULF COAST AREA INCLUDING THE MISSISSIPPI RIVER AND ITS TRIBUTARIES TO THE OHIO RIVER**

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* SULA1994-001 04/01/1994

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<tr>
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<tr>
<td>Dozer Operator</td>
<td>$ 7.25</td>
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</tbody>
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**Dredge 16" and Over**

- Deckhand.............. $ 7.25
- Dredge tender operator..... $ 7.25
- Fireman.............. $ 7.25
- First assistant engineer... $ 7.25
- Leverman.............. $ 7.25
- Oiler.............. $ 7.25
- Second assistant engineer.. $ 7.25
- Shoreman.............. $ 7.25
- Third assistant engineer.... $ 7.25
- Truck driver.............. $ 7.25
- Welder.............. $ 7.25

**Dredge Under 16"**

- Deckhand.............. $ 7.25
- Dredge tender operator..... $ 7.25
- Leverman.............. $ 7.25
- Oiler.............. $ 7.25
- Welder.............. $ 7.25

**Hydraulic Dredging**
First cook ......................... $ 7.25
Handyman ....................... $ 7.25
Janitor, cabin person...... $ 7.25
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
Field Adjustment Report

Contractor: 
Date: 

Shell Island West NRDA Restoration Project (BA-111)

Specification and/or Drawing Number:  Reference (Shop Drawing):

Description of Work Affected:

Reason for Adjustment:

** THIS FIELD ADJUSTMENT SHALL NOT RESULT IN A CHANGE IN CONTRACT PRICE OR THE TIME FOR COMPLETION **

Recommended By:  

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<td><strong>CONTRACTOR</strong> Agreement:</td>
<td><strong>CPRA</strong> Agreement:</td>
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<td>Signature</td>
<td>Date</td>
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<tr>
<td>CPRA Engineer</td>
<td>Signature/Title/Date:</td>
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<tr>
<td>Contractor</td>
<td>Signature/Title/Date:</td>
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<td>Request for Interpretation</td>
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<td>Signature</td>
<td>Date</td>
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<tr>
<td>CPRA Contractor</td>
<td>Signature</td>
<td>Date</td>
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</table>
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.

**Tract 1:**

The Louisiana Land and Exploration Company LLC  
Conoco Phillips  
Attention: Jeff DeBlieux  
806 Bayou Black Drive  
Houma, LA 70361

**Tract 2:**

Kevin C. Schoenberger  
1740 Bordeaux St.  
New Orleans, LA 70115  
504-525-1143

Clifford Philip Bein  
957 Rue Chinon  
Mandeville, LA 70471

Christian Schoenberger Bein  
517 Rio Vista Avenue  
Jefferson, LA 70121

Martin J. Schoenberger  
1812 Palmer Avenue  
New Orleans, LA 70118

Mary Ellen Schoenberger Willkomm  
1370 Curlew Avenue  
Naples, FL 34102

Leander H. Perez, III  
11422 Hwy 23  
Belle Chasse, LA 70037  
(504) 214-4003 (mobile)  
(504) 656-2323 (home)

Paula A. Perez Landrem  
401 Bellaire Dr.  
New Orleans, LA 70124  
(504) 309-3836 (home)  
(504) 453-8352 (cell)

Margaret Perez Barton  
452 Cornell Ave.  
Baton Rouge, LA 70808  
(225) 766-6713 (home)
Catherine Perez Alford  
1320 Octavia St.  
New Orleans, LA 70115  
(504) 899-1007 (home)

Estate of Chalin O. Perez  
Attention: Chalyn David Perez  
4881 Hwy 39  
Braithwaite, LA 70040-2121  
(504) 682-2467

Chalin O. Perez, Jr.  
39 Papworth Ave.  
Metairie, LA 70005  
(504) 451-7035 (home)

Natalie Riley  
101 S. Jefferson Ave.  
Cookeville, TN 38501

Gladys Cook Zibilich  
11180 Irving Dr. Apt 205  
Westchester, CO 80031

George Zibilich, Jr.  
1930 Henderson St.  
Eureka, CA 95501  
707-616-8877

Debbie Zibilich Yakash  
14571 Williams St.  
Brighton, CO 80602  
303-465-0360 home  
303-641-8875 cell

Gloria J. Zibilich  
776 Woodland Bigler Hwy  
Woodland, PA 16881  
814-857-5244 home  
814-558-6322 cell

Leo H. Zibilich  
Nottingham Regional Nursing Home  
2828 Westfork Dr.  
Baton Rouge, LA 70816

Frederick Andrew Kron  
3833 Riverwood Dr.  
Provo, Utah 84604  
801-372-2110 cell  
801-607-2600 home
Ellen Kron
7817 South Claiborne Ave
New Orleans, LA 70125
850-261-3577

Judy Kron
6551 South Claiborne Ave. Unit 648
New Orleans, LA 70125
302-545-2578

Susan Kron
1049 Rockledge Dr. Unit 405B
Rockledge, FL 32955
321-848-0551

Dawn Muldrey Taliancich
71 Oaklawn Dr.
Metairie, LA 70005
504-888-5189 home
504-256-0969 cell

Barrie John Muldrey
4608 Page Dr.
Metairie, LA 70778
504-432-0678

Margaret M. Muldrey Kane
1935 Audubon Street
New Orleans, LA 70118
504-455-4954 home
504-237-4954 cell

Kathleen Ellen Muldrey Hannigan
3706 Upperline St.
New Orleans, LA 70125
504-821-0375 home
504-782-1436 cell

Patricia Ann Muldrey Poynot
16161 Tiger Bend Rd. Apt 17
Baton Rouge, LA 70817
225-756-6635 home
985-237-5977

Kenneth Deamore
2417 W. Pearl Dr.
Marrero, LA 70072
504-340-9889
504-566-5271
Tract 3:

United States of America - Bureau of Land Management
Attention: Victoria Craft
411 Briarwood Dr. Suite 404
Jackson, MS 39206
601-977-5435
VCraft@BLM.GOV

Tract 4:

St. Paul’s Episcopal Church
Attention: Robert Courtney
6249 Canal Blvd.
New Orleans, LA 70124

Tract 5:

Cecile Airey Dinkens Ellis
4 Greenbriar Dr.
Covington, LA 70433
985-893-5455

Joyce Ludwig Ellis Spruill
215 Iona St.
Metairie, LA 70005
504-833-4048

John Matson Ellis, Jr.
36 Dennis Rd.
Longmeadow, MA 01106
413-567-8643

Sidney Elder Ellis Reavy
36 Dennis Rd.
Longmeadow, MA 01106
413-567-8643

Catherine Moore Ellis
36 Dennis Rd.
Longmeadow, MA 01106
413-567-8643

Tract 6:

Plaquemines Parish Government
Attention: Vincent Frelich
8056 Hwy. 23, Ste. 200
Belle Chasse, LA 70037
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<th>Public Imp. Clause</th>
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<td>Darren Dufion (m) 337.266.4673</td>
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<td>(O) (512) 610.5100</td>
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<td>Please send Correspondence to:</td>
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<td>Jo Beth Taylor</td>
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<td>(O) (281) 872-3100 Please send correspondence to: ATTN: Jo Beth Taylor 512 Puju Street Lake Charles, LA 70605</td>
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<td>N/A</td>
<td>Tim Van Ackeren – Executive Vice President</td>
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<td>(O) (512) 610-5100</td>
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<td>P-8</td>
<td>Tennessee Gas Pipeline (El Paso Pipeline Company)</td>
<td>20&quot;</td>
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<td>Minimum 10&quot;</td>
<td>Active</td>
<td>Pat Adams</td>
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<td></td>
<td>(PH) (985) 223-6139 224 Aviation Road, Houma, LA 70363 This line is running east to west</td>
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</tbody>
</table>
February 27, 2015

Memorandum

To: Chris Allen, CPRA Project Manager
From: Ben Barnes, CPRA Land Division
RE: Landrights Completion Memorandum
Shell Island West Barrier Island Restoration Project BA-111
Plaquemines Parish, Louisiana

The CPRA Land Division has completed the necessary landrights to proceed to construction contracting on the above-referenced project. The below information is being provided to you.

X Servitude Agreement(s)
_____ Servitude Amendment (Integrated Coastal Protection)
X Pipeline Notices of Construction
_____ Oil/Gas Operator Agreement(s)
X Memorandum(s) of Agreements
_____ CWPPRA Section 303(e) approval
X Right(s) of Entry for Construction

X Mineral Operations Agreement(s)
_____ Grant of Particular Use
_____ State Land Office Letter of No Objection
_____ Assignment of Rights to Federal Sponsor
_____ Landrights Certification Letter
_____ Other: Corp of Engineers Consent
_____ Other:

[Signature]
Ben Barnes, CPRA Land Division

cc: Jacques Boudreaux
**VICINITY MAP**  
Scale: 1" = 2000’

**Station Name:** "BA-40 SM01"

**Location:** In Plaquemines parish, from the bridge crossing Doullut canal on La. Hwy 23 in Empire proceed south on La. Hwy 23 approximately 4.5 miles to the station on the left. The station is located in the north east quadrant of the intersection of La. Hwy 23 and Cazeville Drive. The mark is 160.5 feet north of a large flag pole, 73.3 feet east of a carsonite witness post and 96.7 feet north of the north edge of Cazeville drive.

**Monument Description:** NGS style floating sleeve monument; datum point set on 9/16” stainless steel sectional rods driven 92 feet to refusal, set in sand filled 6” PVC pipe with access cover set in concrete, flush with ground.

**Stamping:** BA-40 SM01  
**Installation Date:** JUNE 07  
**Date of Survey:**

**Established By:** SJB GROUP  
**For:** Louisiana Department of Natural Resources, CED

**Adjusted NAD 83 Geodetic Position**  
Lat. 29°21’20.02525’’ N  
Long. 89°32’02.21589’’ W

**Adjusted NAD 83 Datum LSZ (1702) Feet**  
N = 315642.604  
E = 3854052.363

**Adjusted NAVD88 Height**  
Elevation = -1.656 feet (-0.566 mtrs)  
Geoid03 Height = -24.134 mtrs.  
Ellipsoid Height = -24.699 mtrs.

*Adjusted Position Established for Louisiana Department of Natural Resources, Coastal Engineering Division*
Station Name: "BA-40 SM02"

Location: The station is located in Plaquemines parish. To reach the mark from Joshua’s marina proceed south west 2.9 miles to a small island and the mark is located in center of the island.

Monument Description: NGS style floating sleeve monument; datum point set on 9/16" stainless steel sectional rods driven 92 feet to refusal, set in sand filled 6" PVC pipe with access cover set in concrete, 1 foot above ground level.

Stamping: BA-40 SM02

Installation Date: JUNE 07  Date of Survey:

Monument Established By: SJG GROUP

For: Louisiana Department of Natural Resources, CED

Adjusted NAD 83 Geodetic Position
Lat. 29°19'07.36642" N
Long. 89°34'12.43669" W

Adjusted NAD 83 Datum LSZ (1702) Feet
N = 302064.704
E = 3842736.232

Adjusted NAVD88 Height
Elevation = 2.02 feet (0.616 mtrs)

Geoid03 Height = -24.044 mtrs.
Ellipsoid Height = -23.428 mtrs.
Station Name: "BA-40 SM03"

Location: The station is located in Plaquemines parish. To reach the mark from Joshua’s marina proceed south-west 7.5 miles to the mark set on the west side of Scofield island, east of Scofield bayou.

Monument Description: NGS style floating sleeve monument; datum point set on 9/16” stainless steel sectional rods driven 92 feet to refusal, set in sand filled 6” PVC pipe with access cover set in concrete, 1 foot above ground level.

Stamping: BA-40 SM03

Installation Date: JUNE 07  Date of Survey:

Monument Established By: SJB GROUP

For: Louisiana Department of Natural Resources, CED

Adjusted NAD 83 Geodetic Position
Lat.  29°14’55.92325” N
Long.  89°33’49.99311” W

Adjusted NAD 83 Datum LSZ (1702) Feet
N=  276699.079
E=  3845115.032

Adjusted NAVD88 Height
Elevation = 3.63 feet (1.107 mtrs)
Geoid03 Height = -23.894 mtrs.
Ellipsoid Height = -22.786 mtrs.
Station Name:  "BA-SCOFIELD 2"

Location:  The Station is located by boat approximately 9 miles due south of Empire, Louisiana, on the south spoil bank of a pipeline canal on Pelican Island in Section 35, T21S-R28E, Plaquemines Parish, Louisiana. It is located approximately 17 feet south of the waters edge of the Canal and is 15 feet south from an orange carbonite witness post.

Monument Description:  The station is a stainless steel spherical datum point attached to a 9/16" stainless steel rod driven 88 feet to refusal set within a floating sleeve and 6" PVC pipe filled with sand set in concrete with an access cover.

Stamping:  SCOFIELD 2

Installation Date:  2007  Date of Survey:  August 2007

Monument Established By:  JCLS

For:  JCLS

Adjusted NAD83 Geodetic Position (NSRS2007)

Lat.  29°15'20.49271" N
Long.  089°36'14.24687" W

Adjusted NAD83 Datum LSZ (1702) Fi (NSRS2007)

N =  278,985.57
E =  3,832,999.78

Adjusted NAVD88 Height (2006.81)

Elevation = 4.53 feet (1.382 mtrs)

Ellipsoid Height = -22.523 mtrs.

Geoid03 Height = -23.505 mtrs. (2004.65)
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 XVI  USACE LIMITS OF PERMISSIBLE EXCAVATION IN RIVER
APPENDIX XVII  2012 CONVEYANCE CORRIDOR SURVEYS

PROVIDED ELECTRONICALLY at the following link:
ftp://ftp.coastal.la.gov/BA-111/Appendices/
APPENDIX XVIII 2008 CONVEYANCE CORRIDOR UPLAND SEGMENT SURVEY

PROVIDED ELECTRONICALLY at the following link:
ftp://ftp.coastal.la.gov/BA-111/Appendices/
PROPOSED RIVERINE SAND MINING AND SCOFIELD ISLAND RESTORATION

LOCATION:

DESCRIPTION:
Proposed riverine sand mining and Scofield Island restoration to be carried out as part of OCPR Project No. BA-40. Both MR-B-09 and MR-E-09 have been identified as sources for sand material. MR-B-09 measures 14,700’ long with widths between 360’ and 800’ with a depth of 24’, MR-E-09 measures 9,500’ long by 1,100’ wide with a depth of 25’. An additional offshore borrow area will measure 2,800’ x 1900’ with an average depth of 21’. A temporary 30” sediment diversion pipeline will be installed to convey dredged material to Scofield Island. Articulated concrete mats will be used for bankline stabilization at the Empire Harbor Canal crossing. Two permanent pipe casings will be directionally drilled under roadways and capped upon completion of work. Approximately 3,961 cubic yards of hauled-in soil and 231 cubic yards of gravel will be required for two levee crossings. A 19,825’ x 100’ floatation channel will be created at Scofield Island. Approximately 13.4 million cubic yards of material will be excavated. After dewatering, approximately 6.5 million cubic yards of material will be used as fill for marsh and dune creation and sediment pipeline installment. No additional dredge or fill is required.

In accordance with the rules and regulations of the Louisiana Coastal Resources Program and Louisiana R.S. 49, Sections 214.21 to 214.41, the State and Local Coastal Resources Management Act of 1978, as amended, the permittee agrees to:

1. Carry out, perform, and/or operate the use in accordance with the permit conditions, plans and specifications approved by the Department of Natural Resources.
2. Comply with any permit conditions imposed by the Department of Natural Resources.
3. Adjust, alter or remove any structure or other physical evidence of the permitted use if, in the opinion of the Department of Natural Resources, it proves to be beyond the scope of the use as approved or is abandoned.
4. Provide, if required by the Department of Natural Resources, an acceptable surety bond in an appropriate amount to ensure adjustment, alteration, or removal should the Department of Natural Resources determine it necessary.
5. Hold and save the State of Louisiana, the local government, the department, and their officers and employees harmless from any damage to persons or property which might result from the use, including the work, activity, or structure permitted.
6. Certify that the use has been completed in an acceptable and satisfactory manner and in accordance with the plans and specifications approved by the Department of Natural Resources. The Department of Natural Resources may, when appropriate, require such certification to be given by a registered professional engineer.
7. All terms of the permit shall be subject to all applicable federal and state laws and regulations.
8. This permit, or a copy thereof, shall be available for inspection at the site of work at all times during operations.
9. The applicant will notify the Office of Coastal Management of the date on which initiation of the permitted activity described under the "Coastal Use Description" began. The applicant shall notify the Office of Coastal Management by 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:

[Further text regarding special conditions is not visible in the image.]
a. Permittee shall, prior to commencement of the herein permitted activities, contact Allison Richard (phone: 225-342-1293, email: allison.richard@la.gov) to determine if a construction permit will be required from the local levee district.

b. The water bottom shall not be disturbed during access to the proposed work location, or by the authorized activities whether it be by dredging, wheel washing, propwashing, jetting, mucking, plowing, bull dozing or any other means of moving bottom material, except as depicted on the plats. Powered vessels shall be operated so as not to disturb the water bottom by propeller or jet action.

c. All logs, stumps and other debris unearthed during dredging shall be removed to an approved disposal site on land.

d. 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.

e. Permittee shall obtain a Water Quality Certification, should one be required, from the LA Department of Environmental Quality prior to initiation of any construction activities.

f. The area where the project is located is all part of the aboriginal homelands of the Chitimacha Tribe of Louisiana. As such, large villages, burial sites, and sacred sites were in place in that entire area. If at any time during the course of the work, any traditional cultural properties are discovered, Permittee shall immediately contact Kimberly S. Walden (Cultural Director) or Melanie Aymond (Research Coordinator) at (337) 923-9923 or (337) 923-4395. Office hours are Monday through Thursday from 7:30 A.M. - 5:00 P.M. and on Friday between 7:30 A.M. - 11:30 A.M. If traditional cultural properties are discovered on the weekend or after business hours, the notification shall be made the next business morning.

g. 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.

h. As-built drawings shall be submitted within 30 days of completion of this project to the Louisiana Department of Natural Resources, Office of Coastal Management, PO Box 44487, Baton Rouge, LA 70804-4487.

i. Structures must be marked/lighted in accordance with U. S. Coast Guard regulations.

j. Applicant shall not discharge any drilling and/or workover effluent except for flocculated filtered water.

Applicant shall not discharge any human waste which does not meet or exceed the requirements of the Department of Health and Hospitals.

Applicant shall not discharge any produced waters.

Applicant is subject to all applicable state laws related to damages which are demonstrated to have been caused by
this proposed action.

Applicant shall use any dredged material beneficially to create/restore emergent wetlands or place the material in open water in such a manner not to decrease the water depth greater than six inches.

Applicant shall provide to the LDWF a water bottom assessment (unless waived by LDWF) that meets LDWF protocol prior to commencement of the activity. A waiver request must be submitted to LDWF in writing and must state the justification for the request. Applicant may, at the request of LDWF and prior written approval of OCM, be required to modify the project if the proposed location unnecessarily impacts oyster reefs.

k. The following conditions have been included to address concrete mats permitted as temporary pipeline stabilization in the Mississippi River and as permanent bankline stabilization at the Empire Harbor Canal.

1. The permittee must provide notification of the project to the U.S. Coast Guard and the DNR Underwater Obstruction Program within 30 days of installation. The notification must include the GPS coordinates of the mat installation site and the ID number of each mat.

2. Mats must be marked/lighted in accordance with U. S. Coast Guard regulations. These markers/lights, if required, must be maintained at the site until such time as the mats are removed. A description of the condition of the markers/lights must be included in the monitoring report submitted to OCM/DNR.

3. The permittee must agree to maintain liability for any damages resulting from the mats’ presence on the waterbottom for as long as the mat installation remains on the waterbottom.

4. The permittee must agree to hold and save the State of Louisiana, its agencies and political subdivisions and their officers and employees harmless from any damage to persons or property arising from the installation, presence or subsequent removal of mats as authorized in this General Permit.

5. If multiple mats are required, the mats must be permanently joined together during installation to form a single unit. The unit must be maintained as a singular structure throughout its project life.

6. The permittee must affix a permanent, unique identifier to each mat. The identifier and the methods of marking and attachment (e.g., embossing the permit number in the concrete or attaching a type of tag) must be approved by OCM/DNR prior to authorization.

7. Should changes in the location or the section of the existing waterways, or in the generally prevailing conditions in the vicinity be required in the future, in the public interest (e.g., to allow for successful construction, implementation, maintenance, etc. of features contained in the Integrated Ecosystem Restoration and Hurricane Protection: Louisiana’s Comprehensive Master Plan for a Sustainable Coast), permittee shall make such changes in the project concerned or in the arrangement thereof as may be necessary to satisfactorily meet the situation and shall bear the cost thereof. This condition does not preclude the necessity for revising the current permit or obtaining a separate Coastal Use Permit, should one be required, for project modifications.

l. This permit does not convey any property rights, mineral rights, or exclusive privileges; nor does it authorize injury to property.

m. No 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) has compiled data on rare, endangered, or otherwise significant plant and animal species, plant communities, and other natural features throughout the State of Louisiana. 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.

n. 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.

o. Permittee shall, prior to commencement of the herein permitted activities, contact P.J. Hahn with the Buras Levee District (504)-297-5629 to determine if a construction permit will be required from the local levee district.

p. Permittee is subject to all applicable state laws related to damages which are demonstrated to have been caused by this action.

q. 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.

r. 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.

s. 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:I.723.D.). Please note that a request for permit extension MUST be made no sooner than one hundred eighty (180) days and no later than sixty (60) days prior to the expiration of the permit.

The expiration date of this permit is five (5) years from the date of the signature of the Secretary or his designee.

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.

*************** End of Conditions ***************
By accepting this permit the applicant agrees to its terms and conditions. 

I affix my signature and issue this permit this 9th day of June, 2011.

THE DEPARTMENT OF NATURAL RESOURCES

Karl L. Morgan, Acting 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) P20101416  Final Plats  06/07/2011

cc:  Pete Serio, COE w/attachments
     Dave Butler, LDWF w/attachments
     Jamie Phillippe, DEQ w/attachments
     Peggy Rooney, OCM w/attachments
     Frank Cole, OCM/FI w/attachments
     Plaquemines Parish w/attachments
DEPARTMENT OF THE ARMY PERMIT

JUL 25 2011

Permittee: Louisiana Office of Coastal Protection and Restoration

Permit No. MVN-2008-03033-ETT

Issuing Office: New Orleans District

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description: Dredge in the Mississippi River and Gulf of Mexico for sediment materials to be delivered via pipelines for the purpose of restoring Scofield Island, in accordance with drawings attached in thirty-eight sheets dated November 2010, and attachment (A.) with three sheets undated: "Guidelines for activities in proximity to manatee and their habitat".

Project Location: In the Mississippi River along the left descending bank from a point just north of mile 31 downstream to north of mile 28 above the "Head of Passes" and along the right descending bank from a point just north of mile 29 downstream to north of mile 22 above the "Head of Passes". Also in Barataria Bay, and Gulf of Mexico, all within Sections 04 and 05, Township 22 South, Range 29 East, Plaquemines Parish, Louisiana.

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on **July 31, 2016**. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least 1 month before the above date is reached.

2. 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 in compliance with General Condition 4 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.

3. 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.

ENG FORM 1721, Nov 86

(33 CFR 325 (Appendix A))
4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. 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. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions: See Attached.

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

   (X) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

   (X) Section 404 of the Clean Water Act (33 U.S.C. 1344).


2. Limits of this authorization.

   a. This permit does not obviate the need to obtain other Federal, State, or local authorizations required by law.

   b. This permit does not grant any property rights or exclusive privileges.

   c. This permit does not authorize any injury to the property or rights of others.

   d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

   a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

   b. 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.

   c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

   d. Design or construction deficiencies associated with the permitted work.
e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

   a. You fail to comply with the terms and conditions of this permit.

   b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

   c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

X Krista Carter 
(PERMITTEE) X 7/18/11 
(DATE)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

Michael V. Farabee 
(DATE) July 25, 2011
(MICHAEL V. FARABEE, CHIEF, EASTERN EVALUATION SECTION)

for Edward R. Fleming, District Commander

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

(TRANSFEREE) (DATE)
7. This authorization allows for minor deviations in construction designs and project implementation. The permittee shall coordinate with this office prior to the initiation of any changes, such as alterations or changes in scope of the proposed project, which would have unwarranted impacts to jurisdictional waters and/or wetland areas not considered under this authorization. Such alterations may require a permit modification or a separate Department of the Army permit review, prior to commencing that work. If minor deviations in project plans and/or design are allowed during construction, the applicant shall submit as-built drawings within 30-days of project completion.

8. The permittee shall provide this office with a copy of any generated post construction surveys, monitoring reports, post-ground photography, and/or post aerial photography, obtained after project completion.

9. In accordance with the permit drawings, dredge material deposited into existing vegetative wetland areas and/or tidal marsh shall be placed in a manner conducive to the re-establishment, nourishment, and/or enhancement of that habitat.

10. You shall notify this office in writing within five working days after construction has been completed.

11. The permittee shall assure that contractors, foremen, and/or workers associated with project implementation are equally cognizant of the conditions and restrictions associated with this approval.

12. 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.

13. The permitted activity must not interfere with the public's right to free navigation on all navigable waters of the United States.

14. You must install and maintain, at your expense, any safety lights, signs and signals prescribed by the US Coast Guard, through regulations or otherwise, on your authorized facilities.

15. The proposed project, and any future maintenance work, involving the use of floating construction equipment (barge mounted cranes, barge mounted pile driving equipment, floating dredge equipment, dredge discharge pipelines, etc.), in federal waters, requires that you notify the US Coast Guard 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 US Coast Guard, Sector New Orleans Command Center, 201 Hammond Highway, Metairie, Louisiana 70005, about 1 month before you plan to start work. Telephone inquiries can be directed to (504) 846-5923.
SPECIAL CONDITIONS: MVN-2008-03033-ETT

16. Any damage to the levee, batture, and/or bank resulting from the permittee’s activities shall be repaired at the permittee’s expense.

17. The proposed work shall not restrict the Levee District/Parish’s maintenance operations or any potential flood flight activities at the levees, nor shall it obstruct or impede inspection access.

18. The earthen material placed on the levee slope shall be fertilized and seeded to promote new grass growth. Additionally all disturbed areas on the levee resulting from ramp construction shall be restored to the original condition and to the satisfaction of the West Bank Levee District.

19. The installation of the fill material used to construct the earthen levee access ramps shall not impede drainage and cause water to pond against the levee for prolonged periods of time. If drainage becomes a problem, the permittee shall make modifications to improve the drainage to ensure that water does not pond against the levee.

20. Should changes in the location or section of the existing levees and/or river, or in the generally prevailing conditions in the vicinity, be required in the future in the public interest, the permittee shall make changes in the project concerned, or in the arrangement thereof, as may be necessary to satisfactorily meet the situation and shall bear the cost thereof.

21. The permittee shall assure that work does not impede or interfere with navigation on the Mississippi River and shall maintain ongoing coordination with the River Pilots Association and the United States Coast Guard.

22. 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 applicant will contact the Chitimacha Tribe of Louisiana at Post Office Box 661, Charenton, LA 70523, and the Army Corps of Engineers, New Orleans District (CEMVN) Regulatory Branch. CEMVN, Regulatory Branch 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.

23. Our Real Estate Division has indicated that your project is located in an area over which the federal government holds real estate interest. No work may be performed under this permit until a real estate instrument is issued by our Real Estate Division. If you require further information regarding real estate matters, call (504) 862-1701. The real estate instrument will be initiated by our Real Estate Division without further action required on your part.

24. The permittee shall adhere to the GUIDELINES FOR ACTIVITIES IN PROXIMITY TO MANATEE AND THEIR HABITAT, attached to this document (Attachment A), during all phases of in-water work for the duration of the project as well as any future in-water maintenance work. The US Fish and Wildlife Service (FWS) is the appropriate authority to determine compliance with those guidelines. If you have any further questions about the manatee, the manatee guidelines or should a manatee be sighted you shall contact the FWS Lafayette, Louisiana, Field Office (337) 291-3100.
STATE OF LOUISIANA
OFFICE OF COASTAL PROTECTION & RESTORATION
RESTORATION DIVISION

RIVERINE SAND MINING / SCOFIELD ISLAND RESTORATION
STATE PROJECT NO. BA-40
PLAQUEMINES PARISH, LOUISIANA
PERMIT (MVN2008-3033-EFF)

THIS DRAWING SET IS FOR PERMITTING PURPOSES ONLY AND NOT TO BE USED FOR CONSTRUCTION.

BY: JOSEPH D. DARTZ
DESIGNED BY: MICHAEL T. POFF, P.E.
APPROVED BY: MAURY CHATELLIER P.E.

DATE: NOVEMBER, 2010
SHEET 1 OF 38
NOTES:

LEGEND:
- Restoration Area
- Borrow Area
- River Mile Marker

OFFICE OF COASTAL PROTECTION & RESTORATION
RESTORATION DIVISION
450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801

RIVERINE SAND MINING / SCOFIELD ISLAND RESTORATION

PROJECT LAYOUT

STATE PROJECT NUMBER: BA-40
DATE: NOVEMBER, 2010

FEDERAL PROJECT NUMBER: BA-40
SHEET 2 OF 38

COASTAL ENGINEERING CONSULTANTS, INC
STB GROUP LLC
QUALITY BY DESIGN

DRAWN BY: DARTZ ZWERNEK
DESIGNED BY: MICHAEL T. POFF, P.E.
APPROVED BY: MAURY CHATELLER, P.E.
<table>
<thead>
<tr>
<th>POINT NUMBER</th>
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<th>EASTING</th>
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<td>89°30'29.746&quot; W</td>
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**OFFSHORE BORROW AREA BOUNDARY**

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**GENERAL NOTES:**

2. COORDINATES ARE NA1983, LOUISIANA STATE PLANE, SOUTHERN ZONE, U.S. SURVEY FEET.
3. ALL ELEVATIONS ARE IN NAVD88, U.S. SURVEY FEET.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING PIPELINE AND UTILILITY OPERATORS AT TIME OF CONSTRUCTION. ALL PIPELINES AND UNDERGROUND UTILITIES SHALL BE FIELD LOCATED AND MARKED.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING PIPELINE AND UTILITIY OPERATORS 72 HOURS PRIOR TO ANY EXCAVATION.
6. NO CONSTRUCTION EQUIPMENT OR ACTIVITIES MAY OPERATE, TRANSIT, STAGE, OR STORE OUTSIDE THE CONVEYANCE CORRIDOR ALONG THE EMPIRE WATERWAY FROM THE MISSISSIPPI RIVER TO THE GULF OF MEXICO.
7. THIS DRAWING SET IS FOR PERMITTING PURPOSES ONLY AND IS NOT TO BE USED FOR CONSTRUCTION.

NOTES:
1. BATHYMETRIC SURVEYS PERFORMED BY ALPINE OCEAN SEISMIC SURVEY, INC., 2008 & USACE, 2004

BY DESCRIPTION DATE
MTP CANDIDATE/STAKEHOLDER COMMENT RESPONSE 09/10/2011
MTP LEVEE CROSSINGS, PAGE NUMBERS 05/05/2011

OFFICE OF COASTAL PROTECTION & RESTORATION
RESTORATION DIVISION
420 LAUREL STREET
BATON ROUGE, LOUISIANA 70801

RIVERINE SAND MINING / SCOFIELD ISLAND RESTORATION

BORROW AREA MR-E-09
DESIGN SECTIONS

STATE PROJECT NUMBER: BA-40
DATE: NOVEMBER, 2016

FEDERAL PROJECT NUMBER: BA-40
SHEET 10 OF 38
OFFSHORE BORROW AREA PARAMETERS
BORROW AREA LENGTH 2,800'
BORROW AREA WIDTH 1,500'
BORROW AREA THICKNESS 20' TO 22'
BORROW AREA VOLUME (40' NAVD88) 3.30 MCY

LEGEND:
- BORROW AREA PERIMETER (BOTTOM OF CUT)
- BORROW AREA PERIMETER (TOP OF CUT)
- BATHYMETRIC CONTOURS, FT NAVD88 (CP&E, 2003)
- OFFSHORE BORROW AREA SURVEY BASELINE

NOTES:
1. SEE SHEETS 12 & 13 FOR SECTIONS. SEE SHEET 3 FOR PERIMETER POINTS OF INFLECTION.
2. BATHYMETRY DATA FROM BARATIARIA/PLAQUEMINES BARRIER SHORELINE RESTORATION.
   (CP&E, 2003).

BY
MTP
STAKES
MTP
DESCRIPTION
CROSSINGS, PAGE
COMMENT RESPONSE
02/10
02/11
05/05
05/11

RIVERINE SAND MINING /
SFCFIELD ISLAND
RESTORATION
OFFSHORE
BORROW AREA
PLAN VIEW

OFFICE OF COASTAL PROTECTION & RESTORATION
RESTORATION DIVISION
450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801

STATE PROJECT NUMBER: BA-40
DATE: NOVEMBER, 2010

RIVERINE SAND MINING /
SFCFIELD ISLAND
RESTORATION
OFFSHORE
BORROW AREA
PLAN VIEW

STATE PROJECT NUMBER: BA-40
DATE: NOVEMBER, 2010

DRAWN BY: DARTZ ZWERNEMAN
DEIGNED BY: MICHAEL T. POFF, P.E.
APPROVED BY: MAURY CHATELLEIII, P.E.
NOTES:
1. BATHYMETRY DATA FROM BARATARIA/PLAQUEMINES BARRIER SHORELINE RESTORATION, (CP&E, 2003).
2. MHW = 1.60 FT NAVD88, MLW = 0.55 FT NAVD88
NOTES:
1. SEE SHEET 25 - 36 FOR LEVEE CROSSINGS, HIGHWAY CROSSINGS, HARBOR CANAL CROSSING, MARSH AND ROCK REVETMENT CROSSING, NAVIGATION CROSSINGS, AND BOOSTER SITE DETAILS.
2. CONVEYANCE CORRIDOR CONSTRUCTION EQUIPMENT RIGHT OF WAY IS TO THE LIMITS OF THE CONVEYANCE CORRIDOR.
4. SEDIMENT PIPELINE SHALL BE LIGHTED AND MARKED IN ACCORDANCE WITH U.S. COAST GUARD REGULATIONS.
5. ANY DAMAGE TO THE MISSISSIPPI RIVER REVETMENT CAUSED BY THE USE OF A SUBMERGED PIPELINE SHALL BE REPAIRED BY THE APPLICANT.
NOTES:
1. SURVEY PROVIDED BY SHAW, JULY 2010 (FILENAME: W-10_DATA TO DATE 7-22-10_COMPLETE_CORRECTED.CSV).
2. NO EXCAVATIONS OR FILLS ARE REQUIRED FOR THE CONVEYANCE CORRIDOR FROM THE EMPIRE JETTIES TO SCOFIELD ISLAND.
3. A MINIMUM 12 FOOT OF WATER IS ABOVE THE SEDIMENT PIPELINE IN THE GULF OF MEXICO SECTION OF THE CONVEYANCE CORRIDOR UNTIL APPROACH OF THE FILL TEMPLATE.
4. SEDIMENT PIPELINE SHALL BE LIGHTED AND MARKED IN ACCORDANCE WITH U.S. COAST GUARD REGULATIONS.
NOTES:
1. APPROXIMATE EMPIRE WATERWAY RIGHT OF WAY (RW) DIGITIZED FROM WATERWAY FROM EMPIRE, LA TO THE GULF OF MEXICO, RW AND SPOIL DISPOSAL AREAS MAPS, (USACE, 1948).
2. SURVEY CONDUCTED BY G.H. FENSTERMAKER & ASSOC., INC., JULY 2008.

LEGEND:
- JULY, 2008

SCALE
H: 1" = 300'
V: 1" = 10'

BY    DESCRIPTION    DATE
MTP   CM/DIS/COMMENT RESPONSE   02/10/2011
MTP   KY/KLA/NUMBERS            06/06/2011

OFFICE OF COASTAL PROTECTION & RESTORATION
RESTORATION DIVISION
450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801

RIVERINE SAND MINING / SCOFIELD ISLAND RESTORATION

CONVEYANCE CORRIDOR TYPICAL CROSS SECTIONS

STATE PROJECT NUMBER: BA-40
DATE: NOVEMBER, 2010
FEDERAL PROJECT NUMBER: BA-40
SHEET 19 OF 38
TRENCH EXCAVATION TO FACILITATE THE JACKING CONSTRUCTION PER LADOTD 2000 STANDARD SPECIFICATION 728

30° SEDIMENT PIPELINE

PERMANENT SMOOTH STEEL CASING PIPE MINIMUM 42" INSIDE DIA, 5/8" THICKNESS

PERMANENT CASING PIPE MARKER (SEE SHEET 31 FOR MARKER DETAILS)

EXISTING GRADE

HIGHWAY 11 CROSSING DETAIL
SECTION T - T'

NOTES:
1. THE CONTRACTOR SHALL JACK THE MINIMUM 42" STEEL CASING PIPE UNDER THE TRAVEL LANES OF LOUISIANA HIGHWAY 11 IN ACCORDANCE WITH LADOTD 2000 STANDARD SPECIFICATION 728. CASING PIPE DIAMETER SHALL BE NO GREATER THAN 48".
2. THE CASING PIPE SHALL BE MADE OF SMOOTH STEEL, ASTM A 139 GRADE B, WITH MINIMUM YIELD STRENGTH OF 35,000 PSI AND SHALL BE COATED WITH COAL TAR EPOXY-POLYAMIDE PAINT, IN ACCORDANCE WITH THE LADOTD 2000 STANDARD SPECIFICATION 1008.04.
3. THE 40' MINIMUM JACK PIT DISTANCE SHOWN IS BASED ON THE PROPOSED ALIGNMENT AND THE STANDARD HIGHWAY SPECIFICATIONS WHICH WILL BE INCLUDED IN THE PROJECT SPECIFICATIONS.
4. TRENCH EXCAVATION SIDE SLOPES ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY.
5. SURVEYS CONDUCTED BY SUB GROUP LLC, JULY 2006.
6. SEE SHEETS 14 - 18 FOR CONVEYANCE CORRIDOR ALIGNMENT.

OFFICE OF COASTAL PROTECTION & RESTORATION
RESTORATION DIVISION
450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801

RIVERINE SAND MINING /
SCEFIELD ISLAND
RESTORATION

STATE PROJECT NUMBER: BA-40
DATE: NOVEMBER, 2010
FEDERAL PROJECT NUMBER: BA-40
SHEET 27 OF 38
EMPIRE HARBOR CANAL CROSSING PROFILE DETAIL
SECTION U - U'

EMPIRE HARBOR CANAL CROSSING SECTION DETAIL
SECTION V - V'

NOTES:
1. BACKFILLING OF CANAL BANKS OF THE EMPIRE HARBOR CANAL IS REQUIRED FOLLOWING INSTALLATION AND REMOVAL OF SEDIMENT PIPELINE.
2. SURVEYS CONDUCTED BY SJ&G GROUP LLC., JULY 2008.
3. SEE SHEETS 14 - 18 FOR CONVEYANCE CORRIDOR ALIGNMENT.

BY DESCRIPTION
MTP CMU2000
STATEHOLDER
COMMENT RESPONSE
04/11
OFFICE OF COASTAL PROTECTION & RESTORATION
RESTORATION DIVISION
450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801

RIVERINE SAND MINING / SCHOFIELD ISLAND
RESTORATION
STATE PROJECT NUMBER: 8A-40
DATE: NOVEMBER, 2010

EMPIRE HARBOR CANAL
CROSSING DETAIL
FEDERAL PROJECT NUMBER: 8A-40
SHEET 28 OF 38

DRAWN BY: DARTEZI ZHERNEMAN
DESIGNED BY: MICHAEL T. POFF, P.E.
APPROVED BY: MAURY CHATELLIER, P.E.
EMPIRE HARBOR CANAL CROSSING BANK STABILIZATION
TYPICAL DETAIL
(NOT TO SCALE)

EMPIRE HARBOR CANAL CROSSING
BANK STABILIZATION TYPICAL DETAIL
(NOT TO SCALE)
NOTES:
1. THE CONTRACTOR SHALL JACK THE MINIMUM 42" STEEL CASING PIPE UNDER THE TRAVEL LANES OF LOUISIANA HIGHWAY 23 IN ACCORDANCE WITH LADOTD 2000 STANDARD SPECIFICATION 729. CASING PIPE DIAMETER SHALL BE NO GREATER THAN 48".
2. THE CASING PIPE SHALL BE MADE OF SMOOTH STEEL, ASTM A 139 GRADE B, WITH MINIMUM YIELD STRENGTH OF 35,000 PSI AND SHALL BE COATED WITH COAL TAR EPOXY-POLYAMIDE PAINT, IN ACCORDANCE WITH THE LADOTD 2000 STANDARD SPECIFICATION 1029.34.
3. SEE SHEET 31 FOR PERMANENT CASING PIPE MARKER CONSTRUCTION DETAILS.
4. THE 40' MINIMUM JACK PILOT DISTANCE SHOWN IS BASED ON THE PROPOSED ALIGNMENT AND THE STANDARD HIGHWAY SPECIFICATIONS WHICH ARE INCLUDED IN THE PROJECT SPECIFICATIONS.
5. TRENCH EXCAVATION SIDE SLOPES ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY.
6. SURVEYS CONDUCTED BY SJG GROUP, LLC, JULY 2008.
7. SEE SHEETS 14 - 18 FOR CONVEYANCE CORRIDOR ALIGNMENT.
WARNING
DO NOT ANCHOR
OR DREDGE
SEDIMENT
DELIVERY PIPELINE

CONTACT PLAQUEMINES
PARISH GOVERNMENT
(504) 392-6690
8056 HIGHWAY 23
BELLE CHASSE, LA. 70037

42 INCH SEDIMENT DELIVERY
STEEL CASING PIPE
PROPERTY OF LOUISIANA
STATE OFFICE OF
COASTAL PROTECTION
AND RESTORATION

CONTACT PLAQUEMINES
PARISH GOVERNMENT
(504) 392-6690
8056 HIGHWAY 23
BELLE CHASSE, LA. 70037

CASING PIPE CAP DETAIL
NOT TO SCALE

NOTES:
1. STEEL CASING PIPE CAPS SHALL BE 1/2" THICK AND
   SHALL BE COATED WITH COAL TAR EPoxy
   POLYAMIDE PAINT, IN ACCORDANCE WITH THE
   LADOTD 2000 STANDARD SPECIFICATION 1098.04.
2. CAPS SHALL BE INSTALLED IN ACCORDANCE WITH
   CONSTRUCTION SPECIFICATIONS AFTER
   DREDGING OPERATIONS ARE COMPLETE. FILL
   ELEVATIONS HAS BEEN ACCEPTED, AND
   SEDIMENT PIPELINE HAS BEEN REMOVED. CAPS
   SHALL BE WELDED TO CASING PIPE AND SHALL BE
   WATER TIGHT.

STEEL CASING PIPE CAP

MINIMUM DIAMETER BASED ON
STEEL CASING PIPE DIAMETER

6" MIN.

CASING PIPE MARKER DETAIL
NOT TO SCALE

NOTES:
1. ONE MARKER SHALL BE PLACED ON EACH
   SIDE OF LOUISIANA HIGHWAYS 23 & 11 AND AT
   EACH END OF THE CASING PIPES.
2. MARKERS SHALL BE CONSTRUCTED AND
   INSTALLED IN ACCORDANCE WITH LADOTD
   2000 STANDARD SPECIFICATION 729.
3. A PROPOSED DRAWING SHALL BE SUBMITTED
   TO THE ENGINEER FOR APPROVAL IN THE
   WORK PLAN PRIOR TO CONSTRUCTION.
4. MARKERS SHALL BE PLACED SUBSEQUENT TO
   BACKFILLING THE JACKING PIT AND PRIOR TO
   DEMOBILIZATION.

BY
DATE
MTP
COMMENTS/STAKEHOLDER
RESPONSES
DEGREE CROSSINGS, PAGE
3536
2011

DRAWN BY: DARTEZ & ZWERNEMAN
DESIGNED BY: MICHAEL T. POFF, P.E.
APPROVED BY: MAURY CHATELLIER, P.E.

RIVERINE SAND MINING / SCAFIELD ISLAND
RESTORATION
OFFICE OF COASTAL PROTECTION & RESTORATION
RESTORATION DIVISION
456 LAUREL STREET
BATON ROUGE, LOUISIANA 70801

STATE PROJECT NUMBER: BA-40
FEDERAL PROJECT NUMBER: BA-40
DATE: NOVEMBER, 2010
SHEET 31 OF 38

STB GROUP, LLC
ENGINEERING CONSULTANTS, INC.
NOTES:
1. SIGNS SHALL BE INSTALLED AT LOCATIONS SHOWN ON SHEETS 21, 25 & 36.
2. ALL SIGNS MUST MEET U.S. COAST GUARD STANDARDS IN ACCORDANCE WITH 33 CFR 330.4 (a) (1).
3. THE SIGNS SHALL HAVE THE DIMENSIONS AND MESSAGES SHOWN. THERE ARE TWO SIGNS PER PILE.
4. THE SHOAL SIGNS SHALL BE CONSTRUCTED WITH 125 GAUGE 61TS ALUMINUM, COVERED WITH WHITE, ENGINEER GRADE, REFLECTIVE SHEETING; BLACK SCREENED LETTERING AND DESIGN; AND ORANGE, ENGINEER GRADE, REFLECTIVE BORDER.
5. NAVIGATION DAY MARKERS SHALL BE CONSTRUCTED OF 125 GAUGE 61TS ALUMINUM, COVERED WITH THE APPROPRIATE RED OR GREEN SHEETING; BLACK SCREENED LETTERING AND DESIGN; AND APPROPRIATE DARKER RED OR GREEN, ENGINEER GRADE, REFLECTIVE BORDER.
6. TIMBER PILING SHALL BE 40 FEET IN LENGTH WITH A NOMINAL 12-INCH DIAMETER BUTT AND 7-INCH MINIMUM DIAMETER AT THE TIP.
7. HARDWARE FOR TIMBER CONNECTIONS SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH SECTION 811.5 OF THE LOUISIANA STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, AS PUBLISHED BY THE LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT, LATEST EDITION.
8. THE CONTRACTOR HAS THE OPTION OF USING TEMPORARY BUOYS IN LIEU OF TIMBER PILES. BUOYS MUST BE APPROVED BY THE OWNER AND ENGINEER PRIOR TO MOBILIZATION AND U.S. COAST GUARD STANDARDS.
9. SIGNS AND SUPPORTS SHALL BE REMOVED AND PROPERLY DISPOSED OF PRIOR TO DEMOLITION, IF PILES CANNOT BE REMOVED COMPLETELY, THEY MUST BE REMOVED TO 10 FEET BELOW THE EXISTING MUDLINE.
NOTES:
1. The distance between fences shall be increased from 3.0' to 6.0' at every fifth gap to allow all-terrain vehicle access.

FENCING GAPPING DIMENSIONS

NOT TO SCALE

4" WOOD SLATS
3/8"x1-1/2"

MINIMUM 13 GAUGE STEEL
GALVANIZED WIRE STRANDS

FENCING DETAIL

NOT TO SCALE

6"x4"x4" OR 8"x4"x3" DIAMETER POSTS - UNTREATED #2 GRADE LUMBER

FINAL GRADE

SAND FENCING

DUNE FILL
SLOPE 1V:4H
BEACH FILL
WASH

FENCING SECTION TYPICAL

NOT TO SCALE
ATTACHMENT A:

GUIDELINES FOR ACTIVITIES IN PROXIMITY TO MANATEE AND THEIR HABITAT

(3 pages)
GUIDELINES FOR ACTIVITIES IN PROXIMITY TO MANATEES AND THEIR HABITAT

I. General Guidance for In-water Work Activities

A. All personnel associated with the project should be informed of the potential presence of manatees, manatee speed zones, and the need to avoid collisions with and injury to manatees. Such personnel instruction should also include a discussion of the 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.

B. All contract and/or construction personnel are responsible for observing water-related activities for the presence of manatee(s).

C. Temporary signs should be posted prior to and during all construction/dredging activities to remind personnel to be observant for manatees during active construction/dredging operations or within vessel movement zones (i.e., work area), and at least one sign should be placed where it is visible to the vessel operator.

D. Siltation barriers, if used, should be made of material in which manatees could not become entangled, and should be properly secured and regularly monitored. Barriers should not impede manatee movement.

E. If a manatee is sighted within 100 yards of the active work zone, special operating conditions should be implemented, including: no operation of moving equipment within 50 feet of a manatee; all vessels should operate at no wake/idle speeds within 100 yards of the work area; and siltation barriers, if used, should be re-secured and monitored. Once the manatee has left the 100-yard buffer zone around the work area on its own accord, special operating conditions are no longer necessary, but careful observations would be resumed.

F. Any manatee sighting should be immediately reported to the U.S. Fish and Wildlife Service’s (Service) Lafayette, Louisiana, Field Office (337/291-3100) and the Louisiana Department of Wildlife and Fisheries (LDWF), Natural Heritage Program (225/765-2821).

II. Guidelines to Minimize and/or Avoid Manatee Entrapment

A. Pre-construction:
Water control structures, trash rakes, barriers and other devices that may entrap manatees (even temporarily) within a closed waterway could result in harm or death to the entrapped manatee. At least 90 days prior to installing a structure that may be a barrier or impediment to manatee movement, advanced consultation with the Service and the LDWF should occur. When a manatee-accessible waterway is proposed to be closed to manatees (exclusion area), aerial and ground surveys should be conducted to ensure that manatees are not entrapped in a closed system.

I. Aerial Survey:
Prior to installing the last section of any barriers (temporary or permanent) that could result in the entrapment of manatees within the waterway, the project proponent should contact the Service and LDWF to determine whether an aerial survey of the proposed exclusion area should be conducted. The extent of the survey area should be identified by the Service and LDWF. Both the Service and LDWF should be contacted to participate in any aerial surveys. It is recommended that the surveys be conducted by helicopter.
2. Waterway Closure:
   If no manatees are sighted within the exclusion area, the waterway should be closed off immediately following that survey. If manatees are sighted within the exclusion area, they should be observed to see if they move beyond the proposed barrier. If they do not move out of the waterway within 10 days, the project proponent should consult with the Service and LDWF to determine if the barrier should be put in place. Manatees should not be herded, poked, prodded or harassed in any way to move them along the waterway.

B. Post-construction:
   Once the barrier has been installed, the barrier and waterway should be monitored by land once daily for a period of one week to check for the presence of manatees. If manatees are sighted within the exclusion area, the Service (337/291-3100) and LDWF (225/765-2821) should be contacted for further guidance.

III. Guidance for Activities Related to Pipe or Culvert Installation
   A. For pipes and/or culverts installed in areas with potential manatee access, measures that minimize both project installation- and structure-related risks must be adopted to avoid or minimize their effects on manatees and any suitable habitat.

   B. Pursuant to the "General Guidance for In-Water Work Activities", all project-related personnel must be instructed about manatees and measures needed to ensure the manatees' protection during the installation of these structures.

   C. Structures with openings that exceed 8 feet in diameter at both ends and have average water depths of at least three feet, mean low water (MLW), generally do not pose a threat to manatees. Wherever possible, structures (such as box culverts) with these features should be used to reduce the risk of manatees drowning or becoming entrapped in these structures.

   D. Where pipes and culverts between 8 inches and 8 feet in diameter are required, bars or gratings spaced less than 8 inches apart in horizontal, diagonal, or vertical configurations should be placed over the openings to prevent adult manatees and calves from accessing these structures.

   E. Manatees can become stranded in culverts during periods of low tide. Therefore, when planning for new culverts in tidal waters, a minimum 3-foot depth of water in the culvert at low tide stage is recommended.

IV. Guidance for Docks or Other Structures Constructed in or over Submerged Aquatic Vegetation, Marsh, or Mangrove Habitat
   A. Submerged Aquatic Vegetation (SAV)
      1. Avoidance – the pier should be aligned so as to minimize the size of the footprint over SAV beds.
      2. The height of pier should be a minimum of 5 feet above MHW/OHW as measured from the top surface of the decking.
      3. The width of the pier should be limited to a maximum of 4 feet. A turnaround area is allowed for piers greater than 200 feet in length. The turnaround is limited to a section of the pier no more than 10 feet in length and no more than 6 feet in width. The turnaround should be located at the midpoint of the pier.
4. Over-SAV bed portions of the pier should be oriented in a north-south orientation to the maximum extent practicable.

5. If possible, terminal platforms should be placed in deep water, water-ward of SAV beds, or in an area devoid of SAV beds.

6. If a terminal platform is placed over SAV areas and constructed of grated decking, the total size of the platform should be limited to 160 square feet. The grated deck material should conform to the specifications stipulated below. The configuration of the platform should be a maximum of 8 feet by 20 feet. A minimum of 5 feet by 20 feet should conform to the 5-foot height requirement; a 3-foot by 20-foot section may be placed 3 feet above mean high water (MHW) to facilitate boat access. The long axis of the platform should be aligned in a north-south direction to the maximum extent that is practicable.

7. If the terminal platform is placed over SAV areas and constructed of planks, the total size of the platform should be limited to 120 square feet. The configuration of the platform should be a maximum of 6 feet by 20 feet of which a minimum 4-foot-wide by 20-foot-long section shall conform to the 5-foot height requirement. A section may be placed 3 feet above MHW to facilitate boat access. The 3 feet above MHW section should be cantilevered. The long axis of the platform should be aligned in a north-south direction to the maximum extent practicable. If the 3 feet above MHW section is constructed with grating material, it may be 3 feet wide.

8. One uncovered boat lift area is allowed. A narrow catwalk (2-feet-wide if planks are used, 3-feet-wide if grating is used) may be added to facilitate boat maintenance along the outboard side of the boat lift and a 4-foot-wide walkway may be added along the stern end of the boat lift, provided all such walkways are elevated 5 feet above MHW. The catwalk should be cantilevered from the outboard mooring pilings (spaced no closer than 10 feet apart).

9. Pilings should be installed in a manner which will not result in the formation of sedimentary deposits ("donuts" or "halos") around the newly installed pilings. Pile driving is the preferred method of installation, but jetting with a low pressure pump may be used.

10. The spacing of pilings through SAV beds should be a minimum of 10 feet on center.

11. The gaps between deck boards should be a minimum of ½ inch.

B. Marsh

1. The structure should be aligned so as to have the smallest over-marsh footprint as practicable.

2. The over-marsh portion of the dock should be elevated to at least 4 feet above the marsh floor.

3. The width of the dock should be limited to a maximum of 4 feet. Any exceptions to the width must be accompanied by an equal increase in height requirement.

C. Mangroves

1. The width of the dock should be limited to a maximum of 4 feet.

2. Mangrove clearing should be restricted to the width of the pier.

3. The location and alignment of the pier should be through the narrowest area of the mangrove fringe.
Mr. Billy Nungesser, Parish President  
Plaquemines Parish Government  
Buras Levee District  
106 Avenue G, Suite C  
Belle Chasse, Louisiana 70037  

Attention: Ms. Valarie J. Ragas  

PERMIT REQUEST  
FORM OF NO OBJECTION  

This Letter of No Objection is not a regulatory permit and does not authorize the implementation of any project without documented approval from all appropriate regulatory authorities.

Permit Applicant: Office of Coastal Protection and Restoration  

Date of Request: 02-10-2011  
Date of Revised Request: 05-06-2011  

Applicant’s Request: Permission to dredge sand from the Mississippi River, and install a pipeline across the river levee, also install a pipeline across the New Orleans to Venice, Hurricane Protection Levee.  

Project Location: Work is in the Mississippi River and across the right descending Mississippi River levee, vicinity of second order levee station 802+00, also across the New Orleans to Venice, Hurricane Protection Levee, Reach B-1 (Empire to Port Jackson), vicinity of levee station 955+00, at Empire, Louisiana, in Plaquemines Parish  

The above referenced request has been examined by the District 02 Design, Water Resources and Development Section for the Department of Transportation and Development, and no objection is proffered for this request, provided:

1. This Letter of No Objection is only for stated work within or adjacent to the Levee District right-of-way, and must be accomplished in accordance with the details set forth in the applicant’s request and the conditions contained herein. Any changes to the limits or scope of the proposed work must be submitted for additional review. The Levee District must be contacted in writing prior to commencement and at the end of activities. The applicant is responsible for obtaining and providing copies of any permits or lease agreements necessary from the U.S. Army Corps of Engineers, the State Land Office, the Parish Government, and/or any other applicable agencies, as well as documented approval from the area landowner(s) prior to the initiation of the work. The applicant is responsible for adhering to the provisions of any existing permits.
2. The proposed work must not restrict the Levee District’s maintenance operations, or any potential flood fight activities at the levee, nor shall it obstruct or impede drainage, or create areas of standing water on the levee batture. The applicant must employ and maintain at the project site suitable erosion protection measures to the satisfaction of the Levee Board. The applicant or owner must immediately notify the Levee Board of any seepage or sand boils that occur during high water conditions.

3. All materials associated with the proposed work must be removed from the area upon completion of the project and the area must be returned to its original state of existence or better. Any damage done to the levee, floodwall or other flood control structure, revetment, or surrounding project area, resulting from the proposed work must be repaired or replaced by the applicant. Finally, should any change in the location of the existing levee, river, floodwall, drainage canal, waterway, or general prevailing conditions in the vicinity, or should any changes in the area be required in the future, in the public interest, the applicant at his own expense shall make such changes in the project as necessary.

4. That no excavation is performed when the Mississippi River attains or exceeds +11.0 ft. NGVD, at the Carrollton gage at New Orleans, without prior documented approval to the contrary from the U.S. Army Corps of Engineers-New Orleans District.

5. That there is no penetration, excavation, disturbance, or placement of structures within the theoretical levee design section.

6. That no equipment, cars, or materials of any kind are parked or stored on the levee or on its slopes.

7. That all activities must be coordinated and performed with the approval and monitoring of the U.S. Army Corps of Engineers.

8. That the excavation is performed in accordance with Limits of Permissible Excavation, H-18-24849, prepared by the U.S. Army Corps of Engineers - New Orleans District.

9. That the work and/or installation pose no hazard to area navigation.

10. That the applicant obtains any required documented approval for crossing of a Parish Road from the appropriate Parish Government.

11. That no excavation of the levee or berm is undertaken during hurricane season unless the applicant submits plans found acceptable by the Levee District.

12. That the applicant is responsible for maintaining the existing level of flood protection at all times to the satisfaction of the Levee Board.

Special Notes:

That prior to commencement of any proposed work or construction, the applicant shall apply for, and obtain, any required permits from the appropriate city and/or Parish agencies.

That the proposed work is performed in strict accordance with all of the conditions set forth in the permit applicant’s request and supporting drawings and documentations.
Please be advised that the applicant must strictly adhere to all of the provisions cited by the New Orleans District U.S. Army Corps of Engineers, in their letter of recommendation, #11-119, dated July 1, 2011.

That the applicant must strictly adhere to all of the provisions cited by the Louisiana Department of Transportation and Development, in our Project Permits, #02012402, dated November 29, 2010, for restrictions and limited for directional drilling under LA. Highway 23.

This letter of no objection is offered with no opinion or approval to the design or engineering feasibility of the work. If we can be of further assistance, please contact Michael Celestine at (504) 816-7307.

Yours very truly,

[Signature]

Michael J. Stack, P.E., P.L.S.
District Administrator

210779/ms/mc

cc:
Mr. James Altman, OCPR
U. S. Army Corps of Engineers
Mr. Blair Rittiner, Land Manager PPG
Ms. Kristi Cantu, Office of Coastal Protection and Restoration
DEPARTMENT OF THE ARMY
CONSENT TO CROSS U. S. GOVERNMENT EASEMENT
AT
EMPIRE TO GULF WATERWAY PROJECT
PLAQUEMINES PARISH, LOUISIANA

KNOW ALL MEN BY THESE PRESENTS:

That the consent of the United States is hereby granted to State of Louisiana Office of Coastal Protection and Restoration, hereinafter designated as grantee, not-to-exceed five (5) years to dredge material from the Mississippi River to convey (via pipeline) down the Empire Waterway, herein referred to as "structure", across, over and under the lands where the United States has acquired a perpetual dredging and spoil disposal easements, identified as Tract No. 2, COB 142, Page 1, April 6, 1948; Tract No. 3, COB 142, Page 9, March 25, 1949; Tract No. 4, COB 142, Page 16, April 6, 1948; Tract No. 5, COB 142, Page 23, April 6, 1948; Tract No. 6, COB 187, Page 835, January 12, 1956; Tract No. 7, COB 142, Page 320, July 12, 1948; Tract No. 8, COB 142, Page 37, March 20, 1948; Tract No. 9, COB 142, Page 44, March 25, 1948; Tract No. 10, COB 142, Page 51, July 23, 1948; Tract No. 11, COB 142, Page 58, March 20, 1948; Tract No. 12, COB 142, Page 65, March 25, 1948; Tract No. 13, COB 142, Page 72, April 6, 1948; Tract No. 14, COB 142, Page 79, April 6, 1948; Tract No. 15, COB 142, Page 86, April 6, 1948; Tract No. 16, COB 193, Page 488, September 5, 1956; Tract No. 17, COB 142, Page 93, March 20, 1948; Tract No. 18, COB 142, Page 107, March 25, 1948; Tract No. 19, COB 142, Page 107, March 25, 1948; Tract No. 20, COB 188, Page 976, March 1, 1956; Tract No. 21, COB 142, Page 114, April 6, 1948; Tract No. 22, COB 142, Page 121, April 26, 1948; Tract No. 23, COB 142, Page 128, June 25, 1948; Tract No. 25, COB 150, Page 506, January 15, 1951; Tract No. 26, COB 142, Page 135, March 25, 1948; Tract No. 27, COB 142, Page 147, April 5, 1948; Tract No. 28, COB 142, Page 155, March 24, 1948; Tract No. 29, COB 142, Page 165, March 25, 1948; Tract No. 30, COB 142, Page 165, March 25, 1948; Tract No. 31, COB 142, Page 147, April 5, 1948; Tract No. 31, COB 142, Page 155, March 24, 1948, in the records of Plaquemines Parish, Louisiana. The approximate right-of-way for said activity for the purpose of this consent is specifically identified as Parcels highlighted in green, located as shown on Exhibit "A" attached hereto and made a part hereof and described as follows:

A portion of Tract Nos. 2-23 & 25, Sections 1, 9, 20, 22, 31, 34 and 43, Township 20 South, Range 28 East and Tract Nos. 27-32, Sections 43, 23, 26 and 35, Township 21 South, Range 28 East, Plaquemines Parish, Louisiana.

This consent is granted subject to the following conditions:
1. That it is understood that this consent is effective only insofar as the property rights of the United States in the land to be occupied are concerned, and that it does not relieve the grantee from the necessity of obtaining grants from the owners of the fee and/or other interests therein.

2. That the proposed construction authorized herein shall not be commenced until appropriate rights shall have been obtained by the grantee from the record owners and encumbrancers of the fee title to the lands involved.

3. That the exercise of the privileges hereby consented to shall be without cost or expense to the Department of the Army, under the general supervision and subject to the approval of the officer having immediate jurisdiction over the property, hereinafter referred to as "said officer," and subject to such regulations as may be prescribed by the District Commander, New Orleans District, from time to time, including, but not limited to, the specific conditions, requirements and specifications set forth in Exhibit "B" attached hereto and made a part hereof.

4. That the grantee shall supervise and maintain the said structure and cause it to be inspected at reasonable intervals, and shall immediately repair any damage found therein as a result of such inspection, or when requested by said officer to repair any defects. Upon completion of the installation of said structure or the making of any repairs thereto, the premises shall be restored immediately by the grantee, at the grantee's own expense, to the same condition as that in which they existed prior to the commencement of such work, to the satisfaction of said officer.

5. That any property of the United States damaged or destroyed by the grantee incident to the exercise of the privileges herein granted shall be promptly repaired or replaced by the grantee to the satisfaction of the said officer, or in lieu of such repair or replacement, the grantee shall, if so required by the said officer and at his option, pay to the United States money in an amount sufficient to compensate for the loss sustained by the United States by reason of damage to or destruction of Government property.

6. That the United States shall not be responsible for damages to property or injuries to persons which may arise from or be incident to the exercise of the privileges herein granted, or for damages to the property of the grantee, or for damages to the property or injuries to the person of the grantee, or the persons of grantee's officers, agents, servants, or employees or others who may be on said premises at their invitation or the invitation of one of them arising from governmental activities on or in the vicinity of the said premises, and the grantee shall hold the United States harmless from any and all such claims.

7. That this consent is effective only as to the following rights of the United States in the lands hereinabove described.

8. That the United States shall in no case be liable for any damage or injury to the construction herein authorized which may be caused by any action of the Government, under the rights obtained in its easements, either hidden or known, or that may result from future operations under taken by the Government, and no claim or right to compensation shall accrue from such damage or injury, and if further operations of the United States require the alteration or removal
of the structure herein authorized, the grantee shall, upon due notice from the Chief of Engineers, Department of Army, alter or remove said structure without expense to the Government and subject to the supervision and approval of the officer having jurisdiction over the property and no claim for damages shall be made against the United States on account of such alterations or removal.

9. That construction and/or operation maintenance and use of said structure incident to the exercise of the privileges hereby granted shall be in such a manner as not to conflict with the rights of the Government, nor to interfere with the operations by the Government under such rights, nor to endanger lives and safety of the public.

10. That this consent may be terminated by the Secretary of the Army upon reasonable notice to the grantee if the Secretary of the Army shall determine that installation to which consent is hereby granted interferes with the use of said land or any part thereof by the United States, and this consent may be annulled and forfeited by the declaration of the Secretary of the Army for failure to comply with any and all of the provisions and conditions of this consent, or for nonuse for a period of two years, or for abandonment.

11. That upon the relinquishment, termination, revocation, forfeiture or annulment of the consent herein granted, the grantee shall vacate the premises, remove all property of the grantee therefrom, and restore the premises to a condition satisfactory to the officers having immediate jurisdiction over the property. If the grantee shall fail or neglect to remove said property and so restore the premises, then, at the option of the Secretary of the Army, the said property shall either become the property of the United States without compensation therefor, or the Secretary of the Army may cause it to be removed and the premises to be so restored at the expense of the grantee, and no claim for damages against the United States, or its officers or agents, shall be created by or made on account of such removal and restoration.

12. That the terms and conditions of this consent shall extend to and be binding upon the heirs, successors and assigns of the grantee. **Without prior written approval by said District Commander, the grantee of this Consent shall neither transfer nor assign the rights granted herein, or any part thereof.**

13. That the grantee within the limits of his respective legal powers shall comply with all Federal, interstate, state and/or local governmental regulations, conditions or instructions for the protection of the environment and all other matters as they relate to real property interests granted herein.

14. That the grantee shall not remove or disturb, or cause or permit to be removed or disturbed, any historical, archeological, architectural or other cultural artifacts, relics, vestiges, remains or objects of antiquity. In the event such items are discovered on the premises, the grantee shall immediately notify the District Commander, New Orleans District, and the site and the material shall be protected by the grantee from further disturbance until a professional examination of them can be made or until clearance to proceed is authorized by the District Commander.
15. Except as otherwise specifically provided, any reference herein to "Secretary", "District Commander", "Installation Commander", or "said officer" shall include their duly authorized representatives. Any reference to "grantee" shall include assignees, transferees and their duly authorized representatives.

16. Merger clause. Prior to the execution of this consent, the following conditions were deleted: none; changed: none; or added: none.

This consent is not subject to Title 10, U.S.C., Section 2662.

In Witness Whereof, I have hereunto set my hand, by authority of the Secretary of the Army this 15th day of August, 2011.

LINDA C. LABURE
Chief, Real Estate Division
U.S. Army Corps of Engineers
New Orleans District

[Signature]
Witness

[Signature]
Printed Name

[Signature]
Witness

[Signature]
Printed Name
THIS CONSENT is also executed by the grantee this 9th day of August, 2011.

STATE OF LOUISIANA
OFFICE OF COASTAL PROTECTION AND RESTORATION

[Signature]
Typed Name: Jerome Zeringue
Title: Executive Director

[Signature]
Witness

[Signature]
Witness

[Signature]
Printed Name

[Signature]
Printed Name
CERTIFICATE OF AUTHORITY

I, Clifton O. Bingham, Jr., do hereby certify that I am the principle legal officer of the State of Louisiana, Office of Coastal Protection and Restoration (OCPR), that the OCPR is a legally constituted public body with full authority and legal capability to adhere and comply with the terms and conditions for Consent to Cross U.S. Government Easement No. DACW29-9-11-103, and subsequent amendments thereto, use of a dredge pipeline in the Empire to Gulf Waterway, in connection with the Empire to Gulf Waterway Project, and that the persons who executed Consent to Cross U.S. Government Easement No. DACW29-9-11-103 on behalf of the OCPR has acted within their statutory authority.

IN WITNESS WHEREOF, I have made and executed this certification on this _____ day of August, 2011.

Signed: Clifton O. Bingham, Jr.

Printed name: Clifton O. Bingham, Jr.

Title: General Counsel, OCPR
ACKNOWLEDGMENT

STATE OF LOUISIANA
PARISH OF EAST BATON ROUGE

On this 31st day of August, 2011, before me appeared Jerome Zeringue, to me personally known, who, being by me duly sworn, did say that he is the Executive Director of the State of Louisiana, Office of Coastal Protection and Restoration (OCPR) and that the consent was signed in behalf of OCPR, by authority duly and legally granted and bestowed upon him, and that Jerome Zeringue acknowledged the consent to be the free act and deed of OCPR and the OCPR has no seal.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal.

Signed:  

Printed Name: Clifton O. Bingham, Jr.  
Notary Public  
State of Louisiana  
Parish of East Baton Rouge  

My Commission Expires: with life  
Bar Association Number: 03052
EMPIRE TO GULF WATERWAY PROJECT
TRACTS 2-23 & 25-26 SECTIONS 1, 9, 20, 22, 31, 34 & 43
TOWNSHIP 20 SOUTH, RANGE 28 EAST
TRACTS 27-32, SECTIONS 43, 23, 26 & 35
TOWNSHIP 21 SOUTH, RANGE 28 EAST

PLAQUEMINES PARISH, LOUISIANA
EXHIBIT A
EMPIRE TO GULF WATERWAY PROJECT
TRACTS 2-23 & 25-26 SECTIONS 1, 9, 20, 22, 31, 34 & 43
TOWNSHIP 20 SOUTH, RANGE 28 EAST
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PLAQUEMINES PARISH, LOUISIANA
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TOWNSHIP 20 SOUTH, RANGE 28 EAST
TRACTS 27-32, SECTIONS 43, 23, 26 & 35
TOWNSHIP 21 SOUTH, RANGE 28 EAST

PLAQUEMINES PARISH, LOUISIANA
EXHIBIT A    PAGE 6 OF 6
NOTES:
1. SEE SHEET 35 & 38 FOR NAVIGATION CROSSING AND BOOSTER SITE DETAILS.
3. SEDIMENT PIPELINE SHALL BE LIGHTED AND MARKED IN ACCORDANCE WITH U.S. COAST GUARD REGULATIONS.

CONSENT NO. DACW29-9-11-103
EXHIBIT B
PAGE 4 OF 4
APPENDIX XX  SPECIFICATIONS FOR EXISTING CASING PIPE MATERIALS
STANDARD SPECIFICATION FOR PERMALOK STEEL CASING PIPE

SCOPE: This specification is intended for steel pipe utilizing an integral press-fit connection method proprietary to Permalok Corporation of St. Louis, MO, for use as encasement pipe for carrier lines of water, sewer, gas or other products. Permalok steel pipe for use as the actual product carrier is covered by a separate specification and not included here.

PART 1 MATERIAL

1.1 All steel used in the manufacture of Permalok steel pipe shall conform to the requirements of ASTM A-36, ASTM A515, grade 60 or ASTM A572, grade 42.

1.2 Steel used in the manufacture of Permalok connections shall conform to ASTM A-36 as a minimum and be machinable.

PART 2 DIMENSIONAL TOLERANCES

2.1 ROUNDNESS
The pipe diameter as measured along any single plane shall not vary more than 1% from the specified diameter.

2.2 CIRCUMFERENCE
The outside circumference shall not vary more than ±1% from the nominal circumference based on the specified diameter, or ±3/4” maximum.

2.3 WALL THICKNESS
The actual wall thickness of the steel pipe sections shall not vary more than 5% under the nominal wall thickness specified.

2.4 STRAIGHTNESS
The maximum straightness deviation in any 10’ length shall be 1/8”. The maximum straightness deviation in fabricated sections up to 40’ shall be 3/8”.

Page 1 of 2
PART 3 MANUFACTURING

3.1 Permalok steel pipe 24" and under shall be either ERW or seamless at the option of the manufacturer.

3.2 Permalok steel pipe 30" in diameter and over shall be manufactured by the rolled and welded cylinder method utilizing the DSAW process in sections of not less than 8' long, except as needed to achieve the final finished length of pipe.

3.3 Permalok connectors shall be full penetration butt-welded square to the ends of pipe sections, or profiled directly on the finished sections, at the option of the manufacturer.

3.4 Spiral welded pipe will be permitted only at the request and/or approval of the purchaser.

PART 4 QUALITY CONTROL

4.1 All welding shall be performed by qualified welding operators in accordance with the requirements of ANSI/AWS D1.1.

4.2 All welding procedures shall be either pre-qualified in accordance with ANSI/AWS D 1.1 for full penetration welds, or qualified by testing, as required.

4.3 One reduced section tension test specimen shall be evaluated for each lot of 1000' of each size and wall thickness, and shall show a tensile strength of not less than 95% of the minimum strength specified for the grade of steel used, unless waived by the purchaser.

4.4 Hydrostatic testing is not required.

4.5 All Permalok connections shall be examined at time of shipment and shall be free of injurious defects or that section shall be rejected and repaired prior to shipping.

4.6 All Permalok pipe shall be clearly marked with the manufacturer’s name, manufacturer’s job number, customer name, OD, wall thickness, and weight per foot.
Technical > T5 Pipe Joining Profile

Department of Civil Engineering
University of Illinois at Urbana-Champaign

David A. Pecknold
Rami M. Hejazi
September 1995

Structural Analysis of the Permalok Steel Pipe Joining System for 10-inch, 36-inch and 60-inch diameter steel pipe

Pipe Chart
Report of Analysis #5-30

Loading Conditions

Closing the Joint
Compression
Tension

Compression/Tension Table

<table>
<thead>
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<th>Loading Cond.</th>
<th>10-inch ID 0.376 - WT</th>
<th>36-inch OD 0.5 - inch WT</th>
<th>60-inch OD 0.75 - inch WT</th>
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<td>Tension</td>
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</table>

Bending

Bending Table

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<th>Loading Cond.</th>
<th>Bending Moment (psi)</th>
<th>Axial Force (kips)</th>
<th>( \frac{M}{N_p} )</th>
<th>Bending Moment (psi)</th>
<th>Axial Force (kips)</th>
<th>( \frac{M}{N_p} )</th>
<th>Bending Moment (psi)</th>
<th>Axial Force (kips)</th>
<th>( \frac{M}{N_p} )</th>
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<td>Int. Press.</td>
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<td>25.3</td>
<td>0.98</td>
<td>1012</td>
<td>35.4</td>
<td>0.98</td>
<td>910</td>
<td>35.5</td>
<td>0.99</td>
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</table>

1 Hoop stress \( \sigma_h = \frac{p}{t} \) where \( p \) = internal pressure, \( t \) = wall thickness, and \( t \) = wall thickness

2 Limiting (maximum) bending moment

3 The plastic moment \( M_p \) is calculated from \( M_p = \frac{V}{N_p} - \frac{D_p}{\sigma_y} \) where \( D_p \) is the pipe OD, \( N_p \) is the pipe OD, and \( \sigma_y \) is the yield stress (36 ksi).
RE: Royal Lakes Force Main

1 Lead piece(s) required at 20'0" Sq. x Female

2" grout ports installed with plugs at 10:00 and 2:00
(see detail)

Permalok® Steel Casing Pipe

Specifications: Permalok Standard (no hydro)
Interior: bare
Exterior: black
Weight: 221 #/ft
Recommended Jacking Load Limit SF-2: 577.3 Tons

Port Detail

Exterior protrusion is no more than 1/8" ± 1/8"

Permalok Female
(see detail)
RE: Royal Lakes Force Main

12 piece(s) required at 20'0" Male x Female

2" grout ports installed with plugs at 10:00 and 2:00 (see detail)

Permalok Male (see detail)

---

Permalok Female (see detail)

---

Permalok® Steel Casing Pipe

Specifications: Permalok Standard (no hydro)
Interior: bare
Exterior: black
Weight: 221 #/ft
Recommended Jacking Load Limit SF-2: 577.3 Tons

Port/Orientation Detail

Permalok Female (see detail)

Port/Detail

Exterior protrusion is no more than 1/8" ± 1/8"

---

2" Half Coupling or Equal
2" Threaded Ring Recessed Head Preferred or Equal

2" Interior Flush

---

REVISIONS

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<th>NO</th>
<th>DATE</th>
<th>BY</th>
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RE: Royal Lakes Force Main

1 Tail pcs required at 10'0" Male x Sq.

2" grout ports installed with plugs at 10:00 and 2:00 (see detail)

Permalok Male (see detail)

Permalok® Steel Casing Pipe

Specifications: Permalok Standard (no hydro)
Interior: bare
Exterior: black
Weight: 221 #/ft
Recommended Jacking Load Limit SF-2: 577.3 Tons

Port Detail

Exterior protrusion is no more than 1/8" ± 1/8"

2" Half Coupling or Equal
2" Threaded Ring Recessed Head Preferred or Equal

Interior Flush

---

Permalok Corporation
472 Paul Avenue
St. Louis, MO 63135

Mailing Address: P.O. Box 10970
St. Louis, MO 63135

The Interlocking Pipe Joining System

REVISIONS

NO DATE BY
1
2
3 BY EG SCALE MATERIAL
4 CKD DATE 35 ksi min yield
5 TRACED 7/22/11 DRAWING NO

S00305-03
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PART 1  GENERAL

1.1 SCOPE
The work provided herein consists of furnishing all plant, labor, equipment, and materials, as well as performing all operations necessary for establishing turf including fertilization, seeding, mulching and soil amendments on areas as specified herein and as indicated on the drawings. Turf establishment of the embankment shall be performed upon completion of embankment construction (in minimum lengths of 1000-feet).

1.2 RESERVED

1.3 MEASUREMENT
Measurement for fertilizing, soil amendments, seeding, and mulching will be made by the acre. Acreage will be determined from surface areas computed from the theoretical gross cross section of embankment fertilized, amended, seeded and mulched. Measurement will be made to the nearest foot and units computed to the nearest one-hundredth of an acre. No separate measurement will be made for placement of material required for any necessary repairs as described in paragraph 2.1.3. The acreage will be used with the rate of application recommended by Soil Testing Laboratory to determine the weight of materials required.

1.4 PAYMENT
Payment for fertilizing, soil amendments, seeding, and mulch measured as described in paragraph 1.3 and other incidental work, except disposal of debris, will be made at the contract (lump sum) price per acre for "Fertilizing, Soil Amendments, Seeding, and Mulching". Prices and payments shall constitute full compensation for furnishing all plant, labor, materials and equipment and performing the work, including any necessary repairs, in accordance with these specifications.

1.5 SUBMITTALS
The Contractor shall submit the following items in accordance with the Section 01330, "SUBMITTAL PROCEDURES".

1.5.1 Herbicide Application Plan
Approved herbicides may be used on areas requiring new turf establishment. At least 30 days prior to application of any herbicide, the Contractor shall furnish an herbicide application plan for review by the Contracting Officer. The Contractor shall ensure that the plan for herbicide applications complies with all applicable local, state, and federal requirements. The plan shall include the following items, as a minimum:
- proposed herbicides and application rates
- copies of herbicide manufacturer's labels and material safety data sheets
- any state-imposed conditions, copies of commercial and/or restricted use herbicide applicators' certificates from the states in which the work is to be performed
- an activity hazard analysis
- environmental protection procedures
spill containment procedures
residue and container disposal procedures
noncompliance reporting and response procedures

1.5.2 Turf Establishment Plan
At least 30 days prior to initiating grass establishment, the contractor shall furnish a Turf Establishment Plan to the Contracting Officer for review and approval. The plan shall include recommendations for fertilizer and/or soil amendment application based upon soil testing results by a certified agronomist. Recommendations based on soil testing results can be from the testing laboratory, state agricultural extension services, or private consultant.

The contractor shall provide the name of the certified agronomy testing laboratory in addition to copies of the levee/embankment material soil analyses as part of the turf establishment plan. Soil analyses will include soil pH, phosphorus, potassium, calcium, magnesium, sodium, sulfur, copper, zinc, chloride, total dissolved salts, conductivity, and sodium absorption ratio.

The contractor shall also provide the name of the certified water analysis laboratory as well as copies of the findings for all proposed water sources, other than municipal water sources, earmarked for grass establishment and irrigation. Water analyses will include pH, alkalinity, calcium, chloride, iron, magnesium, manganese, potassium, sodium, sulfur, total dissolved salts, conductivity, and sodium absorption ratio.

In addition to the soil amendment and fertilization plan, the turf establishment plan will describe procedures and specific equipment used for ground surface preparation, seeding or alternative establishment methods, and mulching. Unless the approved turf establishment plan contains a variation, the minimum requirements for ground surface preparation, seeding or alternative establishment methods, and mulching contained in this specification will be controlling.

1.5.3 Seed
The Contracting Officer’s Representative shall be furnished duplicate signed copies of statements certifying that each container of seed delivered is labeled in accordance with the Federal Seed Act and any Louisiana Department of Agriculture regulations and is at least equal to the requirements specified in paragraph 2.1.3. This certification shall be obtained from the supplier and shall be furnished on or with all copies of seed invoices.

1.5.4 Alternative Turf Establishment Methods
Certification of sod and sprig material from the original supplier/source will be furnished. Material that is rejected by the Contracting Officer will be removed from the job site by the contractor at no cost to the Government.

1.6 QUALITY CONTROL

1.6.1 General
The Contractor shall establish and maintain quality control for all materials and operations performed during the levee/embankment turf establishment. The Contracting Officer will provide quality control records that shall include, but not be limited to, the following:
(1) Soil and Water Analyses. Soil and water analysis reports from a certified agronomic laboratory. Water used for irrigation subsequent to establishment shall be tested a minimum of once every 30 days. Soil samples will be taken in accordance to paragraph 3.1.1 and the test results used to determine weights of fertilizer and soil amendments required.

(2) Preparation of Ground Surface. Location and quality of finished dressing, including necessary clearing, filling, or dressing out of washes, smoothness and uniformity of surfaces, and time of year.

(3) Herbicides. Manufacturer’s label, MSDS, date of application, rate of application, location and area of application, environmental conditions during herbicide application (e.g. temperature), valid applicator licensing, pesticide safety plan.

(4) Fertilizing. Quality of fertilizer materials used. Areas fertilized, quantity applied, and method of application. Certificate of analysis and certificate of delivery shall be furnished to verify quality and quantity as specified in paragraph 1.5.2. The rate of application will be checked daily to insure conformance to soil testing laboratory recommendations.

(5) Seeding. Seed species and cultivar, seed label, area covered, quantity of seed applied, and method of seed distribution. All bags of seed furnished will have an analysis tag having all information required by the Louisiana Seed Law. Seed furnished shall be from the previous season’s crop and the date of analysis shown on each tag shall be within 5 months of time of delivery. Rate of application will be checked daily to insure that the rate conforms to paragraph 3.4.1.

(6) Mulching. Quality and type of mulch material applied, area covered by the mulch, quantity applied, and method of mulch application. Certificate of delivery showing weight of material delivered for either vegetative or fiber mulch will be furnished to verify rate of application according to paragraph 3.5.1 or 3.5.2.

(7) Maintenance and Repair. Location and type of maintenance problems and remedial treatment performed according to paragraph 2.1.3 and 3.4.5.

(8) Water/Irrigation. Water analysis report, area where water was obtained, area where water was applied, purpose of water application (irrigation or used during establishment), quantity applied, and method of application.

(9) Alternative Turf Establishment Methods. Type of alternative turf establishment method used, certification of vegetative material quality, source of material, quantity of material applied, placing, spacing, covering, and compaction.

1.6.2 Reporting
The Contractor shall furnish the original and two copies of the inspection and test records, as
well as “corrective action taken” records, to the Government daily. Format of the report shall be as prescribed in Section 01451, "CONTRACTOR QUALITY CONTROL".

1.7 AREAS TO BE TREATED
Fertilizing, soil amendment, seeding, and mulching shall be performed on all disturbed areas within the construction limits and on all newly constructed embankments as indicated on the drawings except as specified in___.

1.8 COMMENCEMENT, PROSECUTION, AND COMPLETION

1.8.1 General
Preparation of the ground surface, fertilizing, adding soil amendments, seeding and mulching operations shall be accomplished during the applicable growing season as specified herein.

1.8.2 Sequence of Work
The sequence of operations for work prescribed in this section, except mowing, shall be as follows:

(1) Soil and Water Analyses
(2) Preparation of Ground Surface
(3) Fertilization and Soil Amendments
(4) Seeding or Alternative Establishment Method
(5) Mulching
(6) Irrigation
(7) Mowing

Fertilizing and seeding operations shall commence upon completion of embankment construction at a length of 1000 feet of embankment. At no time shall such fertilizing, soil amending, seeding, and mulching operations be more than__14 days behind completed portions of embankment unless approved by the Contracting Officer.
PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Herbicides
Herbicide shall be delivered to the mixing site in original, un-opened containers bearing legible labels indicating the EPA registration numbers and product label. All operations associated with herbicide applications shall be in strict compliance with manufacturer’s label, approved herbicide application plan and all local, state, and federal regulations. The Government shall be informed as to the exact date, location and time of herbicide application prior to herbicide use.

2.1.2 Fertilizers and Soil Amendments
Fertilizers and soil amendments in accordance with the approved turf establishment plan (Sec 1.5.2.) shall be of commercial grade, uniform in composition, free flowing and suitable for contractor’s application method. Materials shall be delivered in bulk or labeled containers and shall conform to current Louisiana Department of Agriculture requirements for commercial fertilizers and soil amendments. Federal and state government conforming labels that indicate producer’s name, type, analysis, weight, and warranty of producer shall accompany each delivery of fertilizer. The Contractor shall provide duplicate signed copies of invoices from suppliers of fertilizer and/or soil amendments showing quantity, grade, and fertilizer analysis indicating percentages of nitrogen (soluble and insoluble), phosphorus, and potassium.

In accordance with the approved turf establishment plan, pulverized or palletized agricultural lime source will be applied prior to planting and incorporated into the top 4 inches of soil. Seventy-five percent will pass a No. 100 sieve and 100 percent will pass a No. 8 sieve. Dolomitic lime may be substituted for lime if magnesium levels are insufficient based on the soil test results.

2.1.3 Soil for Repairs
In areas not suitable for turf establishment due to undulations or rills in the soil surface, these areas shall be repaired using soil that is in accordance with Section 02318 “Excavation” and Section 02332, “Embankment”.

2.1.4 Seed
For turf establishment, the Contractor shall furnish and apply pure live seed in accordance the example of how to calculate PLS in paragraph 3.4.1 and certified (blue tag) seed in accordance with regulations from the U.S. Department of Agriculture (under the Federal Seed Act) and the Louisiana Department of Agriculture. Seed must be in sealed or unopened containers prior to initiation of application. Seed that is wet, moldy or otherwise non-viable due to damage in transit or storage will not be accepted. Seed that is older than one year past label germination tests will not be accepted.

2.1.5 Alternate Turf Establishment Methods (Sprigs or Sod)
Sprigs – Bermuda grass/Seashore paspalum sprigs must be healthy viable rhizomes and stolons
that shall be obtained from a certified grower under the regulations of the Louisiana Department of Agriculture. Sprigs should be from a local source (less than 200 miles from the site of work) or other source approved by the Government. Sprigs shall be weed- and disease-free.

Sod – Bermuda grass/Seashore paspalum sod must be healthy and stable and shall be obtained from a certified grower under the regulations of the Louisiana Department of Agriculture. Sod should be from a local source (less than 200 miles) or other source approved by the Government. Sod shall be weed- and disease-free.

2.1.6 Mulch (For use in rural areas only)
Mulch options include threshed straw from a cereal grain such as oats, wheat, barley, rye, or rice; bagasse; grass hay with vegetative overspray; or wood fiber that shall be furnished and applied by the Contractor. Materials that contain noxious grass or weed seeds that might be detrimental to the seed establishment or turf growth or to adjacent areas will not be acceptable.

2.1.6.1 Wood Cellulose Fiber or Recycled Wood Pulp Mulch (Vegetative Overspray)
If the recycled wood cellulose fiber option is used for capping the mulch, the overspray shall consist of recycled or by-product material made from printer's scrap paper that contains wood cellulose and kaolin clay. The mulch shall be free of substances that reduce seed germination or limits plant growth. In addition, the mulch must have an indicator dye to gauge proper application of the material on the levee/embankment surface. The mulch material shall be supplied in packages having a net weight not in excess of 100 pounds. The wood cellulose mulch fiber shall contain not in excess of 10 percent moisture, air dry weight basis. The wood-cellulose mulch fiber shall be manufactured so that, after addition and agitation with water and any other additives, the fibers in the material are uniformly suspended to form homogeneous slurry. When hydraulically sprayed on the ground, the material will form a blotter-like ground cover, which, after application, allows moisture absorption and rainfall or mechanical watering to percolate to the underlying soil. The Contractor shall be prepared to submit, on request, certification from the supplier that laboratory and field-testing of the product has been accomplished, and that the product meets the foregoing requirements.

2.1.7 Water Source
Water, applied during establishment and irrigation of grass on the embankment from a water source other than municipal water supply shall be analyzed by a certified water analysis laboratory. The water source shall be tested every 30 days or until operations cease use of water source for irrigation purposes.

In addition to the agronomic tests to determine irrigation water suitability, the contractor should not apply water as irrigation that may contain any substance toxic to plants or that limits plant growth (e.g. oil, acid, alkali, salt, etc.)
PART 3 EXECUTION

3.1 SOIL AND WATER ANALYSIS

3.1.1 Soil Analysis
Soil samples will be collected every 500 linear feet of completed embankment. Soil shall be a composite sample from no less than six random areas to a depth of four inches on the levee/embankment surface. Collected soil shall be mixed within a clean, non-metallic container. All organic matter from existing vegetation shall be removed from the soil sample prior to submission to the testing laboratory.

3.1.2 Water Source Analysis (only if using non-potable water source)
Water samples from borrow canals or similar sites should be collected in duplicate in the volume of one liter (per sample) in a clean plastic container for analysis by a certified agronomic water analysis laboratory. Debris such as sediment and algae must be limited within the sample.

3.2 PREPARATION OF GROUND SURFACE

3.2.1 General
Equipment, in good condition, shall be provided for the proper ground preparation and for handling and placing all materials. The Contracting Officer shall inspect and approve equipment before work is initiated as part of the turf establishment plan.

3.2.2 Vegetative and Debris Removal
Prior to soil preparation, existing vegetation shall be removed. Vegetation removal may be accomplished through mowing (scalping) or herbicide application. Any debris or material (e.g. clippings) that may hinder seed germination or limit plant growth should be removed as specified in Section 31 11 00.0012, paragraph Disposal of Debris. If an herbicide is to be applied, an herbicide plan shall be submitted and approved by the Contracting Officer prior to herbicide application (paragraph 1.5.1).

3.2.3 Grading
Previously established levee/embankment grades and slopes shall be maintained in a true and even condition on the areas to be established with turf. Necessary repairs to previously graded areas with undulations or irregularities in the surface shall be accomplished with material as described in paragraph 2.1.3 (Soil for Repairs). The material shall be placed and compacted in accordance with Section 31 24 00.00 12, paragraph Embankment (and Berm) Construction. Where grades have not been established, the areas shall be graded as shown, or as directed by the Contracting Officer, and all surfaces shall be left in a true and even condition. The Contracting Officer’s Representative shall conduct a Pre-Turfing inspection prior to turfing operation commencing.
3.2.4 Soil Preparation
Soil shall be tilled to a depth of 4 inches by plowing, diskng, harrowing, or other approved method in the turf establishment plan in order to provide an acceptable seed bed. The soil preparation shall be performed only during periods acceptable for turf establishment, in the opinion of the Contracting Officer’s Representative. Environmental conditions that may constitute unacceptable periods for soil preparation include, but are not limited to, drought, high winds, excessive moisture, etc. The work shall cease until conditions are more favorable for turf establishment. Any additional soil repair must be completed prior to turf establishment.

3.3 APPLICATION OF FERTILIZER AND SOIL AMENDMENTS
Adjustment of soil nutrient levels will be in accordance with the approved turf establishment plan as outlined in section 1.5.2 (Turf Establishment Plan). Unless otherwise specified in the approved plan, initial fertilizers and soil amendments applications will be incorporated into the top four inches of soil prior to seeding, sprigging or sodding.

3.3.2 Nitrogen
In accordance with the approved turf establishment plan, nitrogen shall be incorporated to a depth of 4 inches prior to seeding. Nitrogen shall be applied at 45 lbs per acre in a slow-release form.

3.3.2 Soil pH
Soil pH shall be between 5.5 and 8.0. If the soil pH is outside of this range, one of the following amendments shall be added to adjust the soil pH.

3.3.2.1 Increasing Soil pH
A pulverized or palletized agricultural lime source shall be applied prior to planting and incorporated into the top 4 inches of soil. The rate of lime application shall be as specified in the approved turf establishment plan. Dolomitic lime may be substituted for lime if magnesium levels are insufficient per the soil test results.

3.3.2.2 Reduce Soil pH
Agricultural grade elemental sulfur shall be applied, as specified in the approved turf establishment plan, prior to planting. Elemental sulfur shall be incorporated into the top four inches of soil.

3.4 SEEDING

3.4.1 General
The applicable seed shall be sown at the rate and time as indicated in the table below, unless otherwise specified in the approved turf establishment plan. A satisfactory method of sowing shall be employed; using approved mechanical power-drawn seeders, mechanical hand- seeders, broadcast-seeders, or other approved methods. When delays in operations extend the work beyond the most favorable planting season for the species designated, or when conditions are such by reason of drought, high winds, excessive moisture, or other factors that satisfactory results are not likely to be obtained, work shall be stopped as directed by the Contracting
Officer’s Representative and resumed only when conditions are favorable for turf establishment or when approved alternative or corrective measures and procedures have been completed. If inspection during or after seeding operations indicates that areas have been left unplanted or other areas have not been adequately addressed, additional seed shall be applied if so directed by the Contracting Officer’s Representative.

Rates and timings of seed application will be in accordance with the guidelines below:

March 1 to September 1 - hulled common bermuda grass – 65 lbs (min) of PLS / acre

OR

seashore paspalum – 65 lbs (min) of PLS / acre

September 1 to March 1 - unhulled common bermuda grass – 65 lbs (min) of PLS / acre

annual, intermediate or perennial ryegrass – 70 lbs (min) of PLS / acre

Hulled bermuda grass may be planted in the month of February if soil temperatures are in excess of 65 F for a minimum of 7 consecutive days.

\[
\text{PLS} = (\text{label germination rate} \times \text{label purity}) \times 100
\]

Example of how to calculate PLS:

\[
\text{PLS} = (0.95 \text{ germination rate} \times 0.85 \text{ purity}) \times 100
\]

\[
\text{PLS} = 81 \%
\]

Therefore to plant 1 lb PLS you will need 1.19 lbs of seed

3.4.2 Broadcast Seeding

If the broadcast method of seeding is used, seed shall be broadcast with approved sowing equipment and distributed uniformly over designated areas at the appropriate seeding rates. After broadcast seeding, seed shall be covered to an average depth of 1/4-inch using a brush, harrow, spike-tooth harrow, chain harrow, cultipacker, or other approved device. Seed shall not be broadcast during windy or inclement weather.

3.4.3 Hydro-Seeding

If the hydro-seeding method is used, seeds shall be combined with mulch and applied uniformly with approved equipment. Mulch guidelines (paragraph 3.5.) shall be followed with greater than 85% of the ground covered.

3.4.4 Alternate Turf Establishment Methods

3.4.4.1 Sprigs

Certified sprigs should be planted at a rate of 150 bushels per acre. Sprigs should be tilled, sliced, or disked into the upper 3 inches of soil. No mulching is required.

3.4.4.2 Sod

Certified Sod should be planted in rows parallel to the levee centerline with perpendicular seams
staggered (e.g. brick-like pattern). Stabilizing aids such as staples may be used to prevent sod sloughing. No mulching is required.

3.4.5 Damage to Established Seeding Area
The Contractor shall be fully responsible for any damage to the establishment areas caused by his/her operations. Areas that become damaged as a result of poor workmanship or failure to meet the requirements of the specifications shall be ordered repaired and reseeded to specification requirements, without any additional cost to the Government.

3.5 APPLYING AND ANCHORING MULCH
Application of mulch will follow these guidelines unless otherwise specified in the approved turf establishment plan.

3.5.1 Applying Mulch
The mulch shall be vegetative non-asphalt mulch consisting of grain straw (oats, wheat, or rice) or grass hay. Mulch, as specified in paragraph 2.1.6, shall be applied uniformly on the soil surface at the rate of 2 tons (approximately 80 bales) per acre. Mulching shall be done immediately after seeding. Mulch shall be tacked by spraying with emulsified tackifier conforming to paragraph 2.1.6.1 at the rate of 150 gallons per ton of mulch. The mulch shall be applied by means of approved equipment.

3.5.2 Wood Cellulose Fiber Mulch or Recycled Wood Pulp
Wood cellulose fiber or recycled wood pulp mulch, as specified in paragraph 2.1.6 (Mulch), shall be applied uniformly on the soil at the rate of 2200 to 2500 pounds per acre during the seeding operation with approved equipment.

3.6 Irrigation Application During Turf Establishment
Unless the Contracting Officer’s Representative concurs that acceptable levels from precipitation have occurred to support grass establishment, irrigation will be applied one to two days after seeding or other turf establishment method used. Irrigation shall be applied at least 2 times per week for a period of 28 days unless otherwise directed by the Contracting Officer’s Representative based upon natural rainfall. The application of water must sufficiently moisten at least the top 2 inches of soil with each irrigation event. The application of water in excess, so that surface runoff occurs, is prohibited.

3.7 MOWING

3.7.1 New Turf Establishment Areas
Turf areas established under this contract shall be mowed with approved mowing equipment to a height of 3 to 4-inches whenever the height of the vegetation is in excess of 12 inches. Debris created from mowing (e.g. clippings) that will be detrimental to turf growth or inhibit turf establishment shall be removed. The Contractor shall perform periodic and final grass mowing within the limits of work until the contract final inspection is held with the sponsor and they accept the levee as suitable.
3.7.2 Existing Turf Maintenance
For the duration of the contract, the Contractor shall maintain existing turf within the limits of work where new embankment is not required, and where new embankment is required but has not yet been placed. Same requirements as paragraph 3.7.1 above.

3.8 Inspections and Reports
After initial planting, the Contractor shall inspect newly turfed areas at least once every two weeks. For each inspection conducted, the Contractor shall prepare a report summarizing the scope of the inspection, names of personnel making the inspection, inspection date, height of vegetation, observations and conclusions, maintenance performed, and corrective actions, if required. The report shall be furnished to the Contracting Officer’s Representative within 24 hours of the inspection as a part of the Contractor's daily QC Report.

3.9 Replanting
Approximately one month after initial planting, the Contractor shall restore any eroded areas and perform soil preparation, fertilize, replant and mulch all bare spots larger than 100 square feet in accordance with the requirements of this specification, all at no additional cost to the Government.

3.10 Post-planting Fertilizer Application
For those areas that do not require replanting, approximately one month after the initial planting, fertilizer shall be applied at the minimum rate of 45 lbs per acre of a slow-release nitrogen shall be applied with irrigation or rainfall occurring within 24 hours.

3.11 Establishment
Turf will be considered established and completed when the areas to be turfed have produced the required grass species over a minimum of 75 percent of the entire area as determined by the Contracting Officer’s Representative by random sampling. Seventy-five percent coverage shall be confirmed by the use a 1 meter square constructed from PVC with 100 blocks of 100cm2 (10 cm grid). In order for the method to be non-bias, measurements using the apparatus should be conducted on random areas selected prior to grass establishment. Measurements should be made on both sides of the levee every 100 to 250 feet. If 25 squares are not filled with the desired intended vegetative species; that section of the levee would be deemed unacceptable.

3.12 Inspection and Acceptance
Acceptance inspections of the entire turfed area shall be performed by the Contracting Officer’s Representative by random sampling and supplemented by visual inspections. Bare areas with diameters larger than 24 inches are to be considered unacceptable. This measurement would supersede the first criteria for vegetative acceptance. These areas should be noted for repairs. If inspection determines that turf establishment is not complete, the Contractor shall meet with the Contracting Officer’s Representative at the job site to identify bare spots, eroded areas and rutting damage and to discuss the Contractor's plan of operation for completing new turf establishment.
Prior to acceptance of turfed areas by the Contracting Officer’s Representative, the contractor shall restore any damaged areas resulting from the contractor’s operations or by natural forces at no additional cost to the Government. Partial reaches will not be accepted unless determined by the Contracting Officer’s Representative to be in the best interest of the Government.
LANDOWNERS AND CONTACT MEMORANDUM AND INFORMATION

STIPULATIONS:

The Contractor shall ensure that the Grantors below are listed as additional insured on any policies carried by the Contractor, including completed operations coverage.

The Contractor shall be responsible for repair in like manner of any fences, bridges, roads, and other similar facilities and appurtenances located in the Work Area which may be damaged or destroyed by the Contractor, or its designees while in the Work Area, but such repair shall be to that condition which existed immediately prior to the Contractor's activities. The Contractor shall remove or dispose of all debris associated with construction, operation and maintenance of the Project.

PLAQUEMINES PARISH GOVERNMENT
P.J. Hahn
8056 Hwy. 23, Suite 200
Belle Chasse, LA  70037
(504) 297-5000

NATHANIEL PHILLIPS
Nathaniel P. Phillips, Jr
826 Union Street, Suite 200
New Orleans, LA  70112
Phone: (504) 525-2985

DEVITT ET AL
Matthew Bourdon Devitt, Jr.
Independent Administrator
6747 Line Road
Ethel, LA  70730
Phone: (225) 634-5591

STATE LAND OFFICE
John Lavin, Public Lands Administrator
State Land Office
Division of Administration
P.O. Box 44124
Baton Rouge, LA 70804
Phone: (225) 342-4575

ROBINSON INTERESTS, LLC ET AL
Warren Doyle
880 Commerce Road West, Suite 104
New Orleans, LA  70123
Phone: (504) 620-5051
TENNESSEE GAS PIPELINE
Kurt Cheramie
158 Regal Row
Houma, LA  70360
Phone: (985) 223-6417

JOHNSON PROPERTY
Philip H. Simmons, Jr.
P. O. Box 3 Empire, LA  70050-003
Phone: (504) 657-5707

Margaret Ann Simmons Bondi
P. O. Box 397
Empire, LA  70050-0397
Phone: None

First Equity, Inc.
c/o George Pivach, II
P. O. Box 97
Belle Chasse, LA  70037
Phone: (504) 394-1870

Larry A. Johnson
210 Brasseaur Rd.
Carencro, LA  70520
Phone: (337) 896-9895

James R. Stockfleth
2608 Lynnwood Street
Pascagoula, MS  39567
Phone: (228) 762-4545

Sharon Kay Stockfleth Dickinson
Route 1, Box 53
Jonesville, LA  71343
Phone: None

Mary Lou Johnson Pennison
318 S. Concord Rd, Apt. D
Belle Chase, LA  70037
Phone: None
PIPPLELINE AND UTILITY COMPANIES AND CONTACT INFORMATION

NOTE: Special care and extremely close coordination by the Contractor with the pipeline and utility companies will be crucial in order to avoid impacting the pipelines and/or utilities within or near the Work 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. 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.

<table>
<thead>
<tr>
<th>Pipeline Owner</th>
<th>Contact</th>
<th>Phone Number</th>
<th>Email Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Gulf South Pipeline, a/k/a United Gas Pipeline, a/k/a Koch Gateway 520 Alliance Street Kenner, LA 469-5903</td>
<td>Gerald Roser</td>
<td>(504) 469-5903</td>
<td><a href="mailto:Gerald.Roser@BWPMLP.com">Gerald.Roser@BWPMLP.com</a></td>
</tr>
<tr>
<td>2 Tennessee Gas Pipeline &amp; Southern Natural Gas 158 Regal Row Houma, LA 70360</td>
<td>Kurt Cheramie</td>
<td>(985) 223-6417</td>
<td><a href="mailto:Kurt.Cheramie@ElPaso.com">Kurt.Cheramie@ElPaso.com</a></td>
</tr>
<tr>
<td>3 Chevron Pipeline 4800 Fournace Place Bellaire, TX 77401</td>
<td>Thomas August, Jr. 4800 Fournace Bellaire, TX 77401</td>
<td>(713) 432-3594</td>
<td>Thomas.August@Chevron</td>
</tr>
<tr>
<td></td>
<td><strong>Company</strong></td>
<td>Name</td>
<td>Phone Numbers</td>
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<tr>
<td>5</td>
<td><strong>Exxon Mobile Production</strong></td>
<td>Mike McNulty</td>
<td>(713) 431-2153</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Shelbi McKee</td>
<td>(713) 431-1994</td>
</tr>
<tr>
<td>6</td>
<td><strong>Cross-Tex</strong></td>
<td>Chris Greneaux</td>
<td>(337) 354-1707/Office (337) 237-2554/Fax (337) 962-1275/Cell</td>
</tr>
<tr>
<td>7</td>
<td><strong>Shell Pipeline</strong></td>
<td>Kevin Arceneaux, Terri Howell, Shane Degruise</td>
<td>(985) 873-3429, (504) 728-4821, (985) 856-7572/Cell (985) 873-3417/Office</td>
</tr>
<tr>
<td>8</td>
<td><strong>Texas Eastern Gas Pipeline, a/k/a Spectra Energy</strong></td>
<td>Jerome Snyder, Stan Johnson</td>
<td>(985) 876-6761 ext. 6851, (713) 627-4482</td>
</tr>
<tr>
<td>9</td>
<td><strong>Promix Pipeline</strong></td>
<td>Tony Russell</td>
<td>(985) 369-5017 Direct (985) 369-5012 Company Line</td>
</tr>
<tr>
<td></td>
<td><strong>Promix Pipeline</strong></td>
<td>Justin Chauvin</td>
<td>(225) 675-2510</td>
</tr>
<tr>
<td>10</td>
<td><strong>Conoco Phillips</strong></td>
<td>Jeff Deblieux</td>
<td>(985) 853-3009</td>
</tr>
<tr>
<td>11</td>
<td><strong>Columbia Gulf Transmission</strong></td>
<td>Eric Theriot</td>
<td>(985) 879-3301</td>
</tr>
<tr>
<td>12</td>
<td><strong>Atmos Energy, a/k/a Delta Gas Pipeline</strong></td>
<td>Brian Blum</td>
<td>(504) 362-5258</td>
</tr>
<tr>
<td></td>
<td>Company Name</td>
<td>Contact Name</td>
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<tr>
<td>13</td>
<td>Plains All-American Pipeline Co.</td>
<td>Terry Calk</td>
<td>(713) 646-4660/Office (713) 646-4146 fax</td>
</tr>
<tr>
<td>14</td>
<td>Clayton Williams Energy, Inc.</td>
<td>Cheryl Strickland</td>
<td>(281) 359-5511 ext. 4024</td>
</tr>
<tr>
<td>16</td>
<td>Plaquemine's Parish Government Water &amp; Sewerage Lines</td>
<td>Robert Spears</td>
<td>(504) 392-6690</td>
</tr>
<tr>
<td>17</td>
<td>Hilcorp Energy</td>
<td>Sean Golden</td>
<td>(713) 209-2493</td>
</tr>
<tr>
<td>18</td>
<td>Plains Exploration</td>
<td>Connie Conques</td>
<td>(337) 354-5023</td>
</tr>
<tr>
<td>19</td>
<td>Enterprise Products (Pipeline Company)</td>
<td>David Eguia</td>
<td>(713) 803-7808</td>
</tr>
<tr>
<td>20</td>
<td>Severn Trent Environmental (now ADS)</td>
<td>Kevin Enfinger</td>
<td>(215) 646-9201</td>
</tr>
<tr>
<td></td>
<td>Company</td>
<td>Name</td>
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<tr>
<td>21</td>
<td>Entergy</td>
<td>Shana Markey</td>
<td>(888) 413-3188</td>
</tr>
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<td></td>
<td></td>
<td>Dan Reagan Asst. to Shana</td>
<td></td>
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<tr>
<td>22</td>
<td>Devon Energy Corporation</td>
<td>Stephen McReynolds</td>
<td>(713) 265-6258/Office</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(985) 519-1300/Cell</td>
</tr>
<tr>
<td>23</td>
<td>Anglo-Suisse Offshore Partners, LLC</td>
<td>Troy Bourgeois</td>
<td>(985) 380-1031</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Toni Kelly</td>
<td>(713) 275-7700</td>
</tr>
<tr>
<td>24</td>
<td>EnergyQuest, LLC</td>
<td>Rory Aaronson</td>
<td>(281) 875-6200</td>
</tr>
<tr>
<td>25</td>
<td>CMA Cablevision</td>
<td>John Clair</td>
<td>(504) 392-4060</td>
</tr>
<tr>
<td>26</td>
<td>Texas Petroleum Investment Company</td>
<td>Steve Sandlin</td>
<td>(713) 789-9225</td>
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<tr>
<td></td>
<td></td>
<td>Chris Sanfilippo</td>
<td>(337) 560-1016 Direct</td>
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<tr>
<td></td>
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<td>(337) 577-8465 Cell</td>
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<tr>
<td>27</td>
<td>McMoran Exploration</td>
<td>Jill Lirette</td>
<td>(504) 582-4000</td>
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<tr>
<td>28</td>
<td>AT&amp;T</td>
<td>Loyd Massey</td>
<td>(504) 364-6801</td>
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<td></td>
<td>Mike Waguespack</td>
<td>(504) 368-0843</td>
</tr>
<tr>
<td>29</td>
<td>U.S. Army Corps of Engineers</td>
<td>Mark A. Selquist</td>
<td>(504) 862-1525</td>
</tr>
<tr>
<td>#</td>
<td>Company Name</td>
<td>Contact Person</td>
<td>Phone Numbers</td>
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<tr>
<td>30</td>
<td>LA DOTD</td>
<td>Glenn Richard</td>
<td>(504) 437-3130</td>
</tr>
<tr>
<td></td>
<td>PO Box 9180</td>
<td>(Permits for LA 23)</td>
<td>(504) 437-3129</td>
</tr>
<tr>
<td></td>
<td>Bridge City, LA  70096</td>
<td>Donna Painter</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Utility Coordinator)</td>
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<td></td>
<td></td>
<td>LA District 02</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>Plaquemine's Parish Permit Office</td>
<td>Mr. Robert Spears</td>
<td>(504) 297-5445</td>
</tr>
<tr>
<td></td>
<td>102 Avenue G</td>
<td>Ms. Valarie Ragas</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Suite C</td>
<td>(Permits for LA 11)</td>
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<td>Belle Chasse, LA  70037</td>
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<td>32</td>
<td>Targa Resources</td>
<td>Perry Bertholet</td>
<td>(504) 732-8156</td>
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<tr>
<td></td>
<td></td>
<td>Marc Beritling</td>
<td>(713) 584-1000 ext. 1409</td>
</tr>
<tr>
<td>33</td>
<td>Anadarko Petroleum</td>
<td>Lori Maldonado</td>
<td>(832) 636-1000</td>
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<tr>
<td>34</td>
<td>Enbridge Pipeline Company Inc.</td>
<td>Gary Worone</td>
<td>(713) 821-2278</td>
</tr>
<tr>
<td></td>
<td>1100 Louisiana, Suite 3300</td>
<td>Bobbie Crawford</td>
<td>(713) 821-2278</td>
</tr>
<tr>
<td></td>
<td>Houston, TX  77002</td>
<td></td>
<td><a href="mailto:bobbie.crawford@enbridge.com">bobbie.crawford@enbridge.com</a></td>
</tr>
<tr>
<td>35</td>
<td>Noble Energy</td>
<td>Pipeline Dept.</td>
<td>(281) 812-3100</td>
</tr>
<tr>
<td></td>
<td>100 Glenborough Dr.</td>
<td>Lee Ferguson</td>
<td>(281) 874-6026</td>
</tr>
<tr>
<td></td>
<td>Suite 100</td>
<td></td>
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<tr>
<td></td>
<td>Houston, TX  77067</td>
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<tr>
<td>36</td>
<td>Energy Partners Limited</td>
<td>Ms. Sherry</td>
<td>(504) 569-1875</td>
</tr>
<tr>
<td></td>
<td>201 St. Charles Ave.</td>
<td>Michael Francis</td>
<td>(504) 799-4810</td>
</tr>
<tr>
<td></td>
<td>Suite 3400</td>
<td>Brian Bowling</td>
<td>(504) 799-1945</td>
</tr>
<tr>
<td></td>
<td>New Orleans, LA  70170-3400</td>
<td></td>
<td></td>
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<tr>
<td>37</td>
<td>Plaquemines Parish Govt. Mineral Office</td>
<td>Margaret A.</td>
<td><a href="mailto:Mfrancis@eplweb.com">Mfrancis@eplweb.com</a></td>
</tr>
<tr>
<td></td>
<td>8056 Hwy 23</td>
<td>Bonneval</td>
<td></td>
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<tr>
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<td>Suite 309</td>
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<tr>
<td></td>
<td>Belle Chasse, LA  70037</td>
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<td></td>
</tr>
</tbody>
</table>
| 38 | **L.V. Cooley, IV**  
Special Assistant Parish Attorney- Plaquemines | (985) 639-9024  
(985) 445-3292 (cell) | lcooleiv@msn.com |
NOTES:

1. Size of riprap to vary between 6 pounds and 125 pounds with 40 percent to 60 percent of the stone within the range of 25 pounds to 75 pounds.

2. When penetrating the upper bank paving in a revetment area with piles, caissons and/or pile clusters, a 10 inch thick riprap stone layer shall be placed over all areas where the bank paving is disturbed by driving operations.

3. When using an anchor chain and pile system, the anchor chain must be attached at the top of the pile to minimize revetment damage.
Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Reference:
1. Aerial image was taken from Google Earth Pro., Licensed to GeoEngineers Inc., Imagery Dated 4/15/2011
2. Alignment was taken from Coastal Engineering Consultants, Inc., Conveyance Corridor Layout, Sheet 12, Dated August 2011
Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Reference: 1. Lidar data was taken from LSU Atlas, SW Quadrant of Empire Quadrangle, Dated 3/2003
2. Stationing was taken from Coastal Engineering Consultants, Inc., Conveyance Corridor Layout, Sheet 12, Dated August 2011
Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Reference: 1. Lidar data was taken from LSU Atlas, SW Quadrant of Empire Quadrangle, Dated 3/2003
2. Stationing was taken from Coastal Engineering Consultants, Inc., Conveyance Corridor Layout, Sheet 12, Dated August 2011
Maximum Depth = 50.03 feet
Depth Increment = 0.164 feet

*Soil behavior type and SPT based on data from UBC-1983
Maximum Depth = 30.02 feet
Depth Increment = 0.164 feet

Soil Behavior Type*

1 sensitive fine grained
2 organic material
3 clay
4 silty clay to clay
5 clayey silt to silty clay
6 sandy silt to clayey silt
7 silty sand to sandy silt
8 sand to silty sand
9 sand
10 gravelly sand to sand
11 very stiff fine grained (*)
12 sand to clayey sand (*)

*Soil behavior type and SPT based on data from UBC-1983
Southern Earth Sciences

Operator: Mike Wright
Sounding: CPT-4
Cone Used: DDG1182

CPT Date/Time: 10/12/2012 2:06:43 PM
Location: CPRA
Job Number: 12-355

Maximum Depth = 32.15 feet
Depth Increment = 0.164 feet

Soil Behavior Type* Zone: UBC-1983

1 sensitive fine grained
2 organic material
3 clay
4 silty clay to clay
5 clayey silt to silty clay
6 sandy silt to clayey silt
7 silty sand to sandy silt
8 sand to silty sand
9 sand
10 gravelly sand to sand
11 very stiff fine grained (*)
12 sand to clayey sand (*)

*Soil behavior type and SPT based on data from UBC-1983

Tip Resistance
Qt TSF

Local Friction
Fs TSF

Pore Pressure
Pw PSI

Friction Ratio
Fs/Qt (%)

SPT N*

N29.37589 W89.59700
Maximum Depth = 50.20 feet
Depth Increment = 0.164 feet

*Soil behavior type and SPT based on data from UBC-1983
Maximum Depth = 50.03 feet
Depth Increment = 0.164 feet
Groundwater measured at 4.6 ft.

*Soil behavior type and SPT based on data from UBC-1983
Groundwater measured at 4.7 ft.

Soil behavior type and SPT based on data from UBC-1983

Maximum Depth = 30.02 feet
Depth Increment = 0.164 feet

*Soil behavior type and SPT based on data from UBC-1983