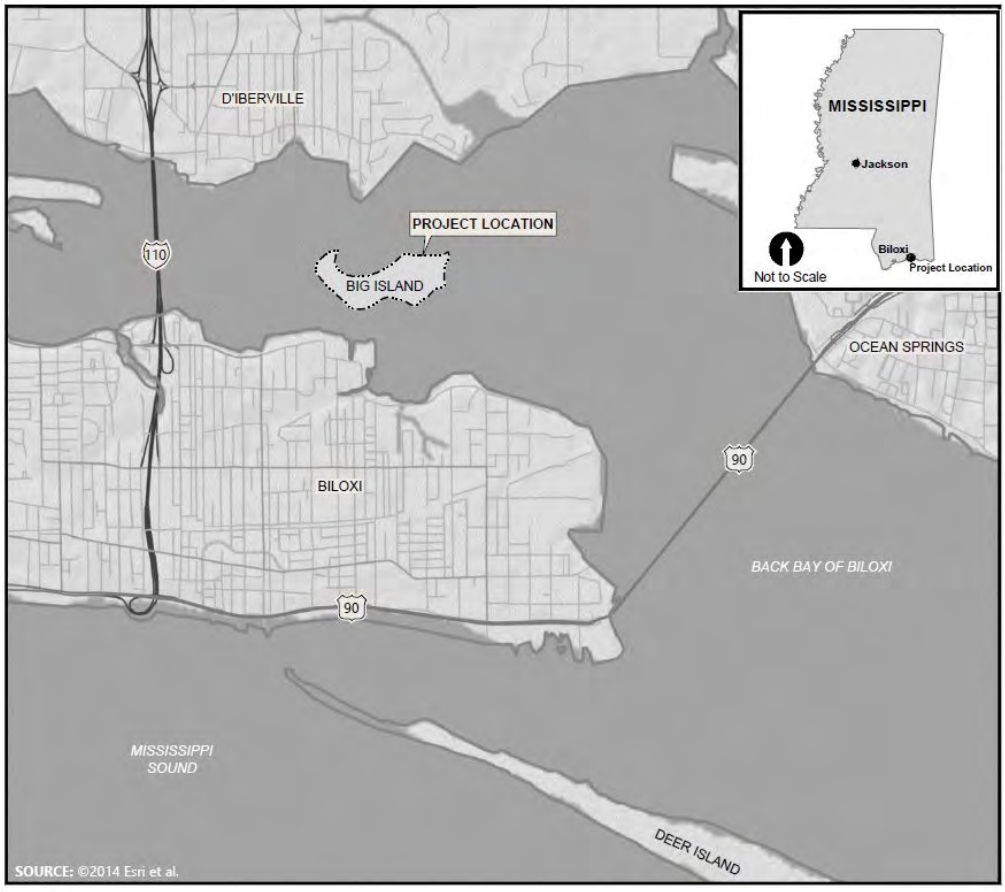
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

RESTORING LIVING SHORELINES AND REEFS IN MISSISSIPPI ESTUARIES – BIG ISLAND LIVING SHORELINE CONSTRUCTION



RAM KRISHNA MOHAN
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20180
STATE OF MISSISSIPPI

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

ANCHOR QEA

June 2021

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INVITATION FOR BIDS

Project: **Restoring Living Shorelines and Reefs in Mississippi Estuaries – Big Island Living Shoreline Construction**

Contracting Agency: **Mississippi Department of Environmental Quality**

To: **Prospective Bidders**

1.0 PURPOSE AND STATEMENT OF WORK

The Mississippi Department of Environmental Quality ("MDEQ or "State") is seeking sealed bids for the RESTORING LIVING SHORELINES AND REEFS IN MISSISSIPPI ESTUARIES – BIG ISLAND LIVING SHORELINE CONSTRUCTION (the "Project"). The Project requirements are detailed in this Invitation for Bids and the Contract Documents.

This Project is solicited by MDEQ as part of the Phase IV Early Restoration Plan and Environmental Assessment prepared by the Deepwater Horizon Natural Resource Trustees in response to the April 20, 2010, Deepwater Horizon Oil Spill incident. The Project is administered by MDEQ and funded through the Framework for Early Restoration Addressing Injuries Resulting from the Deepwater Horizon Oil Spill between the natural resource trustees and BP Exploration and Production, Inc. ("BP"). The Project includes the construction of approximately 5,200 linear feet of stone breakwater and 2,800 linear feet of precast breakwater near Big Island in Back Bay of Biloxi.

The Project requirements are detailed in this Invitation for Bids and the Contract Documents. The Contract Documents include the Section 00 52 15 Agreement, the Standard Contract Terms and Conditions (Attachment F), the Specifications (Divisions 01, 31 and 35, and the Appendices), the Contract Drawings, and this Invitation for Bids (including Attachments), together with any addendum that may be issued through the solicitation process. Following award of the Contract, the Contract Documents will also include the Contractor's Bid, the Notice of Award, the Notice to Proceed, the bonds required for this Project, the insurance certificates and endorsements required for this Project, and any addenda, Change Orders or modifications that may be issued. The Section 00 52 15 Agreement may be referred to as the "Agreement" or the "Contract" throughout the Contract Documents.

MDEQ is seeking bidders with qualifications, experience, equipment, and labor for the work detailed herein. The selected bidder shall complete all work as specified in the Contract Documents as defined in Article 1 of the Section 00 52 15 Agreement ("Work").

MDEQ reserves the right to accept or reject any or all bids, and to cancel this solicitation if it is within the best interest of the State of Mississippi.

Under the foregoing premise, the Contract will be awarded to the lowest responsible/responsive bidder whose bid meets the requirements and criteria set forth in this Invitation for Bids. The lowest responsible/responsive bidder is the one who supplies the lowest Bid for the Work as specified on the Bid Form attached hereto as Attachment D and meets all the requirements of Section 2.8, Minimum Bid Requirements, and Section 2.11, Standards of Responsibility. The successful contractor shall have the prior experience installing breakwaters in a marine environment and shall list that experience in Attachment A, List of Prior Experience.

The Contract Documents may be examined at the office of Covington Civil and Environmental, LLC located at 2510 14th St., STE 1010, Gulfport, MS 39501, (228) 396-0486. The Contract Documents may also be

examined at the office of the Mississippi Department of Environmental Quality, 515 E. Amite St., Jackson, MS 39201, (601) 961-5171. To obtain a downloadable copy of the Contract Documents for this Project, please visit www.restore.ms, email mgreen@mdeq.ms.gov, or call 601.961.5270.

If the funds anticipated for this Project are, at any time, not forthcoming or insufficient, MDEQ reserves the right to terminate the Project and to not award a contract or to discontinue the Project, without damage, penalty, cost, or expenses to MDEQ of any kind whatsoever.

2.0 SUBMISSION INSTRUCTIONS, REQUIREMENTS, CONDITIONS, DEADLINES AND NOTICES FOR BIDS

2.1 Issuing Office

This Invitation for Bids is issued for the State of Mississippi by MDEQ. MDEQ reserves the right, without qualifications to reject all bids not meeting minimum requirements and to exercise its discretion and apply its judgment with respect to any bid submitted.

2.2 Pre-Bid Meeting

A Pre-Bid Meeting will be held at 11:00 a.m. (CDT), June 16, 2021 via the following online webinar/meeting: via the following online webinar/meeting:

Please join the meeting from your computer, tablet or smartphone.

https://global.gotomeeting.com/join/210162309

You can also dial in using your phone.
United States: +1 (571) 317-3122

Access Code: 210-162-309

The purpose of the pre-submittal conference is to allow potential offerors an opportunity to present questions to staff and obtain clarification of the procurement requirements.

Attendance at the Pre-Bid Meeting is not a mandatory requirement for submitting a bid.

2.3 Deadline

Bids must be submitted with one (1) original and one (1) copy; or electronic bids may be submitted to Mississippi's Accountability System for Government Information and Collaboration (MAGIC:3160004330). **All bids must be received by MDEQ no later than 3:00 p.m., July 2, 2021.** All bids received after the deadline will be returned unopened. If a bid is to be mailed, bidders should use certified mail with a return receipt guaranteed. MDEQ will not be responsible for mail delays or lost mail.

Bids must be labeled as follows on the exterior of the sealed bid envelope/package (if submitting a written bid) or, provided as an attachment included in an electronic bid submittal (if submitting an electronic bid):

RESTORING LIVING SHORELINES AND REEFS IN MISSISSIPPI ESTUARIES
BIG ISLAND LIVING SHORELINE CONSTRUCTION

Mississippi Department of Environmental Quality
Attention: Melanie Green
515 East Amite Street Jackson, MS 39201

Bidder's name: _____

Bidder's legal address: _____

Certificate of Responsibility No._____

SEALED BID – DO NOT OPEN

Bids will be opened in the presence of two (2) or more procurement officials. All written bids shall be recorded and maintained as a public record. Bids will be opened publicly and read aloud at 3:15 p.m., July 2, 2021, via the following online webinar/meeting:

Please join the meeting from your computer, tablet or smartphone.
https://global.gotomeeting.com/join/589324573

You can also dial in using your phone.
United States: +1 (571) 317-3122

Access Code: 589-324-573

Each bid must be accompanied by a Bid Bond, Attachment K, provided by a surety licensed to operate in the State of Mississippi by the Mississippi Department of Insurance in the amount of five percent (5%) of the total bid as a bid security naming MDEQ as the beneficiary. The Bid Bond shall be duly executed by the bidder, the surety, and a registered agent. Each Bid Bond must be accompanied by an appropriate Power of Attorney. Once a Contract has been executed with a successful bidder, the specified time has elapsed so that bids may be withdrawn, or all bids have been rejected, the Bonds of the unsuccessful bidders will be returned. The Bid Bond of the successful bidder will be retained until the Payment Bond and Performance Bond have been executed and approved, and the Contract has been executed, in accordance with Section 2.21 of this Invitation for Bids, after which it will be returned. If the apparent lowest responsible/responsive bidder fails to provide the appropriate Payment Bond, Performance Bond, Tax Bond/Rider, insurance documentation (certificates, and applicable endorsements), or does not execute the Agreement, the Bidder will forfeit his or her Bid Bond.

2.4 Force Majeure Event

If MDEQ is closed for any reason, including but not limited to: Acts of God, strikes, lockouts, riots, acts of war, epidemics, pandemics, governmental regulations superimposed after the fact, fire, earthquakes, hurricanes, tropical storms, floods, or other natural disasters (the "Force Majeure Events"), which closure prevents the delivery of Bids by the advertised deadline, the bid submission deadline shall take place the

next business day that MDEQ shall be open and at the previously advertised time. The new date and time of the bid submission deadline, as determined in accordance with this section, shall not be advertised, and all bidders, upon submission of a bid proposal, shall be deemed to have knowledge of and shall have agreed to the provisions of this section. Bids shall be received by MDEQ until the new date and time of the bid deadline as set forth herein. **MDEQ shall not be held responsible for the receipt of any bids for which the delivery was attempted and failed due to the closure of MDEQ as a result of a Force Majeure Event.** Each bidder shall be required to ensure the delivery and receipt of its bid by MDEQ prior to the new date and time of the bid submission deadline.

2.5 Nonresident Bidder

In accordance with Miss. Code Ann. § 31-3-21(3), in the letting of public contracts, preference shall be given to resident bidders, and a nonresident bidder domiciled in a state having laws granting preference to local contractors shall be awarded Mississippi public contracts only on the same basis as the nonresident bidder's state awards contracts to Mississippi contractors bidding under similar circumstances; and resident bidders actually domiciled in Mississippi, be they corporate, individuals, or partnerships, are to be granted preference over nonresidents in awarding of contracts in the same manner and to the same extent as provided by the laws of the state of domicile of the nonresident. **In accordance with Miss. Code Ann. Section 31-3-21(3), when a nonresident bidder submits a bid for a public project, he shall attach thereto a copy of his resident state's current law pertaining to such state's treatment of nonresident contractors. Any bid submitted by a nonresident bidder which does not include the nonresident contractor's current state law shall be rejected and not considered for award. If no law exists, the bidder will include with the bid a statement on letterhead and signed by the same person who signs the *Bid Form* stating that no preference laws exist in that state.**

2.6 MAGIC

Effective July 1, 2014, the State of Mississippi requires vendors to register in Mississippi's Accountability System for Government Information and Collaboration ("MAGIC") for the State to execute a contract and/or pay for services/products (see Attachment E).

2.7 Minority and Women Businesses

MDEQ policy is to promote participation of Minority Business Enterprises (MBE) and Women Business Enterprises (WBE) in the contracts let by MDEQ. The intent of the following provision is to encourage contractors to involve such businesses in a meaningful role in the provision of services under this solicitation.

(A) Offerors and offeror's subcontractors will abide by the following steps to encourage participation by MBE and WBE:

(1) Including MBE and WBE on solicitation lists;

(2) Assuring that MBE and WBE are solicited whenever they are potential sources;

(3) Dividing total requirements, when economically feasible, into small tasks or quantities to permit maximum participation of MBE and WBE;

(4) Establishing delivery schedules, where the requirements of the work permits, which will encourage participation by MBE and WBE;

(5) Using the services and assistance of the Small Business Administration and the Office of Minority Business Enterprise of the U.S. Department of Commerce or Mississippi Development Authority's Minority Business Small Business Development Division, as appropriate; OR satisfying the self-certification requirements of this section where appropriate, and

(6) Including these steps in any subcontracts awarded under the Contract.

(B) If applicable, the bidder shall supply MDEQ with proof of bidder's and bidder's subcontractor's minority status by providing the following prior to contract execution:

(1) Certification by the Small Business Administration;

(2) Certification by the Mississippi Development Authority's Minority Business Certification Program; or

(3) Self-Certification through Notarized affidavit of the MBE/WBE documenting that said business is:

(a) Wholly owned or majority controlled by a minority or woman; and

(b) Has been doing business in Mississippi for a period of at least six months prior to the provision of work under this Contract.

2.8 Minimum Bid Requirements

Bids shall contain the following minimum information:

A. One (1) original and one (1) copy shall be submitted; or bids may be submitted electronically to MAGIC: 3160004330.

B. Fully completed and/or executed copies of Attachments A, C, and D, attached hereto.

C. The written information for a responsibility determination in accordance with Section 2.11, Standards of Responsibility, in this Invitation for Bids.

D. A copy of bidder's current Certificate of Responsibility issued by the State of Mississippi for the type of work to be performed under this Invitation for Bids, pursuant to Miss Code Ann. § 31-3-21(1). **The Certificate of Responsibility number must be provided on the exterior of the sealed bid envelope/package, if submitting a written bid, or, provided as an attachment included in an electronic bid submittal, if submitting an electronic bid.**

E. Proof from the Office of the Secretary of the State of Mississippi demonstrating that the bidder is in good standing to do business in Mississippi.

F. If the bidder is a non-resident contractor, a copy of bidder's **current** state bidder preference law pertaining to that State's treatment of non-resident contractors, pursuant to Miss. Code Ann. § 31-3-21(3) or a statement on letterhead and signed by the same person who signs the *Bid Form* stating that no preference laws exist in that state. The state of residency of a contractor shall be the same as the corporate office as reported by the Mississippi Secretary of State's office , unless any contractor reflecting a foreign corporate office with the Secretary of State provides a sworn affidavit verifying and stating that it, or its affiliate or parent company, has maintained a permanent full-time office in Mississippi, including the address(es) of such office, for at least two (2) full years prior to the bid consistent with the provisions of Mississippi Code § 31-3-21(c), in which case such contractor shall be considered a resident bidder.

G. A Certificate of Commitment to Comply with the obligation to provide an employment plan pursuant to Miss. Code Ann. § 31-5-37, which is attached hereto as Attachment I. A copy of § 31-5-37 is attached hereto as Attachment G. A copy of the employment plan that must be submitted within seven (7) days of the award is attached hereto as Attachment H.

H. A fully completed MBE/WBE Solicitation Form attached hereto as Attachment J, which is addressed in Section 2.7 of this Invitation for Bids.

I. A Bid Bond, Attachment K, in the amount of five percent (5%) of the bid amount naming MDEQ as the beneficiary and meeting the requirements of Section 2.3 of this Invitation for Bids.

2.9 Response to Inquiries

All questions regarding this Invitation for Bids must be submitted in writing to Melanie Green via email at **mgreen@mdeq.ms.gov,** by **fax at (601) 961-5715,** or by mail to **515 E. Amite Street, Jackson, Mississippi 39201** and must be received by MDEQ by, June 23, 2021. Questions submitted after this date will not be considered. Bidders shall provide an email address or fax number for MDEQ to direct the consolidated "question and answer" document. MDEQ answers will be provided in writing and transmitted via the www.restore.ms, email or fax to all prospective bidders who are known to have requested a copy of the bid package. Only answers transmitted in this manner will be considered official and valid by MDEQ. No negotiations, decisions, or actions shall be initiated by any bidder as a result of any verbal discussion with any State or MDEQ representative.

2.10 Proprietary Information/Mississippi Public Records Act

Bids may be made available for public inspection after bid opening. For this reason, confidential or proprietary material should be clearly labeled as such. The classification of an entire bid as proprietary or trade secret is not acceptable and may result in rejection of the bid. Requests to review proprietary information will be handled in accordance with state law and applicable procedures. All disclosures of bid information to interested parties will be made in compliance with MDEQ's policies and procedures established in accordance with the Mississippi Public Records Act of 1983, Miss. Code Ann. §§ 25-61-1 et seq., and exceptions found in Miss. Code Ann. §§ 25-61-9 and 79-23-1.

2.11 Standards of Responsibility

Factors that will be considered in determining whether the standard of responsibility has been met include whether a bidder has:

A. A satisfactory record of relevant experience (5 points)

Provide the information requested in Attachment A for, at a minimum, five (5) previous projects of like nature to the work solicited under this Invitation for Bids. Like nature projects may include the following:

i. Construction of breakwaters
ii. Loading and unloading barges
iii. Working with barges and cranes in coastal waters
iv. Compliance experience with environmental permits associated with working on projects in coastal areas similar to the Mississippi Sound and Back Bay of Biloxi.

B. A commercial working-knowledge in shallow coastal waters similar to the Mississippi Sound and Back Bay of Biloxi (10 points)

Describe previous experience working in shallow coastal water similar to those found in the Mississippi Sound and Back Bay of Biloxi within the past five (5) years that would be similar to the work solicited under this Invitation for Bids.

C. A satisfactory record of integrity (5 points)

Provide, at a minimum, five (5) references and contact information for persons and/or firms familiar with the business integrity of the bidder.

D. A satisfactory record of performance (5 points)

Provide a listing of all projects within the past five (5) years and identify all such projects that resulted in construction claims associated with defective work, defaulted or required action by the bonding company. A bidder will not be penalized for claims won by the Bidder.

Bidders should submit a written narrative of ten (10) pages or less for factor B, above, and the burden is on the prospective bidder to thoroughly demonstrate their responsibility in all of the above-listed categories.

The written narrative pages should be numbered in consecutive order. Attachments A, C, and D will not count against the page number of such written narrative. Any bidder with an overall score of eight (8) points or below, or a score of two (2) points or below in categories A, C and D, or a score of six (6) points or below in Category B, on the above Standards of Responsibility will be deemed non-responsible and will be rejected**.**

The bidder shall be experienced in work of the type and character defined in the Invitation for Bids. Further, the bidder must have a current Certificate of Responsibility and the classification of contractor's kind of work or projects for which the bidder is qualified shall be so stated in the Certificate of Responsibility. If a bidder fails to supply the requested information concerning responsibility, MDEQ shall base the determination of responsibility upon any available information or may find the bidder non-responsive.

Bidders should clearly mark any information considered to be a trade secret or proprietary data and should expressly request the nondisclosure of same.

Following an evaluation and determination as to which bidders are both responsive and responsible, an award will be made to the lowest bidder in accordance with this Invitation for Bids.

2.12 Waiver of Informalities or Rejection of Bids

MDEQ may waive any informalities or minor defects or reject any and all bids. Any bid may be rejected in whole or in part when such rejection is determined to be in the best interest of MDEQ. Waivers, when granted, shall in no way modify the Invitation for Bids requirements or excuse a party from full compliance with the Invitation for Bids specifications and other requirements if the party is awarded the Contract. Reasons for rejecting a bid include, but are not limited to:

A. Failure to comply with the requirements of the Invitation for Bids and any of its Addenda.

B. Bidder is in arrears on existing contracts with MDEQ or another governing authority or state agency.

C. Bidder is, anticipates being, or has been within the last five (5) years in litigation, arbitration, or claim with MDEQ or another state agency, governing authority, or other entity of the State of Mississippi.

D. Bidder has defaulted on a previous contract.

E. The bid contains unauthorized amendments to the requirements of the Invitation for Bids.

F. The bid is conditional or qualified.

G. The bid is incomplete or contains irregularities, which make the bid indefinite or ambiguous.

H. The bid is not signed by an authorized representative of the party.

I. The bid contains false or misleading statements or references.

J. The bidder is determined to be non-responsible.

K. The bid ultimately fails to meet the announced requirements of the State in some material aspect.

L. The bid price is clearly unreasonable.

M. The bid is not responsive, i.e., does not conform in all material aspects to the Invitation for Bids.

N. The work or materials offered in the bid is unacceptable by reason of its failure to meet the requirements of the specifications or permissible alternative or other acceptability criteria set forth in the Invitation for Bids.

O. A decision by MDEQ at its discretion to reject bids for the Project, regardless of the low bidder(s).

2.13 Disposition of Bids

All submitted bids become the property of the State of Mississippi.

2.14 Conditions of Solicitation

The release of this Invitation for Bids does not constitute an acceptance of any offer, nor does such invitation in any way obligate MDEQ to execute a contract with any party. MDEQ reserves the right to accept or reject any or all offers on the basis of the evaluation criteria contained within this document. The final decision to execute a contract with any party rests solely with MDEQ.

Before preparing the bid, all parties should note:

A. MDEQ accepts no responsibility for any expenses incurred by the bidder in the preparation and presentation of an offer. Such expenses shall be borne exclusively by the bidder.

B. The award of a contract for any bid is contingent upon the following:

    1) Favorable evaluation of the bid;
    2) Availability of funds; and
    3) Approval of the Public Procurement Review Board; if applicable.

C. Contracted parties will be required to assume full responsibility for all specified services, materials, labor and equipment, and may subcontract only as specified in Attachment F, "Standard Contract Terms and Conditions," herein.

2.15 Withdrawal of Bids

Any bid may be withdrawn prior to the above-scheduled time for the submission of bids or authorized postponement thereof. Further, no bidder may withdraw a bid within ninety (90) days after the actual date of the bid opening.

2.16 Bid Modification Requests

Any requests to modify bids must be submitted in writing by the primary bidder. All requests for modification must be submitted prior to the submission deadline for the receipt of the sealed bids.

2.17 Addenda to Bid Specifications

MDEQ reserves the right to issue addenda to this Invitation for Bids. If an addendum becomes necessary, MDEQ will provide copies of the addendum to all persons known to have requested a copy of the bid package via the www.restore.ms email, mail, or fax.

2.18 Acknowledgement of Addendum

Bidders shall acknowledge receipt of any addendum to the Invitation for Bids and/or the Contract Documents by identifying the addendum number and date in the space provided for this purpose on the Bid Form attached hereto as Attachment D. The acknowledgement must be received by MDEQ by the time and at the place specified for receipt of sealed bids.

2.19 Information Regarding References

The bidder understands and agrees that MDEQ reserves the right to request information relative to references.

2.20 Performance, Payment, and Tax Bonds

Within seven (7) calendar days after receipt of the Notice of Award and Contract, the successful contractor shall execute and deliver to MDEQ performance and payment bonds, see Attachment K, pursuant to Miss. Code. Ann. § 31-5-51, each in the amount of one hundred percent (100%) of the Contract Price, payable to the Mississippi Department of Environmental Quality but conditioned for the prompt payment of all persons supplying labor or material used in the prosecution of the Work under the Contract, with a surety qualified to do business in Mississippi and listed on the United States Treasury Department's list of acceptable sureties and approved by MDEQ, which shall be required for the faithful performance of the Contract. MDEQ shall be named as the indemnitee in the Performance Bond.

A Tax Bond, pursuant to Miss. Code Ann. § 31-5-3, securing the prompt payment of taxes, licenses, assignments, contributions, damages, penalties, and interest thereon incurred in connection with the performance of the Contract shall be provided to MDEQ before commencing Work under the Contract. The selected Contractor must coordinate with the Mississippi Department of Revenue in execution of the Tax Bond, and receipt of any applicable required documentation from the Mississippi Department of Revenue must be provided to MDEQ.

Attorneys-in-fact who sign Payment Bonds, Performance Bonds, and Tax Bonds must file with each Bond a certified and effective dated copy of their power of attorney.

2.21 Award of Contract

If MDEQ makes an award for the Project, MDEQ will do so within ninety (90) days after opening the bids. Should there be any reason why the Contract cannot be awarded within ninety (90) days after bid opening, the time may be extended by written mutual agreement between MDEQ and the successful bidder(s). The Notice of Award shall be accompanied by the Contract. Actions taken by a bidder prior to final execution of such Contract will be at the bidder's OWN RISK and MDEQ will not be liable for such action. The party to whom the Contract is awarded will be required to execute the Contract and obtain the Performance Bond and Payment Bond within seven (7) calendar days from the date when Notice of Award is delivered to the bidder and the Tax Bond shall be provided prior to commencing work under the Contract. In case of failure of the bidder to execute the Contract or submit other required documents, MDEQ may award the Contract to the next lowest and best responsible/responsive bidder whose bid meets the requirements and criteria set forth in this Invitation for Bids, without relieving the bidder initially selected for award and its bonding company providing the Bid Bond from their liability to MDEQ for such failure.

Within thirty (30) days of receipt of an acceptable Performance Bond, an acceptable Payment Bond, an acceptable Tax Bond/Rider, insurance documentation (certificates and applicable endorsements), and the Contract signed by the party to whom the contract was awarded, MDEQ shall sign the Contract. When the Contract is fully executed, an executed duplicate of the Contract shall be returned to the bidder. Should MDEQ not execute the Contract within thirty (30) days from receipt of an acceptable Performance Bond, an acceptable Payment Bond, an acceptable Tax Bond/Rider, insurance documentation (certificates and applicable endorsements), and the Contract, the bidder may, by Written Notice, withdraw bidder's signed Contract. Such notice of withdrawal shall be effective upon receipt of the notice by MDEQ.

Subject to a fully executed Contract, suitable weather, water conditions, and/or other environmental conditions as determined solely by MDEQ, a Notice to Proceed is anticipated to be issued in August 2021.

2.22 Equal Opportunity

Contracts, grants, loans, purchases and all other financial transactions are administered by MDEQ equally to all without regard to race, color, creed, sex, religion, national origin, disability, or age. In addition, the bidder understands that MDEQ is an equal opportunity employer and maintains a policy that prohibits unlawful discrimination based on race, color, creed, sex, age, national origin, physical handicap, disability, or any other unlawful consideration. During the term of the Contract, the contractor must strictly adhere to this policy in its employment practices and provision of services.

2.23 Applicable Laws

The bidder is responsible for complying with all applicable federal, state, and local laws and regulations.

2.24 Governing Law

This solicitation and any resulting contract shall be governed in all respects by the laws of the State of Mississippi, and any litigation with respect thereto shall be brought in the appropriate state or federal courts located in Jackson, Hinds County, Mississippi.

2.25 Certification of Independent Price Determination

Bidder shall execute, notarize and attach the Bidder Statement of Compliance (Attachment C) to its Bid, certifying that the prices submitted in response to the solicitation have been arrived at independently and without any consultation, communication or agreement (for the purpose of restricting competition) with any other bidder or competitor relating to those prices, the intention to submit a bid, or the methods or factors used to calculate the prices proposed.

2.26 Procurement Regulations

Any resulting contract shall be governed by the applicable provisions of the Public Procurement Review Board Rules and Regulations.

2.27 Contract Documents

Bidders are advised that this Invitation for Bids, any issued Addenda and related Contract Documents (including the Specifications and Drawings) and their bid, should it be accepted, will become part of the final Contract. In the event of any *conflict* between the terms appearing in the Contract Documents, the provisions of Article 7 of the Agreement included in this Invitation for Bids shall apply to resolve the conflict.

3.0 PERIOD OF PERFORMANCE

The period of performance for a Contract ("Contract Time") awarded under this solicitation shall commence upon issuance of a Notice to Proceed by MDEQ. A Notice to Proceed is anticipated to be issued in August 2021. A successful contractor will be allowed 210 calendar days to complete the entire construction of the breakwater structures. Liquidated Damages in the amount of $1,730/day shall be assessed for each day the Work is not complete beyond the allowed Contract Time.

4.0 INSURANCE REQUIREMENTS

The successful contractor shall maintain during the time of the Contract the liability insurance coverage required by Section 31 of the Standard Contract Terms and Conditions, or shall require its subcontractors to maintain said coverage, related to the work of the successful contractor and in connection with the Contract.

5.0 RELATIONSHIP OF PARTIES

All parties expressly understand and agree that MDEQ enters into a contract with a contractor based on the work performed pursuant to the Contract and not based on an employer-employee relationship or a joint venture relationship. For all purposes under this Contract:

A successful contractor shall not be deemed in any way, directly or indirectly, expressly, or by implication, to be an employee of MDEQ. A successful contractor will be an independent contractor.

6.0 CONTRACT ADMINISTRATION

The Contract awarded subsequent to this solicitation shall be administered by MDEQ. The MDEQ Engineer for this Project is as follows:

Anchor QEA, LLC
614 Magnolia Avenue
Ocean Springs, MS 39564

7.0 COMPENSATION

Compensation for the Work performed pursuant to the Contract(s) will be in the form of unit prices and lump sum basis as defined in the Bid Form. Payment Applications may be submitted on a monthly basis in accordance with the Agreement (Section 00 52 15).

8.0 CONTRACT TERMS AND CONDITIONS

An awarded Contract will include, but is not limited to, the Standard Contract Terms and Conditions, a copy of which is attached hereto as Attachment F.

9.0 LIST OF ATTACHMENTS AND FORMS

The following are included as attachments to this Invitation for Bids:

Attachment A – List of Prior Experience

Attachment B – Map of Proposed Project Area

Attachment C – Bidder Statement of Compliance

Attachment D – Bid Form

Attachment E – Instructions for MAGIC

Attachment F – Standard Contract Terms and Conditions

Attachment G – A copy of Miss. Code Ann. § 31-5-37, §31-5-33 and §31-7-305

Attachment H – Mississippi First Act – Employment Plan Form for Public Works Projects

Attachment I – Certificate of Commitment to Comply with Miss. Code Ann. § 31-5-37

Attachment J – MBE/WBE Solicitation Form

Attachment K – Bonds

Section 00 52 15 – Agreement

Division 01 Specifications

Division 31 Specifications

Division 35 Specifications

Appendices A through J

Contract Drawings

Attachment A
List of Prior Experience

The Bidder must complete this Attachment to include its prior experience in the type of work solicited under this Invitation for Bids.

Date Work Performed: _____

Agency: _____

Agency Contact Name: _____

Agency Contact Phone Number:_____

Name of Project: _____

Address of Project: _____

Scope of Project: _____

Client Name: _____

Client Phone Number: _____

Work Performed by Bidder [ ] or Subcontractor [ ]

If subcontractor, list subcontractor name: _____

Date Work Performed: _____

Agency: _____

Agency Contact Name: _____

Agency Contact Phone Number: _____

Name of Project: _____

Address of Project: _____

Scope of Project: _____

Client Name: _____

Client Phone Number: _____

Work Performed by Bidder [ ] or Subcontractor [ ]

If subcontractor, list subcontractor name: _____

Attachment A (continued)

Date Work Performed: _____

Agency: _____

Agency Contact Name: _____

Agency Contact Phone Number:_____

Name of Project: _____

Address of Project: _____

Scope of Project: _____

Client Name: _____

Client Phone Number: _____

Work Performed by Bidder [ ] or Subcontractor [ ]

If subcontractor, list subcontractor name: _____

Date Work Performed: _____

Agency: _____

Agency Contact Name: _____

Agency Contact Phone Number: _____

Name of Project: _____

Address of Project: _____

Scope of Project: _____

Client Name: _____

Client Phone Number: _____

Work Performed by Bidder [ ] or Subcontractor [ ]

If subcontractor, list subcontractor name: _____

Attachment A (continued)

Date Work Performed: _____

Agency: _____

Agency Contact Name: _____

Agency Contact Phone Number:_____

Name of Project: _____

Address of Project: _____

Scope of Project: _____

Client Name: _____

Client Phone Number: _____

Work Performed by Bidder [ ] or Subcontractor [ ]

If subcontractor, list subcontractor name: _____

Date Work Performed: _____

Agency: _____

Agency Contact Name: _____

Agency Contact Phone Number: _____

Name of Project: _____

Address of Project: _____

Scope of Project: _____

Client Name: _____

Client Phone Number: _____

Work Performed by Bidder [ ] or Subcontractor [ ]

If subcontractor, list subcontractor name: _____

Attachment B
Map of Big Island Living Shoreline Project Area

Attachment C

Bidder Statement of Compliance

State of _____

County of _____

I,_____, individually, and in my capacity as _____ of _____ (Bidder), being first duly sworn, on oath depose and state the following on behalf of the company:

Bidder's Representation Regarding Contingent Fees

The Bidder represents as a part of such Bidder's bid that such Bidder has not retained any person or agency on a percentage, commission, brokerage, or other contingent arrangement to secure this Contract.

Bidder's Non-Collusion Certification

The Bidder, nor any of its officers, partners, owners, agents, representatives, employees, suppliers, subcontractors, or parties in interest have not in any way colluded, conspired, or agreed directly or indirectly with any other Bidder, supplier, subcontractor, firm, or person to:

a) fix prices or prices in the attached Bid or for other Bidders;
b) fix or make arrangements to restrict land use availability or lease/rental prices for this Bid or for other Bidders; or
c) fix any overhead, profit or cost elements for this Bid or for other Bidders

Bidder History, Debarment and Suspension Representations

Bidder certifies that Bidder and its corporate officers, principal owners, managers, auditors, and others in a position of administering governmental funds:

a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any governmental department or agency;

b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or Contract under a public transaction;

c) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

d) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in b) and c) above; and

e) Have not within a three-year period preceding this application/ proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

Bidder's Representation of No Improper Influence

Bidder further certifies, to the best of its knowledge and belief, that:

a) No Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal Contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal Contract, grant, loan, or cooperative agreement.

b) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Contract, Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions will be completed and submitted.

No Conflict of Interest

Bidder further certifies that, to the best of its knowledge and belief, there are no present or currently planned interests (financial, contractual, organizational, or otherwise) relating to the work to be performed under any contract or task order resulting from this Bid that would create any actual or potential conflict of interest (or apparent conflicts of interest) (including conflicts of interest for immediate family members: spouses, parents, children) that would impinge on its ability to render impartial, technically sound, and objective assistance or advice or result in it being given an unfair competitive advantage. In this clause, the term ''potential conflict'' means reasonably foreseeable conflict of interest. Bidder further certifies that it has and will continue to exercise due diligence in identifying and removing or mitigating, to the State's satisfaction, such conflict of interest (or apparent conflict of interest). The Bidder further certifies that it has no conflict of interest with respect to MDEQ or the work to be performed (as set forth in the Invitation for Bids and accompanying Bid documents).

By submission of this bid, I have agreed to adhere to **all conditions and requirements**, as set forth in MDEQ's Invitation for Bids and Contract Documents, including all the terms and conditions in the Contract Documents. I further understand that my failure to comply with all requirements and qualifications will result in disqualification of my bid relative to this procurement action. I have submitted appropriate documentation and completed Contract form(s) as necessary to

substantiate this evaluation. If inadequate, my bid will not meet the bid requirements and will be evaluated as "Not Meeting Specifications."

MDEQ reserves the right to reject any and/or all bids and to waive any minor informalities.

Please accept this as my/our formal bid proposal for the complete specifications in all areas as specified by MDEQ.

All of the foregoing is true and correct:

Bidder:_____

Date: _____

Authorized Signature: _____

Name:_____
Typed/Printed

Title:_____

SWORN TO AND SUBSCRIBED before me, this the _____ day of _____, 20_____.

_____

NOTARY PUBLIC

My Commission Expires: [SEAL]

_____

Attachment D
Bid Form

RESTORING LIVING SHORELINES AND REEFS IN MISSISSIPPI ESTUARIES – BIG ISLAND LIVING SHORELINE CONSTRUCTION

1. BID RECIPIENT

This Bid is submitted by _____ (hereinafter called "Bidder") doing business as a _____ (insert "a corporation," "an individual" applicable; if a corporation, indicate state of incorporation; or a "joint venture") to:

Mississippi Department of Environmental Quality
Attention: Melanie Green
515 E Amite Street
Jackson, Mississippi 39201

The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into a Contract with Mississippi Department of Environmental Quality (hereinafter called "MDEQ") in the form(s) included in the Invitation for Bids to perform all Work as specified or indicated in the Invitation for Bids for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Invitation for Bids.

2. BIDDER'S ACKNOWLEDGEMENTS

Bidder accepts all of the terms and conditions of the Invitation for Bids, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for ninety (90) days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of MDEQ.

3. BIDDER'S REPRESENTATIONS

In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Invitation for Bids and the following addenda, receipt of which is hereby acknowledged:

Addendum	Addendum Date
_____	_____
_____	_____
_____	_____

B. Bidder has reviewed the requirements to bid this Project and become familiar with and is satisfied as to the general, local, and site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and is satisfied as to all laws and regulations that may affect cost, progress, and performance of the Work.

D. Bidder has considered the information known to Bidder; information commonly known to contractors doing business in the locality of the work site; information and observations obtained from visits to the work site; the Invitation for Bids; and the site-

related reports and drawings identified in the Invitation for Bids with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents; and (3) the Bidder's safety precautions and programs.

E. Based on the information and observations referred to above, Bidder does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times required, and in accordance with the other terms and conditions of the Invitation for Bids.

F. Bidder is aware of the general nature of work to be performed at the site that relates to the Work as indicated in the Invitation for Bids.

G. Bidder has given MDEQ written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Invitation for Bids, and the written resolution thereof by MDEQ is acceptable to Bidder.

H. The Invitation for Bids is generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

4. BID FORM INSTRUCTIONS

All blank spaces for the bid prices must be filled in ink or typewritten, and this Bid Form must be fully completed and executed when submitted. Alterations and erasures of the entries made by bidder shall be initialed by the individual who signed this Bid Form. Bids shall state the legal name of bidder and be signed by the person or persons legally authorized to bind bidder to a contract. Bids submitted by a corporation shall indicate state of incorporation and bear a corporate seal. Bids submitted by an agent of a bidder shall have a current power of attorney attached that certifies the agent's authority to bind the bidder.

Measurement and payment procedures corresponding to the Bid Form can be found in Section 00 52 15 Agreement and Section 01 20 00 Measurement and Payment Procedures, and Section 01 29 00 Payment Procedures of the Contract Documents.

BID FORM:

BIG ISLAND LIVING SHORELINE CONSTRUCTION

Schedule of Prices

Item No.	Description of Item	Unit of Measure	Quantity	Price/ Unit	Total
1	Mobilization and Demobilization	LS	1		
	Written _____ per unit				
2	Pre-construction and Post Construction Survey	LS	1		
	Written _____ per unit				
3	Stone Breakwater Installation	TON	32,000		
	Written _____ per unit				
4	Placement of Stone for Scour Protection	TON	200		
	Written _____ per unit				
5	Procurement of OysterBreak™ Units	Each	1,590		
	Written _____ per unit				
6	Installation of OysterBreak™ Units	LF	2,800		
	Written _____ per unit				
7	Installation of Aids to Navigation	EACH	7		
	Written _____ per unit				

Total Bid for Restoring Living Shorelines and Reefs in Mississippi Estuaries Project – Big Island Living Shoreline Construction

Total Bid $ _____

_____

Written Total Bid

Note: Bids shall include sales tax and all other applicable taxes and fees. All blanks shall be filled in. Total amount of Bid shall be the sum of the Items. Contract Award will be made according to the Invitation for Bids. In case of discrepancy between the sum of the items and Total Amount of Bid, the sum of the items shall be considered to be the Total Amount of Bid. Award will be made

to only one Bidder based upon the Base Bid as applicable from this Bid Form and determination of the lowest and best, responsive, responsible bidder according to the Invitation for Bids.

1. The Bidder agrees that the Work shall be completed within 180 calendar days as stipulated in the Agreement.

2. The following documents are attached to and made a condition of this Bid:

    a. Bid Security (surety bond, cashier's check, or certified check)
    b. Power of Attorney (For Surety Bond only)
    c. Authority to Execute Contract (any corporate employee other than the president or vice-president)
    d. A list of all subcontractors, surveyors and suppliers associated with this Bid that are anticipated by Bidder to contribute over $5,000.00 worth of services or supplies to complete the work identified on this Bid Form. MDEQ shall not be responsible for payment for any services or supplies provided by any such subcontractor, surveyor or supplier not identified.

The undersigned, having read and understood the Bidding Documents and examined the Project site and adjoining areas, and being familiar with the obstacles and conditions that will affect proposed Work, hereby offers and agrees to furnish all labor, equipment and materials and to perform all the Work required for the **Project,** as described in this Invitation for Bids in accordance with the Contract Documents and at the prices stated in the preceding Bid Schedule.

This Bid is submitted by:

If Bidder is:

An Individual

Name _____
(typed or printed):

By:_____
(Individual's Signature)

Doing business as: _____

State Contractor License No. _____

A Partnership

Partnership Name: _____
(typed or printed)

By: _____
(Signature of General Partner – attach evidence of authority to sign)

Name: _____
(typed or printed)

State Contractor License No. _____

A Corporation

Corporation Name: _____

(Seal)

State of Incorporation: _____

Type (General Business, Professional, Service, Limited Liability):_____

By: _____
(Signature, attach evidence of authority to sign)
Name: _____
(typed or printed)

Title: _____
(Corporate Seal)

Attest: _____

Date of Qualification to do business in Mississippi is ___/___/___.

State Contractor License No. _____

A Joint Venture

Name of Joint Venture: _____

First Joint Venture Name: _____
(Seal)

By: _____
(Signature of first Joint Venture Partner, attach evidence of authority to sign)

Name: _____
(typed or printed)

Title: _____
(Each Joint Venture Partner must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)

Bidder's Business Address: _____

_____

_____

Phone No. _____ Fax No. _____

Email: _____

Submitted on _____, 20_____

State Contractor License No. _____

Attachment E
Instructions for MAGIC

TO: Vendors for the State of Mississippi

FROM: Mississippi Department of Environmental Quality
Office of Administrative Services

SUBJECT: Instructions to register as Supplier

Effective July 1, 2014, the State of Mississippi requires vendors to register in MAGIC for the State to execute a contract and/or pay for services/products.

Please complete the online registration at this address:

https://sus.magic.ms.gov/sap/bc/webdynpro/sapsrm/wda_e_suco_sreg?sap-client=100#

Should you have any questions concerning the registration process, please call the Department of Finance and Administration at 601-359-3538.

Thank you for your time and attention to this matter.

Mississippi Department of Environmental Quality
Office of Administrative Services

Attachment F
Standard Contract Terms and Conditions

APPLICABLE TO ALL WORK

1. Availability of Funds.

It is expressly understood and agreed that the obligation of MDEQ to proceed under this Agreement is conditioned upon the receipt of funds from the Mississippi State Legislature for this Project. If the funds anticipated for the continuing fulfillment of the Agreement are, at any time, not forthcoming or insufficient, either through the failure of the federal government to provide funds or of the State of Mississippi to appropriate funds or the discontinuance or material alteration of the program under which funds were provided or if funds are not otherwise available to MDEQ, MDEQ shall have the right upon ten (10) working days written notice to the Contractor, to terminate this Agreement without damage, penalty, cost or expenses to MDEQ of any kind whatsoever. The effective date of termination shall be as specified in the notice of termination.

2. Representatives.

For all matters pertaining to the Work, unless otherwise provided, MDEQ will be represented by its Executive Director, or a designated representative, in all administrative matters and by the designated "Engineer" in all technical matters. When MDEQ is referenced singularly in these Standard Contract Terms and Conditions, it shall be construed to include MDEQ's Executive Director and its designated representative(s) for the Project.

Before commencement of the Work, Contractor shall notify MDEQ and Engineer of the name of the person(s) ("Contractor's Representative") who shall be on-site at all times when the Work is being performed, who shall directly superintend the Work and shall be the duly authorized Representative of Contractor empowered to make decisions for, and on behalf of Contractor, and to execute Change Orders on behalf of Contractor, and to whom orders and directions by MDEQ and Engineer to Contractor may be given.

At all times when any performance of the Work at any site is being conducted by any employee or representative of the Contractor or his subcontractors, the Contractor shall have a Contractor's Representative present at each site who has the capability of receiving instructions in the English language, fluently speak the English language and can explain the Work operations to persons performing the Work in the language that those performing the Work are capable of understanding. MDEQ or its designated Engineer shall have the right to determine whether the proposed representative has sufficient technical and bilingual capabilities, and the Contractor shall immediately replace any individual not acceptable to MDEQ or its designated Engineer.

3. Authority of Engineer.

If designated by MDEQ, the designated Engineer shall decide any and all questions which may arise as to (1) the quality or acceptability of materials furnished and the Work performed, (2) the manner of performance of the Work, and (3) interpretation of technical matters within the Contract Documents.

4. Authority to Contract.

Contractor warrants (a) that it is a validly organized business with valid authority to enter into this Agreement; (b) that it is qualified and registered to do business and is in good standing in the State of Mississippi; (c) that entry into and performance under this Agreement is not restricted or prohibited by any loan, security, financing, contractual, or other Agreement of any kind, and (d) notwithstanding any other provision of this Agreement to the contrary, that there are no existing legal proceedings, either voluntary or otherwise, which may adversely affect its ability to perform its obligations under this Contract.

5. Employment Status.

Contractor shall, at all times, be regarded as and shall be legally considered an independent contractor and shall at no time act as an agent for MDEQ. Nothing contained herein shall be deemed or construed by MDEQ, Contractor, or any third party as creating the relationship of principal and agent, master and servant, partners, joint ventures, employer and employee, or any similar such relationship between MDEQ and Contractor. Neither the method of computation of fees or other charges nor any other provision contained herein nor any acts of MDEQ or Contractor hereunder creates, or shall be deemed to create a relationship other than the independent relationship of MDEQ and Contractor.

Contractor's personnel shall not be deemed in any way, directly or indirectly, expressly or by implication, to be employees of MDEQ. Neither Contractor nor its employees shall, under any circumstances, be considered servants, agents, or employees of MDEQ, and MDEQ shall be at no time legally responsible for any negligence or other wrongdoing by Contractor, its servants, agents, or employees. MDEQ shall not withhold from the Contract payments to Contractor any federal or state unemployment taxes, federal or state income taxes, Social Security tax, or any other amounts for benefits to Contractor. Further, MDEQ shall not provide to Contractor any insurance coverage or other benefits, including Worker's Compensation, normally provided by MDEQ or the State for its employees.

6. Contractor's Personnel.

MDEQ shall, throughout the life of the Contract, have the right of reasonable rejection and approval of staff or subcontractors assigned to the Work by Contractor. If MDEQ reasonably rejects staff or subcontractors, Contractor must provide replacement staff or subcontractors satisfactory to MDEQ in a timely manner and at no additional cost to MDEQ. The day-to-day supervision and control of Contractor's employees and subcontractors is the sole responsibility of Contractor. Contractor must receive pre-approval from MDEQ prior to subcontracting with any company and/or individual not listed as a subcontractor in the bid submittal. In order to receive pre-approval, Contractor shall complete and submit a Request to Subcontract form provided by MDEQ.

7. Drug-Free Work Force.

A. The Contractor agrees to institute and maintain a program for achieving the objective of a drug-free work force. MDEQ and the Engineer will not be responsible for implementing, overseeing or enforcing the Contractor's drug-free work force program.

B. Contractor programs shall include the following, or appropriate alternatives:

i. Employee assistance programs emphasizing high level direction, education, counseling, rehabilitation, and coordination with available community resources;

ii. Supervisory training to assist in identifying and addressing illegal drug use by Contractor employees;

iii. Provision for self-referrals as well as supervisory referrals to treatment with maximum respect for individual confidentiality consistent with safety and security issues;

iv. Provision for identifying illegal drug users, including testing on a controlled and carefully monitored basis. Employee drug testing programs shall be established taking account of the following:

a. The Contractor shall establish a program that provides for testing for the use of illegal drugs by employees in sensitive positions. The extent of and criteria for such testing shall be determined by the Contractor based on considerations that include the nature of the Work being performed under the Contract, the employee's duties, and efficient use of Contractor resources, and the risks to health, safety, or national security that could result from the failure of an employee adequately to discharge his or her position.

b. In addition, the Contractor may establish a program for employee drug testing

1. When there is a reasonable suspicion that an employee uses illegal drugs;

2. When an employees has been involved in an accident or unsafe practice;

3. As part of or as a follow-up to counseling or rehabilitation for illegal drug use; or

4. As part of a voluntary employee drug testing program.

c. The Contractor may establish a program to test applicants for employment for illegal drug use.

C. Contractor shall adopt appropriate personnel procedures to deal with employees who are found to be using drugs illegally. Contractor shall not allow any employee to remain on duty or perform in a sensitive position who is found to use illegal drugs until such times as the Contractor, in accordance with procedures established by the Contractor, determines that the employee may perform in such a position.

D. The provisions of this section pertaining to drug testing program shall not apply to the extent that they are inconsistent with state or local law.

8. Notification of Ownership Changes.

Contractor shall make the following notifications in writing:

A. When Contractor becomes aware that a change in its ownership has occurred, or is certain to occur, that could result in changes in the valuation of its capitalized assets in the accounting records, Contractor shall notify MDEQ within 30 days.

B. Contractor shall also notify MDEQ within 30 days whenever changes to asset valuations or any other cost changes have occurred or are certain to occur as a result of a change in ownership.

C. Contractor shall:

a. Maintain current, accurate, and complete inventory records of assets and their costs;

b. Provide MDEQ or its designated representative ready access to records reasonably related to the performance of the Work performed hereunder upon request;

c. Ensure that all individual and grouped assets, their capitalized values, accumulated depreciation or amortization, and remaining useful lives are identified accurately before and after each of Contractor's ownership changes; and

d. Retain and continue to maintain depreciation and amortization schedules based on the asset records maintained before each Contractor ownership change.

9. Examination of Site, Plans and Specifications.

It is the sole responsibility of Contractor to visit the site of the Work and to thoroughly examine the Contract Documents and to fully acquaint Contractor with the conditions to be encountered as to the character, quality and quantity of Work to be performed and materials to be furnished. Contractor shall fully understand the facilities, difficulties and restrictions that may be encountered in performing the Work.

By execution of the Contract, Contractor represents to MDEQ that Contractor has made the necessary examination referred to in the preceding paragraph and can perform the Work for the Contract Price.

Contractor is advised that any report or other information (hereafter called "Additional Information") given to Contractor by MDEQ or Engineer or obtained by Contractor from the records of MDEQ (except for the Contract Documents) is not a part of the Contract unless specifically referenced to be used in conjunction with the Contract and is given solely for the convenience of Contractor for whatever use Contractor may wish to make of it. It is expressly understood and agreed that MDEQ assumes no responsibility whatsoever in respect to the sufficiency or accuracy of the Additional Information or of any interpretations made thereof by any person. Availability or use of such additional information shall not be a waiver of Contractor's duty to examine the site of the Work, and Contractor is cautioned to make such independent investigation as Contractor deems necessary to satisfy Contractor as to the conditions to be encountered in the performance of the Work, including but not limited to: (1) conditions bearing upon transportation, disposal, handling and storage of materials; (2) the availability of labor, water, electric power and roads; (3) uncertainties of weather, tides or similar physical conditions at the

site; (4) the conformation and conditions of the ground; and (5) other site conditions that may affect the Work performance.

10. Interpretation of Plans and Specifications.

Should it appear that the Work to be done, or any matter relative thereto, is not sufficiently detailed or explained in the Contract Documents, Contractor shall apply in writing to the Engineer for such further explanations as may be necessary for Contractor to accomplish the Work, and Contractor shall conform to such explanation or interpretation of the Contract by Engineer so far as may be consistent with the intent of the Contract Documents. In the event of doubt or question relative to the true meaning of the Contract Documents as explained or interpreted by the Engineer, reference shall be made to MDEQ, whose decision thereof shall be final.

In the event there is a discrepancy between the Specifications and the Plans or Drawings, the Drawings take precedence over the Specifications. In the event of any discrepancy between any Plans or Drawing and the figures written thereon, the figures shall be taken as correct.

11. Inspection.

MDEQ and Engineer or its designee shall at all times have access to the Work during construction and shall be furnished with every reasonable facility for obtaining full knowledge respecting the progress, workmanship and character of materials used and employed in the Work.
Whenever Contractor varies the period during which Work is carried on each day, Contractor shall give due notice to and obtain approval from MDEQ and Engineer so that proper inspection may be provided. Any Work done in the absence of Engineer or Engineer's designee will be subject to rejection.

The inspection of the Work shall not relieve Contractor of any of Contractor's obligations to fulfill the Contract as prescribed. Defective Work shall be made good, and unsuitable materials may be rejected, notwithstanding the fact that such defective Work and unsuitable materials have been previously overlooked by Engineer in inspection and accepted for payment.

12. Public Convenience and Safety.

Contractor shall so conduct its operations and Work as to cause the least possible obstruction and inconvenience to public traffic. Contractor shall furnish, erect, and maintain such fences, barriers, lights, temporary and permanent aids to navigation, notice to fishermen, warning and directional signs as deemed necessary by Engineer to give adequate warning to the public at all times of the construction and of any dangerous conditions to be encountered as a result thereof, and
Contractor shall also erect and maintain such signs as may be furnished by MDEQ.

All equipment shall be fully equipped with marine safety equipment as required by applicable state or federal law. Contractor shall have a program in place for inspecting and documenting the condition of equipment used on the Project and shall certify that the equipment is in compliance with applicable Occupational Safety and Health Administration (OSHA) and United States Coast Guard inspection requirements. A copy of such certification shall be submitted to MDEQ prior to mobilization.

13. Removal of Defective and Unauthorized Work.

All Work which is defective in its construction or deficient in any way of the requirements of the Contract, or Work done by Contractor that is considered by MDEQ to create a condition that threatens the health, safety, or welfare of the citizens and/or employees of the State of Mississippi

or MDEQ, shall be remedied, or removed and replaced by Contractor in an acceptable manner, and no compensation will be allowed for such correction.

Any Work done beyond the Plans or Specifications, or established by Engineer, or any extra Work done without the written authority of MDEQ, will be considered as unauthorized and Contractor will not be compensated. Furthermore, any material that is deposited in places not designated or approved by the Engineer or MDEQ may be required to be removed, and the Contractor will be required to deposit such misplaced material where directed at his expense. Additional clean-up and environmental damage mitigation requirements may be directed by MDEQ. Such efforts will be entirely at the expense of the Contractor and any fines or penalties will be the responsibility of the Contractor.

Upon failure on the part of Contractor to comply forthwith with any order of MDEQ or Engineer made under the provisions of this Section or Sections 3 or 21, MDEQ shall have authority to cause the defective Work to be remedied, or removed and replaced, and unauthorized Work to be removed, and to deduct the costs thereof from any moneys due or to become due the Contractor.

14. Contractor's Responsibility for Work.

Until written final acceptance of the Work by MDEQ, Contractor shall use all commercially reasonable means to secure and protect the Work from injury, loss or damage to all or any part thereof by an actual or anticipated Force Majeure Event, as that term is defined in Section 23 of the Standard Contract Terms and Conditions, whether arising from the execution of the Work, mobilization and demobilization or otherwise. Contractor will not be compensated for any costs associated with procuring, utilizing or carrying out commercially reasonable means to secure and protect the Work from an actual or anticipated Force Majeure Event.

In the event the Work or any portion thereof is damaged or destroyed by a Force Majeure Event, Contractor shall rebuild, repair, restore and make good all damage to such Work. Without limiting the foregoing, Contractor shall not be responsible for payment for loss or damage to Work or any portion thereof that is considered "Completed Work" proximately caused by a Force Majeure Event. For purposes of this Section 14, "Completed Work" means Work or any portion thereof that has been surveyed by Contractor and verified by Engineer as being compliant with the Contract Drawings, including, but not limited to, the design sections and details shown in the Contract Drawings. Payment for additional fill material to rebuild, repair or restore damage to Completed Work shall be made in accordance with the submitted Attachment D, Contractor's Schedule of Prices for Base Bid. After all Force Majeure Events, Contractor shall survey all "Completed Work" to identify damaged locations, calculate volumes to repair damages and determine methods for repair. Contractor shall submit a correction plan to Engineer for approval prior to proceeding with any repair work. All repairs and additional pay materials shall be approved by Engineer.

Notwithstanding, and prior to final acceptance of the Work by MDEQ in accordance with Section 1.05 of 01 77 00 Closeout Procedures, Contractor shall be responsible for and bear the entire expense of rebuilding, repairing, restoring and making good any damage or loss to all Work or any portion thereof that is not considered, in MDEQ's sole discretion, "Completed Work" as defined herein.

15. Responsibility for Damage.

During the progress of the Work or any time before final acceptance, MDEQ and Engineer shall not be liable to Contractor for any loss or damage to the Work or any part thereof, or to any material

or equipment used or to be used in performing the Work or for injury or damage to any person (including workers) or damage to property from any cause.

Until final acceptance of the Work by MDEQ in accordance with Section 1.05 of 01 77 00 Closeout Procedures, protection of the Work and materials and equipment used thereon shall be the sole responsibility of Contractor. Notwithstanding the foregoing, Contractor shall not be responsible for payment for loss or damage to "Completed Work" proximately caused by a Force Majeure Event, as those terms are defined in Sections 14 and 23 of the Standard Contract Terms and Conditions.

16. Ownership of Documents and Work Products.

MDEQ shall own all documents, files, reports, work papers and working documentation, electronic or otherwise, created in connection with the Contract, except for Contractor's internal administrative and quality assurance files and internal documents. After giving thirty (30) days advance written notice to MDEQ, Contractor shall deliver such documents and work papers to MDEQ upon termination or completion of the Contract and shall certify such delivery in writing to MDEQ. The foregoing notwithstanding, Contractor shall be entitled to retain a set of such work papers for its files. Contractor shall be entitled to use such work papers only after receiving written permission from MDEQ and subject to any copyright protections.

Except as needed to perform hereunder, the Contractor is prohibited from use of the above described information and/or materials without the express written approval of MDEQ.

17. Copyrights.

Contractor agrees that MDEQ shall determine the disposition of the title to and the rights under any copyright by Contractor or employees on copyrightable material first produced or composed under this Contract. Further, Contractor hereby grants to MDEQ a royalty-free, nonexclusive, irrevocable license to reproduce, translate, publish, use and dispose of, and to authorize others to do so, all copyrighted (or copyrightable) work not first produced or composed by Contractor in the performance of this Contract but which is incorporated in the material furnished under the Contract. This grant is provided that such license shall be only to the extent Contractor now has, or prior to the completion of full final settlements of Agreement may acquire, the right to grant such license without becoming liable to pay compensation to others solely because of such grant.

18. Record Retention and Access to Records.

Provided Contractor is given reasonable advance written notice and such inspection is made during normal business hours of Contractor, the State or any duly authorized representatives shall have unimpeded, prompt access to any of Contractor's books, documents, papers, and/or records which are maintained or produced as a result of the Project for the purpose of making audits, examinations, excerpts, and transcriptions. All records related to this Contract shall be retained by Contractor for ten (10) years after final payment is made under this Contract and all pending matters are closed; however, if any audit, litigation or other action arising out of or related in any way to this Project is commenced before the end of the ten (10) year period, the records shall be retained for one (1) year after all issues arising out of the action are finally resolved or until the end of the ten (10) year period, whichever is later.

However, the Contractor is not required to retain the above-mentioned materials for the ten-year period prescribed in this Section and Section 19 only if all of the following conditions are satisfied:

A. The Contractor has provided **all** of the documents described above to MDEQ prior to the expiration of the ten (10) year retention period and a certification stating the same is simultaneously provided in writing to MDEQ;

B. No audit, litigation, or other action arising out of or related in any way to this Project is commenced before the Contractor provides the records and corresponding certification to MDEQ, in which case, MDEQ shall retain the records until all issues arising out of the action(s) are finally resolved; and

C. The Contractor provides MDEQ a minimum of thirty (30) days' written notice before providing the above-mentioned records and corresponding certification.

19. Right to Audit.

Contractor shall maintain such financial records and other records as may be prescribed by MDEQ or by applicable federal and state laws, rules, and regulations. Contractor shall retain these records for a period of ten (10) years after final payment or until they are audited by MDEQ, whichever event occurs first. These records shall be made available during the term of the Contract and the subsequent ten-year period for examination, transcription, and audit by the Mississippi State Auditor's Office, its designees, or other authorized bodies.

20. Third Party Action Notification.

Contractor shall give MDEQ immediate notice in writing of any action or suit filed, and prompt notice of any claim made against Contractor by any entity that may result in litigation related in any way to the Contract.

21. Orders of Engineer.

Whenever it is desirable by the Engineer and MDEQ to give Contractor directions concerning the Work, orders will be given in writing to Contractor by delivery to Contractor's representative, or in the representative's absence, to Contractor's on-site superintendent or foreman in charge of the particular Work in reference to which the order is given, and such written orders shall be binding on Contractor and Contractor shall comply therewith.

Any provision of the Contract notwithstanding, all orders, directions or interpretations of the Engineer and MDEQ to Contractor shall be in writing and shall be given to Contractor promptly after requested by Contractor.

Contractor shall not be bound to follow any orders, directions or interpretations of Engineer that are not in writing. MDEQ shall not be liable to Contractor for Work performed by Contractor in reliance on verbal orders of Engineer and neither shall such reliance relieve Contractor from the responsibilities of Contractor set forth in the Contract.

If Contractor believes that the order issued by the Engineer entitles Contractor to a change in either the Contract Price or the Contract Time, or both, Contractor shall give Engineer and MDEQ written notice of a request for a change order within two (2) days after receipt of the order by the Engineer. The written request shall state the requested change in Contract Price, or extension of the Contract Time, and shall detail the basis for the request. Upon such a request, Contractor shall not be required to carry out the order of the Engineer pending the execution of a Change Order unless Contractor is otherwise directed in writing. If Contractor has requested a Change Order and is ordered to proceed with the Work before a Change Order is executed, such proceeding with the Work shall be

without prejudice to the Contractor's right, if any, to request equitable adjustment or an extension of time.

22. Change Orders.

A. Generally, MDEQ may order changes in the services consisting of additions, deletions, or other revisions within the general scope of the Contract. No claims may be made by Contractor that the scope of the Project or of Contractor's services has been changed, requiring changes to the amount of compensation to Contractor or other adjustments to the Contract, unless such changes or adjustments have been made by written amendment to the Contract signed by MDEQ and Contractor. If Contractor believes that any particular work is not within the scope of the Project, is a material change, or will otherwise require more compensation to Contractor, Contractor must immediately notify MDEQ in writing of this belief. If MDEQ believes that the particular work is within the scope of the Contract as written, Contractor will be ordered to and shall continue with the Work as changed and at the cost stated for the services within the Contract.

B. Procedures. The parties shall initiate a Change Order as follows:

i. Proposed by MDEQ/Engineer.

MDEQ or Engineer may initiate changes by submitting a proposed Change Order to Contractor. The request will include:

a. Detailed description of the change, products, and location of the change in the Project;

b. Supplementary or revised Drawings and Specifications;

c. The projected time span for making the change and a specific statement as to whether overtime work is, or is not authorized;

d. A specific period of time during which the requested price will be considered valid; and

e. Such request is for information only, and is not an instruction to execute the changes or to stop Work in progress.

ii. Proposed by Contractor.

Contractor may initiate changes by submitting a written notice to MDEQ's Engineer, or directing to MDEQ in the absence of a designated Engineer, containing:

a. Description of the proposed changes;

b. Statement of the reason for making the changes;

c. Statement of the effect on the Contract Sum and the Contract Time;

d. Statement of the effect on the work of separate contractors; and

e. Documentation supporting any change in Contract Sum or Contract Time, as appropriate.

C. Documentation and information supporting Change Order.

i. The Contractor shall support each quotation for a lump-sum proposal, and for each unit price which has not previously been established, with sufficient substantiating data to allow MDEQ or its Engineer to evaluate the quotation.

ii. The Contractor will provide the following additional data to support time and cost computations:

a. Labor required for Contractor and sub-contractors;

b. Equipment required by Contractor and sub-contractors;

c. Products and materials required by Contractor and sub-contractors, including the recommended sources of purchase and unit cost and the quantities required;

d. Overhead (inclusive of insurance, bonds and taxes) and profit on labor by the Contractor and sub-contractors;

e. Overhead (inclusive of insurance, bonds and taxes) and profit on equipment by the Contractor and sub-contractors;

f. Credit for work deleted from Contract, similarly documented; and

g. Justification for any change in Contract Time.

D. Form of Change Order.

i. The party initiating the request for a Change Order shall prepare the request on a form provided by MDEQ.

ii. A Change Order will describe changes in the Work, both additions and deletions, with attachments of revised Contract Documents to define details of the change.

iii. A Change Order will provide an accounting of the adjustment in the Contract Sum and in the Contract Time.

iv. MDEQ and its Engineer, if designated for the Project, will sign and date the Change Order as authorization for the Contractor to proceed with the changes.

v. Contractor will sign and date the Change Order to indicate agreement with the terms therein.

vi. Changes in price will be based on:

a. Unit prices already established in the Bid Form;

b. Negotiated unit prices for items not previously established in the Bid Form; or

c. Negotiated lump sum prices for items not previously established in the Bid Form.

For negotiated unit or lump sum prices for items not previously established in the Bid Form, the total markup for profit and overhead for the Contractor, including all subcontractors and/or vendors shall not exceed fifteen percent (15%).

Changes in Contract Time will be justified based on the Extension of Contract Time provision below.

E. Final Summary Change Order.

i. At the conclusion of the Project, the Engineer will perform a final quantity estimate of all unit price items and submit final quantities to the Contractor for review and verification.

ii. After mutual acceptance of final quantities, the Engineer will prepare a summary Change Order that reflects all actual installed and accepted quantities.

iii. MDEQ and Contractor will sign and date the Final Summary Change Order to indicate their agreement with the terms therein.

F. Work Order Directive.

A Work Order Directive is a written order, instructions, or interpretations, signed by Engineer making minor changes in the Work not involving a change in Contract Sum or Contract Time.

23. Extension of Contract Time.

A. Time Extension

i. The time within which to complete the Contract shall be extended by MDEQ for a period of time, as may be reasonably necessary for Contractor to resume work, upon the occurrence of any of the following events: acts of God; strikes, lockouts, riots, acts of war, epidemics, pandemics, fire, earthquakes, hurricanes, tropical storms, floods or other natural disasters (a "Force Majeure Event").

ii. Notwithstanding the foregoing, subparagraph (i) above, the time within which to complete the Contract may be extended by MDEQ if any of the following two (2) requirements are met;

a. The delay is the result of documented causes beyond the control of Contractor or its Subcontractors or suppliers, including, but not limited to,

unusually severe weather conditions not giving rise to a Force Majeure Event; or

b. Negotiated additional time for new work activities not included in the original Contract.

iii. In the circumstances described in either subparagraph 23(A)(ii)(a) or (A)(ii)(b), Contractor shall notify the Engineer in writing within ten (10) days from the beginning of any such delay period of the cause of the delay and request an extension of the time within which to complete the Contract by reason of the delay and specify the length of such requested extension in accordance with the Change Order provisions above.

iv. MDEQ or its Engineer, upon investigation, may grant an increase in the Contract Time in accordance with the Change Order provisions above. MDEQ may grant an increase in the Contract Time for unusually severe weather as described in subparagraph (ii)(a) above in accordance with subparagraph vi below.

v. Contractor shall not be entitled to any increase in the Contract Price and waives any claim for damages as a result of any delay caused by such circumstances described in Section 23(A)(ii)(a) or (A)(ii)(b),

vi. This provision specifies the procedure for determination for time extensions for unusually severe weather as described in subparagraph (ii)(a) above. In order for MDEQ to award a time extension under this clause, the following conditions must be satisfied:

a. The weather experienced at the project site during the contract period must be found to be unusually severe, that is, more severe than the adverse weather anticipated for the project location during any given month.

b. The unusually severe weather must actually cause a delay to the completion of the project, or portion of the project (e.g., installation of geogrid). The delay must be beyond the control and without the fault or negligence of the Contractor.

c. The following schedule of monthly anticipated adverse weather delays is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the project location and will constitute the base line for monthly weather time evaluations. The Contractor's progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities.

Monthly Anticipated Adverse Weather Delay Work Days Based on 5 Day Work Week											
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
4	5	4	3	4	5	6	6	4	3	4	5

d. Upon acknowledgement of the Notice to Proceed (NTP) and continuing throughout the contract, the Contractor will record on the daily CQC report, the occurrence of adverse weather and resultant impact to normally scheduled work. Actual adverse weather delay days must prevent work on critical activities for 50 percent or more of the Contractor's scheduled work day. The number of actual adverse weather delay days shall include days impacted by actual adverse weather (even if adverse weather occurred during the previous month), be calculated chronologically from the first to the last day of each month, and be recorded as full days. If the number of actual adverse weather delay days exceeds the number of days shown above, MDEQ will convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather work days, and issue a Change Order for contract extension in accordance with Section 22 above.

24. Modification or Amendment.

Modification, changes or amendments to the Contract may be made upon mutual agreement of the parties hereto. However, any change, supplement, modification or amendment of any term, provision or condition of the Contract must be in writing and signed by both parties hereto.

25. Final Payment.

Upon satisfactory completion of the Work performed under the Contract, as a condition before final payment under the Contract or as a termination settlement under the Contract, Contractor shall execute and deliver to MDEQ a release of all claims against MDEQ arising under, or by virtue of, the Contract by completing the Release of Claims form provided by MDEQ. Unless otherwise provided in the Contract, by state law or otherwise expressly agreed to by the parties in the Contract, final payment under the Contract or settlement upon termination of the Contract shall not constitute waiver of MDEQ's claims against Contractor or his sureties under the Contract or applicable performance and payment bonds.

26. Conflict of Interest.

Contractor shall immediately notify MDEQ in writing of any interests (financial, contractual, organizational, or otherwise) relating to the services to be performed under this Contract that would create any actual or potential conflict of interest (or apparent conflicts of interest) (including conflicts of interest for immediate family members: spouses, parents, children) with respect to MDEQ or the Project that would impinge on Contractor's ability to render impartial, technically sound, and objective assistance or advice or result in it being given an unfair competitive advantage. In this section, the term "potential conflict" means reasonably foreseeable conflict of interest. Contractor further certifies that it has and will continue to exercise due diligence in identifying and removing or mitigating, to MDEQ's satisfaction, such conflict of interest (or apparent conflict of interest). If such conflict cannot be resolved to MDEQ's satisfaction, MDEQ reserves the right to terminate this Contract per the Termination for Convenience section of this Contract.

27. Debarment and Suspension.

Contractor certifies to the best of its knowledge and belief that it, its corporate officers, principal owners, managers, auditors and others in a position of administering governmental funds:

A. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transaction by any federal department or agency or any political subdivision or agency of the State of Mississippi;

B. Have not, within a three year period preceding this Contract, been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, state, or local) transaction or Contract under a public transaction;

C. Have not, within a three year period preceding this Contract, been convicted of or had a civil judgment rendered against them for a violation of federal or state antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

D. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (federal, state or local) with commission of any of these offenses enumerated in subparagraphs B. and C. of this certification; and

E. Has not, within a three year period preceding this Contract, had one or more public transactions (federal, state, or local) terminated for cause or default.

28. Representation Regarding Contingent Fees.

Contractor represents that it has not retained a person to solicit or secure a State of Mississippi contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, except as disclosed in the Contractor's bid.

29. Representation Regarding Gratuities.

The bidder or Contractor represents that it has not violated, is not violating, and promises that it will not violate the prohibition against gratuities set forth in Section 9.105 (Gratuities) of the Mississippi Department of Finance and Administration's Procurement Manual (Public Procurement Review Board Regulations).

30. Tax Bonds.

A Tax Bond securing the prompt payment of taxes, licenses, assignments, contributions, damages, penalties, and interest thereon incurred in connection with the performance of the Contract shall also be provided and approved by MDEQ prior to commencing Work under the Contract.

Attorneys-in-fact who sign Payment Bonds, Performance Bonds, and Tax Bonds must file with each Bond a certified and effective dated copy of their power of attorney.

31. Insurance Requirements.

Contractor shall maintain during the period of performance of the contract the following liability insurance coverage and shall require its subcontractors to maintain said coverage, related to the work of the Contractor and in connection with the contract.

(A) Workers' Compensation and Employer's Liability Insurance. This insurance shall protect Contractor against all claims under applicable State workers' compensation laws. Contractor shall also be protected against claims for injury, disease, or death of employees, which, for any reason, may not fall within the provisions of a workers' compensation law. The liability limits shall not be less than the required statutory limits for workers' compensation and employer's liability limits in the amount of One Million and 00/100 Dollars ($1,000,000.00). Contractor

shall supply MDEQ endorsements from its carriers evidencing waiver of subrogation in favor of MDEQ.

(B) Longshore and Harbor Workers' Compensation Insurance. This insurance shall protect Contractor against all claims under the Jones Act, Death on the High Seas Act, Outer Continental Shelf Lands Act and Maritime Laws in which case minimum limits of Employers' Liability Insurance will be at least $1,000,000.00 per occurrence, including transportation, wages, maintenance and cure.

(C) Comprehensive General Liability Insurance. This insurance shall include bodily injury, property damage, contractual and other standard coverage contained in comprehensive general liability insurance, in an amount of not less than One Million and 00/100 Dollars ($1,000,000.00) per occurrence and Two Million and 00/100 Dollars ($2,000,000.00) aggregate.

(D) Contractors Pollution Liability Insurance. This insurance shall protect Contractor for claims for bodily injury and property damage stemming from pollution caused by the Contractor's work or equipment. This insurance shall also cover remediation costs stemming from pollution incidents resulting from the Contractor's operations and Work under this Contract. This insurance shall have minimum limits of at least $1,000,000.00 per occurrence and $2,000,000.00 in the aggregate.

(E) Auto Liability Insurance. This insurance shall be in the amount of not less than One Million and 00/100 Dollars ($1,000,000.00) Combined Single Limit to protect it from any and all claims arising from the use of the following: (1) Contractor's own automobiles and trucks; (2) hired and non-owned automobiles and trucks; and (3) automobiles and trucks owned by Contractors. The aforementioned is to cover use of automobiles and trucks on and off the site of the Project.

For all of the insurance coverage required in Paragraph 31(A)-(E), MDEQ and MDEQ's Commissioners, officers, employees, agents, and representatives, and the State of Mississippi shall be named as additional insureds or loss payee on such policies as the circumstances may require. The Contractor shall provide that the insureds thereon waive subrogation against the State of Mississippi and the said political subdivisions thereof. The parties (and their respective insurers) agree that Contractor's respective policies shall provide primary coverage before any applicable policy otherwise covering MDEQ, and any insurance covering MDEQ shall be excess coverage over the Contractor's coverage. Endorsements so stating shall be provided to MDEQ by the Contractor. The policies shall also provide for all additional insureds to be provided with a minimum 30-day written notice prior to a cancellation or modification of each respective policy.

Upon execution of the Contract, Contractor shall promptly furnish MDEQ with endorsements showing the Contractor compliance with the insurance provisions of this paragraph. While Contractor shall provide MDEQ with endorsements as set forth in this paragraph, the failure to do so, or the failure of the endorsements or insurance provided to conform to the Agreement, does not constitute waiver or estoppels as to MDEQ of their respective legal and equitable rights, including but not limited to, the right to enforce the terms of the Contract. These contractual insurance

provisions are intended to be, and shall be interpreted to be, separate and independent contractual obligations from the provisions addressing the indemnity of MDEQ by Contractor.

32. Indemnification.

To the fullest extent allowed by law, Contractor hereby agrees to defend, indemnify and hold harmless MDEQ, its Commissioners, Board Members, officers, employees, agents, and representatives, and the State of Mississippi from and/or against all claims, demands, liabilities, suits, actions, damages, losses, and costs of every kind and nature whatsoever, including, without limitation, court costs, investigative fees and expenses, and attorneys' fees, arising out of or caused by the Contractor and/or its partners, principals, agents, employees and/or Subcontractor's in the performance of or failure to perform this Agreement. In MDEQ's sole discretion, Contractor may be allowed to control the defense of any such claim, suit, etc. In the event Contractor defends said claim, suit, etc., Contractor shall use legal counsel acceptable to MDEQ; Contractor shall be solely responsible for all costs and/or expenses associated with such defense, and MDEQ shall be entitled to participate in said defense. Contractor shall not settle any claim, suit, etc., without MDEQ's concurrence, which MDEQ shall not unreasonably withhold. This indemnity obligation is intended to be, and shall be interpreted to be, a separate and independent contractual obligation from the contractual provisions addressing the requirements and placement of insurance, including, but not limited to, insurance covering MDEQ.

33. No Limitation of Liability.

Nothing in this Contract shall be interpreted as excluding or limiting any tort liability of Contractor for harm caused by the intentional or reckless conduct of Contractor or for damages incurred through the negligent performance of duties by Contractor or the delivery of products that are defective due to negligent construction.

34. Recovery of Money.

Whenever, under the Contract, any sum of money shall be recoverable from or payable by Contractor to MDEQ, the same amount may be deducted from any sum due to Contractor under the Contract or under any other Contract between Contractor and MDEQ. The rights of MDEQ are in addition and without prejudice to any other right MDEQ may have to claim the amount of any loss or damage suffered by MDEQ on account of the acts or omissions of Contractor.

Any funds that are paid by MDEQ to the Contractor that are deemed ineligible or not necessary for the completion of the tasks in this Contract must be returned to MDEQ within 30 days from receiving MDEQ's written notification for return of funds.

35. Anti-Assignment/Subcontracting.

Contractor acknowledges that it was selected by MDEQ to perform the services required hereunder based, in part upon Contractor's special skills and expertise. Unless subcontractors are otherwise identified and approved in accordance with the this Section, Contractor shall not assign, subcontract, or otherwise transfer this Contract, in whole or in part, without the prior written consent of MDEQ, which MDEQ may in its sole discretion, approve or deny without reason. Accordingly, Contractor shall abide by the following for all subcontracts:

a. Bid Form. Contractor is required to identify on the Bid Form all subcontractors, surveyors and suppliers anticipated by Contractor to contribute over $5,000.00 worth of services or supplies to complete the work identified on the Bid Form.

b. Post-Award. For any subcontract anticipated by Contractor, not identified on the Bid Form, to contribute over $5,000.00 worth of services or supplies to complete the Work, Contractor must notify MDEQ in writing and submit a Request to Subcontract in the form provided by MDEQ and obtain MDEQ's written approval of same prior to entering such contract. Prior to submitting its request to MDEQ, Contractor shall abide by the procedures set forth in Section 2.7 of the Invitation for Bids to encourage the participation of MBE/WBE for such subcontract.

The failure of Contractor to comply with this Section shall render any subcontract, assignment or transfer of Contractor's obligations null and void. MDEQ shall in no way be responsible for payment for any services or supplies provided by subcontractors not identified and/or approved in accordance with this Section. Approval by MDEQ of any subcontract shall not be deemed in any way to provide for the incurrence of any obligation of MDEQ in addition to the total fixed price agreed upon in this Contract. Subcontracts shall be subject to the terms and conditions of this Contract and to any conditions of approval that MDEQ may deem necessary. Further, MDEQ may assign its obligations under this Contract to another entity, upon such entity's agreement, in accordance with applicable state laws and regulations. Subject to the foregoing, this Contract shall be binding upon the respective successors and assigns of the parties.

36. Confidential Information.

A. Information Designated by Contractor as Confidential. Any disclosure of those materials, documents, data and other information, which Contractor has designated in writing as proprietary and confidential shall be subject to the provisions of Miss. Code Ann. §§ 25-61-9 and 79-23-1. As provided in this Contract, the personal or professional services to be provided, the price to be paid, and the term of the Contract shall not be deemed to be a trade secret or confidential commercial or financial information. Any liability resulting from the wrongful disclosure of Confidential Information on the part of Contractor or its subcontractor shall rest with Contractor. Disclosure of any Confidential Information by Contractor or its subcontractor without the express written approval of MDEQ shall result in the immediate termination of this Contract.

B. Public Records. Notwithstanding any provision to the contrary contained herein, all Parties recognize that MDEQ is a public agency of the State of Mississippi and is subject to the Mississippi Public Records Act. Miss. Code Ann. §§ 25-61-1 *et seq*. If a public records request is made for any information provided to MDEQ pursuant to this Contract and designated by the Contractor in writing as trade secrets or other proprietary confidential information, MDEQ shall following provisions of Miss. Code Ann. §§ 25-61-9 and 79-23-1 before disclosing such information. MDEQ shall not be liable to Contractor for disclosure of information required by court order or required by law.

C. Disclosure of Confidential Information. In the event that either party to this Contract receives notice that a third party requests divulgence of Confidential Information or otherwise protected information and/or has served upon it a subpoena or other validly issued administrative or judicial process ordering divulgence of Confidential Information or otherwise protected information, that party shall promptly inform the other party and thereafter respond in conformity with such subpoena to the extent mandated by law. This section shall survive the termination or completion of this Contract. The parties agree that this section is subject to and superseded by Mississippi Code Annotated §§ 25-61-1 *et seq.*

D. Exceptions to Confidential Information. Contractor and the State shall not be obligated to treat as confidential and proprietary any information disclosed by the other party ("**Disclosing Party**") which is:

i. Rightfully known to the recipient prior to negotiations leading to this Contract, other than information obtained in confidence under prior engagements;

ii. Generally known or easily ascertainable by nonparties to this Contract;

iii. Released by the Disclosing Party to any other person, firm, or entity (including governmental agencies or bureaus) without restriction;

iv. Independently developed by the recipient without any reliance on confidential information;

v. Part or later becomes part of the public domain or may be lawfully obtained by the State or Contractor from any nonparty; or

vi. Disclosed with the Disclosing Party's prior written consent; or

vii. otherwise required to be disclosed by law.

37. Temporary Suspension of Work.

MDEQ or the United States Coast Guard or any other governmental agency with jurisdiction shall have the authority to suspend the Work wholly or in part, for such period as it may deem necessary due to: (1) unsuitable weather, (2) such other conditions as are considered unfavorable for the suitable prosecution of the Work. For these circumstances, the Contractor may be entitled to an adjustment in Contract Times if the delay prohibits the Contractor from completing the Work within the Contract Times but no increase in Contract Price. Any such suspension ordered by MDEQ shall be within its sole discretion. MDEQ, or any other governmental agency with jurisdiction shall have the authority to cancel the temporary suspension of work prior to the temporary suspension of work period expires, as deemed necessary. This cancellation can be for all or part of the work specified in the temporary suspension of work order.

MDEQ, Engineer, Army Corps of Engineers (COE), Environmental Protection Agency, NOAA or any other governmental agency with jurisdiction may temporarily suspend work for failure on part of Contractor or any Subcontractor to carry out orders given by Engineer pursuant to the Contract or to perform any provisions of the Work in the manner prescribed by the Contract and/or permits. Any such suspension by MDEQ shall be within its sole discretion. Contractor shall immediately cease Work upon such order of MDEQ's Executive Director or representative and shall not resume the Work until ordered in writing by MDEQ. Contractor shall not be entitled to additional time or increase in the Contract Price and waives any claim for damages as a result of any such suspension of work for these reasons.

38. Termination.

The Contract may be terminated as follows:

A. Termination Upon Bankruptcy or Default:
The Contract may be terminated in whole or in part by MDEQ upon written notice to Contractor, if Contractor should become the subject of bankruptcy or receivership proceedings, whether voluntary or involuntary, or upon the execution by Contractor of an assignment for the benefit of its creditors. In the event of such termination, Contractor (or Bonding Company) shall be paid an amount for satisfactory work actually performed pursuant to the Contract, but in no case shall said compensation exceed the total Contract price.

B. Termination Due to Non-Performance By Third Party:
The Contract may be terminated in whole or in part by MDEQ upon written notice to Contractor if the purpose, performance or completion of the Work becomes materially altered, frustrated or impossible due to a third party, (public or private entity) outside of the control of MDEQ, not performing or satisfying an activity or operation necessary for the Work to be accomplished. This provision shall not apply to the subcontractors or suppliers of Contractor, which are addressed separately. MDEQ shall specify the effective date of such termination. In the event of a termination under this provision, the Contractor shall be paid an amount for satisfactory work actually performed in connection with the Contract if a Notice to Proceed has been issued. If a Notice to Proceed has not been issued prior to such termination, the termination will be without damage, penalty, costs or expenses to MDEQ of any kind whatsoever and the Contractor waives any claim for payment or damages as a result.

C. Termination for Convenience:
MDEQ may terminate the Contract, in whole or in part, for any reason after giving written notice to Contractor of such termination and specifying the effective date thereof, at least ten (10) days before the effective date of such termination. Contractor shall be paid an amount for satisfactory work actually performed in connection with the Contract, but in no case shall said compensation exceed the total Contract price.

Upon receiving notice of termination, Contractor shall incur no further obligations in connection with the terminated work, and on the date set in the notice of termination Contractor will stop work to the extent specified. Contractor shall also terminate outstanding orders and subcontracts as they relate to the terminated work. Contractor shall settle the liabilities and claims arising out of the termination of subcontracts and orders connected with the terminated work. MDEQ may direct Contractor to assign Contractor's right, title, and interest under terminated orders or subcontracts to MDEQ. Contractor must still complete the work not terminated by the notice of termination and may incur obligations as are necessary to do so.

D. Termination for Default:
(i) Default. If Contractor refuses or fails to perform any of the provisions of this Contract with such diligence as will ensure its completion within the time specified in this Contract or any extension thereof or otherwise fails to timely satisfy the Contract provisions or commits any other substantial breach of this Contract, MDEQ may notify Contractor in writing of the delay or nonperformance. If delay or nonperformance is not cured in ten (10) days or any longer time specified in writing by the MDEQ officer or representative, MDEQ may terminate Contractor's right to proceed with the Contract or

such part of the Contract as to which there has been delay or a failure to properly perform. In the event of termination in whole or in part, the procurement officer may procure similar supplies or services in a manner and upon terms deemed appropriate by MDEQ. Contractor shall continue performance of the Contract to the extent it is not terminated and shall be liable to MDEQ for excess costs incurred in procuring similar goods or services.

(ii) Contractor's Duties. Notwithstanding termination of the Contract and subject to any directions from MDEQ, Contractor shall take timely, reasonable, and necessary action to protect and preserve property in the possession of Contractor in which the State has an interest.

(iii) Compensation. Payment for completed services delivered and accepted by the State shall be at the Contract Price. The State may withhold from amounts due Contractor such sums as MDEQ deems to be necessary to protect the State against loss because of outstanding liens or claims of former lien holders and to reimburse the State for the excess costs incurred in procuring similar goods and services.

(iv) Excuse for Nonperformance or Delayed Performance. Except with respect to defaults of subcontractors, Contractor shall not be in default by reason of any failure in performance of this Contract in accordance with its terms (including any failure by Contractor to make progress in the prosecution of the work hereunder which endangers such performance) if Contractor has notified MDEQ within 10 days after the cause of the delay and the failure arises out of causes such as: acts of God; acts of the public enemy; acts of the State and any other governmental entity in its sovereign or contractual capacity; fires; floods; epidemics; quarantine restrictions; strikes or other labor disputes; freight embargoes; or unusually severe weather. If the failure to perform is caused by the failure of a subcontractor to perform or to make progress and if such failure arises out of causes similar to those set forth above, Contractor shall not be deemed to be in default, unless the services to be furnished by the subcontractor were reasonably obtainable from other sources in sufficient time to permit Contractor to meet the Contract requirements. Upon request of Contractor, MDEQ shall ascertain the facts and extent of such failure. If MDEQ determines that any failure to perform was occasioned by any one or more of the excusable causes and that, but for the excusable cause, Contractor's progress and performance would have met the terms of the Contract, the delivery schedule be revised accordingly, subject to the rights of MDEQ under the section entitled "Termination for Convenience." (As used in this paragraph of this section, the term "subcontractor" means subcontractor at any tier.)

(v) Erroneous Termination for Default. If, after notice of termination of Contractor's right to proceed under the provisions of this section, MDEQ determines for any reason that the Contract was not in default under the provisions of this section or that the delay was excusable under the provisions of subparagraph (iv) (Excuse for Nonperformance or Delayed Performance) of this section, the rights and obligations of the parties shall be the same as if the notice of termination had been issued pursuant to such section.

Notwithstanding any of the foregoing provisions, Contractor shall not be relieved of liability to MDEQ for damages sustained by MDEQ by virtue of any breach of the Contract by Contractor, and MDEQ may withhold any payments to Contractor for the purpose of set off until such time as the exact amount of damages due MDEQ from Contractor are determined. MDEQ may also pursue any remedy available to it in law or in equity.

39. Use and Possession Prior to Completion.

A. MDEQ shall have the right to take possession of or use any completed or partially completed part of the Work. Before taking possession of or using any Work, the MDEQ or its designated Engineer shall furnish the Contractor a list of items of Work remaining to be performed or corrected on those portions of the Work that the MDEQ intends to take possession of or use. However, failure of the MDEQ or its Engineer to list any item of Work shall not relieve the Contractor of responsibility for complying with the terms of the Contract Documents. MDEQ's possession or use shall not be deemed an acceptance of any Work under the Contract Documents.

B. While MDEQ has such possession or use, the Contractor shall be relieved of the responsibility for the loss of or damage to the Work resulting from MDEQ's possession or use. If prior possession or use by MDEQ delays the progress of the Work or causes additional expense to the Contractor, an equitable adjustment shall be made in the Contract Price or the Contract Time pursuant to the Change Order provisions above.

40. Antitrust.

By entering into this Contract, Contractor conveys, sells, assigns, and transfers to MDEQ all rights, titles, and interest it may now have, or hereafter acquire, under the antitrust laws of the United States and the State that relate to the services purchased or acquired by MDEQ under this Contract.

41. Procurement Regulations.

The Contract shall be governed by the applicable provisions of the Public Procurement Review Board Regulations.

42. Small, Minority and Women Businesses.

It is MDEQ's policy to solicit participation from small, minority and women businesses. Contractor shall ensure that reasonable efforts are made to utilize Minority Business Enterprises (MBE)/Women Business Enterprises (WBE). For any subcontracting not included in the original bid, the Contractor must follow the conditions listed in the section entitled "Minority and Women Businesses" of the Invitation for Bids, and then submit a Request to Subcontract in the form provided by MDEQ prior to assigning or subcontracting any portion of this Contract.

43. Compliance with Miss. Code. Ann. § 31-5-37.

Pursuant to Miss. Code. Ann. § 31-5-37, from the date written notice of the contract award is received and until ten (10) business days after the receipt of the employment plan by the Mississippi Department of Employment Security ("MDES"), the Contractor and any subcontractor shall not hire any personnel to fill vacant positions for this project except residents of the State of Mississippi who are to be verified by MDES and/or those qualified individuals who are submitted by MDES. However, the Contractor or subcontractor is authorized to employ Mississippi residents to begin work immediately if such persons are verified by MDES after employment by the Contractor or subcontractor. During the ten (10) day period, the MDES shall submit qualified individuals to the Contractor to consider for the vacant positions. The Contractor shall review the individuals submitted by MDES before hiring individuals who are not submitted by MDES. The contract award shall be vacated if the Contractor fails to comply with the provisions of Miss. Code Ann. § 31-5-37.

44. E-Verification.

If applicable, Contractor represents and warrants that it will ensure its compliance with the Mississippi Employment Protection Act of 2008 and will register and participate in the status verification system for all newly hired employees. Miss. Code Ann. §§ 71-11-1, *et seq*. The term "employee" as used herein means any person that is hired to perform work within the State. As used herein, "status verification system" means the Illegal Immigration Reform and Immigration Responsibility Act of 1996 that is operated by the United States Department of Homeland Security, also known as the E-Verify Program, or any other successor electronic verification system replacing the E-Verify Program. Contractor agrees to maintain records of such compliance. Upon request of the State of Mississippi and after approval of the Social Security Administration or Department of Homeland Security, when required, Contractor agrees to provide a copy of each such verification. Contractor further represents and warrants that any person assigned to perform services hereafter meets the employment eligibility requirements of all immigration laws. The breach of this Contract may subject Contractor to the following:

A. Termination of this Contract for services and ineligibility for any state or public Contract in Mississippi for up to three (3) years with notice of such cancellation/termination being made public;

B. The loss of any license, permit, certification or other document granted to Contractor by an agency, department or governmental entity for the right to do business in Mississippi for up to one (1) year; or

C. Both. In the event of such termination/cancellation, Contractor would also be liable for any additional costs incurred by the State due to Contract cancellation or loss of license or permit to do business in the State.

45. E-Payment.

Contractor agrees to accept all payments in United States currency via the State of Mississippi's electronic payment and remittance vehicle. MDEQ agrees to make payment in accordance with Mississippi law on "Timely Payments for Purchases by Public Bodies," which generally provides for payment of undisputed amounts by the Agency within forty-five (45) days of receipt of invoice. Mississippi Code Annotated 31-7-301, et seq.

46. Pay Mode.

Payments by state agencies using the State's accounting system shall be made and remittance information provided electronically as directed by the State. These payments shall be deposited into the bank account of Contractor's choice. The State, may at its sole discretion, require Contractor to electronically submit invoices and supporting documentation at any time during the term of this Agreement. Contractor understands and agrees that the State is exempt from the payment of taxes. All payments shall be in United States currency.

47. Transparency.

This Contract, including any accompanying exhibits, attachments, and appendices, is subject to the "Mississippi Public Records Act of 1983" and its exceptions. See Miss. Code Ann. §§ 25-61-1 *et seq*. and Miss. Code Ann. § 79-23-1. In addition, this Contract is subject to the provisions of the Mississippi Accountability and Transparency Act of 2008. Miss. Code Ann. §§ 27-104-151, *et*

seq. Unless exempted from disclosure due to a court-issued protective order, a copy of this executed Contract is required to be posted to the Department of Finance and Administration's independent agency Contract website for public access at http://www.transparency.mississippi. Information identified by Contractor as trade secrets or other proprietary information, including confidential vendor information, or any other information which is required confidential by state or federal law or outside the applicable freedom of information statutes will be redacted. The personal or professional services to be provided, the price to be paid, and the terms of this Contract shall not be deemed to be a trade secret or confidential commercial or financial information.

48. Waiver.

Failure by MDEQ, at any time, to enforce the provisions of the Contract shall not be construed as a waiver of any such provisions. Such failure to enforce shall not affect the validity of the Contract or any part thereof or the right of MDEQ to enforce any provision at any time in accordance with its terms.

49. Governing Law.

The Contract shall be construed and governed in accordance with the laws of the State of Mississippi, without regard to its conflicts of laws, and the laws of the United States of America, and venue for the resolution of any dispute shall be brought in the appropriate state or federal court located in Jackson, Hinds County, Mississippi.

50. Compliance with Laws.

Contractor understands that MDEQ is an equal opportunity employer and therefore maintains a policy which prohibits unlawful discrimination based on race, color, creed, sex, age, national origin, physical handicap, disability, or any other consideration made unlawful by federal, state, or local laws. All such discrimination is unlawful and Contractor agrees during the term of the Contract that Contractor will strictly adhere to this policy in its employment practices and provision of work performed pursuant to the Contract. Contractor shall comply with, and all activities under this Agreement shall be subject to, all applicable federal, state, and local laws and regulations, as now existing and as may be amended or modified. Contractor shall immediately report in writing to MDEQ any discrepancy or inconsistency in the Contract Documents that appear to violate or be contrary to the then existing applicable federal, state and local laws. Contractor shall ensure that any person assigned to perform services hereunder meets the employment eligibility requirements of the immigration and naturalization laws including but not limited to the Immigration Reform and Control Act of 1986.

51. Reference to Statutes.

Whenever reference is made to the provision of any statute or law in the Contract Documents, such reference applies to any amendment or change in such statute or law now existing, but to become operative sometime after the signing of the Contract.

52. Headings.

The captions or headings in the Contract are for convenience only, and in no way define, limit or describe the scope or intent of any provision or section of the Contract.

53. Severability.

If any part of this Contract is declared to be invalid or unenforceable, such invalidity or unenforceability shall not affect any other provision of the Agreement that can be given effect

without the invalid or unenforceable provision, and to this end the provisions hereof are severable. In such event, the parties shall amend the Agreement as necessary to reflect the original intent of the parties and to bring any invalid or unenforceable provisions in compliance with applicable law.

54. Disputes.

Before pleading to any judicial system at any level, Contractor must exhaust all administrative remedies. A written complaint of any claim or dispute not otherwise resolved by the procedures outlined in the Contract Documents must first be sent to the Executive Director of MDEQ within thirty (30) days of the Contractor being aggrieved by the decision of MDEQ or its representative(s). The decision of the Executive Director shall be reduced to writing and a copy thereof mailed or furnished to Contractor. Pending non-resolution of the complaint at this point, successive administrative remedies will include bringing the complaint before the Mississippi Commission on Environmental Quality pursuant to Mississippi Code Annotated Section 49-17-35, with appeals from the Commission's decision following procedures as outlined in Miss. Code Ann. Section 49-17-41.

For any disputed claim over $100,000, and as a prerequisite to the claim proceeding through MDEQ's administrative remedies and in court, a registered officer of the Contractor shall provide the following certification to MDEQ upon filing the initial written complaint with the Executive Director:

"I certify that the claim is made in good faith; that the supporting data are accurate and complete to the best of my knowledge and belief; that the amount requested accurately reflects the contract adjustment for which the Contractor believes MDEQ is liable; and that I am duly authorized to certify the claim on behalf of the Contractor."

55. Professional Fees and Expenses.

If MDEQ incurs attorneys' fees, costs or expenses (including, without limitation, court costs, investigative fees, engineering fees, accounting fees, and other professional service fees) in order to enforce any of the terms or conditions of this Contract or because of the breach of this Contract by the Contractor, MDEQ shall be entitled to recover its reasonable attorneys' fees, costs and such expenses from Contractor if MDEQ is the prevailing party (whether by suit, negotiation or settlement).

56. Oral Statements.

No oral statement of any person shall modify or otherwise affect the terms, conditions, or specifications stated in this Contract.

57. Delivery of Contract and Notices.

A signed copy of this Contract delivered by facsimile, e-mail or other means of electronic transmission shall be deemed to have the same legal effect as delivery of an original signed copy of this Contract.

All notices, requests, consents, claims, demands, waivers and other communications hereunder shall be in writing and shall be deemed to have been given (a) when delivered by hand (with written confirmation of receipt); (b) when received by the addressee if sent by a nationally recognized overnight courier (receipt requested); (c) on the date sent by

facsimile or e-mail of document (with confirmation of transmission) if sent during normal business hours of the recipient, and on the next business day if sent after normal business hours of the recipient; or (d) on the third day after the date mailed, by certified or registered mail, return receipt requested, postage prepaid. Such communications must be sent to the respective Parties at the following addresses (or at such other address for a Party as shall be specified in a notice given in accordance with this subsection):

If to MDEQ:

Attention: Chris Wells
Mississippi Department of Environmental Quality
Address: P.O. Box 2261 Jackson, MS 39226
Phone: 601.961.5545
E-mail: cwells@mdeq.ms.gov

Notices must also copy the MDEQ Procurement Officer and Engineer:

Procurement Officer
Attention: Melanie Green
Mississippi Department of Environmental Quality
Address: P.O. Box 2261 Jackson, MS 39226
Phone: 601-961-5270
Email: mgreen@mdeq.ms.gov

Engineer
Attention: Wendell Mears
Anchor QEA, LLC
Address: 614 Magnolia Avenue, Ocean Springs, MS 39564
Phone: 251-375-5274
Email: wmears@anchorqea.com

If to Contractor:

Attention:
Address:
Phone:
E-mail:

Attachment G
Miss. Code Ann. § 31-5-37

§ 31-5-37. Contractors submitting bids for public works projects utilizing specified funding required to submit employment plan with bid; contents of plan; review of individuals for vacant positions

(1) All public works projects utilizing funds received by state or local governmental entities resulting from a federally declared disaster or a spill of national significance, including damages, penalties, fines or supplemental projects paid or financed by responsible parties pursuant to a court order, negotiated settlement, or other instrument, including under any law distributing such fines and penalties including the federal Resources and Ecosystems Sustainability, Tourist Opportunities and Revived Economy of the Gulf Coast Act of 2011 (R.E.S.T.O.R.E.), the Oil Pollution Act of 1990 or the Federal Water Pollution Control Act or similar legislation, shall be subject to the hiring policies established by this section.

(2) Contractors submitting bids for public works projects that involve an expenditure of Five Thousand Dollars ($ 5,000.00) or more and that are financed, in whole or in part, through the use of funds described in subsection (1) of this section shall submit with their bid a certification that they will comply with the provisions of this section if they are awarded a contract. The contractor shall submit to the agency or governing authority that solicited the bid and the Mississippi Department of Employment Security an employment plan within seven (7) days after the award of the contract which shall include the following:

(a) The types of jobs involved in the public works project;

(b) The skill level of the jobs involved in the project;

(c) Wage information on the jobs involved in the project;

(d) The number of vacant positions that the contractor and any subcontractor needs to fill;

(e) How the contractor and any subcontractor will recruit, low-wage and unemployed individuals for job vacancies;

(f) Such other information as may be required by the Mississippi Department of Employment Security; and

(g) Proof of registration with the Mississippi Department of Employment Security for taxation in accordance with the provisions of Title 71.

(3) From the date written notice of the contract award is received and until ten (10) business days after the receipt of the employment plan by the Mississippi Department of Employment Security, the contractor and any subcontractor shall not hire any personnel to fill vacant positions necessary for the public works project except residents of the State of Mississippi who are to be verified by the Mississippi Department of Employment Security and/or those qualified individuals who are submitted by the Mississippi Department of Employment Security. For purposes of this subsection, the contractor or subcontractor is authorized to employ Mississippi residents to begin work immediately, and such persons are to be verified by the Mississippi Department of Employment

Security after employment by the contractor or subcontractor. During the ten-day period the Mississippi Department of Employment Security shall submit qualified individuals to the contractor to consider for the vacant positions. The contractor shall review the individuals submitted by the department before hiring individuals who are not submitted by the department. The contract award shall be vacated if the contractor fails to comply with the provisions of this subsection.

HISTORY: SOURCES: Laws, 2012, ch. 505, § 1; Laws, 2013, ch. 479, § 1, eff from and after passage (approved April 1, 2013.)

Miss. Code Ann. § 31-5-33

§ 31-5-33. Amount of retainage which may be withheld; exemptions

(1) In any contract for the construction, repair, alteration or demolition of any building, structure or facility awarded by the State of Mississippi, or any agency, unit or department of the State of Mississippi, or by any political subdivision thereof, which contract provides for progress payments in installments based upon an estimated percentage of completion with a percentage of the contract proceeds to be retained by the state agency, unit or department, or by the political subdivision or contractor pending completion of the contract, such retainage shall be five percent (5%), and the amount retained by the prime contractor from each payment due the subcontractor shall not exceed the percentage withheld by the state, or any agency, unit or department of the state, or by any political subdivision thereof, from the prime contractor.

On any contract as described herein, of which the total amount is Two Hundred Fifty Thousand Dollars ($ 250,000.00) or greater, or on any contract with a subcontractor, regardless of amount, five percent (5%) shall be retained until the work is at least fifty percent (50%) complete, on schedule and satisfactory in the architect's and/or engineer's opinion, at which time fifty percent (50%) of the retainage held to date shall be returned to the prime contractor for distribution to the appropriate subcontractors and suppliers. Provided, however, that future retainage shall be withheld at the rate of two and one-half percent (2 1/2%).

(2) The provisions of this section shall not apply to contracts let by the Mississippi Transportation Commission for the construction, improvement or maintenance of roads and bridges.

HISTORY: SOURCES: Laws, 1979, ch. 454, § 1; Laws, 1984, ch. 406, § 1; Laws, 2002, ch. 519, § 2, eff from and after July 1, 2002.

Miss. Code Ann. § 31-7-305

§ 31-7-305. Recordkeeping and notice requirements; time for mailing check in payment of invoice; time for payment in event of dispute; interest penalties.

(1) All public bodies of the state, including those which issue checks and those which file requisitions for payment with the State Fiscal Management Board, shall keep a record of the date of receipt of the invoice, dates of receipt, inspection and approval of the goods or services, date of issuing the check or date of filing the requisition for payment, as the case may be, and date of mailing or otherwise delivering the warrant or check in payment thereof. In the event that the State Fiscal Management Board mails or otherwise delivers the warrant directly to the claimant, pursuant to Section 7-7-35, Mississippi Code of 1972, the State Fiscal Management Board shall notify the public body of the date thereof. The provisions of this section are supplemental to the requirements of Sections 19-13-29, 21-39-7, 21-39-13 and 37-5-93, Mississippi Code of 1972.

(2) All public bodies that are authorized to issue checks in payment of goods and services and are not required to issue requisitions for payment to the State Fiscal Management Board shall mail or otherwise deliver such checks no later than forty-five (45) days after receipt of the invoice and receipt, inspection and approval of the goods or services; however, in the event of a bona fide dispute, the public body shall pay only the amount not disputed.

(3) If a warrant or check, as the case may be, in payment of an invoice is not mailed or otherwise delivered within forty-five (45) days after receipt of the invoice and receipt, inspection and approval of the goods and services, the public body shall be liable to the vendor, in addition to the amount of the invoice, for interest at a rate of one and one-half percent (1-1/2 %) per month or portion thereof on the unpaid balance from the expiration of such forty-five-day period until such time as the warrant or check is mailed or otherwise delivered to the vendor. The provisions of this paragraph shall apply only to undisputed amounts for which payment has been authorized. In the case of an error on the part of the vendor, the forty-five-day period shall begin to run upon receipt of a corrected invoice by the public body and upon compliance with the other provisions of this section. The various public bodies shall be responsible for initiating the penalty payments required by this subsection and shall use this subsection as authority to make such payments. Also, at the time of initiating such penalty payment, the public body shall specify in writing an explanation of the delay and shall attach such explanation to the requisition for payment of the penalty or to the file copy of the check issued by the public body, as the case may be.

(4) (a) In the event of a bona fide dispute as to an invoice, or any portion thereof, the dispute shall be settled within thirty (30) days after interest penalties could begin to be assessed, if it were not for the dispute.

(b) If a warrant or check, as the case may be, in payment of an invoice, subject to a prior dispute, is not mailed or otherwise delivered within thirty (30) days after settlement of the dispute, the public body shall be liable to the vendor, in addition to the amount of the

invoice, for interest at a rate of one and one-half percent (1-1/2 %) per month or portion thereof on the unpaid balance from the expiration of said thirty-day period until such time as the warrant or check is mailed or otherwise delivered to the vendor. At the time of initiating such penalty payment, the public body shall specify in writing an explanation of the delay and shall attach such explanation to the requisition for payment of the penalty or to the file copy of the check issued by the public body, as the case may be. The interest penalty prescribed in this paragraph shall be in lieu of the penalty provided in subsection (3).

END

ATTACHMENT H

Mississippi First Act – Employment Plan Form for Public Works Projects

This form may be digitally downloaded from

http://www.mdes.ms.gov/employers/mississippi-first-act-and-public-works-contracts-employment-plans/

Mississippi First Act

Employment Plan Form for Public Works Projects*

Project Number:

Bid Date:

Project Title:

Institution / Agency:

Please provide the information requested below regarding the contractor and its subcontractors.

1. List the types of jobs that will be involved in the project:

2. List the skill level of the jobs involved in the project:

3. List the wages for each job involved in the project:

4. List the number of vacant positions that will need to be filled for each job involved in the project:

5. Explain how low wage and unemployed individuals will be recruited for job vacancies:

6. Attach proof of registration with the Mississippi Department of Employment Security (MDES) for taxation purposes.

I certify that the information provided above is true and accurate to the best of my knowledge.

Contractor Name and Authorized Representative:

Title:

Date:

**Note: This form must be submitted if Miss. Code Ann 31-3-37 (Mississippi First Act) applies to the project.*

This law requires a contractor awarded a contract for a public works project utilizing specified funding to submit an employment plan to the public agency or authority that awarded the contract and to MDES.

Please submit a copy of your employment plan to MDES via fax at 601-321-6080
or via email at recoveryjobs@mdes.ms.gov.

Signature:

To sign digitally, click and add your digital signature above. You may also print and sign this by hand to fax.

This form may be digitally downloaded from

http://www.mdes.ms.gov/employers/mississippi-first-act-and-public-works-contracts-employment-plans/

ATTACHMENT I
Bidder Certificate of Commitment to Comply with Miss. Code Ann. § 31-5-37

State of _____

County of _____

I,_____, individually, and in my capacity as _____ of _____ (Bidder), being first duly sworn, on oath depose and state the following on behalf of the company:

Bidder represents as a part of such Bidder's bid that it will fully comply with the requirements of Miss. Code Ann. § 31-5-37 by submitting to the Mississippi Department of Environmental Quality and the Mississippi Department of Employment Security an employment plan within seven (7) days after the award of the Contract which shall include all of the information required in Miss. Code Ann. § 31-5-37(2)(a)-(g).

All of the foregoing is true and correct:

Bidder:_____

Date: _____

Authorized Signature: _____

Name:_____
Typed/Printed

Title:_____

SWORN TO AND SUBSCRIBED before me, this the _____ day of _____, 20_____.

_____
NOTARY PUBLIC

My Commission Expires: [SEAL]

_____

ATTACHMENT J
MBE/WBE Solicitation Form

1. **Provide the following information for all MBE/WBE firms that were solicited for participation in the offeror's response to this Proposal:**

Entity Name	Address	Phone Number and/or e-mail address	Certifying Agency/ Entity/Program	Has the listed MBE/WBE been selected for participation for these requested services? Please indicate by stating either Yes or No below.

2. Select one the following:

☐ The offeror is an MBE/WBE firm and at least one or more MBE/WBE firms were solicited and selected for the proposed contract, as indicated above. Prior to contract award, the offeror shall supply MDEQ with proof of offeror's and offeror's subcontractor's MBE/WBE status by providing the documentation required in 2.7 of the IFB.

☐ The offeror is an MBE/WBE firm and no other MBE/WBE firms were solicited for the proposed contract. Prior to contract award, the offeror shall supply MDEQ with proof of offeror's MBE/WBE status by providing the documentation required in 2.7 of the IFB.

☐ The offeror is not an MBE/WBE firm. However, at least one or more MBE/WBE firms were solicited and selected, as indicated above, for the proposed contract. Prior to contract award, the offeror shall supply MDEQ with proof of offeror's subcontractor's MBE/WBE status by providing the documentation required in 2.7 of the IFB.

☐ The offeror is not an MBE/WBE firm. However, at least one or more MBE/WBE firms were solicited (but not selected), as indicated above, for the proposed contract.

☐ The prime firm submitting for the proposed contract is not a MBE/WBE firm and no MBE/WBE firms were solicited for the proposed contract. If so, please explain.

_____
_____
_____
_____
_____
_____
_____
_____

ATTACHMENT K

BID BOND

KNOWN ALL MEN BY THESE PRESENTS:

That_____

(Name of Contractor)

_____

(Address of Contractor)

A _____ hereinafter called "Principal", and
(Corporation, Partnership, Limited Liability Company or Individual)

_____hereinafter called "Surety",
(Name of Surety)

are held and firmly bound unto the **MDEQ**, hereinafter called **"OWNER"** in the penal sum of 5% of Total Bid, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

Signed, this the _____ day of _____, 20_____. The Condition of the above obligation is such that whereas the Principal has submitted to the **MDEQ** a certain BID, attached hereto and hereby made a part thereof to enter into a Contract in writing, for the performance of:

"RESTORING LIVING SHORELINES AND REEFS IN MISSISSIPPI ESTUARIES – BIG ISLAND LIVING SHORELINE"

NOW, THEREFORE,

(a) If said BID shall be rejected, or,

(b) If said BID shall be accepted and the Principal shall execute and delivery a Contract on the Contract form as attached hereto (properly completed in accordance with said BID) and shall furnish a Payment Bond, a Performance Bond and a Tax Bond for his faithful performance of said Contract, and for the payment of all persons performing labor or furnishing materials in connection herewith, and shall in all other respects perform the agreement created by the acceptance of said BID, then this obligation shall be void, otherwise the same shall remain in effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its BOND shall be in no way impacted or affected by any extension of the time within which the OWNER may accept such BID; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these present to be signed by their officers, the day and year first set forth above.

	(L.S.)	
Principal		Surety
By:		By:

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located. This Bid Bond shall be accompanied by a certified and currently dated copy of the Attorney-in-Fact's Power of Attorney.

END OF DOCUMENT

PERFORMANCE BOND

KNOWN ALL MEN BY THESE PRESENTS:

That_____
(Name of Contractor)

_____
(Address of Contractor)

a _____hereinafter called "Principal", and
(Corporation, Partnership, Limited Liability Company or Individual)

_____hereinafter called "Surety",
(Name of Surety)

are held and firmly bound unto the **MDEQ**, hereinafter called **"OWNER"** in the penal sum of

_____Dollars ($_____)

in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain Contract with the OWNER, dated the _____day of _____, 20_____, a copy of which is hereto attached and made a part hereof for the construction of:

_____

NOW, THEREFORE, the Contractor and the Surety, jointly and severally, bond themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Contract, which is incorporated herein by reference. If the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said Contract during the Original term thereof, and any extensions thereof which may be granted by the OWNER, with or without notice to the Surety and during the one year guaranty period and if he shall satisfy all claims and demands incurred under such Contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all of outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect. PROVIDED, FURTHER, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the WORK to be performed hereunder or the CONTRACT DOCUMENTS accompanying the same shall in any wise affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the loans of this Contract or to the WORK or to the CONTRACT DOCUMENTS. PROVIDED, FURTHER, that

no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may not yet be satisfied.

The following conditions apply to this Bond:

1. The Performance Bond is for an amount equal to the full amount of said Contract.

2. If any changes are made in the work, or any extensions of time are granted, or any increases in the total dollar amount of the Contract are made, such changes, extensions, increases, or other forbearance on the part of either the Owner or the Principal will not, in any way, release the Principal and Surety, or either of them, from their liability hereunder, or any portion thereof, notice to the Surety of any such change, extension, increase, or forbearance being expressly waived.

3. This Bond is governed by and shall be construed in accordance with Mississippi law. Any inconsistency with this Bond and any provision of Mississippi law shall be remedied by deleting the inconsistent portion of this Bond and leaving the remaining consistent portions in full force and effect.

WITNESS WHEREOF, this instrument is executed in three (3) counterparts, each of which shall be deemed an original, this the _____ day of _____, 20____.

ATTEST:

_____ _____
(Principal) Secretary (Principal)

By: _____

_____
(SEAL) (Address)

_____ _____
Witness as to Principal

_____
(Address)

_____

ATTEST:
(SEAL)

(Surety)

By

Attorney-in-Fact, MS Resident Agent

Witness as to Surety

(Address)

(Address)

Phone Number (include Area Code)

NOTE: Date of BOND **must not be prior** to date of CONTRACT. If CONTRACTOR is Partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the Project is located. This Performance Bond shall be accompanied by a certified and currently dated copy of the Attorney-in-Fact's Power of Attorney

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PAYMENT BOND

KNOWN ALL MEN BY THESE PRESENTS:

That _____
(Name of Contractor)

_____
(Address of Contractor)

a _____hereinafter called "Principal", and
(Corporation, Partnership, Limited Liability Company or Individual)

_____hereinafter called "Surety",
(Name of Surety)

are held and firmly bound unto the **MDEQ**, hereinafter called **"OWNER"** in the penal sum of

_____Dollars ($_____)

in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain Contract with the OWNER, dated the _____ day of _____, 20____, a copy of which is hereto attached and made a part hereof for the construction of:

_____

NOW, THEREFORE, the Contractor and the Surety, jointly and severally, bond themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Contract, which is incorporated herein by reference. If the Principal shall promptly make payment to all persons, firms, SUBCONTRACTORS, SUB-SUBCONTRACTORS, SUPPLIERS and corporations furnishing materials for or performing labor or equipment in the prosecution of the WORK provided for in such Contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such WORK, and all insurance premiums on said WORK, and for all labor, performed in such WORK whether by SUBCONTRACTOR, SUB-SUBCONTRACTOR or otherwise, then this obligation shall be void; otherwise to remain in full force and effect. PROVIDED, FURTHER, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the WORK to be performed hereunder or the CONTRACT DOCUMENTS accompanying the same shall in any wise affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of this Contract or to the WORK or to the CONTRACT DOCUMENTS. PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any

beneficiary hereunder, whose claim may not yet be satisfied. Furthermore, the Owner shall not be liable for the payment of any costs or expenses of any suit described in Subsections (2) or (3) of Mississippi Code Annotated Section 31-5-51.

The following conditions apply to this Bond:

1. This Payment Bond is for an amount equal to the full amount of said Contract.

2. If any changes are made in the work, or any extensions of time are granted, or any increases in the total dollar amount of the Contract are made, such changes, extensions, increases, or other forbearance on the part of either the Owner or the Principal will not, in any way, release the Principal and Surety, or either of them, from their liability hereunder, or any portion thereof, notice to the Surety of any such change, extension, increase, or forbearance being expressly waived.

3. This Bond is governed by and shall be construed in accordance with Mississippi law. Any inconsistency with this Bond and any provision of Mississippi law shall be remedied by deleting the inconsistent portion of this Bond and leaving the remaining consistent portions in full force and effect.

WITNESS WHEREOF, this instrument is executed in (3) counterparts, each of which shall be deemed an original, this the _____ day of _____, 20_____.

ATTEST:

_____ _____
(Principal) Secretary (Principal)

By: _____

_____
(SEAL) (Address)

_____ _____
Witness as to Principal

_____
(Address)

_____

ATTEST: _____
(SEAL) (Surety)

By

_____
Attorney-in-Fact, MS Resident Agent

Witness as to Surety	(Address)
(Address)	
	Phone Number (include Area Code)

NOTE: Date of BOND **must not be prior** to date of CONTRACT. If CONTRACTOR is Partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the Project is located. This Performance Bond shall be accompanied by a certified and currently dated copy of the Attorney-in-Fact's Power of Attorney

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Form 72-440-10-8-1-000 (Rev. 7/10)

DEPARTMENT OF REVENUE
JACKSON, MISSISSIPPI

Bond Number _____

RIDER
(SALES, USE, INCOME, FRANCHISE, WITHHOLDING, AND SPECIAL FUEL [DIESEL FUEL] TAX BOND)

This Rider is attached to and becomes a part of a certain performance and/or payment bond executed by _____ as Principal,
(Name and Address)

in favor of _____ as Obligee, **(Name and Address)**

and covering a contract dated _____, 20_____, for the construction of

_____
(Name Project and Describe)

_____

_____

_____

WHEREAS, under the provisions of Miss Code Ann. § 27-65-21, the said Principal is required to and has furnished the attached bond guaranteeing payment of all taxes, damages, interest and penalties which may accrue to the State of Mississippi under Miss Code Ann.§ 27-65-1 et seq, and § 27-67-1 et seq., and § 27-7-1 et seq., and § 27-13-1 et seq., and § 27-7-301 et seq., and § 27-55-313 et seq, and amendments thereto, on account of entering into said contract.

NOW, THEREFORE, in addition to the obligations set forth in the attached bond, there is hereby imposed the additional obligation by this Rider that the Contractor shall promptly make payment when due of all taxes, damages, interest and penalties which may accrue to the State of Mississippi under Miss Code Ann. § 27-65-1 et seq., and § 27-67-1 et seq., and § 27-7-1 et seq., and § 27-13-1 et seq., and § 27-7-301 et seq., and § 27-55-313, and amendments thereto, on account of the execution of the aforesaid contract.

NOTHWITHSTANDING any provision in the performance and/or payment bond, the expiration date for the sureties' responsibilities and/or liabilities under this Rider shall be sixty (60) months from the date the final payment for the project described herein is made, except in the existence of fraud there shall be no expiration date for this Rider.

NOTWITHSTANDING the tax information and return confidentiality provisions contained within Miss Code Ann. § 27-65-1 et seq., § 27-67-1 et seq., § 27-7-1 et seq., § 27-13-1 et seq., § 27-7-301 et seq., and § 27-55-301 et seq., and amendments thereto, principal hereby authorizes the Department of Revenue to release to surety any information relating to any claim against said surety made by the Department of Revenue which is covered by this bond.

SIGNED, SEALED AND DELIVERED, This the _____ day of _____, 20_____

Filed and Approved this the _____day

of _____, 20_____.

_____
Principal

_____
Surety

_____
Commissioner and Chairman of the DEPARTMENT OF REVENUE

By_____
Attorney in Fact

COUNTERSIGNATURE:

By_____
Licensed Mississippi Agent

(SEAL)

_____
(Type or Print Name of Agent)

_____
(Telephone Number)

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SECTION 00 52 15

AGREEMENT

This Agreement (hereinafter "Agreement" or "Contract") is entered by and between the Mississippi Department of Environmental Quality (hereinafter called "MDEQ") and _____(hereinafter called "Contractor").

MDEQ and Contractor, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1 - WORK

Contractor shall complete all work as specified or indicated in the Contract Documents as defined in ARTICLE 7 below ("Work"). Contractor shall furnish all labor, materials, equipment, appliances, services, tools, bonds, insurance, taxes, and other things necessary for the complete and timely performance of the Work. The Work is generally described as follows:

RESTORING LIVING SHORELINES AND REEFS IN MISSISSIPPI ESTUARIES – BIG ISLAND LIVING SHORELINE CONSTRUCTION ("Project"). The Project consists of creating approximately 5,200 feet of outer stone breakwater and 2,800 feet of inner precast breakwater, as identified in the Notice of Award. The major categories of Work include, but are not limited to, the following:

1. Pre-construction bathymetric survey;
2. Constructing inner precast breakwater;
3. Constructing outer stone breakwater;
4. Installing Private Aids to Navigation; and
5. As-built surveys.

ARTICLE 2 - MDEQ AND ENGINEER

Anchor QEA, LLC (hereinafter called "Engineer") is to act as MDEQ's representative, assumes all duties and responsibilities, and has the rights and authority assigned to Engineer in accordance with Attachment F (Standard Contract Terms and Conditions), including Section 3 of same, in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 3 - CONTRACT TIME AND LIQUIDATED DAMAGES

3.01 The Contractor will commence and complete the construction of the Project within the Performance Period defined in Section 3.02.

3.02 The Performance Period for contract award of the Work has been established at 210 calendar days from issuance of the Notice to Proceed ("Contract Time") to complete all construction. The Contract Time is inclusive of anticipated adverse weather days as described in Paragraph 23 of the Standard Contract Terms and Conditions.

Contractor must complete the respective Contract Work, as defined in the Invitation for Bids and the Contract Documents, within the applicable Contract Time prescribed above.

3.03 Liquidated Damages: MDEQ and Contractor recognize that time is of the essence for this

Agreement and that MDEQ may suffer financial loss if the Work is not completed within the Contract Time specified in Section 3.02 above, plus any extensions thereof allowed in accordance with the Section 23 - Extension of Contract Time provisions in the Standard Contract Terms and Conditions. The parties recognize the delays, expense, and difficulties involved in proving the actual loss suffered by MDEQ if the Work is not completed on time. Accordingly, instead of requiring any such proof, MDEQ and Contractor agree that as liquidated damages for delay, Contractor shall pay MDEQ $1,730 for each day that expires after the time specified in Section 3.02 to complete all construction, subject to any extensions granted.

ARTICLE 4 - COMPENSATION

The Contractor agrees to furnish all materials in place and to faithfully complete all said Work described by this Contract in good and workmanlike manner, strictly in accordance with said Contract Documents, Contract Drawings, and other requirements of MDEQ, under the direct observation of and to the complete satisfaction of MDEQ or its authorized representatives, and in accordance with the laws of the State of Mississippi, for which MDEQ hereby agrees to pay, and the Contractor agrees to accept, a sum of money in current funds equal to the total value of the Work complete in place, computed by multiplying the final quantities of each item of Work by the Contract unit prices and the amounts established by the approved Schedule of Values for Lump Sum prices as stated in the Bid Form, attached hereto and made a part hereof, which is estimated as being the sum of _____

($_____) ("Contract Sum" or "Contract Price") in full compensation for furnishing all materials, doing all the Work described under the Contract for the Project, as well as all loss or damage, if any, arising out of the nature of the Work.

ARTICLE 5 - PAYMENTS

5.01 Contractor shall submit Applications for Payment to Engineer in accordance with the Standard Contract Terms and Conditions, Section 01 20 00 – Measurement and Payment Procedures of the Contract Documents, and Section 01 29 00 – Payment Procedures. Contractor will be paid for all Work satisfactorily completed on the basis of the number of units completed for Unit Price Work and the Schedule of Values for Lump Sum Work, minus retainage in accordance with Mississippi Code § 31-5-33 (Attachment G) and any liquidated damages in accordance with Section 3.03. All Applications for Payment submitted by the Contractor, may be subject to audit by MDEQ and its representatives.

5.02 Contractor will be paid in arrears on a monthly basis after the rendition of services on presentation of a complete and certified Application for Payment to the Engineer for Work performed pursuant to the Schedule of Values and the Contractor's Bid. Pursuant to Mississippi Code § 31-5-33, retainage in the amount of 5 percent (5%) shall be withheld until the Project is certified by Contractor and the Engineer as being 50 percent (50%) complete, at which time 50 percent (50%) of the retainage shall be released to Contractor for proportional distributions to Contractor and its subcontractors of the retainage withheld through the first half of the Project. Pursuant to Mississippi Code § 31-5-33, following 50 percent (50%) completion of the Project, retainage shall be withheld in the amount of two and one-half percent (2.5%). The final payment and remaining retainage shall be paid to Contractor when the Project is certified by Contractor, MDEQ, and Engineer as having been completed. At no point shall the retainage withheld by Contractor from a subcontractor exceed the retainage withheld by MDEQ from Contractor. Contractor is not required by this section to withhold a retainage from its subcontractors, particularly those that have completed their portion of the Project.

5.03 Contractor shall provide the Engineer with a monthly Application for Payment by the 25th of each month. Applications for Payment must be approved by the Engineer prior to being submitted to MDEQ for payment. Payments will be made by MDEQ in accordance with Mississippi Code § 31-7-305 (Attachment G). All payments are subject to the availability of funding as stated in the Standard Contract Terms and Conditions.

5.04 Upon final completion and acceptance of the Work and completion of all punch list items from the Final Inspection and approval of Project closeout requirements as defined by Section 01 77 00 – Closeout Procedures, the Engineer will recommend final payment to MDEQ. Final Payment will be made by MDEQ, minus any liquidated damages in accordance with Mississippi Code § 31-7-305, which will be inclusive of withheld retainage in accordance with Mississippi Code § 31-5-33.

ARTICLE 6 - CONTRACTOR'S REPRESENTATIONS

In order to induce MDEQ to enter into this Agreement, Contractor makes the following representations:

6.01 Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Contract Documents.

6.02 Contractor has visited the site and become familiar with and is satisfied as to the general, local, and site conditions that may affect cost, progress, performance, or furnishing of the Work.

6.03 Contractor is familiar with and is satisfied as to all federal, state, and local laws and regulations that may affect cost, progress, performance, and furnishings of the Work.

6.04 Contractor has read and fully understands all requirements and conditions of all environmental permits that pertain to the Work.

6.05 Contractor has obtained all required insurance policies, payment bonds, tax bonds, and performance bonds required by the Contract Documents.

6.06 Contractor has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site that have been identified as "additional information" in Section 9 of the Standard Contract Terms and Conditions. Contractor does not consider that any additional examinations, investigations, explorations, tests, studies, or data are necessary for the performance and furnishing of the Work at the Contract Price, within the Contract Time, and in accordance with the other terms and conditions of the Contract Documents.

6.07 Contractor is aware of the general nature of Work to be performed by MDEQ and others at the site that relates to the Work as indicated in the Contract Documents.

6.08 Contractor has correlated the information known to Contractor, information and observations obtained from visits to the site, reports, and drawings identified in the Contract Documents and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.

6.09 Contractor has given MDEQ written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents and the written resolution thereof by

MDEQ is acceptable to Contractor. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work. When said conflicts, errors, ambiguities, or discrepancies have not been resolved through interpretation or clarification by MDEQ for whatever reason, Contractor has included in its Bid the greater quantity or better quality of Work, or compliance with the more stringent requirement resulting in a greater cost, and such is included in the Contract Price.

ARTICLE 7 - CONTRACT DOCUMENTS

The Contract Documents, which comprise the entire agreement between MDEQ and Contractor concerning the Work, includes the following:

1. Change Orders, Supplemental Agreements and/or other modifications to the Agreement;
2. This Agreement;
3. Standard Contract Terms and Conditions;
4. Contract Drawings;
5. Specifications, including Division 00 through 35 and Appendices;
6. Contractor's Bid, including all subparts and documents submitted therewith;
7. Notice of Award;
8. Notice to Proceed;
9. Addenda to the Invitation for Bids;
10. Invitation for Bids;
11. Performance Bond;
12. Payment Bond;
13. Tax Bond;
14. Insurance Certificates and Endorsements; and
15. All permits and environmental conditions pertaining to the Work.

The documents listed above are attached to this Agreement (except as expressly noted otherwise above). The Contract Documents may only be amended, modified, or supplemented as provided in Sections 22 through 24 of the Standard Contract Terms and Conditions. In the event of a conflict in the provisions of the Contract Documents, the terms of the document listed first above shall control.

IN WITNESS WHEREOF, MDEQ and Contractor have signed this Agreement in triplicate. One counterpart each has been delivered to MDEQ, Contractor, and the Engineer.

This Agreement will be effective on _____, 20_____

(Which is the Effective Date of the Agreement)

MDEQ _____ CONTRACTOR _____

By _____ By _____

(CORPORATE SEAL)

MDEQ's Address:

_____

_____

Contractor's Address:

_____

_____

Mississippi License No. _____

_____

(If Contractor is a corporation, attach evidence of authority to sign).

END OF SECTION 00 52 15

SECTION 01 20 00

MEASUREMENT AND PAYMENT PROCEDURES

PART 1 - GENERAL

1.01 SUMMARY

A. This section includes requirements to be used for the basis of measurement and payment. The Contractor shall receive and accept the compensation provided in the Bid Form as full payment for furnishing all materials, labor, tools, and equipment for performing all operations necessary to complete the Work under the Contract. Responsibility and payment for any loss or damage to the Work or any portion thereof shall be governed by Sections 14 and 15 of the Standard Contract Terms and Conditions. Payment for all loss or damages arising from the nature of the Work, or from the action of the elements or any unforeseen difficulties, encountered during the Work until final acceptance by MDEQ will be the responsibility of the Contractor.

B. Bid prices for the various work items are to establish a total price for completing the Project in its entirety. The Contractor shall include in the Bid any item for which a separate pay item has not been established in the Bid Form, to reflect the total price for completing the Project in its entirety as depicted on the Construction Drawings and specified herein. The Contractor must include all costs for this Project to complete all work, in total, designated in the Construction Drawings, specifications, and Bid Form.

1.02 SUBMITTALS

A. The following submittals shall be submitted in accordance with SECTION 01 33 00 - SUBMITTAL PROCEDURES.

B. Schedule of Values

1. The Contractor will submit a Schedule of Values on Contractor's standard form acceptable to MDEQ in PDF for review and approval prior to the first Application for Payment. List payment items sequentially in the same order as they appear in the Bid Form.

2. Lump sum items are to have adequate breakdown of components to facilitate evaluating completeness for payment in accordance with SECTION 01 29 73 – SCHEDULE OF VALUES. Breakdown components shall appear directly under the payment item heading to which they apply.

3. The Contractor will revise the schedule to list approved Change Orders with each Application for Payment. The Contractor will submit revised Schedule of Values in accordance with this Specification.

C. Construction Schedule

1. Within 10 calendar days after effective date of Contract, the Contractor shall prepare and submit, to the Engineer for approval, a construction schedule in the form of a progress chart. The Contractor shall indicate on the progress chart the bid items contained in the Contract showing the amount of the item and its relative weighted percentage of the total Contract. The Contractor may separate features of work under each item to show salient work elements such as procurement of materials, plants, and equipment, and supplemental work elements such as excavation, fill, etc. These salient features shall total to the cost and weighted percentages shown for the major bid item. When quantity variations impact the weighted percentages of a separate item by five percent (5%) or more, the Contractor shall revise the contract progress charts to accurately reflect the impact of such variations.

2. Submit copies of the updated construction schedule to the Engineer for each Application for Payment. Changes that have occurred since the last update shall be clearly marked.

1.03 MEASUREMENT

A. Measurement for Payment for this Project is based upon completion of the Work in accordance with Construction Drawings and Specifications for each of the items. Field measurements will determine the percent complete of work components when listed on the approved Schedule of Values. Measurements will be made using linear, area, volumetric units, or by units quantity counts, as listed on the ATTACHMENT D – BID FORM for unit quantity items and at the Engineer's sole discretion for lump sum items.

B. The Contractor will take all measurements and compute quantities. The Engineer will verify measurements and quantities as appropriate.

C. The Contractor will assist MDEQ by providing necessary equipment, workers, and survey personnel as required.

D. Measurement Devices:

1. Weigh Scales: Inspected, tested, and certified by the applicable State Weights and Measures department within the past year.

2. Platform Scales: Of sufficient size and capacity to accommodate the conveying vehicle.

3. Metering Devices: Inspected, tested, and certified by the applicable State department within the past year.

E. Measurement of Stone Tonnage Using Barge Displacement Tables

1. If stone is delivered by barge, the weight (tonnage) for payment will be determined by barge displacement.

a. Suitably mark each barge with a displacement gaging location at or near each corner of the barge. For hopper barges, two amidships on opposite sides should also be marked. Mark each gaging location with orange paint on the deck and side of the barge. For barges with rakes, place the displacement gaging marks at each corner of the box section between the rakes. If a barge has a box end or ends, place the gaging locations approximately 4 feet from the box end(s).

b. Measure the freeboard at the six gaging locations on hopper barges or the four gaging locations on deck barges and determine the displacement by the use of "Standard Barge Table" (SBT) from the average of these measurements. The SBT for each barge shall be certified by a licensed marine architect or other approved certifying official.

c. Calculate the displacement before and after barge unloading; the difference between these values will be the measure of quantity delivered.

d. Load barges so that the readings taken at the gaging locations do not vary more than 3.0 feet port to starboard fore and aft and do not vary more than 1.0 foot port to starboard. If such is not the case, trim the barge by shifting the material until this limit is reached, before the measurement will be accepted. For deck barges, calculate the draft from the average of all four readings. For hopper barges, calculate the draft from the average of all six readings, weighting the readings of the middle gage at double those of the end gages: (G1 + G2 + 2xG3 + 2xG4 + G5 + G6) divided by 8 = average draft.

e. All barges used in transporting material shall be free of leaks that would render accurate gauging difficult. Provide facilities for inspecting the hold of each barge to determine whether leakage is occurring. Provide each barge with adequate pumping facilities, and if water is found to be accumulating in the hold, pump the barge dry before each gaging, both before and after unloading. Leave rejected and unacceptable material aboard the barge until after the final readings have been taken.

2. If barge tables are furnished for fresh water and if it is believed that barge displacement measurements made within the contract limits of the work are being taken in water that has salinity, the Contractor has the option of obtaining water samples and determining densities or unit weights of these samples.

a. Take these water samples in accordance with ASTM D3370 (Practice A - Grab Samples) at depths of 4 and 8 feet in the area where measurements are made.

b. Perform water sampling when the barges are measured for quantities, both when fully loaded and when empty.

c. Take water samples, as witnessed by the Engineer, with the use of "Polypro" 2000 milliliters water sampler, or equal. Determine densities as specified in ASTM D1429 (Method D-Hydrometer Method).

d. Testing shall be done for the Contractor by a certified testing laboratory, and test results certified by the laboratory.

e. After review and approval of the test results by the Engineer, the average of the densities obtained at 4 and 8 feet will be used as the suitable salt water conversion factor. In all calculations (fully loaded and empty), the unit weight of 62.4 pounds per cubic foot will be used for fresh water.

F. Linear Measurement: Measured by linear dimension, at the item centerline in feet.

G. Measurement by Area: Measurement by square dimension using mean length and width or radius, in feet and hundredths of a foot.

H. Measurement of Volume: Measured by cubic dimension using mean length, width, and height or thickness, in feet and hundredths of a foot.

I. Stipulated Sum/Price Measurement: Items measured by weight, volume, area, or linear means or combination, as appropriate, as a completed item or unit of the Work.

1.04 BASIS FOR PAYMENT

A. Unless indicated on the Contract Documents, all work indicated on the Construction Drawings and specified in the Contract Documents shall be included in the Contract Sum indicated on the Bid Form.

B. Prices stated in the Bid Form shall include all costs and expenses for taxes (inclusive of applicable Contractor's tax per Miss. Code Ann. § 27-65-21), labor, equipment, materials, commissions, transportation charges and expenses, patent fees and royalties, labor for handling materials during inspection, together with any and all other costs and expenses for performing and completing the Work as depicted on the Construction Drawings and specified herein. The basis of payment for an item in the amount shown in the Bid Form shall be in accordance with the description of that item provided in this Section.

C. The Contractor's attention is again called to the fact that the quotations for the various items of work are intended to establish a total price for completing the Work in its entirety. Should the Contractor feel that the cost for any item of work has not been established by the Bid Form, the Contractor shall include the cost for that work in another applicable bid item, in order that the Bid for the project reflects the total price to be paid by MDEQ for completing the Work in its entirety.

D. Changes in the Contract Price and Contract Time require prior authorization in writing from MDEQ and the Engineer, in the form of a Change Order. Refer to Section 22 of the Standard Contract Terms and Conditions for Change Order Procedures. The Contractor is responsible for verification of all bid quantities and to report to the Engineer any discrepancies found prior to ordering materials and/or equipment for construction. Refer to Sections 9 and 10 of the Standard Contract Terms and Conditions.

E. The various major items of Work will be paid for either by 1) the quantity of the actual Work completed by the Contractor and accepted by the Engineer multiplied by the unit price or 2) a pro rata amount based on the percentage complete of any lump sum Bid Item. The Work shall include all miscellaneous and ancillary items necessary to construct a complete and functional Project.

1.05 SCHEDULE OF VALUES

A. The below descriptions generally outline the scope of work required for those elements of the Work to be paid for under each item listed in the Bid Form. The Contractor shall submit a Schedule of Values per SECTION 01 29 73 – SCHEDULE OF VALUES and shall be consistent with SECTION 01 33 00 – SUBMITTAL PROCEDURES.

1.06 PAYMENT OPTIONS

A. Basis of Payment for Unit Price Items

1. Quantities indicated in the Bid Form are for bidding and contract purposes only. Quantities and measurements supplied or placed in the Work and verified by the Engineer determine payment.

2. If the actual Work requires more or fewer quantities than those quantities indicated, the Contractor will provide the required quantities at the unit prices contracted.

B. Basis of Payment for Lump Sum Items – Payment for lump sum items for this Project will be made at the lump sum price named in the Contract. The contract price shall constitute full compensation for each item, including all required labor, products, tools, equipment, plant, transportation, services and incidentals, erection, application or installation of an item of the Work, overhead, and profit as required to complete the item as indicated in the Construction Drawings and Specifications.

C. Progress Payments

1. Application for Payment shall be submitted to MDEQ or the Engineer at the times specified in Paragraph 5.03 of the Agreement (SECTION 00 52 15).

2. Progress payments will be made upon receipt and acceptance of the post-construction surveys and daily quality control surveys. Surveys will be evaluated based on conformance with the Engineer-Approved Contractor Work Plan and the Construction Documents, including elevations, alignments, allowable tolerances, and minimum lines and grades. The Contractor is required to have all pre-construction and post-construction surveys performed by a third-party independent Mississippi-licensed professional surveyor.

3. Progress and final payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities accepted by the Engineer multiplied by a unit price of the item. Final payment for unit price Work will be accomplished by reconciliation of Change Orders to adjust quantities at the end of the Project.

4. Progress payment for Work governed by lump sum prices will be made in accordance with the approved Schedule of Values.

5. No payment, partial or complete, will be made for defective or rejected Work. The Contractor will not receive payment for any material placed outside of the horizontal or vertical limits (allowable tolerances) of the placement limits shown and noted in the Construction Drawings and Specifications. Any material that is deposited in places not designated or approved by the Engineer or MDEQ may be required to be removed and the Contractor will be required to deposit such misplaced material where directed at Contractor's expense or will be deducted from the payment quantity. Additional clean-up and environmental damage mitigation requirements may be directed by MDEQ. Such efforts will be entirely at the expense of the Contractor and any fines or penalties will be the responsibility of the Contractor.

6. No separate payment will be made for additional labor and materials required for accomplishing the Project in its entirety, unless a Change Order is entered. All labor, materials, and incidental costs shall be included for payment as part of the Bid and the Contract, under the several scheduled items of the Project.

1.07 DESCRIPTION OF WORK ITEMS AND SCHEDULE OF VALUES

A. The Work items are described in order to assist the Contractor in the preparation of the Bid and to assist the Engineer in the evaluation of Bids and progress payments during construction. The Contractor shall submit a Schedule of Values containing the Work components of each lump sum Bid Item in Contractor's Bid for approval prior to the first Application for Payment for work in progress.

B. No separate payment will be made for any testing and/or surveying performed to complete the Work, except for pre-construction and post-construction surveying as shown on Bid Form. Costs for testing and/or surveying (as applicable), except for pre-construction and post-construction surveying, shall be included in the cost to complete the work item.

C. No separate payment will be made for furnishing a fully operated boat with capacity for transporting at least six people for unfettered transportation of MDEQ and Engineer personnel for the entire duration of the construction project as described in Section 01 31 00 – PROJECT MANAGEMENT AND COORDINATION.

D. Submittals are considered part of the Contractor's administrative and overhead costs. The Contactor will not be compensated separately for submittals required by these specifications or those listed on the Construction Drawings.

E. Separate payment will not be made for providing and maintaining an effective quality control program or ensuring environmental compliance, and all costs associated therewith shall be included in the applicable unit prices or lump-sum prices contained in the Bid Schedule.

F. For the purpose of the work items listed below, complete installation will mean the inclusion of mobilization and demobilization, quality control documentation of materials, photographic documentation, delivery of materials to the Project site, installation of materials and any ancillary components, surveying during and after construction, and any overhead-related items associated with Division 01 of the Contract Documents.

G. Below is a description of the Work listed in the BID FORM (ATTACHMENT D). This description is not intended to be a complete and all-inclusive record of the required work items. Work includes but is not limited to the following:

1. Lump Sum Items

a. **Mobilization and Demobilization (Bid Item No. 1)** - Payment for this item will be made as a lump sum (LS) for costs associated with or incidental to mobilization, demobilization, and establishment of initial project management and coordination. The Contractor shall breakdown the cost for Mobilization and Demobilization in the Schedule of Values for Engineer's approval prior to the first Application for Payment. Payment for Mobilization and Demobilization shall be in accordance with the following rules and schedule:

1) No more than sixty percent (60%) of the entire lump sum amount will be payable to the Contractor upon completion of the mobilization, subject to the following:

a) No more than twenty five percent (25%) of the entire lump sum amount can be claimed for reimbursement in the first Application for Payment.

b) The remaining forty percent (40%) of the entire lump sum will be payable upon the completion of demobilization.

2) Failure to justify the cost for Mobilization and Demobilization in the Schedule of Values to the satisfaction of MDEQ will result in non-payment, as determined by MDEQ.

b. **Pre-Construction and Post-Construction Surveys (Bid Item No. 2)** - Payment for this item will be as lump sum (LS) for costs associated with or incidental to performing the pre-construction and post-construction surveys of the breakwaters and scour protection area. See SECTION 01 32 23 SURVEYS AND LAYOUT DATA. Contractor may claim 50% of the lump sum after completion of the pre-construction survey. Contractor may claim the remaining 50% of the lump sum after completion of the post-construction survey.

2. Unit Price Items

a. **Stone Breakwater Installation (Bid Item No. 3)** - Payment will be made as a unit price (TON) for costs associated with or incidental to all stone installation. The price shall include all labor, equipment, materials, transporting, handling, settlement plate installation, operational costs, environmental compliance, settlement, daily quality control, and as-built surveys required to complete stone installation to final slopes and grades as shown in the Construction Drawings. See SECTION 35 31 23.13 – STONE BREAKWATER.

b. **Placement of Stone for Scour Protection (Bid Item No. 4)** - Payment for this item will be made as a unit price (Ton) and the price shall include all labor, equipment, materials, transporting, handling, operational costs, environmental compliance required to place the stone and construct the scour protection in accordance with SECTION 35 31 23.16 – PRECAST BREAKWATER.

c. **Procurement of OysterBreak™ Units (Bid Item No. 5) -** Payment for this item will be made as a unit price (Each) and the price shall include all labor, equipment, materials, transporting, handling, operational costs, and environmental compliance required to procure the OysterBreak™ units and deliver them to a designated storage area in accordance with SECTION 35 31 23.16 – PRECAST BREAKWATER and SECTION 01 31 00 – PROJECT MANAGEMENT COORDINATION. Contractor will only be eligible for payment for OysterBreak™ units delivered to the designated storage area that are undamaged, meet the requirements of these Specifications and Construction Drawings, and that are inspected and accepted by the Engineer or designated representative. For Contractor to receive payment for accepted units, Contractor must transfer title of the units to MDEQ as part of the Engineers inspection and acceptance. Contractor shall not claim any costs related to any other portion of the Work other than the purchase and delivery of the units to the designated storage area for inspection. The Contractor shall submit a cost breakdown of the procurement and delivery costs of the units. Separate installation costs shall be provided in Bid Item No. 6, per linear foot. The manufacturers certified invoice will also be submitted with the payment request. All damaged components shall be replaced or repaired per the manufacturer's requirements.

d. **Installation of OysterBreak™ Breakwater Structure (Bid Item No. 6) -** Payment for this item will be made as a unit price (Linear Foot) and the price shall include all labor, equipment, materials, transporting, handling, operational costs, daily quality control surveys, and environmental compliance required to install the geocomposite and the OysterBreak™ units and construct the precast breakwater in accordance with SECTION 35 31 23.16 – PRECAST BREAKWATER. Contractor may apply for payment for each 400-foot increment of the breakwater installed.

e. **Installation of Aids to Navigation (Bid Item No. 7)** - Payment will be made as a unit price (Each) for costs associated with or incidental to installing aids to navigation (ATON) around the stone breakwater. The price shall include all labor, equipment, materials, transporting, handling, operational costs, environmental compliance, construction surveys, and daily quality control and surveys required to complete the installation of the ATON as shown in the Construction Drawings and as described in SECTION 35 12 10 – AIDS TO NAVIGATION.

1.08 DEFECTIVE WORK

A. The Contractor shall replace the Work, or portions of the Work, not conforming to specified requirements as directed by the Engineer in accordance with Section 13 of the STANDARD CONTRACT TERMS AND CONDITIONS (ATTACHMENT F).

B. If, in the opinion of the Engineer or of MDEQ, it is not practical to remove and replace the Work, the Engineer will direct one of the following remedies:

1. The defective Work may remain, but the unit or lump sum price for the item will be adjusted to a new price. The adjustment will be performed at the sole discretion of MDEQ. The determination for the adjustment will be done by the Engineer, whose determination will be final.

2. The defective Work will be partially repaired according to the instructions of the Engineer, and the unit or lump sum price will be adjusted to a new price at the sole discretion of MDEQ. The determination for the adjustment will be done by the Engineer, whose determination will be final.

C. The individual specification sections may modify these options or may identify a specific formula or percentage sum/price reduction.

D. The authority of the Engineer to assess the defect and identify payment adjustment is final.

1.09 NON-PAYMENT

A. Notwithstanding any of the foregoing, payment will not be made for any of the following:

1. Products wasted or disposed of in a manner that is not acceptable.

2. Products determined as unacceptable before or after placement.

3. Products damaged in transit, during handling, or due to improper storage.

4. Products not completely unloaded from the transporting vehicle.

5. Products placed beyond the tolerance of the required Work.

6. Loading, hauling, and disposing of rejected products.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.01 REQUESTING PROGRESS PAYMENT

A. Provide PDF or other electronic copies of supporting invoices and quantity measurements to support all requested earnings. Ensure that sum of payment activities do not exceed contract award funding amounts.

END OF SECTION 01 20 00

SECTION 01 29 00

PAYMENT PROCEDURES

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes administrative and procedural requirements necessary to prepare and process applications for payments.

1.02 RELATED SECTIONS

A. Attachment F – Standard Contract Terms and Conditions

B. Section 00 52 15 – Agreement

C. Section 01 32 00 – Construction Progress Documentation

D. Section 01 32 23 – Survey and Layout Data

E. Section 01 32 33 – Photographic Documentation

F. Section 01 33 00 – Submittal Procedures

G. Section 01 35 43 – Environmental Protection

H. Section 01 77 00 – Closeout Procedures

1.03 SUBMITTALS

A. Submit one (1) searchable PDF file of the Application for Payment to Engineer by the 25th of each month in accordance with the requirements set forth in Section 00 52 15 – AGREEMENT and Section 01 33 00 – SUBMITTAL PROCEDURES.

1.04 FORMAT AND DATA REQUIRED

A. Submit applications typed on the Application for Payment form approved by MDEQ, with itemized data typed on 8-1/2 inch x 11-inch white paper continuation sheets.

B. Provide itemized data on continuation sheet:

1. Format, schedules, line items and values: Those of the Schedule of Values accepted by MDEQ's representative.

1.05 PREPARATION OF EACH PROGRESS APPLICATION FOR PAYMENT

A. Application Form:

1. Fill in required information, including information for Change Orders executed prior to date of submittal of application.

2. Fill in summary of dollar values to agree with respective totals indicated on continuation sheets.

3. Execute certification with signature of a responsible officer of Contractor.

B. Continuation Sheets:

1. Fill in total list of all scheduled component items of Work, with item number and scheduled dollar value for each item.

2. Fill in dollar value in each column for each scheduled line item when work has been performed or products stored.

3. List each Change Order executed prior to date of submission, at the end of the continuation sheets.

4. Calculate the retainage amount in accordance with Mississippi Code 31-5-33 (Attachment G). See Article 5, Paragraph 5.02 in Section 00 52 15 – AGREEMENT for retainage requirements.

5. Calculate the total amount due by subtracting the retainage and any liquidated damages from the total earned and previously paid.

1.06 SUBSTANTIATING DATA FOR PROGRESS APPLICATION FOR PAYMENTS

A. Contractor shall submit suitable information, including the following, with a cover letter identifying:

1. Project;

2. Application number and date;

3. Updated Construction Schedule in accordance with Section 01 32 00 – CONSTRUCTION PROGRESS DOCUMENTATION;

4. Construction Photographs in accordance with Section 01 32 33 – PHOTOGRAPHIC DOCUMENTATION;

5. All Environmental Compliance documentation in accordance with Section 01 35 43 – ENVIRONMENTAL PROTECTION and any newly issued permits/authorizations associated with this project; and

6. Progress Payment Survey documentation in accordance with Section 01 32 23 – SURVEY AND LAYOUT DATA.

B. Submit one copy of data and cover letter for each copy of application.

1.07 PREPARATION OF APPLICATION FOR FINAL PAYMENT

A. Fill in Application form as specified for progress payments.

B. Use continuation sheet for presenting the final statement of accounting as specified in Section 01 77 00 – CLOSEOUT PROCEDURES.

C. Submit Release of Claims form to be provided by MDEQ.

1.08 SUBMITTAL PROCEDURE

A. Submit Application for Payment to Engineer, Anchor QEA, LLC, at:

/ (by mail) Anchor QEA, LLC
614 Magnolia Avenue
Ocean Springs, MS 39564

/ (by email) wmears@anchorqea.com

B. Number: One (1) searchable PDF copy of each application.

C. When Engineer finds application properly completed and correct, he/she will transmit recommendation for payment processing to MDEQ's Program Manager.

PART 2 - PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - PART 3 - EXECUTION (NOT APPLICABLE)

END OF SECTION 01 29 00

SECTION 01 29 73

SCHEDULE OF VALUES

PART 1 - GENERAL

1.01 SUMMARY

A. Procedure for submission of a certified Schedule of Values for review and approval by the Engineer and MDEQ.

1.02 RELATED SECTIONS

A. Attachment D – Bid Form

B. Section 01 32 00 – Construction Progress Documentation

C. Section 01 33 00 – Submittal Procedures

D. The Contractor shall provide a Schedule of Values in format similar to the Engineers Joint Contract Documents Committee (EJCDC) Schedule of Value Forms.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION (NOT APPLICABLE)

3.01 PREPARATION

A. Upon receipt of the Notice of Award, Contractor shall commence preparation of a Schedule of Values for Lump Sum items in accordance with the Bid Form (Attachment D).

B. Schedule of Values format and content shall be approved by the Engineer and MDEQ prior to submittal of first payment request.

C. Contractor shall coordinate the preparation of a Schedule of Values with preparation of the Construction Schedule as set forth in Section 01 32 00 – CONSTRUCTION PROGRESS DOCUMENTATION. The corresponding values from the Bid Form (Attachment D) shall match with the approved Schedule of Values.

D. Include the following Project identification on a certified Schedule of Values:

1. Project name and location;

2. Project Number;

3. Contract #;

4. Contractor name; and

5. Date of Submittal.

E. The Schedule of Values shall be in an Excel format, tabular form with separate columns and shall include the following items:

1. Related Specification Section and Division;

2. Description of Work;

3. Name of Subcontractor, manufacturer or supplier;

4. Dollar value, quantity and unit of measure of each line item; and

5. Percentage of Contract amount to nearest 1/100th%, adjusted to total 100%.

F. Provide a breakdown of the Contract Amount in enough detail acceptable to Engineer and MDEQ to facilitate continued evaluation of Application for Payment and progress reports.

G. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each Lump Sum line item.

H. Temporary facilities and other cost items that are not direct cost of actual work-in-place shall be shown as separate line items.

I. An approved certified Schedule of Values shall serve as the basis for the monthly certified Application for Payment.

J. If at any time, MDEQ determines, in its reasonable discretion, that the Schedule of Values does not approximate the actual cost being incurred by Contractor to perform the Work, Contractor shall prepare a revised Schedule of Values, which then shall be used as the basis for future progress payments. Without changing the Contract Amount, MDEQ reserves the right to require Contractor:

1. To increase or decrease amounts within the line items in the Schedule of Values; and

2. To conform the price breakdown to MDEQ accounting practice.

3.02 SUBMITTAL

A. Contractor shall submit one (1) searchable PDF digital file and one (1) digital Excel file of the Schedule of Values for review and approval at least 14 days before the first Application for Payment.

B. MDEQ will review and if necessary, return the submitted Schedule of Values with summary comments noting items not in compliance with the requirements of the Contract Documents.

C. Contractor shall revise the submitted Schedule of Values and return one (1) searchable PDF digital file and one (1) digital Excel file within three (3) days of receipt of summary comments.

END OF SECTION 01 29 73

SECTION 01 31 00

PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.01 SUMMARY

A. This Section addresses:

1. General requirements;
2. Contractor Work Plan;
3. Preconstruction conference;
4. Request for Information (RFIs);
5. Schedule finalization meeting;
6. Progress meetings;
7. Pre-installation conferences; and
8. Final Inspection.

1.02 RELATED DOCUMENTS

A. Attachment F – Standard Contract Terms and Conditions

B. Section 01 40 00 – Contractor Quality Control

C. Section 01 77 00 – Closeout Procedures

D. Section 31 05 19 – Geogrid and Geotextiles

E. Section 35 12 10 – Aids to Navigation

F. Section 35 31 23.13 – Stone Breakwater

G. Section 35 31 23.16 – Precast Breakwater

1.03 SUBMITTALS

A. Construction Work Plan: Prior to the start of construction, the Contractor shall provide a Construction Work Plan containing, at a minimum, the following:

1. Overall Project work sequencing and equipment:
   a. Order and sequence in which work shall be performed.
   b. Number, types, and capacity of equipment to be used.
   c. Hours of operation.
   d. Estimated schedule.
2. Specific methods, procedures, and equipment to address the following:
   a. Stone breakwater construction:
      1) Protection of the geocomposite layers during material placement.
      2) Installation method of breakwater stone.

3) Placement to distribute the load across the compressible foundation.

4) Survey methods for control of work and progress surveys.

5) Stone volumes based on pre-construction survey.

6) Verification of design template.

7) Settlement monitoring and output format.

8) Toe construction under water.

b. OysterBreak™ breakwater construction:
1) Details of the designated storage area intended to meet the requirements for inspection.

2) Contractor shall provide the specific number of units required for construction of the breakwater structure.

3) Manufacturer's specifications, recommendations, manufacturing process, lead time requirements, transportation methods, storage requirements, and product information that meet the requirements described in these Specifications for the OysterBreak™ units.

4) Detailed layout of the breakwater structure in plan view with appropriate scale and at least three cross sections referenced to the plan view. The detailed layout shall include the locations of the proposed end points of the breakwater structure, extents of geocomposite underlayer material including overlaps, and specific locations for placement of each unit along the 2,800-foot length.

5) Detailed installation methods for the breakwater and scour protection in accordance with SECTION 35 31 23.16 – PRECAST BREAKWATER and geocomposite underlayer conforming to SECTION 31 05 19 – GEOGRID AND GEOTEXTILES.

6) Verification of breakwater conformance to the grades and elevations shown in the Construction Drawings and described in these Specifications.

7) Survey methods for control of work and progress surveys.

c. Methods for procuring and installing temporary and permanent aids to navigation in accordance with SECTION 35 12 10 – AIDS TO NAVIGATION.

B. Subcontract List: Prepare a digital, written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, and telephone number of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.

C. Key Personnel Names: Within 10 days of Notice to Proceed, submit a list of key personnel assignments, including superintendent and other personnel for the Project. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including office and cellular telephone numbers and email addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.

1. Post copies of list in project meeting room, in temporary field office, and the Engineer/MDEQ construction trailer, if any. Keep list current at all times.
2. Changes in key personnel shall only occur with written permission of MDEQ. Engineer/MDEQ shall have the right of reasonable rejection and approval of staff as provided in Section 6 of the Standard Contract Terms and Conditions.
3. Engineer/MDEQ has the right to raise and discuss adverse issues about any staff or subcontractor employed by the Contractor.

1.04 PROJECT COORDINATION

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate submittals, surveying, availability of equipment, delivery of materials to ensure efficient use of resources and time management.
3. Make adequate provisions to accommodate items scheduled for later installation.

B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for MDEQ and separate contractors if coordination of their Work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's construction schedule;
2. Preparation of the schedule of values;
3. Delivery and processing of submittals;
4. Progress meetings;
5. Pre-installation conferences; and
6. Project closeout activities.

1.05 REQUEST FOR INFORMATION (RFI)

A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI using the supplied form (attached at end of this specification).

1. All RFIs must be submitted by the Contractor. Engineer will return RFIs submitted to Engineer by other entities controlled by Contractor with no response.
2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
3. Do not use RFIs for any purpose other than to request additional information or interpretation of the Contract Documents.

B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:

1. Project name;
2. Project number;
3. Date;
4. Name of Contractor;
5. Name of Engineer;
6. RFI number, numbered sequentially;
7. RFI subject;
8. Specification Section number, title and related paragraphs, as appropriate;
9. Drawing number and detail references, as appropriate;
10. Field dimensions and conditions, as appropriate;
11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
12. Contractor's signature; and
13. Attachments: Include sketches, descriptions, measurements, photos, product data, shop drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
    a. Include dimensions, thicknesses, location and/or station number, and details of the affected area or facilities impacted by the RFI.

C. RFI Forms: Software-generated form with substantially the same content as indicated above, acceptable to Engineer.

1. Attachments shall be electronic files in searchable Adobe Acrobat PDF format.

D. Engineer's Action: Engineer will review each RFI, determine action required, and respond. Allow seven (7) working days for Engineer's response for each RFI. RFIs received by Engineer after 1:00 p.m. will be considered as received the following working day.

1. The following Contractor-generated RFIs will be returned without action:
    a. Requests for approval of submittals.
    b. Requests for approval of substitutions.
    c. Requests for approval of Contractor's means and methods.
    d. Requests for coordination information already indicated in the Contract Documents.
    e. Requests solely for adjustments in the Contract Time or the Contract Sum.
    f. Requests for interpretation of Engineer’s actions on submittals.
    g. Incomplete RFIs or inaccurately prepared RFIs.
2. Engineer's action may include a request for additional information, in which case Engineer's time for response will date from time of receipt of additional information.

3. Engineer's action on RFI's that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Order request according to the Change Order procedures in Section 22 of the Standard Contract Terms and Conditions.

    a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Engineer in writing within seven (7) days of receipt of the RFI response.

E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Include the following:

1. Project name;
2. Name and address of Contractor;
3. Name and address of Engineer;
4. RFI number including RFIs that were returned without action or withdrawn;
5. RFI description;
6. Date the RFI was submitted; and
7. Date Engineer's response was received.

F. On receipt of Engineer's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Engineer within seven (7) days if Contractor disagrees with response.

1. Identification of related minor change in the Work, Work Change Order Directive, and Change Order request, as appropriate.

1.06 INSPECTIONS

A. Contractor shall provide transportation via boat for MDEQ and Engineer to the Site in order for inspections of the Work to be completed.

1. MDEQ and/or Engineer shall notify Contractor in advance of inspections and the number of personnel requiring transportation to the Site via boat.

B. OysterBreak™ Unit Inspection

1. Contractor shall identify a designated storage area for receiving the OysterBreak™ units from the manufacturer and facilitating inspection of the units for acceptance by the Engineer or designated representative. The location of the designated storage area shall be subject to approval by the Engineer.
2. The designated storage area shall be the final storage location for the units prior to loading onto vessels for installation at the breakwater. Therefore, the designated storage area shall be directly accessible by the vessels used by the Contractor to install the units.
3. Only units physically located at the designated storage area shall be inspected for acceptance. Units that have been inspected and accepted shall not be transported or removed from the designated storage area, except for direct loading from the designated storage area onto vessels for installation, without approval from the Engineer.
4. All units inspected and accepted by the Engineer shall be numbered and become property of MDEQ upon payment to the Contractor for the units. Contractor shall transfer title of the units to MDEQ, in writing, in order to receive payment for procurement and acceptance of the units in accordance with Specification Section 01 20 00 – MEASUREMENT AND PAYMENT.

1.07 MDEQ/ENGINEER OFFICE SPACE

A. If Contractor has office space onsite, then office space to accommodate 1 representative from MDEQ or Engineer shall be provided. Office space provided for MDEQ or Engineer, if any, shall be cleaned and furnished in the same manner as the Contractor office space.

1.08 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences to update relevant stakeholders on progress of the Work. Conference calls shall be added to all conferences or meetings, when necessary, in order to maintain social distancing protocols. All meetings may be held digitally instead of in-person in accordance with local public health authority guidelines. Contractor shall coordinate with MDEQ and Engineer to setup conference calls to include all relevant project personnel.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting.

a. Notify MDEQ and Engineer of scheduled meeting dates and times five (5) days in advance.
b. MDEQ and/or Engineer shall be permitted to attend meetings held at the Project Site at their discretion.
c. Representatives of contractors, subcontractors, and suppliers attending meetings shall be qualified and authorized to act on behalf of the entity each represents.

2. Agenda: Prepare the meeting agenda. Distribute the agenda to attendees including conference call-in numbers and passwords for attendance.

3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes within five (5) days of the meeting:

a. To all participants in meetings;
b. To MDEQ and Engineer; and
c. To Contractor.

4. Engineer will schedule and administer pre-construction meeting, regularly scheduled progress meetings, and specially called meetings throughout the progress of the Work. Engineer will:

a. Prepare agendas for meetings, including items requested by MDEQ and Contractor;
b. Notify MDEQ and Contractor five (5) days in advance of meeting date; and
c. Preside at such meetings.

5. Contractor will schedule and administer pre-installation conferences. Contractor shall:

a. Attend all meetings;
b. Arrange for the attendance of Contractor's agents, employees, subcontractors, and suppliers as appropriate to the agenda; and
c. Make physical arrangements for meetings, as necessary.

B. PRECONSTRUCTION CONFERENCE

1. Engineer will schedule a conference after Notice of Award and before commencement of the Work.

2. Location: A central site, convenient for all parties, or held digitally.

3. The representatives that should be in attendance include:

a. MDEQ’s Representative;
b. Program Manager’s Representative(s);
c. Engineer and Engineer’s professional consultants;

d. Resident Project Representative;
e. Contractor's Superintendent;
f. Major Subcontractors;
g. Major Suppliers; and
h. Others as appropriate.

4. The agenda may include:

a. Contractual matters;
b. Submission of executed bonds and insurance certificates;
c. Distribution of Contract Documents;
d. Submission of list of subcontractors and suppliers, list of products, Schedule of Values, and progress schedule;
e. Designation of key personnel representing the parties in Contract and the Engineer;
f. Procedures and processing of field decisions, submittals, substitutions, applications for payments, cost proposal requests, Change Orders and Contract closeout Procedures;
g. Establishment of official date of Notice to Proceed (NTP);
h. Establishment of mailing address and local office for the Contractor;
i. Establishment of cut-off dates and payment request submittals;
j. CQC plan as defined in Section 01 40 00 – CONTRACTOR QUALITY CONTROL;
k. Construction scheduling and updates;
l. Construction photographs and video requirements;
m. Off-shore inspections and off-shore access by Engineer, MDEQ and other regulatory agencies;
n. Environmental permit compliance during construction;
o. Critical work sequencing;
p. Major material deliveries and priorities;
q. Procedures for maintaining Record Documents;
r. Use of Engineers/MDEQ's office facilities, if any, including:
    1) Office, work and storage areas;
    2) MDEQ's requirements; and
    3) Cleaning requirements;

s. Construction facilities, controls and construction aids;
t. Temporary utilities provided by Contractor;
u. All safety and first-aid procedures are responsibility of the Contractor;
v. Hurricane/Storm Preparedness Plan;
w. Security and housekeeping procedures as required by MDEQ;
x. Procedures for testing; and
y. Providing electronic design files to the Contractor.

5. The Contractor shall bring to this conference the following items in either completed or draft form:

a. Accident Prevention Plan;
b. Activity Hazard Analysis;
c. Job Hazard Analysis for each employee classification;
d. Safety Data Sheets;
e. Letter appointing representatives;
f. List of subcontractors;
g. Listing of First Aid and CPR trained personnel; and
h. Work Plan.

C. SCHEDULE FINALIZATION MEETING

1. Contractor will schedule at least 10 days before submission of the first Application for Payment

2. Location: A central site convenient for all parties, or held digitally

3. The representatives that should be in attendance include:

    a. MDEQ's representative;
    b. Engineer;
    c. Contractor; and
    d. Others, as appropriate.

4. The suggested agenda for this meeting is:

    a. Schedule of Values;
    b. Construction Schedule;
    c. Submittal Schedule; and
    d. Questions.

D. PROGRESS MEETINGS

1. Engineer will schedule and administer monthly meetings throughout progress of the Work.
2. Location of the Meetings: The project field office of the Contractor, or other locations arranged for by Contractor, convenient to all parties
3. The representatives that should be in attendance include:

    a. MDEQ's Representative;
    b. Engineer, and his professional consultants as needed;
    c. Resident Project Representative;
    d. Contractor's Superintendent;
    e. Subcontractors as appropriate to the agenda;
    f. Suppliers as appropriate to the agenda; and
    g. Others, as appropriate.

4. The suggested agenda for this meeting is:

    a. Review minutes of previous meetings;
    b. Review unresolved issues from last meeting;
    c. Safety;
    d. Contractor's Construction Schedule:
        1) Review progress since the last meeting;
        2) Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule;
        3) Determine how behind schedule activities will be expedited; secure commitments from parties involved to do so;
        4) Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time;
        5) Identification of problems that impede planned progress;
        6) Planned progress during succeeding work period; and
        7) Make necessary revisions to construction schedule.

    e. Review of submittals schedule and status of submittals;
    f. Review of material delivery schedules;
    g. Access;
    h. Site Utilization;
    i. Temporary facilities;
    j. Maintenance of quality and work standards;
    k. Status of RFIs;
    l. Status of proposal request;
    m. Pending changes;
    n. Status of Change Orders;
    o. Unanticipated adverse weather days documentation;

p. Pending claims and disputes;
q. Documentation of information for payment request;
r. Environmental compliance; and
s. Long-term weather conditions.

E. PRE-INSTALLATION CONFERENCES

1. When required in individual specification Section, Contractor will convene a pre-installation conference at work site prior to commencing work of the Section.
2. Contractor will require attendance of parties directly affecting, or affected by, work of the specific Section.
3. Contractor will notify Engineer at least four (4) days in advance of meeting date.
4. Contractor will prepare agenda, preside at conference, record minutes, and distribute copies within two (2) days after conference to participants, with two (2) copies to Engineer and Agency.
5. Review conditions of installation, preparation and installation procedures, and coordination with related work.

F. FINAL INSPECTION

1. Contractor shall notify the Engineer and Agency and certify that the Project is substantially complete and request a date and time for a Final Inspection.
2. Final Inspection will be conducted in accordance with the procedures identified in Section 01 77 00 CLOSEOUT PROCEDURES.

1.09 HAZARD ANALYSIS PLAN: THE FOLLOWING ADDITIONAL ITEMS WILL BE REQUIRED UNDER THE CONTRACT:

A. A Job Hazard Analysis is required for each person employed on this job. Prior to beginning the job, a Job Hazard Analysis shall be prepared by the Contractor. The analysis will address the hazards in each job classification and will present the procedures and safeguards necessary to provide a safe working environment for that employee. The Contractor shall provide a means to assure that each employee has an opportunity to provide input to his/her Job Hazard Analysis and proof of employee understanding by having the employee sign a copy of his/her analysis.

B. Contractor should assure an understanding on the part of employee and supervisor alike that no new task having potential as a hazard will be undertaken without thorough discussion between them to determine the safest means to accomplish the task. The Job Hazard Analysis will then be modified accordingly.

C. It is emphasized that areas of the Work site are not readily accessible and that several hours may pass before an individual can be transported from the Work site to a medical treatment facility. At least two employees per shift shall be qualified to administer First Aid and CPR.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION (NOT APPLICABLE)

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

RFI Form

PROJECT: **RESTORING LIVING SHORELINES AND REEFS IN MISSISSIPPI ESTUARIES: BIG ISLAND LIVING SHORELINE CONSTRUCTION**

INITIATED BY: Contractor RFI #:

DRAWING REFERENCE: DETAIL REFERENCE: SPEC REFERENCE:

DATE INITIATED: DATE RESPONSE REQUESTED: RELATED SCHEDULE ACTIVITY:

SUBJECT:

REQUEST FOR INFORMATION	DRAWING ATTACHED	YES:	NO:	PAGES:
Reviewed By CM or GC:				Date:

CONTRACTOR PROPOSED SOLUTION	COST IMPACT	YES:	NO:

RESPONSE	DRAWING ATTACHED	YES:	NO:	PAGES:

Response By (Engineer): Date:

Received By CM or GC: Date:

This document provides information or clarification only and does not constitute authorization or direction to proceed with additional work. If, in the opinion of the Contractor, the response impacts the Contract amount and/or time, the Contractor must advise Owner of such impact in writing within Ten (10) days of receipt. The Contractor's notice shall be accompanied and appropriately supported with justification, reasoning and references where the contract requirements have been exceeded due to the response to the RFI. Otherwise, the Response will stand and clarifications to the Contract Documents will not result in any increase or decrease in cost to the Owner.

END OF SECTION 01 31 00

SECTION 01 32 00

CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes administrative and procedural requirements for documenting the progress of construction during the performance of the Work, including the following:

1. Startup construction schedule;
2. Contractor's construction schedule;
3. Updated construction schedule with updating report;
4. Daily construction reports;
5. Material location reports;
6. Site condition reports; and
7. Special reports.

1.02 RELATED DOCUMENTS

A. Attachment F – Standard Contact Terms and Conditions

B. Section 01 29 00 – Payment Procedures

C. Section 01 31 00 – Project Management and Coordination

D. Section 01 33 00 – Submittal Procedures

1.03 SUBMITTALS

A. Format for Submittals: Submit required submittals in the following format:

1. Working electronic copy of schedule file; and
2. Fully searchable PDF electronic file of schedule;

B. Startup Construction Schedule

1. Approval of cost-loaded, startup construction schedule will not constitute approval of schedule of values for cost-loaded activities.

C. Startup Network Diagram: Of size required to display entire network for entire construction period. Show logic ties for activities.

D. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.

1. Submit a working electronic copy of schedule, as described in Section 2.03, and labeled to comply with requirements for submittals. Include type of schedule (initial or updated) and date on label.

E. Updated Construction Schedule with Updating Report: Submit with Applications for Payment.

F. Daily Construction Reports: Submit the following day by noon.

G. Material Location and Tracking Reports: Submit at monthly intervals.

H. Site Condition Reports: Submit at time of discovery of differing conditions.

I. Special Reports: Submit at time of unusual event.

1.04 COORDINATION

A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.

B. Coordinate Contractor's construction schedule with the schedule of values, submittal schedule, progress reports, payment requests, and other required schedules and reports.

C. Secure time commitments for performing critical elements of the Work from entities involved.

D. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.01 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Time Frame: Extend schedule from date established for the Notice to Proceed (NTP) to date of final completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early or later completion date, unless specifically authorized by Change Order.

B. Activities: Treat each separate area as a separate numbered activity for each main element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than 30 days, unless specifically approved by Engineer.

2. Procurement Activities: Include procurement process activities for long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule.

3. Submittal Review Time: Include review and resubmittal times indicated in Section 01 33 00 - SUBMITTAL PROCEDURES in schedule. Coordinate submittal review times in Contractor's construction schedule with submittal schedule.

4. Substantial Completion: Indicate completion in advance of date established for substantial completion and allow time for Engineer’s administrative procedures necessary for certification of substantial completion.

5. Punch List and Final Completion: Include not more than 30 days for completion of punch list items and final completion. Final completion shall be within the Contract Time.

C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule and show how the sequence of the Work is affected.

1. Work Restrictions: Show the effect of the following items (if applicable) on the schedule:

a. Coordination with existing construction;

b. Uninterruptible services;

c. Use of premises restrictions;

d. Provisions for future construction;

e. Anticipated adverse weather delay days as described in Section 23 of (Standard Contract Terms and Conditions [Attachment F]);

f. Seasonal variations; and

g. Environmental control.

2. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:

a. Subcontract awards;

b. Submittals;

c. Deliveries;

d. Installation;

e. Tests and inspections;

f. Adjusting; and

g. Startup and placement into final use and operation (if applicable).

3. Construction Areas: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities.

D. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, and final completion.

E. Cost Correlation: Superimpose a cost correlation timeline, indicating planned and actual costs. On the line, show planned and actual dollar volume of the Work performed as of planned and actual dates used for preparation of payment requests.

1. See Section 01 29 00 – PAYMENT PROCEDURES for cost reporting and payment procedures.

F. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update and submit in accordance with Section 01 31 00 – PROJECT MANAGEMENT AND COORDINATION. Summarize the following issues:

1. Unresolved issues;

2. Unanswered Requests for Information;

3. Rejected or unreturned submittals;

4. Notations on returned submittal; and

5. Pending modifications affecting the Work and Contract Time.

G. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, and equipment required to achieve compliance, and date by which recovery will be accomplished.

H. Critical Path Identification: The Critical Path Method (CPM) schedule should clearly identify all activities that are on the critical path.

2.02 STARTUP/MOBILIZATION CONSTRUCTION SCHEDULE

A. Bar-Chart Schedule: Submit startup, horizontal, bar-chart-type construction schedule within 7 days of date established for the Notice to Proceed.

2.03 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's construction schedule using Microsoft Project or similar software approved by MDEQ within 21 days of date established for the Notice to Proceed. Base schedule on the startup construction schedule and additional information received since the start of Project. Approval of this comprehensive schedule is a condition precedent for payment.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

1. For construction activities that require three months or longer to complete, indicate an estimated completion percentage in 10-percent increments within time bar.

2.04 REPORTS

A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:

1. Date of Daily Report;

2. Shift detailed in the report;

3. List of subcontractors at Project site;

4. List of separate contractors at Project site;

5. Actual count of personnel at Project site;

6. Regulatory agency personnel at Project site;

7. Equipment utilized including production time and downtime at Project site;

8. Quantities of materials removed, delivered, or placed in the last 24 hours and placed to date; and cumulative percent completion of the project;

9. Description of activities performed for the last 24 hours as applicable;

10. Environmental Compliance activities performed for the past 24 hours;

11. High and low temperatures and general weather conditions, including presence of rain or snow, high winds, high waves, high tide and low tide and whether weather conditions represent an adverse weather date;

12. Description of any downtime, delay, quality control issue or schedule change;

13. Accidents – including, but not limited to incidents involving people or equipment (first-aid, near miss, OSHA recordable or lost time);

14. Meetings and significant decisions;

15. Unusual events (see special reports);

16. Stoppages, delays, shortages, and losses;

17. Emergency procedures;

18. Orders and requests of authorities having jurisdiction;

19. Change Orders received and implemented;

20. Construction Change Directives received and implemented; and

21. Substantial Completion authorized.

B. Material Location Reports: At monthly intervals, prepare and submit a comprehensive list of materials in transit, delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items located away from Project site. Indicate the following categories for stored materials:

1. Material stored prior to previous report and remaining in storage;

2. Material stored prior to previous report and since removed from storage and installed; and

3. Material stored following previous report and remaining in storage.

C. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.05 SPECIAL REPORTS

A. General: Submit special reports directly to Engineer within 1 day of an occurrence. Distribute copies of report to parties affected by the occurrence.

B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, and response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise MDEQ in advance when these events are known or predictable.

PART 3 - EXECUTION

3.01 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Contractor's Construction Schedule Updating: At monthly intervals, with Application for Payment, update schedule to reflect actual construction progress and activities. Issue schedule minimum of 48 hours before each regularly scheduled progress meeting. No payment will be processed without an approved construction schedule.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting within 48 hours after such meeting.

2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.

3. As the Work progresses, indicate final completion percentage for each activity.

B. Distribution: Distribute copies of approved schedule to Engineer, MDEQ, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. Post copies in Project meeting rooms and temporary field offices.

2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 01 32 00

SECTION 01 32 23

SURVEYS AND LAYOUT DATA

PART 1 - GENERAL

1.01 SUMMARY

A. The Contractor shall furnish all labor, equipment, materials, and incidentals necessary to perform surveys required to perform the Work as detailed in the Construction Drawings and herein. The Work includes, but is not limited to, preconstruction surveys, quality control surveys, and As-Built surveys and drawings.

1.02 RELATED SECTIONS

A. Section 01 20 00 – Measurement and Payment Procedures

B. Section 01 33 00 – Submittal Procedures

C. Section 01 35 43 – Environmental Procedures

D. Section 01 40 00 – Contractor Quality Control

E. Section 35 31 23.13 – Stone Breakwater

F. Section 35 21 23.16 – Precast Breakwater

1.03 REFERENCES

A. U.S. Army Corps of Engineers - Hydrographic Survey Manual EM 1110-2-1003

1.04 SUBMITTALS

A. The following submittals shall be in accordance with SECTION 01 33 00 - SUBMITTAL PROCEDURES:

1. Survey Plan: The Contractor shall prepare and submit, for approval by the Engineer, a written Survey Plan, presenting the contract survey effort from start to completion. The Survey Plan shall cover, at a minimum, Contractor-conducted layout work (including baseline control) and the required surveys described in this Section.

2. Pre-construction Bathymetric Survey: The Contractor shall submit the xyz survey data within 2 working days of data collection. The electronic files in Portable Document Format (PDF) and CADD files with templates, stone volumes and calculated stone tonnages shall be submitted within 5 working days of data collection. Calculated stone volumes and tonnages should be broken down by breakwater segment.

3. Quality Control (QC) Surveys:

a. OysterBreak™ Breakwater: The Contractor shall collect a centerline survey of the top row units of the OysterBreak™ breakwater structure and a boundary survey of both edges (the side facing the island and side facing outwards towards the bay) of the bottom row breakwater structure daily during construction. The contractor shall take at least one (1) cross section daily of the most recent breakwater units installed as part of the QC program. Each section shall be plotted on an 8.5-inch by 11-inch sheet, with reference to a plan view. The cross sections shall show the required lines and grades in accordance with the approved Work Plan, pre- and post-construction survey data and a compilation of estimated quantities utilized. Contractor may suggest alternate survey methods for the breakwater structure for approval by Engineer.
b. Stone Breakwater: Contractor shall perform cross-section surveys along the breakwater crest at maximum intervals of 50 feet on center (along the centerline of the breakwater) with a minimal data density of one (1) elevation shot every 5 linear feet on line. For all surveys, additional elevation shots shall be taken at the bay facing edge and landward edge of the stone layer, along the crest, and at abrupt changes in grade. A cross-section survey should also be taken in the middle of each completed breakwater gap along the centerline of the breakwater. The cross-sections shall extend 25 feet beyond the toe of the stone. The contractor shall take at least one (1) cross section daily of the most recent portion of the stone breakwater structure installed as part of the QC program. Each section shall be plotted on an 8.5-inch by 11-inch sheet, with reference to a plan view. The cross sections shall show the required lines and grades in accordance with the approved Work Plan, pre- and post-construction survey data and a compilation of estimated quantities utilized.
c. Scour Protection: Contractor shall survey the centerline of the scour protection placement daily and collect cross sections every 500 feet. Each section shall be plotted on an 8.5 inch by 11-inch sheet, with reference to a plan view. The cross sections shall show the required construction templates, pre- and post-construction survey data and a compilation of estimated quantities utilized.
d. Settlement Monitoring Surveys: The Contractor shall submit the xyz survey data in tabular form with the survey date within 2 working days of data collection.
e. As-Built Surveys: Upon project completion and before submitting the final Payment Application, the Contractor shall submit to the Engineer drawings showing as-built conditions of the site. The As-Builts will highlight any deviations to the Construction Drawings and shall include the following:

    1) Field changes of dimension and detail;

    2) Changes made by Change Order or other Modifications;

    3) Details not on original Project Drawings;

    4) Pre- and Post-Construction 3D generated surfaces (by the equivalent CADD method for each pre- and post-construction surface); and

    5) A plot of the actual pre- and post-construction cross-sections of project plotted at the same station as and on top of the design tolerances.

1.05 QUALITY ASSURANCE

A. The Contractor shall hire a third-party independent surveyor licensed in the state of Mississippi to perform all pre-construction and as-built surveys and monthly verify the Contractor's Quality Control surveys, survey setup, and local control network. The surveyor shall show more than 10 years of hydrographic and topographic (static) survey experience.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.01 GENERAL

A. The Contractor is responsible for all surveying required for layout and performance of the Work. All pre-construction and as-built surveys shall be performed by an independent third-party surveyor licensed in the state of Mississippi. Quality control surveys can be collected by the Contractor's crew using monumentation developed by the independent third-party surveyor. All construction-related drawings, submittals, and as-builts, will be prepared by the Contractor in CADD and PDF formats.

B. The Contractor shall complete the layout of the Work and shall be responsible for all measurements.

C. The Contractor shall perform surveys of the breakwater installations, scour protection, and settlement plates. It is the intent of the surveys to have vertical and horizontal accuracies equivalent to land surveying. Cross-section surveys shall be performed prior to and after placement of the breakwater stone.

D. After installation of each settlement plate and before placement of stone, the Contractor shall perform a survey detailing the location, date of installation, and the top elevation of the riser pipe to the nearest 0.1 feet NAVD88.

E. All survey submittals shall include the following:

1. Surveyor's name and date survey was performed

2. Purpose of the survey (e.g. pre-construction, quality control, post-construction)

3. Unit of measure in U.S. Survey Feet

4. Horizontal datum in Mississippi State Plane East Zone, NAD 83, U.S. Feet

5. Vertical datum in Mean Lower Low Water (MLLW).

F. CADD file submittals shall also include the following:

1. Contours (and/or the actual surfaces if the surveyor(s) uses AutoCAD Civil 3D or can export to LandXML)

2. Each survey shall be organized by surveyor and date performed

3. If there is more than one survey in a CADD file, each survey shall be placed on its own layer and the layer shall be appropriately named and dated.

4. If CSV files are submitted (formatted xyz), the first line of the text file shall identify the items listed herein.

3.02 PRE-CONSTRUCTION BATHYMETRIC SURVEY

A. Prior to performing the pre-construction survey, the Contractor must field verify the location of all utilities throughout the entire project length and include the locations on the pre-construction survey submittal. The Contractor is strictly responsible for repair of any and all damages related to utilities and existing infrastructure as a result of this project construction activities.

B. Prior to construction, the Contractor shall perform a pre-construction bathymetric survey of the project area for the Engineer's approval.

C. The pre-construction bathymetric survey shall be collected using low frequency methods as prescribed by the U.S. Army Corps of Engineers Hydrographic Survey Manual EM 1110-2-1003 for soft sediments.

D. The Contractor shall collect cross-sections on 50-foot centers along the breakwater and scour protection alignments. Each cross-section shall extend 100 feet outside the limits shown for each construction area. The survey can be a combination of low-frequency bathymetric and real-time kinematic data, providing shots at 5-foot intervals. Sufficient closure points between sections shall be obtained to develop a 5-foot by 5-foot grid. Unless otherwise noted, the bisecting lines shall not be more than 200 feet on center.

E. During the preconstruction survey and at least 30 days prior to commencement of construction, the Contractor shall provide a vessel with a boat captain and surveyor with GPS positioning to the Engineer for a 4-hour work day to conduct a submerged aquatic vegetation (SAV) survey in the project area. The Engineer will provide two people on the vessel to direct the vessel operator for the SAV verification survey. Any SAV areas identified will be provided to the Contractor. The contractor shall avoid damaging the SAV.

3.03 QUALITY CONTROL SURVEYS

A. The Contractor shall perform daily quality control checks and weekly surveys of the breakwater and scour protection construction areas. The survey shall include the previous week's construction to the extent practicable. For quality control purposes, the surveys shall be performed and completed no later than 3 calendar days following the end of the calendar week.

B. Drawings shall be provided showing the surveyed surface elevations in cross section along with the design templates. Submittal shall include hard copy plots in grid format and electronic files. Electronic files should include PDF submittals as well as original (native) format. The Contractor shall submit xyz survey data in ASCII or another common format, if requested and as directed.

3.04 SETTLEMENT MONITORING SURVEYS (STONE BREAKWATER)

A. After placement of the stone to the design elevations along a breakwater segment, the Contractor shall survey and record the elevation of the top of the settlement plate to the nearest 0.1-foot NAVD88.

B. Settlement plate and stone crest surveys shall be performed weekly until notification to discontinue by the MDEQ or its designated representative is received or to final acceptance. For each stone survey, the Contractor shall survey as close to the initial stone point as possible in order to track consolidation during construction.

C. When directed by the Engineer, the Contractor shall survey the centerline alignment and collect points on ten (10) foot centers and at the top elevations of the settlement plates. The Contractor shall also collect cross section surveys (as described in Section 3.01). The intent of this survey is to determine if additional stone needs to be installed to meet the minimum lines and grades.

D. The Contractor shall also survey and record the final top elevations of settlement plates after cutting or removing the pipe per SECTION 35 31 23.13 – STONE BREAKWATER and the top of the stone to the nearest 0.1-foot NAVD88 along with the corresponding date.

3.05 AS-BUILT SURVEYS

A. The Contractor shall survey the boundary of the breakwater structures and scour protection placement and mimic the pre-construction survey. It is intent of the As-Built survey to capture the final elevations and dimensions of both breakwater structures.

B. The As-Built drawings and data sets shall include the pre-construction survey, design templates and tolerances, all of the daily cross-section surveys, and the final As-Builts of the completed breakwater structures. The submittal shall be certified by an independent third-party surveyor licensed in the state of Mississippi and include electronic PDF, xyz files, and the CADD files in an MDEQ approved format. At a minimum, they will provide PDF format files showing an overlay of the pre- and post-construction survey with placement tolerances in section view on 100 ft centers and a color-coded plan view showing varying colors by 0.5-ft interval.

END OF SECTION 01 32 23

SECTION 01 32 33

PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.01 SUMMARY

A. This Section addresses the requirement to take and produce construction record photographs during the course of the Work. Digital photography is required. Film photography is not acceptable.

B. Monthly aerials and video clips of construction are required.

1.02 RELATED DOCUMENTS (NOT APPLICABLE)

1.03 STILL PHOTOGRAPHY REQUIRED

A. Provide digital aerial color photographs of the general construction area prior to starting construction, after completing the inner precast breakwater, and after completing the outer stone breakwater. Aerial photographs shall be at a scale of 1 inch = 600 feet with a pixel resolution of at least 6 inches. Aerial photography shall be within the boundaries defined by the following GPS coordinates and Figure 1 – Limits of Aerial Photography located at the end of this specification:

B. Big Island Living Shoreline Construction

30° 25’ 9.79” N, 88° 52’ 54.60” W

30° 25’ 9.59” N, 88° 52’ 3.72” W

30° 24’ 43.41” N, 88° 52’ 9.54” W

30° 24’ 50.08” N, 88° 52’ 54.41” W

C. Take aerial photographs on the monthly closing date on which each scheduled Payment Application is based.

D. Take a minimum of five (5) daily photographs of construction activities as necessary to document daily construction progress. The intent is for digital photos to be kept as a project record.

E. Digital photographs shall be submitted on suitable electronic media or uploaded to project site server. Organization and files of pictures must be approved by Engineer.

F. Digital photographs shall have a resolution of 10 megapixels or greater.

G. Submitted digital media and photos become the property of MDEQ.

1.04 AERIAL STILL & VIDEO PHOTOGRAPHY REQUIRED

A. Aerial video of the construction site before construction begins is required. Video and photos may be taken by plane, drone, helicopter or any other aerial vehicle. If taken by drone or other unmanned aircraft, the view shall be taken at no higher than 400 feet above sea level (per FAA requirements) of the site.

B. Aerial video of the construction site during construction is required, in accordance with Section 1.01. Videos should show all completed work and proposed work area for the next month. This view shall be taken at no higher than 400 feet above sea level (per FAA requirements) of the site, if obtained by an unmanned aircraft.

C. Aerial video of the construction site on the day of the Final Inspection is required. This view shall be taken at no higher than 400 feet above sea level (per FAA requirements) above the constructed and proposed facilities, if taken by an unmanned aircraft.

D. Video clips of key construction activities. Still photography frames may be collected from video clips to comply w/ Section 1.03, provided they are taken using high definition video.

E. High elevation still photographs of key construction activities. If still photographs of key construction activities are taken by an unmanned aircraft, the aircraft may not go higher than 400 feet above sea level in accordance with FAA requirements.

1.05 COSTS OF PHOTOGRAPHY

A. Contractor is responsible for the costs of specified photography and printing.

B. Payment to a subcontractor or individual for drone captured images or video clips will only be provided if an FAA Section 333 Exemption is provided. Note: Under FAA regulations, commercial use of unmanned aircraft is only allowed if the user has an FAA Section 333 Exemption.

C. Parties requiring additional photography or prints will pay for them directly.

1.06 DELIVERY OF PHOTOS

A. Contractor will submit digital photos to the Engineer with monthly pay requests or within 15 days of photo date.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.01 TECHNIQUE

A. Presentation of Still Photography. The information/data provided with each digital still photography image shall include:

Date of image;

Location of images by Station location as shown on the design drawings; and

Direction of image (N, S, E, W, NE, NW, SE, SW).

B. Exposure and Focus. The photography shall be taken with the appropriate exposure and focus.

C. Aerial Images and Aerial Videos

Still images may not be taken at elevations exceeding 400 feet above sea level in accordance with FAA regulations if taken by an unmanned aircraft such as a drone.

Aerial video survey shall use a focal length that captures no more than 30 feet outside the construction area. If an unmanned aircraft is utilized to capture video, the aircraft cannot fly higher than 400 feet above sea level in accordance with FAA regulations.

A digital imprint on the image that identifies the date and Station Location shall be edited onto the images.

Video imagery shall be at 1080p resolution with a shutter speed no slower than 30 frames/sec.

Video imagery shall use high quality lenses that produce clear and sharp images with a focal length that allows collected images to extend no more than 30 feet outside the construction zone. If a fixed lens is used, the height above sea level can be used to ensure that the cross section of the video does not exceed more than 30 feet outside the construction zone.

3.02 VIEWS REQUIRED

A. Photographs shall be taken from locations to adequately illustrate the condition and methods of construction and the state of the Project.

B. Aerial and video survey of the site prior to construction under low tide conditions is required.

C. Monthly aerial and video survey of the site during construction is required. One flyover on or near the day of final payment request is required. Aerial survey should take place under low tide conditions when possible. Specific attention shall be given to facilities constructed since the previous pay period and the proposed construction area for the upcoming pay period.

D. Aerial video clips of key construction activities are required (at least three clips of each key construction activity during the life of the project).

E. Aerial still photography images of key construction activities are required (monthly images on or near the cutoff day of payment request).

F. Still photography images of key construction activities from barge or inspection boat

3.03 PROJECT RECORD

A. Contractor shall submit a binder of stored CD/DVD/USP drives containing digital photos, aerial video clips, aerial still photographs for project records collated in chronological order of project with date headings for groups of photos or videos.

B. Contractor shall submit CD, DVD, or USB drive of all photos, grouped by date and location.

C. Engineer will distribute, after review:

One copy of each view to MDEQ;

One copy of each view to Engineer's file; and

One copy of each view returned to Contractor for inclusion in Project Record Document.

FIGURE

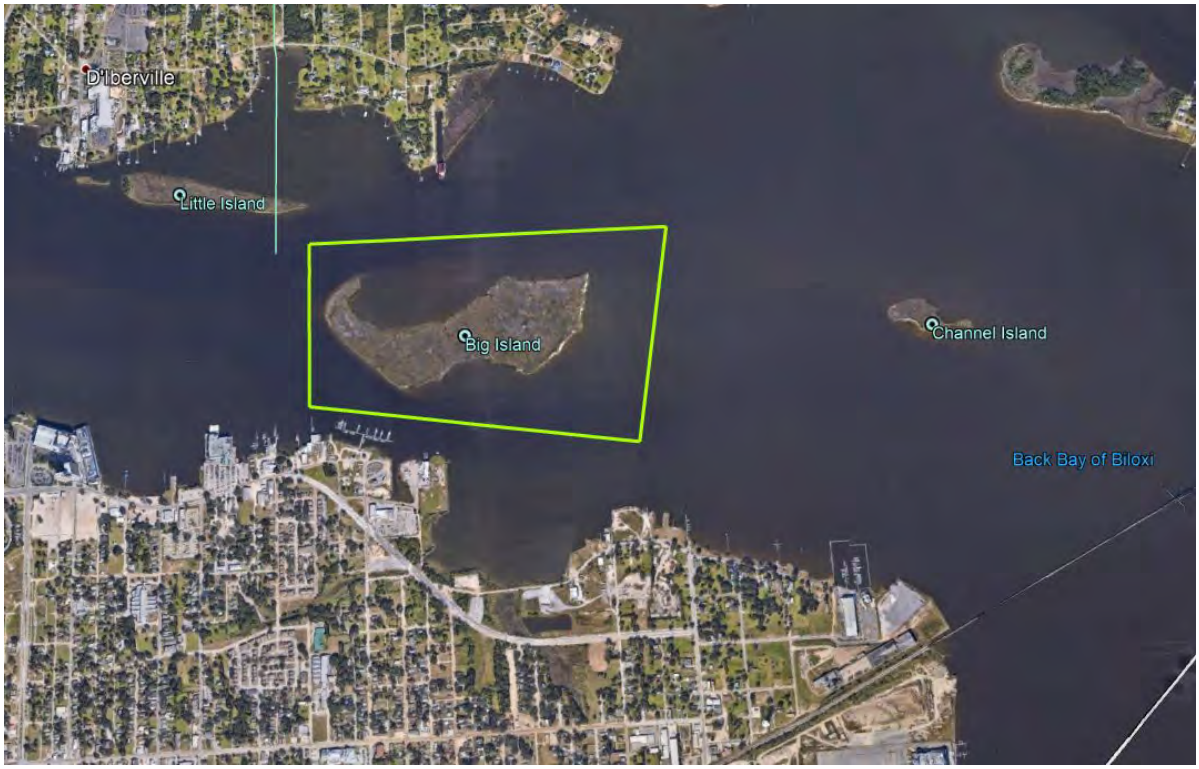


FIGURE 1: BIG ISLAND LIVING SHORELINE - LIMITS OF AERIAL PHOTOGRAPHY

END OF SECTION 01 32 33

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data Samples, and other submittals.

1.02 RELATED DOCUMENTS

A. Section 01 29 00 – Payment Procedures

B. Section 01 29 73 – Schedule of Values

C. Section 01 32 00 – Construction Progress Documentation

D. Section 01 32 23 – Surveys and Layout Data

E. Section 01 32 33 – Photographic Documentation

F. Section 01 40 00 – Contractor Quality Control

G. Section 01 77 00 – Closeout Procedures

H. Section 31 05 19 – Geogrid and Geotextiles

I. Section 35 12 10 – Aids to Navigation

J. Section 35 31 23.13 – Stone Breakwater

K. Section 35 31 23.16 – Precast Breakwater

1.03 SUBMITTALS

A. Submittal Schedule: The Contractor shall submit a schedule of submittals with the Construction Work Plan, arranged in chronological order by dates required by the construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Engineer and additional time for handling and reviewing submittals required by those corrections.

1.04 QUALITY ASSURANCE

A. Coordination: The Contractor will coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity;

2. Submit submittal items required for each Specification Section concurrently;

3. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination;

    a. Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received;

    b. Initial Review: Allow seven (7) working days for initial review of each submittal. Submittals which require coordination of subsequent submittals will not be reviewed until all pertinent submittals are provided;

    c. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal;

    d. Resubmittal Review: Allow seven (7) working days upon Engineer's receipt of resubmittal for review of each resubmittal;

    e. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form;

    f. Name file with submittal number or other unique identifier, including revision identifier – numbering system and identifiers will be mutually acceptable to the Contractor and MDEQ;

    g. Transmittal Form for Electronic Submittals shall be in color format and be fully searchable: Use electronic form, containing the following information:

        1) Project name;

        2) Date;

        3) Name and address of Engineer;

        4) Name of Contractor;

        5) Name of firm or entity that prepared submittal;

        6) Names of subcontractor, manufacturer, and supplier;

        7) Category and type of submittal;

        8) Revision number of submittal along with submittal dates of previous submittals;

        9) Submittal purpose and description;

        10) Specification Section number and title;

        11) Related physical samples submitted directly;

        12) Indication of full or partial submittal;

        13) Remarks;

        14) Identify options requiring selection by the MDEQ/Engineer; and

        15) Identify on separate page any clarification required by the Engineer and any deviations from the Contract Drawings and Contract Documents;

h. Furnish one (1) searchable PDF copy of each submittal to the Engineer. Provide additional submittals if additional copies are needed for suppliers or subcontractors. Copies of the submittal will be retained for the Engineer, MDEQ, with the remaining copies returned to the Contractor.

PART 2 - PRODUCTS

2.01 MATERIAL SUBMITTAL PROCEDURES

A. Shop Drawings: The Contractor shall prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

a. Identification of products;

b. Schedules;

c. Compliance with specified standards;

d. Notation of coordination requirements;

e. Notation of dimensions established by field measurement;

f. Relationship and attachment to adjoining construction clearly indicated; and

g. Seal and signature of professional engineer, if specified.

2. Identify shop drawing details by reference to sheet and detail, or schedule shown on contract drawings.

3. Make drawings accurate to a scale with sufficient detail to show the kind, size, arrangement and function of component materials and devices.

4. Minimum sheet size is 8.5 inches by 11 inches.

5. Fabrication drawing size shall be 11 inches by 17 inches which shall be folded to 8.5 inches by 11 inches size.

6. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.

7. Mark each copy of each submittal to show which products and options are applicable.

8. Include the following information, as applicable:

a. Manufacturer's catalog cuts;

b. Standard color charts; and

c. Statement of compliance with specified referenced standards.

9. Submit Product Data before or concurrent with Samples.

10. Submit Product Data in the following format:

a. Electronically; and

b. Physical sample (such as geotextile fabric).

11. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.

12. Identification: Attach label on unexposed side of Samples that includes the following:

a. Generic description of Sample;

b. Product name and name of manufacturer;

c. Sample source;

d. Number and title of applicable Specification Section; and

e. Specification paragraph number and generic name of each item.

13. Provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.

14. Disposition: Maintain sets of approved Samples at Project site, available for quality control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.

b. Samples not incorporated into the Work, or otherwise designated as MDEQ's property, are the property of Contractor.

2.02 SCHEDULE OF VALUES SUBMITTAL

A. Contractor shall submit a Schedule of Values for all Lump Sum items in accordance with Specification 01 29 73 – SCHEDULE OF VALUES.

B. Approval of Schedule of Values must be approved by the Engineer/MDEQ prior to submittal of first payment request.

2.03 PAYMENT REQUEST

A. One (1) searchable PDF copy of each payment request must be submitted on the Application for Payment forms provided by or approved by MDEQ.

B. Each payment request shall include the following:

1. Payment form approved by MDEQ;

2. Updated Construction Schedule with updating report in accordance with Section 01 32 00 – CONSTRUCTION PROGRESS DOCUMENTATION;

3. Photographic Documentation in accordance with Section 01 32 33 – PHOTOGRAPHIC DOCUMENTATION;

4. Documentation of Environmental Permit Compliance Reporting in accordance with Section 01 35 43 – ENVIRONMENTAL PROTECTION and any issued permits associated with this Project;

5. Progress Payment Surveys; and

6. Request for contract extension due to unanticipated adverse weather delay days during the pay period along with supporting documentation in accordance with Paragraph 23 of Attachment F (Standard Contract Terms and Conditions).

2.04 OTHER SUBMITTALS

A. The Contractor shall also provide the following submittals prior to construction:

1. Certificates of insurance;

2. Surety bonds;

3. List of proposed subcontractors;

4. List of proposed products;

5. Construction Progress Schedule;

6. Submittal register;

7. Schedule of Values;

8. Health and safety plan;

9. Work plan;

10. Surveying Plan;

11. Quality Control Plan; and

12. Environmental Protection Plan.

B. Coordination Drawing Submittals: Comply with requirements specified in Section 01 31 00 – PROJECT MANAGEMENT AND COORDINATION.

C. Test and Inspection Reports and Schedule of Test and Inspection Submittals: Comply with requirements specified in Section 01 40 00 – CONTRACTOR QUALITY CONTROL.

D. As-built surveys in accordance with Section 01 32 23 – SURVEYS AND LAYOUT DATA.

E. Closeout Submittals: Comply with requirements specified in Section 01 77 00 – CLOSEOUT PROCEDURES.

F. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

PART 3 - EXECUTION

3.01 CONTRACTOR'S REVIEW

A. Submittals: The Contractor shall review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents, note corrections and field dimensions, and mark with an approval stamp before submitting to Engineer.

B. Project Closeout and Maintenance Material Submittals: See requirements specified in Section 01 77 00 - CLOSEOUT PROCEDURES.

C. Approval Stamp: Prior to submitting submittals to Engineer and MDEQ, stamp each submittal with the submittal stamp. Each submittal must include:

1. Project Name;

2. Submittal Number and Revision Number;

3. Specification Section; and

4. Contractor's approval and statement certifying that submittal has been reviewed and checked and approved for compliance with the Contract Documents. Incomplete submittals will be returned to the Contractor.

D. Submittal Log to be Maintained by Contractor:

1. Maintain an accurate submittal log for duration of the Work showing current status of all submissions;

2. Show submittal number, section number, section title, submittal description dates and disposition of submittal; and

3. Make submittal log available to Engineer for Engineer's review upon request.

3.02 ENGINEER'S DUTIES

A. The Engineer will review submittals in accord with approved submission schedule, provided that each submittal has been called for by the Contract Documents and is stamped by Contractor as indicated above.

1. No extensions of time are allowed due to Engineer's delay in reviewing submittals unless all the following criteria are met:

a. Contractor has notified Engineer in writing that timely review of particular submittal in question is critical to the progress of the Work and Contractor has identified the requested submittal return date;

b. Engineer has failed to return submittal within fourteen (14) working days of receipt of the submittal or receipt of said notice, whichever is later;

c. Contractor demonstrates that delay in progress of the Work was directly attributable to Engineer's failure to return submittal within fourteen (14) working days; and

d. Contractor demonstrates that submittal was submitted on schedule and that submittal review is on an item that is on the critical path as defined by the construction schedule provided in Section 01 32 00 – CONSTRUCTION PROGRESS DOCUMENTATION.

2. No extensions of time are allowed due to delays in progress of the Work caused by rejection and subsequent resubmission of data, including multiple resubmissions.

3. Engineer's review shall not extend to means, methods, techniques, sequences, operations of construction, and safety precautions and programs incidental thereto. No information regarding these items will be reviewed whether or not included in submittals.

4. In the event that Engineer will require more than fourteen (14) working days to perform review, Engineer shall so notify Contractor.

B. The Engineer will review drawings and data submitted only for general conformity with Contract Documents.

1. Engineer's review of drawings and data returned marked "No Exceptions Taken" or "Exceptions Noted" does not indicate a thorough review of all dimensions, quantities, and details of material, equipment device or items shown;

2. Engineer's review does not relieve Contractor of responsibility for errors, omissions or deviations nor responsibility for compliance with the Contract Documents;

3. The Engineer will consider and review only those deviations from the Contract Documents clearly identified as such on the submittal and tabulated on the Contractor's transmittal sheet.

C. The Engineer may return submittals unviewed to Contractor for distribution or for resubmission when:

1. The submittal was previously returned to the Contractor and no apparent changes have been made to the original submittal;

2. The submittal was provided by a subcontractor, supplier or manufacturer; or

3. The submittal is not required by the specific technical specification or contract documents.

D. The Engineer will affix a stamp and indicate the approval for submittal or resubmission requirements with the following stamp:

□ NO EXCEPTIONS TAKEN □ EXCEPTIONS NOTED

□ REVISE & RESUBMIT □ REJECTED

This review was performed only for general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. Modifications or comments made on the shop drawings and product data during this review do not relieve Contractor from responsibility for compliance with the requirements of the plans and specifications. Contractor is responsible for: dimensions and quantities; information that pertains solely to the fabrication processes or to the means, methods, of construction; coordination of the work of all trades.

ANCHOR QEA, LLC

Date By_____

3.03 DISPOSITION OF SHOP DRAWINGS AND PRODUCT DATA

A. "No Exceptions Taken": Approved with No Corrections Noted

1. One copy sent to MDEQ;
2. One copy sent to Resident Project Representative;
3. One copy retained in Engineer's file;
4. Remaining copies returned to Contractor for his use;
    a. One copy to be kept on file at Contractor's office at Project site;
    b. Remaining copies for Contractor's office file, suppliers, or subcontractors;
5. No corrections or comments noted on the submittal or on a Submittal Response Summary Sheet;
6. Issues or miscellaneous comments pertaining to other related items of the Work may be included in transmittal letter; and
7. Resubmission not required.

B. "Exceptions Noted": Approved with Corrections Noted:

1. One copy sent to MDEQ;
2. One copy sent to Resident Project Representative;
3. One copy retained in Engineer's file;

4. Remaining copies returned to Contractor for his use;

5. Comply with corrections or comments as noted on the submittal or on a Submittal Response Summary Sheet; and

6. Resubmission not required.

C. "Revise And Resubmit": Incorrect information provided or Significant Information Still Required:

1. One copy sent to Resident Project Representative;

2. One copy retained in Engineer's file;

3. All remaining copies returned to Contractor for revision and re-submittal;

4. Copy of transmittal letter and/or Submittal Response Summary Sheet sent to MDEQ. A "No Exceptions Taken" or "Exceptions Noted" submittal will be forwarded to MDEQ after review per above disposition requirements;

5. Submittal is either: incorrectly annotated; specific comments need to be addressed and incorporated in re-submittal; and/or additional information may be required as noted on the submittal or on a Submittal Response Summary Sheet;

6. Submitted information may not include or address specific item required per the specification as identified on the submittal or on a Submittal Response Summary Sheet;

7. Specific information related to identified item may be required for final approval of submittal; and

8. Resubmission of entire submittal may be required or resubmission of specific item may be required as identified on the submittal or on a Submittal Response Summary Sheet.

D. "Rejected": Returned for Correction:

1. One copy sent to Resident Project Representative;

2. One copy retained in Engineer's file;

3. All remaining copies returned to Contractor;

4. Copy of transmittal letter and/or Submittal Response sent to MDEQ;

5. Contractor required to resubmit complete submittal package in accordance with Contract Documents;

6. Submittal does not comply with provisions of Contract Documents as noted on the submittal or on a Submittal Response Summary Sheet; and

7. Resubmission required.

3.04 DISPOSITION OF SAMPLES

A. "No Exceptions Taken": Approved with No Corrections Noted:

1. One sample sent to MDEQ;

2. One sample sent to Resident Project Representative;

3. One sample retained in Engineer's file;

4. Acknowledgement: Copy of transmittal letter sent to Contractor; and

5. Resubmission not required.

B. "Exceptions Noted": Approved with Corrections Noted:

1. One sample sent to MDEQ;

2. One sample sent to Resident Project Representative;

3. One sample retained in Engineer's file;

4. Acknowledgement: Copy of transmittal letter sent to Contractor;

5. Work performed or products furnished to comply with exceptions noted in acknowledgement; and

6. Resubmission not required.

C. "Rejected": Returned for Correction:

1. One sample retained in Engineer's file;

2. Remaining samples sent to Contractor for resubmittal and compliance with the Contract Documents as noted in transmittal letter;

3. Copy of transmittal letter sent to MDEQ; and

4. Resubmission required.

END OF SECTION 01 33 00

SECTION 01 35 43

ENVIRONMENTAL PROTECTION

PART 1 - GENERAL

1.01 SUMMARY

A. This Section covers prevention of environmental pollution and damage as the result of construction operations under this Contract and for those measures set forth in other technical requirements of these Specifications. For the purpose of this Specification, environmental pollution and damage are defined as the presence of chemical, physical, or biological elements or agents, which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to man; or degrade the utility of the environment for aesthetic, cultural, and/or historical purposes. The control of environmental pollution and damage requires consideration of air, water, and land, and includes management of visual aesthetics, noise, solid waste, radiant energy, and radioactive materials, as well as other pollutants.

B. Contractor shall establish and maintain quality control for environmental protection of all items set forth herein. Contractor shall record on Daily Construction Report (per SECTION 01 32 00 – CONSTRUCTION PROGRESS DOCUMENTATION) or attachments thereto, any problems in complying with laws, regulations and ordinances, and corrective actions taken.

C. Contractor shall comply with all requirements under terms and conditions set forth in the following environmental permits and consultations authorized for this project:

1. Mississippi Department of Marine Resources File No. DMR-200009-1 (Appendix A)

2. U.S. Army Corps of Engineers File No. SAM-2019-00686-JRO, as issued (Appendix B)

3. Mississippi Department of Environmental Quality File No. WQC2019048 approved February 25, 2020 (Appendix C)

4. Endangered Species Act, Marine Mammal Protection Act, the Migratory Bird Treaty Act, and the Bald and Golden Eagle Protection Act Consultations with Department of the Interior (DOI), United States Fish and Wildlife Services (USFWS), National Oceanic and Atmospheric Administration and Approval Documentation (Appendix D)

5. DOI and Mississippi Department of Archives and History Section 106 of the National Historic Preservation Act Reviews and Documentation (Appendix E)

6. National Marine Fisheries Service Magnuson-Stevens Act (Essential Fish Habitat) Consultation and Approval Documentation (Appendix F)

7. National Environmental Policy Act (NEPA) Documentation (Appendix G)

D. Copies of the environmental permits and consultations are appended to these Contract Documents. The Contractor shall familiarize himself and his personnel and subcontractors with these and any other permits issued for this Project and comply with all requirements under the terms and conditions set forth therein. The Contractor shall be responsible for any fines resulting from violations of construction conditions set forth in the environmental permits. The Contractor shall include all costs for preparation and submittal of required reporting within each relative bid item. It is the Contractor's responsibility to obtain all other relevant federal, state, and local permits at no cost to MDEQ. The Contractor shall be responsible for any delays and costs resulting from failure to comply with these and all federal, state, and local environmental protection laws and regulations.

1.02 RELATED SECTIONS:

A. Section 01 32 00 – Construction Progress Documentation

B. Section 01 32 23 – Surveys and Layout Data

C. Section 01 33 00 – Submittal Procedures

D. Section 01 40 00 – Contractor Quality Control

1.03 SUBMITTALS

A. The following submittals shall be submitted by the Contractor in accordance with SECTION 01 33 00 – SUBMITTAL PROCEDURES.

B. Environmental Protection Plan: Within 10 calendar days after the Notice of Award, the Contractor shall submit in writing an Environmental Protection Plan (EPP). Acceptance of the Contractor's plan shall not relieve the Contractor of its responsibility for adequate and continuing control of pollutants and other environmental protection measures. Acceptance of the EPP is conditional and predicated on satisfactory performance during construction. The Engineer reserves the right to require the Contractor to make changes to the EPP or operations if the Engineer determines that environmental protection requirements are not being met. No physical work at the site shall begin prior to acceptance of the Contractor's Plan by the Engineer. The EPP shall include but not be limited to the following:

1. A list of federal, state, and local laws, regulations, and permits concerning environmental protection, pollution control, and abatement that are applicable to the Contractor's proposed operations and the requirements imposed by those laws, regulations and permits in addition to any required by this Contract.

2. Methods for protection of features and resources to be preserved within and adjacent to the work areas. The Contractor shall prepare a listing of methods to protect resources needing protection (i.e., upland and submerged vegetation, air and water quality, fish and wildlife, soil, historical, archeological, and cultural resources).

3. Procedures to be implemented to provide the required environmental protection and to comply with the applicable laws and regulations. The Contractor shall provide written assurance that immediate corrective action will be taken to correct pollution of the environment due to accident, natural causes, or failure to follow the procedure set out in accordance with the environmental protection plan.

4. The location of the solid waste disposal facility used for disposal of solid wastes resulting from this Project.

5. Drawings showing locations of any material storage areas, structures, sanitary facilities, fleeting areas (existing and proposed), and stockpiles of excess materials for both onshore and offshore facilities.

6. Environmental monitoring plans for the job site, including land, water, air, and noise monitoring.

7. Methods for protecting surface and groundwater during construction activities, including how impacts to water quality will be minimized, including methods for monitoring water quality, best management practices (BMPs), and methods for monitoring and controlling turbidity.

8. Spill Prevention Plan. The Contractor shall specify all potentially hazardous substances to be used on the job site and intended actions to prevent accidental or intentional introduction of such materials into the air, ground, water, wetlands, or drainage areas. The plan shall specify the Contractor's provisions to be taken to meet federal, state, and local laws and regulations regarding labeling, storage, removal, transport, and disposal of potentially hazardous substances.

9. Spill Contingency Plan for cleaning up any spilled or released hazardous, toxic or petroleum material associated with any facilities used on this Project.

10. Work area plan showing the proposed activity in each portion of the area and identify the areas of limited use or non-use. The plan should include measures for marking the limits of use areas.

11. A statement identifying the Contractor's personnel who shall be responsible for implementation of the Environmental Protection Plan. The Contractor's personnel responsible shall report directly to the Contractor's top management and shall have the authority to act for the Contractor in all environmental protection matters.

12. Emergency contact information (office phone number, cell phone number, and email address) for Contractor personnel, including the person responsible for environmental compliance for the Work, the on-site Construction Superintendent, the Project Manager, and other relevant parties.

13. Emergency contact information for MDEQ and the Engineer (to be provided at the Preconstruction Meeting).

14. A Certification Letter must be signed acknowledging the Contractor has a copy of all environmental permits applicable to the project and understands the conditions in the permits. The Certification Letter (see Appendix H) shall be attached to the Environmental Protection Plan.

C. Turbidity Monitoring Qualifications: Within 10 calendar days after the Notice of Award, the Contractor shall submit qualifications for the person that is designated as the turbidity monitor for the Project. The person must be familiar with both turbidity monitoring and construction techniques and have the authority to alter and/or shut-down operations if turbidity levels exceed the compliance standards established.

D. Turbidity Monitoring Reports: During construction, the Contractor shall submit daily monitoring reports containing the turbidity data gathered. Monitoring shall occur at the construction site. Monitoring reports shall be submitted to the Engineer, Construction Quality Control (CQC) System Manager, and other parties as deemed necessary via email on a daily basis. All reports shall contain the following information:

1. Time of day samples were taken;
2. Dates of sampling and analysis;
3. Depth of water body;
4. Depth of each sample;
5. Antecedent water conditions, including wind direction and velocity;
6. Tidal stage and direction of flow;
7. Water temperature;
8. Map indicating sampling locations and direction of flow;
9. Statement describing the methods used in collection, handling, storage, and analysis of the samples;
10. Statement by the individual responsible for implementation of the sampling program concerning the authenticity, precision, limits of detection, calibration of the meter and accuracy of the data; and
11. When samples cannot be collected, include an explanation in the report. If unable to collect sample due to severe weather conditions, include a copy of a current report from a reliable, independent source, such as an online weather service.

1.04 SUBCONTRACTORS

A. Assurance of compliance with this section by subcontractors will be the responsibility of Contractor.

1.05 TRAINING OF CONTRACTOR PERSONNEL IN POLLUTION CONTROL

A. Contractor shall train his personnel in all phases of environmental protection. The training shall include methods of detecting and avoiding pollution, familiarization with pollution standards, both statutory and contractual, and installation and care of facilities to ensure adequate and continuous environmental pollution control. Quality Control and supervisory personnel shall be thoroughly trained in the proper use of monitoring devices and abatement equipment, and shall be thoroughly knowledgeable of federal, state, and local laws, regulations, and permits as listed in the EPP submitted by Contractor. Quality Control personnel will be identified in the Quality Control Plan submitted in accordance with SECTION 01 40 00 - CONTRACTOR QUALITY CONTROL.

1.06 NONCOMPLIANCE

A. The Engineer or CQC System Manager, as defined in SECTION 01 40 00 - CONTRACTOR QUALITY CONTROL, will notify the Contractor of any observed noncompliance with the aforementioned federal, state, or local laws or regulations, permits and other elements of the Contractor's EPP. The Contractor shall, after receipt of such notice, inform the Engineer of proposed corrective action and take such action as may be approved. Corrective actions shall be in compliance with the aforementioned federal, state, or local laws or regulations, permits and other elements of the Contractor's EPP. If the Contractor fails to comply promptly, the Engineer may issue an order stopping all or part of the Work until satisfactory corrective action has been taken. No time extensions shall be granted, or costs or damages allowed to the Contractor for any such suspension.

B. Monitoring of permit and/or regulation compliance by the Engineer is for the sole benefit of MDEQ and shall not relieve the Contractor of the responsibility of knowing and complying with all local, state, and federal laws and regulations concerning the protection of environmental resources, nor does it relieve the Contractor of the responsibility of ensuring that all environmental permit requirements governing the project work are met.

C. The Contractor shall notify the Engineer, in writing, of the absence or occurrence of environmental incidents and also include in the Daily Construction Report in accordance with SECTION 01 32 00 - CONSTRUCTION PROGRESS DOCUMENTATION.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.01 PROTECTION OF ENVIRONMENTAL RESOURCES

A. General - For Contract work, the Contractor shall comply with all applicable federal, state, and local laws and regulations. The environmental resources within the project boundaries and those affected outside the limits of permanent work under this Contract shall be protected during the entire period of this Contract. Contractor shall confine his activities to areas defined by the Drawings and Specifications. Prior to construction, Contractor shall stake out areas not to receive stone placement in accordance with SECTION – 01 32 23 SURVEYS AND LAYOUT DATA. Environmental protection shall be as stated in the following paragraphs. Failure to meet the requirements of these Specifications for environmental protection may result in Work stoppages or termination for default. No part of the time lost due to any such Work stoppages shall be made the subject of claims for extensions of time or for excess costs or damages by Contractor. If Contractor fails or refuses to promptly repair any damage caused by violation of provisions of these Specifications, MDEQ may have the necessary Work performed and charge the cost thereof to Contractor.

3.02 PERMIT CONDITIONS – CORPS OF ENGINEERS PERMITS - TBC WITH PERMIT

A. In addition to environmental conditions listed in permits and consultation documents listed in 1.01C, contractor shall comply with Corp Permits Conditions presented in this section.

B. General Conditions

1. The Contractor must maintain the activity authorized by the Corps of Engineers Permit in good condition and in conformance with the terms and conditions of the permit. The Contractor is not relieved of this requirement if he abandons the permitted activity.

2. If the Contractor discovers any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, he must immediately notify the Engineer of what he has found. The Engineer will notify the Corps and the Corps 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.

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

4. The Contractor must allow representatives from the Corps 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 the permit.

C. Special Conditions

1. The Contractor shall comply with all requirements of the Mississippi Department of Environmental Quality 401 Water Quality Certification (WQC2019048) dated February 25 2020 (Appendix C).

2. The Contractor shall comply with all requirements of the Mississippi Department of Marine Resources Coastal Zone Consistency Determination (DMR-200009-1) (Appendix A).

3. Best management practices shall be implemented to minimize erosion, siltation damage to adjacent wetlands and waters of the United States and submerged aquatic vegetation. All in-water project work will be conducted during daylight hours, and noise will be kept to the minimum feasible level. All vessels/barges will travel at slow speed in and around construction zones (5 knots or less).

4. Prior to bringing any equipment (including personal gear, machinery, vehicles, or vessels) to the work site, each item shall be inspected for mud or soil, seeds, and vegetation. If present, the equipment, vehicles, or personal gear shall be cleaned until they are free from mud, soil, seeds, and vegetation. This inspection will occur each time equipment, vehicles, and personal gear are being prepared to go to a site or prior to transferring between sites to avoid spreading exotic, nuisance species.

5. The contractor must install and maintain any safety lights, signs, and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, on the permitted facilities.

D. Further Information

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

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

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

2. Limits of this authorization.

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

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

    3) This permit does not authorize any injury to the property rights of others.

    4) 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:

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

    2) 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.

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

4) Design or construction deficiencies associated with the permitted work.

5) Damage claims associated with any future modification, suspension, or revocation of this permit.

3.03 PRESERVATION AND RECOVERY OF HISTORIC, ARCHEOLOGICAL, AND CULTURAL RESOURCES

A. Inadvertent Discoveries - If, during construction activities, Contractor observes items that may have historic or archeological value, such observations shall be reported immediately to Engineer so that the appropriate authorities may be notified and a determination made as to their significance and what, if any, special disposition of the finds should be made. Contractor shall cease all activities that may result in the destruction of these resources and shall prevent his employees from trespassing on, removing, or otherwise damaging such resources.

B. Claims for Downtime due to Inadvertent Discoveries - Upon discovery and subsequent reporting of a possible inadvertent discovery of cultural resources, the Contractor shall seek to continue work well away from, or otherwise protectively avoiding, the area of interest, or in some other manner that strives to continue productive activities in keeping with the Contract. Should an inadvertent discovery be of the nature that substantial impact(s) to the work schedule are evident; such delays shall be coordinated with the Engineer.

3.04 PROTECTION OF RESOURCES (ADDITIONAL ANCHORAGE/STAGING, IF REQUIRED BY CONTRACTOR)

A. If Contractor requires any anchorage or staging area(s), Contractor, at his expense, shall be responsible for all approvals including environmental permitting, consultations, and coordination necessary to gain approval for use of the area(s) from appropriate authorities (e.g. U.S. Army Corps of Engineers, U.S Coast Guard, Mississippi Department of Archives and History). Since MDEQ is the Permittee (USACE Permit SAM-2019-00686-JRO), Contractor shall notify MDEQ of its intention to pursue approvals for any anchorage or staging area(s), **prior to initiating approvals** or contacting any regulatory authorities. Contractor shall engage qualified third-party expertise for biological, cultural, engineering or other for engineering, studies and surveys required for approvals. Contractor shall provide documentation to Engineer and MDEQ that the proposed anchorage or staging area(s) has all approvals prior to using area(s). Contractor shall not be granted any delay in project schedule in order to gain approval.

3.05 PROTECTION OF WETLANDS

A. The Contractor shall protect all wetlands adjacent to the work area from his operations. There shall be no storage of tools, materials within wetlands, along the shoreline in the littoral zone, or elsewhere within "waters of the state" except as specified in the project Specifications and/or Drawings.

3.06 PROTECTION OF LAND RESOURCES

A. Before beginning any construction, Contractor shall identify all land resources to be preserved within Contractor's work area. Contractor shall not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, topsoil, and landforms outside of the project area without special permission from Engineer. No ropes, cables, or guys shall be fastened to or attached to any trees for anchorage unless specifically authorized. Contractor shall provide effective protection for land and vegetation resources at all times as defined in the following subparagraphs.

B. Monuments and markers shall be protected before construction operations commence. Where construction operations are to be conducted during darkness, the markers shall be visible. The Contractor shall convey to his personnel the purpose of marking and/or protection of all necessary objects.

C. Solid wastes (excluding clearing debris) shall be placed in containers that are emptied on a regular schedule. All handling and disposal shall be conducted to prevent contamination. The Contractor shall transport all solid waste from the project area and dispose of it in compliance with federal, state, and local requirements for solid waste disposal. Discarded materials, other than those that can be handled in the solid waste category, will be handled as directed by the Engineer.

D. Fuel dispensers shall have a 4-foot square, 16-gauge metal pan with borders banded up and welded at corners right below the bib. Edges of the pans shall be 8-inch minimum in depth to ascertain that no contamination of the ground or water takes place. Pans shall be cleaned by an approved method immediately after every dispensing of fuel and wastes disposed of offsite in an approved area. Contractor shall select and implement controls and procedures to minimize leaking or spilling of fuels during fueling of vehicles or equipment. Should any spilling of fuel occur, the Contractor shall immediately recover the contaminated ground and/or water and dispose of it offsite in an approved area.

E. Chemical waste shall be stored in corrosion resistant containers, removed from the work area and disposed of in accordance with Federal, state, and local regulations.

F. Discarded materials other than those that can be included in the solid waste category shall be handled as directed.

3.07 PROTECTION OF WATER RESOURCES

A. The Contractor shall keep construction activities under surveillance, management, and control to avoid pollution of surface and groundwaters. The Contractor shall conduct his operations in a manner to minimize erosion and turbidity and shall conform to all water quality standards as required by the permits and all other relevant federal, state and local regulatory criteria. Special management techniques as set out below shall be implemented to control water pollution by the listed construction activities that are included in this contract. In the event of unforeseen conditions, the Engineer may require the use of control features or methods other than those indicated or proposed by the Contractor.

B. No creosote material shall be used in construction.

C. No construction debris, refuse, or unauthorized fill material shall be allowed to enter coastal wetlands or waters.

D. Turbidity Control

1. Turbidity shall be monitored in accordance with permit requirements, techniques described below, and in the approved EPP:

1) Turbidity Threshold Value - Turbidity shall not exceed a value of 50 nephelometric turbidity units (NTUs) above background outside of the limits of a 750-foot mixing zone. If a turbidity reading is more than 50 NTUs above the threshold reading, this will be a trigger to evaluate construction activities. Background reading shall mean a turbidity measurement in an area unimpacted by these construction activities.

2) If a turbidity measurement exceeds the standard established herein, the turbidity will be measured at the same location after 4 hours. If the turbidity measurement is confirmed, the Contractor shall implement BMPs as described in the approved EPP.

3) The Contractor shall perform turbidity monitoring on a frequency established in the approved EPP, but not less than daily, unless weather conditions are not suitable for obtaining turbidity readings. If so, this will be noted on the daily report.

4) Turbidity monitoring will resume on the approved schedule after BMPs are implemented. If the turbidity standard is exceeded after BMPs are implemented, the Contractor shall cease operations associated with the excessive turbidity or implement additional BMPs to reduce resuspension of sediment.

2. Delays in work due to the fault or negligence of the Contractor or the Contractor's failure to comply with the required turbidity requirements shall not be compensable.

E. Washing Water

1. Wastewaters directly derived from construction activities shall not be allowed to enter surface water areas.

2. The Contractor shall provide siltation fences, hay bales, and other means and materials to prevent the pollution streams, canals, lakes, ditches, rivers, and other water improvements including on-site retention containers/areas from siltation from leakage, erosion, run off, and other construction activities. The Contractor is responsible for arranging for proper clean out facilities.

3. The Contractor shall take sufficient precautions to prevent discharge of fuels, oils, and other harmful materials to the surface and ground water.

F. Oil and Fuel Spill Prevention

1. Contractor will prevent oil or other hazardous substances from entering the ground, drainage, or local bodies of water. Contractor will provide containment, diversionary structures, or equipment to prevent discharged oil from reaching a watercourse. Contractor will take immediate action to contain and clean up any spill of oily substances, petroleum products, and hazardous substances. Contractor will immediately report such spills to the Engineer. Contractor will provide one or more of the following preventive systems at each oil storage site. The provision of such preventive systems shall be approved by the Engineer prior to tank installation and use.

2. Dikes, berms, retaining walls, culverts, curbs, gutters, or other similar structures shall be capable of containing the contents of the largest single tank.

3. Absorbent materials shall be capable of absorbing the contents of the largest single tank.

G. Oil or Fuel Storage Tank Installation: All storage tank installation shall be constructed so that a secondary means of containment is provided for the entire contents of the tanks installed. Dikes and other structures shall be positioned or located so as to provide a secondary containment identical to that required for non-mobile storage tanks. Storage tanks shall be located where they will not be subject to flooding or washout. When it is determined that the installation of containment structures or equipment to prevent discharged oil from reaching a watercourse is not practicable, a clear demonstration of such impracticability shall be submitted to the Engineer for approval prior to installation or use of the storage tank. The following shall also be provided to the Engineer for approval prior to installation use of the storage tank:

1. An oil spill contingency plan, either contained within or separate from the EPP.

2. A written certification of commitment of manpower, equipment, and materials required to expeditiously control and remove the discharge oil.

H. Liabilities: Contractor shall be liable for the damage caused by oil or fuel spills when it can be shown that the oil or fuel was discharged as a result of negligence or willful misconduct. The penalty for failure to report the discharge of oil or fuel shall be in accordance with state and federal laws.

3.08 PROTECTION OF FISH AND WILDLIFE RESOURCES

A. Contractor shall keep construction activities under surveillance, management, and control to minimize interference with, disturbance to, and damage of fish, shellfish beds, and wildlife. The conditions and constraints of the Migratory Bird Treaty Act are also applicable (see Appendix D). Species that require specific attention along with measures for their protection will be listed in Contractor's EPP prior to the beginning of construction operation.

B. In the event that a migratory bird, threatened or endangered species is harmed because of construction activities, the Contractor shall cease all work and notify the Engineer. The Engineer will provide emergency contact information at the Pre-Construction Meeting.

C. Night operations are not allowed at the site.

3.09 PROTECTION OF AIR RESOURCES

A. The Contractor shall keep construction activities under surveillance, management, and control to minimize pollution of air resources. All activities, equipment, processes and work operated or performed by the Contractor in accomplishing the specified construction shall be in strict accordance with the applicable air pollution standards of the State of Mississippi and all federal emission and performance laws and standards.

B. Dust Control: As determined and deemed necessary by the Engineer, the Contractor must control dust, and strictly adhere to environmental laws and regulations regarding dust prevention.

C. Contractor will minimize air pollution from the construction activities.

D. Burning of waste materials, rubbish, or other debris will not be permitted on or adjacent to the site.

E. Tanks and containers of fuels and related products shall be controlled to minimize the emission of volatile organic compounds.

F. Equipment should not be allowed to idle longer than one 1 hour. Equipment not in use after this time frame shall be turned off.

3.10 PROTECTION FROM SOUND INTRUSIONS

A. The Contractor shall keep construction activities under surveillance and control to minimize damage to the environment by noise and to comply with all federal, state, and local noise ordinances. The use of horns, bells or the use of whistle signals shall be held to a minimum necessary in order to ensure as safe and as quiet an operation as possible.

3.11 POST CONSTRUCTION CLEANUP

A. The Contractor shall clean up any area(s) used for construction to the satisfaction of the Engineer and MDEQ.

3.12 MAINTENANCE OF POLLUTION CONTROL FACILITIES

A. The Contractor shall, at his expense, provide routine maintenance of permanent and temporary erosion control features until the Project is completed and accepted. If such erosion control features must be reconstructed due to the Contractor's negligence, carelessness, or in the case of temporary erosion control features, failure by the Contractor to install permanent erosion control features as scheduled, such replacement shall be on the Contractor's expense.

B. If the Contractor through any construction activity degrades, destroys, or impacts the ground cover on any adjoining property including rights-of-way, effected area shall be fully repaired and re-vegetated at the Contractor's expense

END OF SECTION 01 35 43

SECTION 01 40 00

CONTRACTOR QUALITY CONTROL

PART 1 - GENERAL

1.01 SUMMARY

A. This section covers the establishment and operation of the Contractor's Quality Control (CQC) system. The Contractor shall coordinate activities and manage resources to construct the project conforming to the Contract, on time and within budget.

B. Separate payment will not be made for providing and maintaining an effective CQC program, and all costs associated therewith shall be included in the applicable prices contained in the Bid Form (Attachment D).

1.02 Related Sections:

A. Attachment F – Standard Contract Terms and Conditions

B. Section 01 20 00 – Measurement and Payment Procedures

C. Section 01 31 00 – Project Management and Coordination

D. Section 01 32 00 – Construction Progress Documentation

E. Section 01 33 00 – Submittal Procedures

F. Section 01 77 00 – Closeout Procedures

1.03 REFERENCES

A. American Society for Testing and Materials (ASTM)

1. ASTM D-370 - Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.

2. ASTM E-329 - Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction.

1.04 SUBMITTALS

A. The following submittals shall be submitted by the Contractor in accordance with SECTION 01 33 00 – SUBMITTAL PROCEDURES.

1. Contractor Quality Control Plan - Within twenty (20) calendar days of Notice of Award, the Contractor shall submit the draft Contractor Quality Control (CQC) Plan for review and acceptance by the Engineer and MDEQ. The plan shall identify personnel, procedures, control, instructions, tests, records, and forms to be used. MDEQ will consider an interim plan for the first 30 days of operation. Construction will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started. The CQC shall be integrated with the Contractor's Work Plan and address each step of the Work Plan.

2. Registered Surveyor Qualifications - The Contractor shall submit the name and credentials of the third-party Mississippi Registered Surveyor consultant and personnel who will be performing the surveying portions of the contract work for Engineer approval. The company and personnel shall show experience in this type of work. The submittal must provide the name and type of equipment used for the Project. All pre-construction surveys and as-built surveys shall be overseen by a Mississippi Registered Professional Surveyor.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.01 GENERAL REQUIREMENTS

A. The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in accordance with these specifications. The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction operations, both onsite and offsite, and shall be keyed to the proposed construction sequence. The site project superintendent will be held responsible for the quality of work on the job and is subject to removal by the Engineer and/or MDEQ for non-compliance with quality requirements specified in the Contract. The site project superintendent shall mean the individual with the responsibility for the overall management of the project, including quality and production. The site project superintendent shall maintain a physical presence at the site at all times, except as otherwise acceptable to MDEQ, and shall be responsible for all construction and construction related activities at the site.

3.02 CONTRACTOR QUALITY CONTROL PLAN

A. Content of the CQC Plan - The CQC Plan shall include, as a minimum, the following to cover all construction operations, both on-site and off-site, including work by subcontractors, fabricators, suppliers, and purchasing agents:

1. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff shall implement the three-phase control system for all aspects of the work specified. The staff shall include a CQC System Manager who shall perform Contractor's duties in tandem with those who report to the Project superintendent and with direct reporting responsibility to an officer of the prime Contractor and/or an individual not directly responsible for production. Additionally, a qualified Mississippi Registered Surveyor is required for all pre-construction and as-built surveys.

2. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.

3. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the Contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters shall also be furnished to MDEQ.

4. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, off-site fabricators, suppliers, and purchasing agents. These procedures shall be in accordance with SECTION 01 33 00 - SUBMITTAL PROCEDURES.

5. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. Laboratory facilities approved by MDEQ shall be used.

6. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.

7. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures shall establish verification that identified deficiencies have been corrected.

8. Daily and weekly reporting procedures, including proposed reporting formats for the report and monitoring surveys.

9. A list of the definable features of work associated with this project. A definable feature of work is a task that is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there is frequently more than one definable feature under a particular section. The list of definable features of work will be agreed upon during the Coordination Meeting.

B. Acceptance of CQC Plan

1. Acceptance of the CQC plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. Engineer reserves the right to require the Contractor to make changes to Contractor's CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

C. Failure to Submit Acceptable CQC Plan

1. If the Contractor fails to submit an acceptable draft CQC plan within the time prescribed, construction SHALL NOT start. If an acceptable final plan is not submitted within a reasonable time, as determined by the Engineer, the Engineer may order the Contractor to stop work until such time as an acceptable plan has been submitted. Any such stop work order shall not be considered a suspension of work for an unreasonable period of time under Section 37 of the Standard Contract Terms and Conditions of MDEQ (Attachment F) and the Contractor shall not be entitled to pay adjustments as a result of the stop work order. Failure to comply with the above requirements within the time prescribed will be considered a condition endangering the performance of the Contract and may be considered grounds for termination of the Contract in accordance with Section 38 in the Standard Contract Terms and Conditions of MDEQ (Attachment F).

D. Notification of Changes

1. After acceptance of the CQC Plan, the Contractor shall notify MDEQ in writing of any proposed change. Proposed changes are subject to acceptance by MDEQ.

3.03 COORDINATION MEETING

A. After award of the Contract, but before physical work starts and before the acceptance by MDEQ of the CQC Plan, the Contractor shall meet with MDEQ and discuss the Contractor's quality control system. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, control activities, testing, administration of the system for both on-site and off-site work, and the interrelationship of Contractor's Management and control with MDEQ's Quality Assurance. Minutes of the meeting shall be prepared by MDEQ and signed by both the Contractor and MDEQ. The minutes shall become a part of the Contract file. There may also be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures that may require corrective action by the Contractor.

3.04 QUALITY CONTROL ORGANIZATION

A. General

1. The requirements for the CQC organization are a CQC System Manager and sufficient number of additional qualified personnel to ensure safety and Contract compliance. The Health and Safety Manager shall receive direction and authority from the CQC System Manager and shall serve as a member of the CQC staff. Personnel identified in the technical provisions as requiring specialized skills to assure the required work is being performed properly will also be included as part of the CQC organization. The CQC staff shall maintain a presence at the site at all times during progress of the Work and have complete authority and responsibility to take any action necessary to ensure Contract compliance. The CQC staff shall be subject to acceptance by MDEQ. The Contractor shall provide adequate office space, filing systems, and other resources as necessary to maintain an effective and fully functional CQC organization.

2. Complete records of all letters, material submittals, shop drawing submittals, schedules and all other project documentation shall be promptly furnished to the CQC organization by the Contractor. The CQC organization shall be responsible to maintain these documents and records at the site at all times, except as otherwise acceptable to MDEQ.

B. CQC System Manager

1. The Contractor shall identify as CQC System Manager an individual within the on-site work organization who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. The CQC System Manager shall have a minimum of eight (8) years of experience in related work and shall have completed the course entitled “Construction Quality Management for Contractors” or equivalent. The course is periodically offered at the Mobile District United States Army Corps of Engineers.

2. This CQC System Manager shall be on the site at all times during construction and shall be employed by the prime Contractor. The CQC System Manager shall be assigned as System Manager but may have duties as project superintendent in addition to quality control. An alternate for the CQC System Manager, having a minimum of three (3) years of experience, shall be identified in the plan to serve in the event of the primary CQC System Manager absence.

C. CQC Personnel

1. A staff shall be maintained under the direction of the CQC System Manager to perform all CQC activities. The staff must be of sufficient size to ensure adequate CQC coverage of all work phases, work shifts, and work crews involved in the construction. These personnel may perform other duties but must be fully qualified by experience and technical training to perform their assigned CQC responsibilities and must be allowed sufficient time to carry out these responsibilities. The CQC plan will clearly state the duties and responsibilities of each staff member.

D. Organizational Changes

1. The Contractor shall maintain the CQC staff at full strength at all times. When it is necessary to make changes to the CQC staff, the Contractor shall revise the CQC Plan to reflect the changes and submit the changes to MDEQ for acceptance.

E. Third-Party Registered Surveyor Consultant

1. The Contractor shall obtain a qualified independent Mississippi Registered Surveyor to perform pre-construction surveys and as-built surveys required to carry out the Project Work. The Registered Surveyor should have at least 10 years of relevant bathymetric survey experience. Relevant experience shall include hydrographic and topographic surveying of soft sediments and rock structures in accordance with the U.S. Army Corps of Engineer standards.

2. The Registered Surveyor shall certify all field notes, computations, and all other records relating to surveys of the Work.

3. The Registered Surveyor must have appropriate equipment (i.e., heave, pitch, and roll compensator) to be able to work within inclement weather conditions.

3.05 CONTROL

A. Contractor Quality Control is the means by which the Contractor ensures that the construction, including that of subcontractors and suppliers, complies with the requirements of the Contract. At least three phases of control shall be conducted by the CQC System Manager for each definable feature of the construction work as follows:

1. Preparatory Phase: This phase shall be performed prior to beginning work on each definable feature of Work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase shall include:

    a. A review of each paragraph of applicable specifications, reference codes, and standards. A copy of those sections of referenced codes and standards applicable to that portion of the Work to be accomplished in the field shall be made available by the Contractor at the preparatory inspection. These copies shall be maintained in the field and available for use by MDEQ personnel until final acceptance of the Work.

    b. A review of the Contract Drawings.

    c. A check to assure that all materials and/or equipment have been tested, submitted, and approved.

    d. Review of provisions that have been made to provide required control inspection and testing.

    e. Examination of the Work area to assure that all required preliminary Work has been completed and is in compliance with the Contract.

    f. A physical examination of required materials, equipment, and sample Work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.

    g. A review of the appropriate activity hazard analysis to assure safety requirements are met.

    h. Discussion of procedures for controlling quality of the Work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.

    i. A check to ensure that the portion of the plan for the Work to be performed has been accepted by MDEQ.

    j. Discussion of the initial control phase.

    k. MDEQ shall be notified at least 24 hours in advance of beginning the preparatory control phase. This phase shall include a meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CQC System Manager and attached to the daily CQC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet Contract Specifications.

2. Initial Phase: This phase shall be accomplished at the beginning of a definable feature of Work. The following shall be accomplished:

    a. Check Work to ensure that it is in full compliance with Contract requirements. Review minutes of the preparatory meeting.

b. Verify that facilities adequacy of controls to ensure full Contract compliance. Verify required control inspection and testing equipment are available and comply with testing standards.

c. Check test instruments calibration data against certified standards.

d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, are prepared in accordance with Contract requirements.

e. Record results of tests and monitoring instruments, both passing and failing, on the CQC report for the date taken. The specification paragraph reference, location where tests were taken, and the sequential control number identifying the test shall be given. If approved by Engineer, actual test reports may be submitted later with a reference to the test number and date taken. An information copy of test performed by an off-site or commercial test facility shall be provided directly to the Engineer. Failures to submit timely test reports as stated or maintain adequate monitoring testing may result in nonpayment for related Work performed and disapproval of the test facility for this Contract.

f. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards.

g. Resolve all differences.

h. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.

i. Notify MDEQ at least 24 hours in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the CQC System Manager and attached to the daily CQC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.

j. Repeat the initial phase for each new crew to work on site, or any time acceptable specified quality standards are not being met.

3. Follow-up Phase: Daily checks shall be performed to assure control activities, including control testing, are providing continued compliance with Contract requirements, until completion of the particular feature of Work. The checks shall be made a matter of record in the CQC documentation. Final follow-up checks shall be conducted, and all deficiencies corrected prior to the start of additional features of Work that may be affected by the deficient Work. The Contractor shall not build upon nor conceal non-conforming work.

B. Additional Preparatory and Initial Phases: Additional preparatory and initial phases shall be conducted on the same definable features of Work if: the quality of on-going Work is unacceptable; if there are changes in the applicable CQC staff, on-site production supervision or work crew; if Work on a definable feature is resumed after a substantial period of inactivity; or if other problems develop.

3.06 COMPLETION INSPECTION

A. Punch-Out Inspection: Near the end of the Work, or any increment of the Work, MDEQ or CQC Manager shall conduct an inspection of the Work. A punch list of items that do not conform to the approved Drawings, Specifications, and work plan shall be prepared and included in the CQC documentation, as required by paragraph 3.07 DOCUMENTATION. The list of deficiencies shall include the estimated date by which the deficiencies will be corrected. The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected. Once this is accomplished, the Contractor shall notify MDEQ that the Work is ready for "Pre-Final" inspection.

B. Pre-Final Inspection: The Engineer may perform a Pre-Final Inspection to verify that the Work is complete. The Contractor's CQC Manager shall ensure that all items identified as needing completion or corrections have been addressed before requesting a Final Inspection. Any items noted on the Pre-Final Inspection shall be corrected in a timely manner. These inspections and any deficiency corrections required shall be accomplished within the time slated for completion of the entire work or any particular increment thereof if the Project is divided into increments by separate completion dates.

C. Final Acceptance Inspection: The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, and Engineer's representative shall be in attendance at this inspection. Additional MDEQ personnel and other agencies may also be in attendance. The Final Acceptance Inspection will be formally scheduled by the Engineer based upon results of the Pre-Final inspection. Notice shall be given to the Engineer at least 14 days prior to the Final Acceptance Inspection and shall include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the Contract, will be complete and acceptable by the date scheduled for the Final Acceptance Inspection. Failure of Contractor to have all Work acceptably complete for this inspection will be cause for MDEQ to bill the Contractor for MDEQ's additional inspection cost in accordance with SECTION 01 77 00 CLOSEOUT PROCEDURES.

3.07 DOCUMENTATION

A. The Contractor shall maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers and shall be documented as described in SECTION 01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION.

3.08 NOTIFICATION OF NONCOMPLIANCE

A. MDEQ will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the Work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, MDEQ may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

END OF SECTION 01 40 00

SECTION 01 77 00

CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.01 REQUIREMENTS

A. Comply with requirements stated in the Agreement (Section 00 52 15), the Standard Contract Terms and Conditions (Attachment F of Invitation for Bids) and all Specifications of these Contract Documents.

1.02 RELATED SECTIONS

A. Section 01 29 00 – Payment Procedures

B. Section 01 33 00 – Submittal Procedures

C. Section 01 32 23 – Surveys and Layout Data

D. Section 01 32 33 – Photographic Documentation

E. Section 01 40 00 – Contractor Quality Control

1.03 CLOSEOUT PROCEDURES

A. Contractor will comply with requirements stated in these specifications for administrative procedures in closing out the Work.

B. Contractor will submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Engineer's inspection.

C. Contractor will provide submittals to Engineer/MDEQ that are required by governing or other authorities.

D. Contractor will submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

1.04 FINAL INSPECTION AND REMOVAL OF ALL CONSTRUCTION EQUIPMENT AND ANCILLARY FACILITIES

A. When Contractor considers the Work is complete, Contractor shall submit written certification that:

1. Contract Documents have been reviewed.

2. Work is ready for a final inspection and completed punch list in accordance with Paragraph 3.06 of Section 01 40 00 – CONTRACTOR QUALITY CONTROL.

B. When the Engineer finds that the Work is acceptable under the Contract Documents, Engineer shall request the Contractor to make closeout submittals in accordance with 1.05 below.

C. In the event that the Final Inspection concludes that the construction progress does not meet completion status, the Contractor will be required to reimburse MDEQ for all costs associated with the Final Inspection inclusive of payroll expenses of any Engineer or regulatory MDEQ staff involved, equipment rentals and any travel related expenses. Contractor may pay for these additional expenses directly to MDEQ or have the expenses deducted from the final payment.

1.05 CONTRACTOR'S CLOSEOUT SUBMITTALS

Contractor will provide as closeout submittals the following:

A. Evidence of Payment to subcontractors and suppliers and Release of Liens.

B. Final inspection report by the Engineer recommending MDEQ's final approval.

C. At Contract close-out, deliver one (1) hard copy and one (1) electronic set of Record Documents to MDEQ. Accompany submittal with transmittal letter containing:

1. Date;

2. Project title and number;

3. Contractor's name and address;

4. Title and number of each Record Document; and

5. Signature of Contractor or his authorized representative.

1.06 PROJECT RECORD DOCUMENTS

A. Final Payment will not be made to Contractor until Contract Record Documents in accordance with Section 1.05 above are submitted and approved.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION (NOT APPLICABLE)

END OF SECTION 01 77 00

SECTION 31 05 19

GEOGRID AND GEOTEXTILES

PART 1 - GENERAL

1.01 SUMMARY

A. The Contractor shall furnish all labor, equipment, materials, and incidentals necessary to install the geocomposite underlayment (a stress-resistant polypropylene [PP] material, bonded or sewn to a monofilament PP nonwoven geotextile) for the breakwater as shown on the Construction Drawings as "Geocomposite".

1.02 RELATED SECTIONS:

A. Section 01 20 00 – Measurement and Payment Procedures

B. Section 01 33 00 – Submittal Procedures

C. Section 01 35 43 – Environmental Protection

D. Section 35 31 23.13 – Stone Breakwater

E. Section 35 31 23.16 – Precast Breakwater

1.03 REFERENCES

A. American Society for Testing and Materials (ASTM):

1. D4491 - Standard Test Methods for Water Permeability of Geotextiles by Permittivity

2. D4533 - Standard Test Method for Trapezoid Tearing Strength of Geotextiles

3. D4632 - Standard Test Method for Grab Breaking Load and Elongation of Geotextiles

4. D4751 - Standard Test Method for Determining Apparent Opening Size of a Geotextile

5. D4759 - Standard Practice for Determining the Specification Conformance of Geosynthetics

6. D4884 - Standard Test Method for Strength Sewn or Bonded Seams of Geotextiles

7. D5199 - Standard Test Method for Measuring the Nominal Thickness of Geosynthetics

8. D5261 - Standard Test Method for Measuring Mass Per Unit Area of Geotextiles

9. D6241 - Standard Test Method for Static Puncture Strength of Geotextiles and Geotextile-Related Products Using a 50-mm Probe

10. D6637 - Standard Test Method for Determining Tensile Properties of Geogrids by the Single or Multi-Rib Tensile Method

11. D7737 - Standard Test Method for Individual Geogrid Junction Strength

12. D7748 - Standard Test Method for Flexural Rigidity of Geogrids, Geotextiles and Related Products

B. Geosynthetic Research Institute (GRI) - GG9 Torsional Behavior of Bidirectional Geogrids when Subjected to In-Plane Rotation

C. Environmental Protection Agency (EPA) - 9090 Compatibility Test for Waste and Membrane Liners

1.04 SUBMITTALS

A. The following shall be submitted a minimum of 7 calendar days prior to installation in accordance with SECTION 01 33 00 − SUBMITTAL PROCEDURES: Requirements for submittals. The failure of Contractor to obtain approval prior to installation shall be grounds for non-payment.

B. Geocomposite Sample: The Contractor shall submit a 6-inch by 6-inch or larger sample of the geocomposite to the Engineer for approval.

C. Manufacturer's Certificate: The Contractor shall submit the manufacturer's certificate of compliance with the name of the manufacturer, product name, style number, and other relevant information to fully describe the geocomposite. The certificate should state that the composite meets the requirements of this section and shall be attested to by a person having legal authority to bind the composite manufacturer.

D. Manufacturer's Instructions: The Contractor shall submit installation instructions to the Engineer for review.

E. Shop Drawings: The Contractor shall submit typical details of the typical sections and connections.

1.05 QUALITY ASSURANCE

A. The Contractor will provide a description of the methods and procedures proposed for installation of the geocomposite as part of the Construction Work Plan in accordance with SECTION 01 33 00 − SUBMITTAL PROCEDURES and 35 31 00 − SHORELINE PROTECTION.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Delivery

1. The Contractor shall notify the Engineer a minimum of 24 hours prior to delivery and unloading of the geocomposite packaged in an opaque, waterproof, protective plastic wrapping.

2. The manufacturer's plastic wrapping shall not be removed until deployment. If quality-assurance samples are collected, immediately rewrap rolls with the plastic wrapping or equivalent as approved by the Engineer. Geotextile or plastic wrapping damaged during storage or handling shall be repaired or replaced, as directed at no additional cost to MDEQ.

3. The Contractor shall label each roll with the manufacturer's name, geotextile type, roll number, roll dimensions (length, width, gross weight), and date manufactured.

B. Storage

1. The Contractor shall protect rolls of geocomposite from, but not limited to, construction equipment, chemicals, sparks, and flames, temperatures below minus 20 degrees F or in excess of 160 degrees F, or any environmental condition that may damage the physical properties of the geotextile.

2. Geocomposite should not be exposed to direct sunlight for timeframes beyond those recommended by the manufacturer. Geocomposite exposed beyond such timeframes shall be disposed of and replaced at no additional cost to the MDEQ, and shall not allow the construction schedule to be extended.

3. The Contractor shall protect geocomposite from becoming saturated by elevating rolls off the ground or placing them on a sacrificial sheet of plastic in an area where water will not accumulate. If the geocomposite becomes saturated, the Contractor shall remove the geotextile from the site and replace at no additional costs to MDEQ.

C. Handling

1. Handle and unload geotextile rolls with load-carrying straps, a forklift with a stinger bar, or an axial bar assembly. Rolls shall not be dragged along the ground, lifted by one end, or dropped to the ground.

PART 2 - PRODUCTS

2.01 MATERIALS

A. The geocomposite system shall meet the following requirements:

B. Positive mechanical interlock with underlayer; contiguous sections of itself when overlapped and embedded in bedding stone or similar.

C. Sufficient flexural rigidity to help maintain intimate contact of the geotextile with the underlying material when the breakwater material is placed on top.

D. Sufficient true initial modulus to cause applied force to be transferred to the geogrid at low strain levels without material deformation of the reinforced structure.

E. Complete continuity of all properties throughout its structure and shall be suitable for use with OysterBreak™ and stone structures.

F. The geogrid part of the geocomposite shall meet the properties as outlined in Table 1. Where applicable, values represent minimum average roll values (MARV) in accordance to ASTM D4759.

TABLE 1: GEOGRID PROPERTIES

Property	Test Method	Unit	Machine Direction Value	Cross Machine Direction Value
Aperture Size (nominal dimensions)	ASTM D4759	in	1.7	1.9
Minimum Rib Thickness (nominal dimensions)	ASTM D4759	in	0.06	
Tensile Strength @ 2% Strain	ASTM D6637	Lb/ft	450	
Tensile Strength @ 5% Strain	ASTM D6637	Lb/ft	820	
True Initial Modulus in Use	ASTM D6637	Lb/ft	1,575	
Junction Efficiency	ASTM D7737	%	98	
Flexural Stiffness	ASTM D7748	Mg-cm	750,000	
Aperture Stability[1]	GRI GG9	m-N/deg	6	
Resistance to Installation Damage	ASTM 7737	%SC/%SW/%GP	91/83/71	
Resistance to Long Term Degradation	EPA 9090	%	100	
Ultraviolet Stability (Retained Strength @ 500 hours)	ASTM D4355	%	90	

Note:
1. Resistance to in-plane rotational movement measured by applying a 20 kg-cm [2 N-m]) moment to the central junction of a 9 inch by 9 inch specimen restrained at its perimeter in accordance with GRI GG9.

G. Geotextiles shall meet the requirements specified in Table 2. Where applicable, Table 2 property values represent MARV in the weakest principal direction. Values for Apparent Opening Size represent maximum average roll values.

TABLE 2: GEOTEXTILE PROPERTIES

Property	Test Method	Unit	Minimum Test Value
Apparent Opening Size	ASTM D4751	US Sieve	100 (Maximum)
Permittivity	ASTM D4491	Sec^{-1}	0.57
CBR Puncture	ASTM D6241	lbs	1125
Grab Tensile Strength	ASTM D4632	lbs	390
Trapezoidal Tear	ASTM D4533	lbs	150
Ultraviolet Degradation	ASTM D4355	% strength @ 500 hrs.	70
Weight	ASTM D5261	oz/sq. yd.	12
Thickness	ASTM D5199	mils	100
Seam Strength	ASTM D4884	lbs	200
Percent Open Area	N/A	%	4

PART 3 - EXECUTION

3.01 SUBGRADE PREPARATION

A. The Contractor shall ensure that the surface underlying the geocomposite is smooth and free of debris, ruts, or protrusions, which could damage the geotextile.

3.02 INSTALLATION

A. The Contractor shall notify the Engineer a minimum of 24 hours prior to installation of the geocomposite.

B. Geocomposite rolls that are damaged or contain imperfections shall be repaired or replaced as directed by the Engineer at no additional cost to MDEQ.

C. The Contractor shall install the geocomposite as described in the Engineer-Approved Contractor Work Plan and in herein.

D. The geocomposite shall be laid flat and smooth so that it is in direct contact with the subgrade. Correct orientation (roll direction) of the geocomposite shall be verified by the Contractor. The geocomposite may be temporarily secured with sandbags or another method approved by the Engineer. The geotextile component of the geocomposite shall extend a minimum of 2 foot beyond the limits of the toe of the breakwater as shown in the Construction Drawings.

E. The OysterBreak™ units and stone shall be placed atop the geocomposite as described in SECTION 35 31 00 − SHORELINE PROTECTION, in a manner that minimizes the wrinkles and/or movement of the composite and uniformly loads the structure and minimizes displacing the underlying foundation.

3.03 SEAMS

A. The Contractor shall continuously overlap the geocomposite panels a minimum of 2 feet at all longitudinal and transverse joints.

3.04 PROTECTION AND REPAIRS

A. The Contractor shall protect the geocomposite during installation from tears and other damage. Damaged composite shall be repaired or replaced as directed by the Engineer at no additional cost to MDEQ.

B. The Contractor shall repair torn or damaged geocomposite. The Contractor shall perform repairs by placing a patch of the same type of geocomposite over the damaged area. The patch shall extend a minimum of 2 feet beyond the edge of the damaged area. Patches shall be continuously fastened using the manufacturer's approved methods. The machine direction of the patch shall be aligned with the machine direction of the geocomposite being repaired. The Contractor shall remove and replace geocomposite which cannot be repaired. Repairs shall be performed at no additional expense to MDEQ and shall not allow the construction schedule to be extended.

END OF SECTION 31 05 19

SECTION 35 12 10

AIDS TO NAVIGATION

PART 1 - GENERAL

1.01 SUMMARY

A. The Contractor shall furnish all labor, equipment, materials, and incidentals necessary to install permanent navigational markers as shown on the Construction Drawings as "Aids to Navigation" (ATON) and in accordance with the U.S. Coast Guard (USCG) marking determination (Appendix J). The Contractor shall also be responsible for installing and maintaining temporary navigational markers or lighted beacons during construction of the breakwater structures in accordance with applicable federal, state, and local laws, ordinances, and relevant permit requirements. Contractor shall install at least five (or as necessary to identify maritime risks) temporary navigational markers. Contractor shall remove the temporary navigational markers upon completing installation of the required permanent navigational markers.

B. The Contractor shall display signal lights and conduct operations in accordance with the General Regulations of the Department of the Army and of the U.S. Coast Guard as set forth in Commandant U.S. Coast Guard Instruction M16672.2, Navigation Rules: International-Inland (COMDTINST M16672.2), or 81 Appendix A (International) and 33 CFR 84 through 33 CFR 89 (Inland) as applicable.

1.02 RELATED DOCUMENTS:

A. Appendix J – USCG Marking Determination Package

B. Section 01 20 00 – Measurement and Payment Procedures

C. Section 01 33 00 – Submittal Procedures

D. Section 01 35 43 – Environmental Protection

E. Section 35 31 23.13 – Stone Breakwater

F. Section 35 31 23.16 – Precast Breakwater

1.03 REFERENCES

A. American Wood Preservers Association: AWPA P5 – Standard for Waterborne Preservatives

B. U.S. Coast Guard: USCG Code of Federal Regulations, Title 33, Chapter 1, Parts 62, 64, and 66

1.04 SUBMITTALS

A. Before the Contractor orders ATON materials, the following shall be submitted in accordance with SECTION 01 33 00 − SUBMITTAL PROCEDURES:

B. Requirements for submittals. The failure of Contractor to obtain approval prior to ordering material shall be grounds for non-payment.

C. Manufacturer's Data Sheets: The Contractor shall submit the manufacturer's data sheets for all permanent ATON including buoys, lights, signs, reflective material, pilings, and any other

material used for the ATON. The data sheets shall include the name of the manufacturer, product name, style number, and other relevant information to fully describe the ATON material.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Temporary ATON

1. Warning Buoys – 1 nautical mile (NM) USCG-approved marine lanterns (1 Candela LED Rating), buoys with solar powered, flashing white light with flash period of 2.5 seconds (0.3 seconds on / 2.2 seconds off)

B. Permanent ATON

1. Pilings: 30-foot-long, class 4 timber pilings, pressure treated with Chromated Copper Arsenate at 2.5 pounds per cubic foot per AWPA C2.

2. Signs: Contractor shall install the signs indicated in the USCG Determination Package with the lettering “DANGER BREAKWATER” in black text on white dayboard film background, with 2-inch orange retroreflective border. All hardware connecting the sign shall be hot-dipped galvanized or approved equal. Examples of USCG-approved signage is included in Appendix J.

3. Lights: Contractor shall install lights meeting the requirements described in Appendix J.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Prior to installation, the Contractor shall determine if underground utilities exist in the proposed locations of the permanent ATON. The Contractor shall also verify water depths and bottom types at the locations.

B. As the work progresses, the Contractor shall install temporary or permanent ATON at the locations specified in Attachment M and Construction Drawings. Discrepancies between the coordinates designated on the USCG permit or Construction Drawings shall be reported to MDEQ or its designated representative prior to installation.

C. The Contractor will place temporary ATON prior to construction and shall maintain the temporary ATON during construction until installation of the permanent ATON is complete. Contractor shall relocate temporary ATON by request of MDEQ, Engineer, USCG, or USACE during construction without incurring additional cost to MDEQ. The Contractor shall remove temporary ATON and install permanent ATON prior to final acceptance of the project. All temporary ATON will be considered property of the Contractor and Contractor shall take full responsibility for removal, transportation, storage, or proper disposal of the temporary ATON.

D. Timber piles shall be carefully handled with no sudden dropping, breaking of outer fibers, bruising, or penetration of the surface with tools. Piles damaged or not located in the proper location shall be withdrawn and replaced by new piles or shall be cut off at the mud-line and additional piles installed as directed, without additional cost to MDEQ.

E. Signs shall be installed so that the bottom of the signage is a minimum of 7 feet above the mean high-water level and does not exceed 9 feet above the mean high water level. The Contractor shall shorten the pilings dictated by the normal mean high watermark in the project area, as necessary. Each sign shall be fastened with at least three 3/4-inch diameter by 12-inch long hot-dipped galvanized bolts and connected with a hot-dipped galvanized ogee washer,

lock washer, and nut. Bolt holes shall be bored 1/8-inch larger than the diameter of the bolt.

F. If any damage occurs to permanent ATON placed during construction, the Contractor shall replace or repair the ATON at no cost to MDEQ and at the direction of MDEQ or its authorized representative.

END OF SECTION 35 12 10

SECTION 35 31 23.13

STONE BREAKWATER

PART 1 - GENERAL

1.01 SUMMARY

A. The Contractor shall furnish all labor, equipment, materials, and incidentals necessary to install the stone breakwater as described herein and in the Construction Drawings. The work shall include, but is not necessarily limited to, purchase and installation of stone to construct a breakwater along the Big Island shoreline as shown in the Construction Drawings.

1.02 RELATED SECTIONS:

A. Section 01 20 00 – Measurement and Payment Procedures

B. Section 01 32 00 – Construction Progress Documentation

C. Section 01 32 23 – Surveys and Layout Data

D. Section 01 33 00 – Submittal Procedures

E. Section 01 35 43 – Environmental Protection

F. Section 31 05 19 – Geogrid and Geotextiles

G. Section 35 12 10 – Aids to Navigation

H. Section 35 31 23.16 – Precast Breakwater

1.03 REFERENCES

A. ASTM International:

1. ASTM C97 - Standard Test Methods for Absorption and Bulk Specific Gravity Dimension Stone

2. ASTM C127 - Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate

3. ASTM C131- Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine

4. ASTM C295 - Standard Guide for Petrographic Examination of Aggregates for Concrete

5. ASTM D535-12 - Standard Test Method for Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine

6. ASTM D75/D75M-14 - Standard Practice for Sampling Aggregates

1.04 SUBMITTALS

The following submittals shall be submitted in accordance with SECTION 01 33 00 - SUBMITTAL PROCEDURES: Requirements for submittals:

A. Construction Work Plan: Prior to the start of construction, the Contractor shall provide a Construction Work Plan in accordance with SECTION 01 31 00 – PROJECT MANAGEMENT COORDINATION.

B. Source Material

1. Stone:

a. At the pre-construction meeting, the Contractor shall submit quarry records including, but not limited to, the history of the quarry and the capability to produce the material to the required specifications.

b. Submit compliance test results as specified in Part 2 of this Specification.

C. Daily Quality Control Surveys: During construction, the Contractor shall provide interim surface elevation surveys per SECTION 01 32 23 − SURVEYS AND LAYOUT DATA.

D. Daily Construction Report: The Contractor shall prepare and maintain a daily report of operations and furnish copies by noon the following day or as requested by MDEQ as described in SECTION 01 32 00 − CONSTRUCTION PROGRESS DOCUMENTATION.

E. Stop Work: MDEQ and/or Engineer may elect to stop work activities at the Site if the required submittals have not been submitted or are not of acceptable quality (as determined by MDEQ or Engineer) and per the schedules specified herein in accordance with SECTION 01 33 00 − SUBMITTAL PROCEDURES. Any delays related to submittal approvals shall not allow the construction schedule to be extended and shall not be reason to increase the Contract price.

1.05 QUALITY CONTROL

A. Contractor will perform control surveys as specified in SECTION 01 32 23 – SURVEYS AND LAYOUT DATA.

PART 2 - PRODUCTS

2.01 BREAKWATER STONE

A. The Contractor shall make arrangements, pay royalties, and secure the permits for procurement, furnishing, and transporting stone. The Contractor shall vary the quarrying, processing, loading, and placing operations to produce the sizes and quality of stone specified. If the stone being furnished by the Contractor does not meet the requirements as specified herein, the Contractor shall furnish, at no additional cost to MDEQ, other stone meeting these requirements.

B. Before stone is produced from a source for completion of the Work under this contract, the source of stone shall be approved by the Engineer/MDEQ. Approval of a stone source shall not be construed as a waiver of the right of MDEQ to require the Contractor to furnish stone that complies as specified herein. Materials produced from localized areas, zones, or strata will be rejected when these materials do not comply as specified herein.

C. If requested, stone samples shall be provided to MDEQ for testing. Stone from a proposed source or sources shall be tested by the Contractor for quality compliance as described below. Copies of the compliance testing for each gradation shall be provided to the Engineer before installation.

D. During the construction of the breakwater, the Contractor shall communicate closely with MDEQ and Engineer on ordering and shipping of stone materials.

E. Stone for the stone breakwater shall meet the following minimum test requirements:

TEST REQUIREMENTS		
TEST	TEST METHOD	REQUIREMENTS
Specific Gravity (Bulk SSD)	ASTM C127	(2.60) minimum (2.75) maximum
Absorption	ASTM C127	(3.0%) maximum
Abrasion loss	ASTM C131, ASTM D535-12	(40%) max. loss[(1)]
[(1)] Weakening and loss of individual surface particles is permissible unless bonding of the surface grains softens and causes general disintegration of the surface material.		

F. In addition to the above tests, the stone shall be subjected to a Petrographic and X-ray Diffraction analysis in accordance with ASTM C295. The stone shall not contain expansive clays. Test procedure for Petrographic and X-ray Diffraction is performed according to ASTM C295, except for the following:

1. A colored microscope photograph shall be made of each stone type, including igneous, sedimentary, or metamorphic, and the individual minerals within the stone type shall be identified by labels and arrows upon the photograph.

2. Detailed macroscopic and microscopic descriptions shall be made of the stone to include the entire mineral constituents, individual sizes, their approximate percentages and mineralogical histories. A description of stone hardness, texture, weathering, and durability factors shall be discussed. Pictures of the source wall within the quarry to show any layering and lithology shall be included.

3. A written summary of the suitability of stone for use as breakwater stone based on the Petrographic and X-ray tests and the abrasion loss (L.A. Rattler) shall be presented in the final laboratory report on stone quality.

G. The required gradations for stone to be used are as follows:

1. Breakwater Stone:

Weight of Stone (Pounds)	Percent Lighter by Weight (%)
200 to 250	100
125 to 150	40 to 55
75 to 125	15 to 40
25 to 75	5 to 15
25	10% max

2.02 SOURCE QUALITY CONTROL

A. Testing and Analysis of Materials shall be performed in accordance with applicable ASTM standards.

B. When tests indicate materials do not meet specified requirements, the Contractor shall remove and legally dispose of the unsuitable material off site and replace with suitable material, at no cost to MDEQ.

PART 3 - EXECUTION

3.01 GENERAL

A. The Contractor shall perform a pre-construction survey via a third-party independent surveyor licensed in the State of Mississippi. Prior to the start of construction, the Contractor shall verify all existing elevations and grades and provide templates and stone volumes per SECTION 01 32 23 – SURVEYS AND LAYOUT DATA. The Contractor shall establish the baseline depicted and provide a layout for review before starting placement operations.

B. The Contractor will not be allowed to dredge access channels in order to construct the breakwater. In emergency situations (as determined by the Engineer and MDEQ), the Contractor, after approval from the Engineer and MDEQ, may dredge to remove equipment from the site but must backfill the area immediately following emergency response activities.

C. The Contractor shall install the geocomposite as described in SECTION 31 05 19 - GEOGRID AND GEOTEXTILES and shall take care to avoid damaging the geocomposite layers during placement of overlying material. Placement shall be done in such a manner so as not to rip, puncture, disturb, or damage the geocomposite layer as specified herein.

D. The Contractor shall construct the stone breakwater to the elevations and alignments shown on the Construction Drawings within the construction tolerances stated in these Specifications. The stone materials shall be placed and the surfaces shall be measured at adequate intervals to accurately delineate the surfaces of the layers. Unless the Engineer approves alternate construction methods in writing, all stone on slopes shall be placed in horizontal layers from the toe of the slope up towards the crest.

E. Stone shall be placed so that a well-graded mass is produced with minimum interstitial voids. Stone shall be placed evenly to compress the existing foundation using a method that shall avoid damage to the geocomposite or underlying structure, when present.

F. The height of the stone installation drop shall not be greater than that which may cause damage to the geocomposite or the stone itself. When allowable drop heights are developed on-site, between the Engineer and Contractor, these heights shall be based on actual performance. The Contractor shall maintain the stone layer until accepted, and if material is displaced or the surface damaged, replacement shall be made to the indicated lines and grades, at the Contractor's expense. Final surfaces of the finished stone shall be uniform and shall follow with the indicated lines and grades without continuous under or overbuilding.

G. Material that escapes or is lost while loading, transporting, or placing stone, or which is deposited in areas other than shown on the Construction Drawings or approved in writing by the MDEQ and Engineer, shall be removed and re-deposited at the Contractor's expense and at no additional cost to MDEQ or, if not removed and re-deposited, shall be deducted from the final quantities for payment.

H. The Contractor shall not move barges or perform breakwater construction (i.e. install geocomposite or stone) before daylight or after dark.

3.02 INSTALLATION

A. The Contractor shall sequence work such that breakwater construction begins on the west end of the project and work progresses to the east. MDEQ will consider alternative construction sequences as presented in selected Contractor’s Work Plan.

B. The Contractor shall install the western section of the stone breakwater, from station 0+00 to station 17+00, as close to the Big Island shoreline as possible. The intent is to provide the largest possible offset from the federal navigation channel.

C. The Contractor shall install settlement plates prior to stone installation as shown on the Construction Drawings and described in Part 3.04 of this Section.

D. Contractor shall not impede navigation of the public at any time.

E. The subsurface sediments along the breakwater contain compressible sediments that will consolidate during and after construction. Due to the sediment consolidation, the Contractor shall load the template in vertical lifts to minimize short-term consolidation. The Contractor may be required to halt stone placement operations at certain locations and elevations and wait for the underlying sediments to consolidate before placing additional stone in the specified area. If applicable, the Engineer shall determine when the sediments have reached consolidation (based on Contractor field surveys) and when the Contractor can resume placement activities in the specified area.

F. Contractor shall place the stone to full template and perform quality control surveys and weekly settlement monitoring surveys of the breakwater in accordance with SECTION 01 32 23 – SURVEYS AND LAYOUT DATA unless directed by the Engineer as described above to allow for consolidation. Contractor shall install additional stone (based on settlement monitoring surveys and as directed by the Engineer) as needed to meet minimum lines and grades and perform a quality control survey in accordance with SECTION 01 32 23 – SURVEYS AND LAYOUT DATA.

3.03 SURVEYS

A. All surveys shall be conducted in accordance with SECTION 01 32 23 – SURVEYS AND LAYOUT DATA.

3.04 SETTLEMENT PLATES

A. Settlement plates shall be constructed with a 4 foot by 4 foot, ¼-inch thick steel plate with a 2.5-inch diameter steel riser pipe attached to the center of the plate. The settlement plates shall be hot dipped galvanized after fabrication. The riser pipe shall extend a minimum of 3 feet above the design elevation of the stone.

B. Settlement plates shall be placed after installation of the geocomposite and prior to stone installation at the locations detailed in the Construction Drawings. Plates shall be placed so that the riser pipe conforms to a vertical plumb standard of no more than 10.5 degrees from true vertical. The riser pipe shall be marked with reflective tape or flagging.

C. During installation of the breakwater, the Contractor shall carefully place materials near the settlement plate and maintain the plates until completion of the project. After acceptance of the breakwater, the Contractor shall cut or remove the riser pipe so that it is no more than 6 inches above the top of the constructed breakwater elevation.

D. Settlement plates shall be surveyed per SECTION 01 32 23 – SURVEYS AND LAYOUT DATA as follows:

1. Prior to stone placement
2. After placement of stone
3. Weekly during settlement monitoring placement
4. After removal of the riser pipe (as described in 3.04 C. of this Section)

3.05 TOLERANCES

A. Deviations in crest elevation from the design value shall not be greater than +0.5 foot for the stone. Deviations below crest elevations shown on Construction Drawings will be filled in accordance with this Section until either crest elevation or allowable deviation is achieved.

B. Transitions in alignments shall be smooth and shall be no more than a 1-foot horizontal change in a 20-foot length unless otherwise approved by MDEQ and Engineer.

C. Deviations in slope lengths facing away from Big Island should not be greater than +0.5 feet. Deviations in the landward slope lengths should not be greater than +/- 1.5 feet.

3.06 ACCEPTANCE

A. Acceptance will be based on the approved stone source, compliance tests, barge displacement surveys, and surveys performed by the Contractor per SECTION 01 20 00 – MEASUREMENT AND PAYMENT PROCEDURES and SECTION 01 32 23 – SURVEYS AND LAYOUT DATA. MDEQ may perform field check tests and/or surveys to verify the Contractor's barge displacement and/or surveys. MDEQ survey checks will govern any discrepancies.

END OF SECTION 35 31 23.13

SECTION 35 31 23.16

PRECAST BREAKWATER

PART 1 - GENERAL

1.01 SUMMARY

A. The Contractor shall furnish all labor, equipment, materials, and incidentals necessary to install the precast breakwater and scour protection as described herein and in the Construction Drawings. The work shall include, but is not necessarily limited to, purchase and installation of scour protection stone and proprietary OysterBreak™ units to construct a breakwater structure near Big Island in Back Bay of Biloxi.

1.02 RELATED SECTIONS:

A. Section 01 20 00 – Measurement and Payment Procedures

B. Section 01 31 00 – Project Management and Coordination

C. Section 01 32 00 – Construction Progress Documentation

D. Section 01 32 23 – Surveys and Layout Data

E. Section 01 33 00 – Submittal Procedures

F. Section 01 35 43 – Environmental Protection

G. Section 31 05 19 – Geogrid and Geotextiles

H. Section 35 12 10 – Aids to Navigation

I. Section 35 31 23.13 – Stone Breakwater

1.03 REFERENCES

A. American Concrete Institute (ACI):

1. CP-1 – Technician Workbook for Concrete Field Testing Technician – Grade 1

B. ASTM International:

1. C31 – Standard Practice for Making and Curing Concrete Test Specimens in the Field

2. C39 – Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens

3. C127 – Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate

4. C131 – Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine

5. C138 – Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete

6. C231 – Standard Test Method for Aire Content of Freshly Mixed Concrete by the Pressure Method

7. C295 – Standard Guide for Petrographic Examination of Aggregates for Concrete

8. ASTM D535-12 – Standard Test Method for Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine

9. C1077 – Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation

10. C1688 – Standard Test Method for Density and Void Content of Freshly Mixed Pervious Concrete

11. D5313/D5313M-12(2013) – Standard Test Method for Evaluation of Durability of Rock for Erosion Control Under Wetting and Drying Conditions

12. E329 – Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection

13. E548 – Standard Guide for General Criteria Used for Evaluating Laboratory Competence

1.04 SUBMITTALS

A. Submittals shall be submitted in accordance with SECTION 01 33 00 - SUBMITTAL PROCEDURES.

B. Construction Work Plan: Prior to the start of construction, the Contractor shall provide a Construction Work Plan in accordance with SECTION 01 31 00 – PROJECT MANAGEMENT AND COORDINATION.

C. Source Material: Submit all compliance test results, plans, qualifications, certifications, design mixes, product data, and shop drawings as specified in Part 2 of this Specification.

D. Daily Quality Control Surveys: During construction, the Contractor shall provide interim surface elevation surveys per SECTION 01 32 23 − SURVEYS AND LAYOUT DATA.

E. Daily Construction Report: The Contractor shall prepare and maintain a daily report of operations and furnish copies by noon the following day or as requested by MDEQ as described in SECTION 01 32 00 − CONSTRUCTION PROGRESS DOCUMENTATION.

F. Stop Work: MDEQ and/or Engineer may elect to stop work activities if the required submittals have not been submitted or are not of acceptable quality (as determined by MDEQ or Engineer) and per the schedules specified herein in accordance with SECTION 01 33 00 − SUBMITTAL PROCEDURES. Any delays related to submittal approvals shall not allow the construction schedule to be extended and shall not be reason to increase the Contract price.

1.05 QUALITY CONTROL

A. Contractor will perform control surveys as specified in SECTION 01 32 23 – SURVEYS AND LAYOUT DATA.

PART 2 - PRODUCTS

2.01 OYSTERBREAK™ UNITS

A. The Contractor shall make arrangements, secure the permits for procurement, furnishing, transporting, and installing the OysterBreak™ units. OysterBreak™ is a proprietary product manufactured by Wayfarer Environmental Technologies, LLC (Manufacturer). Each unit shall be 58 inches in outer diameter and 12 inches tall with 6-inch-thick walls. All units of the breakwater shall be fabricated with a proprietary pervious concrete mix. Compressive strength for the concrete units shall be at least 2,400 psi at 28 days after pouring. If the units being furnished by the Contractor do not meet the requirements as specified herein as determined by the Engineer, the Contractor shall furnish, at no additional cost to MDEQ, replacement OysterBreak™ units meeting these requirements.

B. Contact information for Wayfarer Environmental Technologies, LLC:

Mr. Mike Turley
Wayfarer Environmental Technologies, LLC
PO Box 11937, New Iberia, LA 70563
Phone: (888) 251-0821
mike@wayfarertech.com
http://www.wayfarertech.com

C. Contractor shall communicate closely with MDEQ and Engineer on ordering and shipping of units.

D. Within 7 calendar days of Notice of Award, Contractor shall submit the manufacturer's design of the OysterBreak™ units intended to meet the requirements of these Specifications to the Engineer for approval. Design details to be submitted to the Engineer for approval shall include, but are not limited to, the following:

1. Dimensional tolerances for each unit produced;
2. Concrete mix design;
3. Minimum compressive strength of the selected mix design;
4. Maximum slump the selected mix design by percent;
5. Minimum and maximum unit weights for each unit;
6. Reinforcing steel specifications;
7. Product information for admixtures to be used, if any;
8. Air content by percent;

2.02 SCOUR PROTECTION STONE

A. The Contractor shall make arrangements, pay royalties, and secure all required documents for procurement, furnishing, and transporting stone. The Contractor shall vary the quarrying, processing, loading, and placing operations to produce the sizes and quality of stone specified. If the stone being furnished by the Contractor does not meet the requirements as specified herein, the Contractor shall furnish, at no additional cost to MDEQ, other stone meeting these requirements.

B. Before stone is produced from a source for completion of the work under this Contract, the source of stone shall be approved by the Engineer and MDEQ. Approval of a stone source shall not be construed as a waiver of the right of MDEQ to require the Contractor to furnish stone that complies as specified herein. Materials produced from localized areas, zones, or strata will be rejected when these materials do not comply as specified herein.

C. If requested, stone samples shall be provided to MDEQ for testing. Stone from a proposed source or sources shall be tested by the Contractor for quality compliance as described below. Copies of the compliance testing for the gradation specified herein for the scour protection stone shall be provided to the Engineer for review.

D. Contractor shall communicate closely with MDEQ and Engineer on ordering and shipping of stone materials.

E. Scour protection stone shall meet the following minimum test requirements:

TEST REQUIREMENTS		
TEST	TEST METHOD	REQUIREMENTS
Specific Gravity (Bulk SSD)	ASTM C127	(2.60) minimum (2.75) maximum
Absorption	ASTM C127	(3.0%) average
Abrasion Loss	ASTM C131, ASTM D535-12	(40%) max. loss[(1)]
[(1)] Stone that has a loss greater than the specified limit will be accepted if the Contractor demonstrates that the stone has a satisfactory service record that exceeds 10 years.		

F. In addition to the above tests, the stone from the cut in the quarry shall have been subjected to a Petrographic and X-ray Diffraction analysis in accordance with ASTM C295. The stone shall not contain expansive clays. Test procedure for Petrographic and X-ray Diffraction is performed according to ASTM C295, except for the following:

G. A colored microscope photograph shall be made of each stone type, including igneous, sedimentary, or metamorphic, and the individual minerals within the stone type shall be identified by labels and arrows upon the photograph.

1. Detailed macroscopic and microscopic descriptions shall be made of the stone to include the entire mineral constituents, individual sizes, their approximate percentages and mineralogical histories. A description of stone hardness, texture, weathering, and durability factors shall be discussed. Pictures of the source wall within the quarry to show any layering and lithology shall be included.

H. A written summary of the suitability of the stone for salt water/coastal applications based on the Petrographic and X-ray Diffraction tests and the abrasion loss (L.A. Rattler) shall be presented in the final laboratory report on stone quality.

I. The required gradations for scour protection stone to be used are as follows:

Size (inches)	Percent Passing (%)
4	100
3.5	90 to 98
2.5	20 to 60
1	0 to 10

2.03 QUALITY CONTROL

A. Testing and Analysis of Materials shall be performed in accordance with applicable ASTM standards, the Engineer-Approved Contractor Work Plan, and as specified herein.

B. Testing Agency Qualifications: An ACI qualified person, approved by the Engineer, qualified according to ACI CP-1, ASTM C1077 and ASTM E329 shall conduct the testing indicated, as documented according to ASTM E548. Contractor shall provide evidence the testing performed meets the requirements specified herein including any applicable qualifications, licenses, and/or certifications held by the testing agency.

C. Evaluation of Concrete: Contractor shall furnish, at his expense, all necessary concrete as provided by the Manufacturer for testing and/or casting cylinders. All required tests shall be performed by a reputable commercial laboratory, approved by the Engineer. Certified laboratory reports shall be furnished to the Engineer within 48 hours of completion of the required testing. Testing shall include the following:

1. Compressive Strength: Compressive strength specimens shall be fabricated by the Manufacturer and cured in accordance with ASTM C31 and tested in accordance with ASTM C39. The strength of the concrete will be considered satisfactory so long as the average of all sets of three consecutive test results equals or exceeds the specified compressive strength and no individual test result falls below the specified strength by more than 500 psi. A "test" is defined as the average of two companion cylinders, or if only one cylinder is tested, the results of the single cylinder test.

2. Unit Weight: Unit weight tests shall be performed in accordance with ASTM C1688.

3. Air Content: The air content of the concrete mix shall be evaluated in accordance with ASTM C231 or ASTM C138.

4. Additional analysis or testing, including load tests may be required at the Contractor's expense when the strength of the concrete in the structure is considered deficient.

D. Testing/Evaluation Frequency: The concrete batches developed by the Manufacturer shall be tested/evaluated for the entire duration of the concrete rings manufacturing process, so as to develop testing results that are representative of the units from the first to the last unit manufactured. Concrete testing methodology and frequency shall be performed as follows:

1. Test cylinders shall be conducted at least every 50 cubic yards of concrete poured.

2. Sufficient sample cylinders for each test to fulfill the 7- and 28-day testing requirements per ASTM C39 for compressive strength. For every 50 cubic yards of concrete poured, testing may be discontinued once the minimum compressive strength has been reached and the test report has been reviewed and approved by the Engineer.

3. Samples shall be clearly marked to identify the date, the type of mix, whether it is rodded or non-rodded, and the type of test for which each sample is intended to be used.

E. Testing Results: Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for each test.

F. Additional Tests: Testing and inspecting personnel shall perform additional tests of concrete when test results indicate that compressive strengths or other requirements have not been met, as directed by the Engineer. Backup concrete cylinders shall be used to perform concrete strength tests should primary cylinder testing fail to meet minimum strength values. If backup cylinder tests fail to meet minimum strength requirements, core samples may be taken from units for testing. The quantity and selection of unit core sampling, testing, and acceptance of individual or entire representative units manufactured from the deficient concrete batches shall be at the Engineer's discretion. Additional testing required to evaluate acceptance of units manufactured from deficient concrete batches shall be performed by the Contractor at no additional cost to MDEQ.

G. When tests indicate materials do not meet specified requirements, the Contractor shall remove and legally dispose of the unsuitable material off site and replace with suitable material, at no cost to MDEQ.

PART 3 - EXECUTION

3.01 GENERAL

A. The Contractor shall perform a pre-construction survey via a third-party independent surveyor licensed in the State of Mississippi. Prior to the start of construction, the Contractor shall verify all existing elevations and grades per SECTION 01 32 23 – SURVEYS AND LAYOUT DATA. The Contractor shall use the pre-construction survey to establish the baseline conditions of the breakwater construction area and provide a proposed layout of the breakwater structure in accordance with SECTION 01 31 00 – PROJECT MANAGEMENT AND COORDINATION.

B. The Contractor will not be allowed to dredge access channels in order to construct the breakwater. In emergency situations (as determined by the Engineer and MDEQ), the Contractor, after approval from the Engineer and MDEQ, may dredge to remove equipment from the site but must backfill the area immediately following emergency response activities.

C. The Contractor shall install the geocomposite as described in SECTION 31 05 19 - GEOGRID AND GEOTEXTILES and shall take care to avoid damaging the geocomposite layers during placement of overlying material. Placement shall be done in such a manner so as not to rip, puncture, disturb, or damage the geocomposite layer as specified herein.

3.02 TRANSPORTATION AND HANDLING

A. The Contractor shall exercise extreme caution in the loading, unloading, transportation, and placement of OysterBreak™ units.

B. Units that are damaged as described herein or have other fractures or defects that alter performance capability as determined by the Engineer at any time during handling, transporting, or placement, prior to acceptance of final installation, will be considered defective and will be removed and replaced at no cost to MDEQ.

C. The units shall be handled and transported in accordance with Manufacturer's written guidelines. In general, the units are to be handled with equipment and methods designed to prevent damage to units. Contractor is responsible for condition of units placed into breakwater structure. No broken or fractured units will be accepted. If, upon inspection, fractured or otherwise damaged units are observed in the breakwater structure, Contractor will remove the fractured or damaged unit and replace with new unit(s) at no additional expense to MDEQ.

D. Lifting devices used for the units shall be verified for capacity and shall have an adequate factor of safety for lifting and handling the units. The capacity of the commercial lifting devices shall be marked on the devices or posted in production areas.

E. If lifting the units by crane or boom, a spreader bar with adequate chain size will be used. Lifting apparatus and equipment shall be approved by Manufacturer.

F. The units shall be lowered to rest before being released. Dropping the units will not be permitted. Dropped, or noticeably damaged units shall be removed from the breakwater structure and set aside for inspection by Engineer or his representative. Upon inspection, damaged units will be rejected and replaced at no expense to MDEQ.

G. Shipping to the project site shall be conducted in a manner that prevents damage to the units. During transport to the site, units shall be secured to avoid rocking and unit-to-unit contact. Shipping shall be done in accordance with the Manufacturer's written recommendations.

H. Units shall not be loaded for shipping until achieving the designed 28-day compressive strength as based on tested concrete cylinders.

I. Products shall be stored in a manner that will minimize damage caused by uneven bearing, improperly located dunnage blocks, stacking products too high, or difficulty in handling. Units shall be stacked per the manufactures written recommendation, with proper dunnage at all contact points and a pallet underneath.

J. Storage: If temporary storage is required, the units shall be handled and stored in accordance with the Manufacturer's written recommendations. Units shall be stored in manner to avoid cracking, distortion, staining or other physical damage.

3.03 INSTALLATION

A. Contractor shall inspect all units prior to installation and verify that they comply with these Specifications and Construction Drawings.

B. Contractor shall notify Engineer in writing at least 7 calendar days prior to commencing installation. Contractor shall not install units until units have been inspected and accepted by the Engineer or his representative at the designated storage area, unless otherwise instructed by the Engineer.

C. The Contractor shall construct the breakwater to the elevations and alignments shown on the Construction Drawings within the construction tolerances stated in these specifications. Unless the Engineer approves alternate construction methods in writing.

D. After construction of the breakwater, Contractor shall install the scour protection as shown in the Construction Drawings. Contractor shall place the stone for the scour protection along the side of the breakwater facing away from Big Island and along both ends of the breakwater.

E. Contractor shall ensure that the water bottoms where the breakwater structure is to be installed are free from debris, obstructions, or other deleterious material, which may negatively impact the installation or structural stability of the geocomposite underlayer and OysterBreak™ units. If necessary, Contractor may rake the bottom to remove debris and level the work area, as recommended by the manufacturer, in preparation for placement of units.

F. Install the geocomposite underlayer and breakwater structure to the full template and perform quality control surveys in accordance with SECTION 01 32 23 – SURVEYS AND LAYOUT DATA.

G. Units shall be placed such that the units are spaced relative to adjacent rings as shown on the Construction Drawings. Bottom unit shall be placed to allow for insertion of top unit pegs into bottom unit ring interior areas. Improperly placed units shall be relocated, at no additional expense to MDEQ.

H. Contractor shall install scour protection, as shown in the Construction Drawings, after installation of the breakwater structure is complete.

3.04 SURVEYS

A. All surveys shall be conducted in accordance with SECTION 01 32 23 – SURVEYS AND LAYOUT DATA.

3.05 TOLERANCES

A. Deviations in crest elevation from the design value shall not be greater than ±0.5 foot.

B. Deviations from the horizontal template shown in the Construction Drawings and in the Engineer-Approve Contractor Work Plan shall not be greater than ±3 feet.

C. Gaps shall be 6 inches between OysterBreak™ units. Each bottom row unit shall be 6 inches from the adjacent units per the configuration shown in the Construction Drawings. Each top row unit shall be 6 inches from the two units adjacent to it, except for the two terminal units.

3.06 ACCEPTANCE

A. Acceptance will be based on installation of the Engineer-approved undamaged OysterBreak™ units in accordance with these Specifications, the Construction Drawings, and the Engineer-Approved Contractor Work Plan, compliance tests, and surveys performed by the Contractor per SECTION 01 20 00 – MEASUREMENT AND PAYMENT PROCEDURES and SECTION 01 32 23 – SURVEYS AND LAYOUT DATA. MDEQ may perform field check tests and/or surveys to verify the Contractor's surveys. MDEQ survey checks will govern any discrepancies.

END OF SECTION 35 31 23.16

APPENDIX A

Mississippi Department of Marine Resources File No. DMR-200009-1

STATE OF MISSISSIPPI
Tate Reeves
Governor

MISSISSIPPI DEPARTMENT OF MARINE RESOURCES
Joe Spraggins, Executive Director

NOTICE OF DEPARTMENT OF MARINE RESOURCES ORDER
PERMIT TO CONDUCT REGULATED ACTIVITIES

Certification Number:	DMR200009-1
Date:	May 12, 2021
Issued to:	Mississippi Department of Environmental Quality Attn: Valerie Alley P.O. Box 2261 Jackson, MS 39225
Project Description:	Breakwaters
Project Location:	Biloxi Back Bay South shoreline of Big Island
DMR Project Manager:	Willa J. Brantley 228-523-4108 willa.brantley@dmr.ms.gov

NOTICE: Read this document carefully. Failure to follow the listed conditions can result in substantial fines and penalties.

This document serves as certification that the subject activity has been reviewed by the Mississippi Department of Marine Resources (MDMR). The application was presented to the Mississippi Advisory Commission on Marine Resources (MACMR) and recommended for approval on April 20, 2021 and approved by the MDMR Executive Director on May 10, 2021.

In accordance with the provisions of the Mississippi Coastal Wetlands Protection Act and the findings made in compliance with the Mississippi Coastal Program (MCP), a Permit to conduct Regulated Activities is issued to you this day by the Executive Director. The activities herein authorized shall be conducted in a manner resulting in the least damaging impacts to wetlands and the coastal environment.

The following activities and impacts are authorized by this certification as indicated on the attached approved diagram:

1. Permanent fill of approximately 0.5 acres of unvegetated Coastal Wetlands for the construction of a breakwater 2,800 feet in length in accordance with the parameters outlined in the attached table of Breakwater Design Criteria; Additional materials may be added to the breakwater as needed during the life of this Permit to maintain the authorized design parameters; The DMR Bureau of Wetlands Permitting

must receive written notice of any maintenance activities at least 30 days prior to commencement

2. Permanent fill of approximately 3 acres of unvegetated Coastal Wetlands for the construction of a breakwater 5,200 feet in length in accordance with the parameters outlined in the attached table of Breakwater Design Criteria; Additional materials may be added to the breakwater as needed during the life of this Permit to maintain the authorized design parameters; The DMR Bureau of Wetlands Permitting must receive written notice of any maintenance activities at least 30 days prior to commencement

The applicant must abide by specific conditions as listed below.

Any deviations beyond the above-authorized dimensions, the project footprint as shown on the attached approved diagram, or the specific conditions as set forth below will be considered a violation and may result in the revocation of the permit. Violations of these conditions may be subject to fines, project modifications, and/or site restoration. Both the permittee and the contractor may be held liable for such violations or for conducting unauthorized work. A modification to the project dimensions or footprint or to these conditions may be requested by submitting a written request along with a revised project diagram to the MDMR. *Proposed modifications to project dimensions, footprint, or conditions must be approved in writing prior to commencement of work.*

The specific conditions of this certification are as follows:

1. Breakwaters must:
   a. Use only clean material free of waste, metal and organic trash, unsightly debris, petroleum products (asphalt), etc.
   b. Not result in fill of or adverse impacts to wetlands, submerged aquatic vegetation, or shellfish beds
   c. Be marked by safety lights, signs, and/or signals as prescribed by the U.S. Coast Guard through regulations or otherwise; Marking of the breakwaters and the plan for maintaining the markings must be approved by MDMR prior to completion of the project
   d. Be constructed in a manner that allows water flow and wildlife movement
   e. Not result in fill of or adverse impacts to submerged aquatic vegetation or shellfish beds
   f. Not pose a hazard to navigation

2. The project area must be surveyed for the presence of submerged aquatic vegetation (SAV) during the growing season prior to implementation of the project; The results of this survey must be submitted to the DMR Bureau of Wetlands Permitting at least 30 days prior to commencement of construction; If SAV is found within the project area, an additional review by and written approval from DMR staff will be required prior to commencement of construction

3. All authorized activities must:
   a. Use Best Management Practices (BMPs) at all times during construction, including, but not limited to, the use of staked hay bales; staked filter cloth; sodding, seeding, and mulching; staged construction; and the installation of turbidity screens around the immediate project site
   b. Be conducted in a manner that minimizes the discharge of turbid waters into Waters of the State (Turbidity outside the limits of a 750-foot mixing zone must not exceed the ambient turbidity by more than 50 Nephelometric Turbidity Units)
   c. Have appropriate wastewater permits and/or approvals for the proposed activity in place prior to the commencement of construction activities
   d. Have appropriate stormwater permits, approvals, and/or measures in place prior to the commencement of construction activities (For projects greater than five acres of total ground disturbances including clearing, grading, excavating, or other construction activities, the applicant shall obtain the necessary coverage under the State of Mississippi's Large Construction Storm Water General NPDES Permit; For projects greater than one to less than five acres of total ground disturbance including clearing, grading, excavating or other construction activities, the applicant shall follow the conditions and limitations of the State of Mississippi's Small Construction Storm Water General NPDES Permit)
   e. Not result in construction debris, sewage, oil, refuse, other pollutants, or unauthorized fill material entering Coastal Wetlands or Waters of the State
   f. Not impact wetlands, submerged aquatic vegetation, or shellfish beds unless specifically authorized above

4. Completion of the above-authorized activities and impacts must be reported to the MDMR through one of the methods listed below within 30 days of completion so that compliance checks may be conducted by MDMR staff:
   a. By visiting your account at citizenserve.com
   b. By calling or emailing the MDMR Project Manager listed on the first page of this authorization

Work authorized by this certification must be completed on or before: May 12, 2031

This certification is contingent on clearance from the Mississippi Department of Environmental Quality (MDEQ) and the Mississippi Department of Archives and History (MDAH). The Permittee shall maintain all standards, regulations, and restrictions as set forth by the MDEQ and the MDAH under MS state law with regards to protection of water quality and cultural resources and conservation of water resources.

Issuance of this certification by MDMR does not release the applicant from other legal requirements including but not limited to other applicable federal, state, or local laws, ordinances, zoning codes, or other regulations, including a possible Tidelands Lease from the MS Secretary of State's Office, required City or County construction setbacks, or building permits from the City or County where the project is located. A list of contacts has been provided for your assistance in determining whether any further certifications are required.

This certification conveys no title to land and water, does not constitute authority for reclamation of coastal wetlands and does not authorize invasion of private property or rights in property.

It is the responsibility of the applicant or property owner and their contractors and authorized agents to construct all authorized structures in a manner that does not impede access to riparian/littoral zones of adjacent property owners or other property owners in the vicinity (see MS Code Annotated § 49-15-9, enclosed). Failure to adhere to this could result in legal action by the affected parties. The MDMR does not make property or riparian/littoral boundary determinations.

The MDMR has also coordinated a review of your project through the Coastal Program review procedures and determined that the project referenced above is consistent with the Mississippi Coastal Program, provided that you comply with the noted conditions and reviewing Coastal Program Agencies do not disagree with said plans. By copy of this certification, we are notifying the U.S. Army Corps of Engineers of this determination.

Please notify this Department upon completion of the permitted project so that compliance checks may be conducted by MDMR staff.

THIS CERTIFICATION IS EFFECTIVE IMMEDIATELY.

Joe Spraggins (May 12, 2021 10:25 CDT)

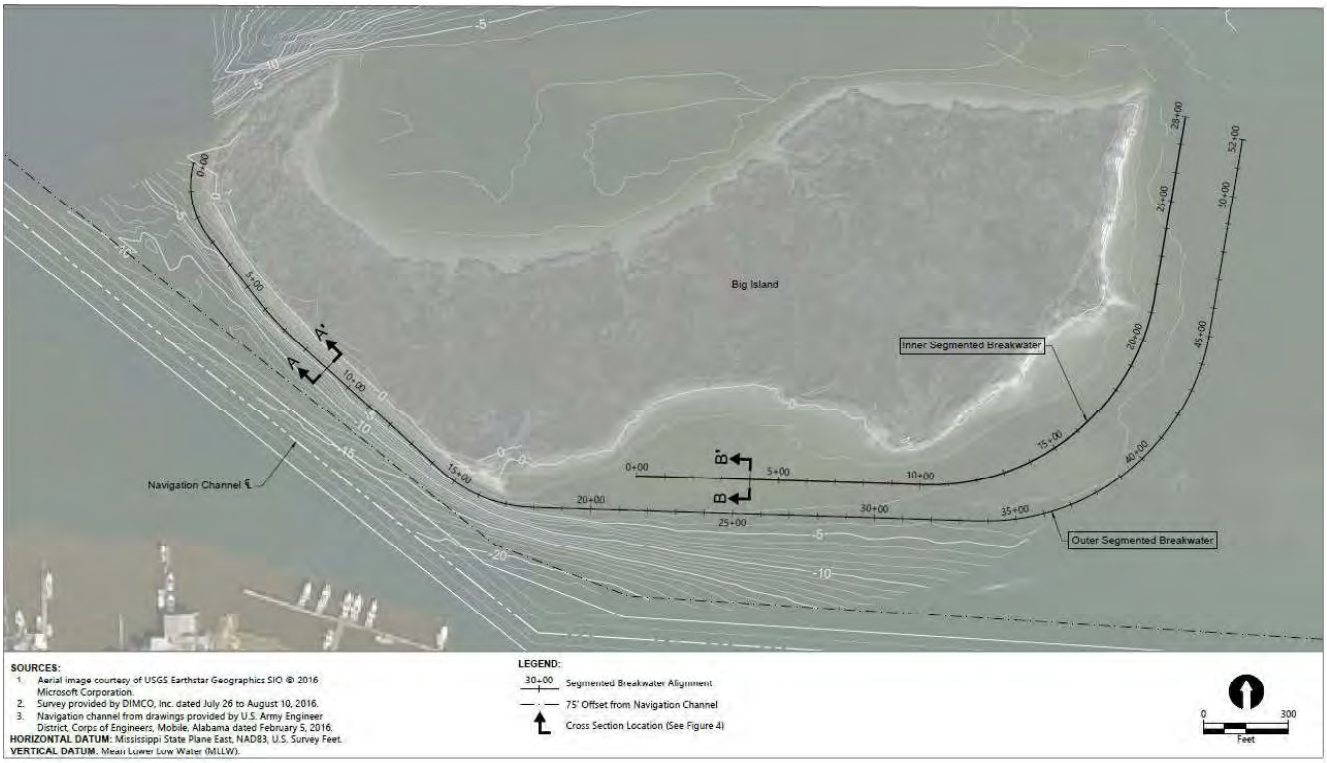
Joe Spraggins
Executive Director
MS Department of Marine Resources

JS/wjb

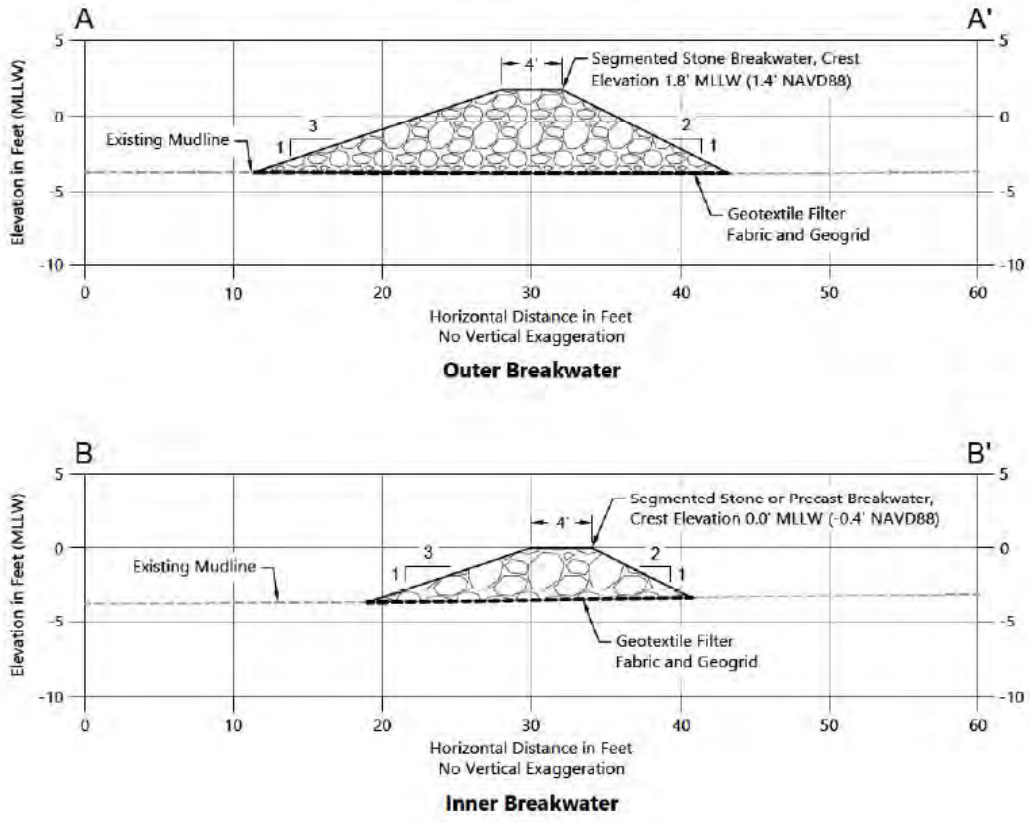
Attachments:
Approved Diagrams
MS Code Annotated - 49-15-9

CC:
MS Team Leader USACE
Ms. Florance Bass, OPC
Mr. Raymond Carter, SOS

Breakwater Design Criteria	Outer Breakwater	Inner Breakwater
Total project length	5,200 feet	2,800 feet
Total project acreage	3 acres	0.5 acres
Crest width	4 feet	4 feet
Base width	Approximately 30 feet depending on contour	Approximately 20 feet depending on contour
Assumed bottom elevation	-2.5 to -3.5 feet MLLW	-1.5 to -2.5 feet MLLW
Total structure height	3.0 to 5.0 feet	2.0 to 3.0 feet
Breakwater materials	Riprap	OysterBreaks; WADs; riprap or other comparable engineered structures/materials as approved by the permitting agencies
Riprap volume	Approximately 9,500 cubic yards	Approximately 1,900 cubic yards
Thickness of material (riprap)	0.5 to 5.0 feet	0.5 to 2.0 feet
Estimated initial settlement	0.0 to 0.5 feet	0.0 to 0.5 feet
Design side slopes (island-facing slopes)	2H:1V or vertical, depending on technology	2H:1V or vertical, depending on technology
Design slide slopes (bay-facing slopes)	3H:1V to vertical, depending on technology	3H:1V to vertical, depending on technology
Breakwater distance from shoreline	50 to 550 feet	130 to 200 feet
Maximum design crest elevation	1.8 feet MLLW	0.0 MLLW

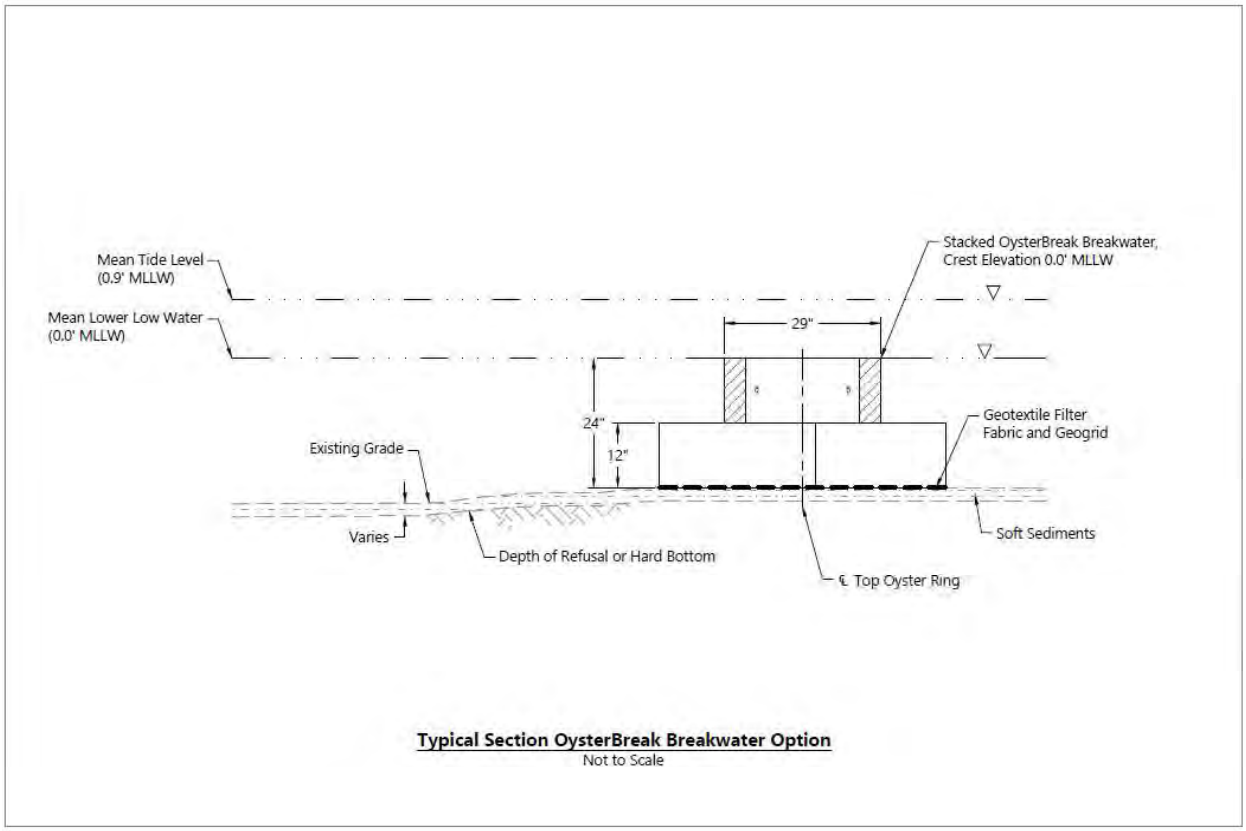


Big Island Proposed Breakwater Alignment

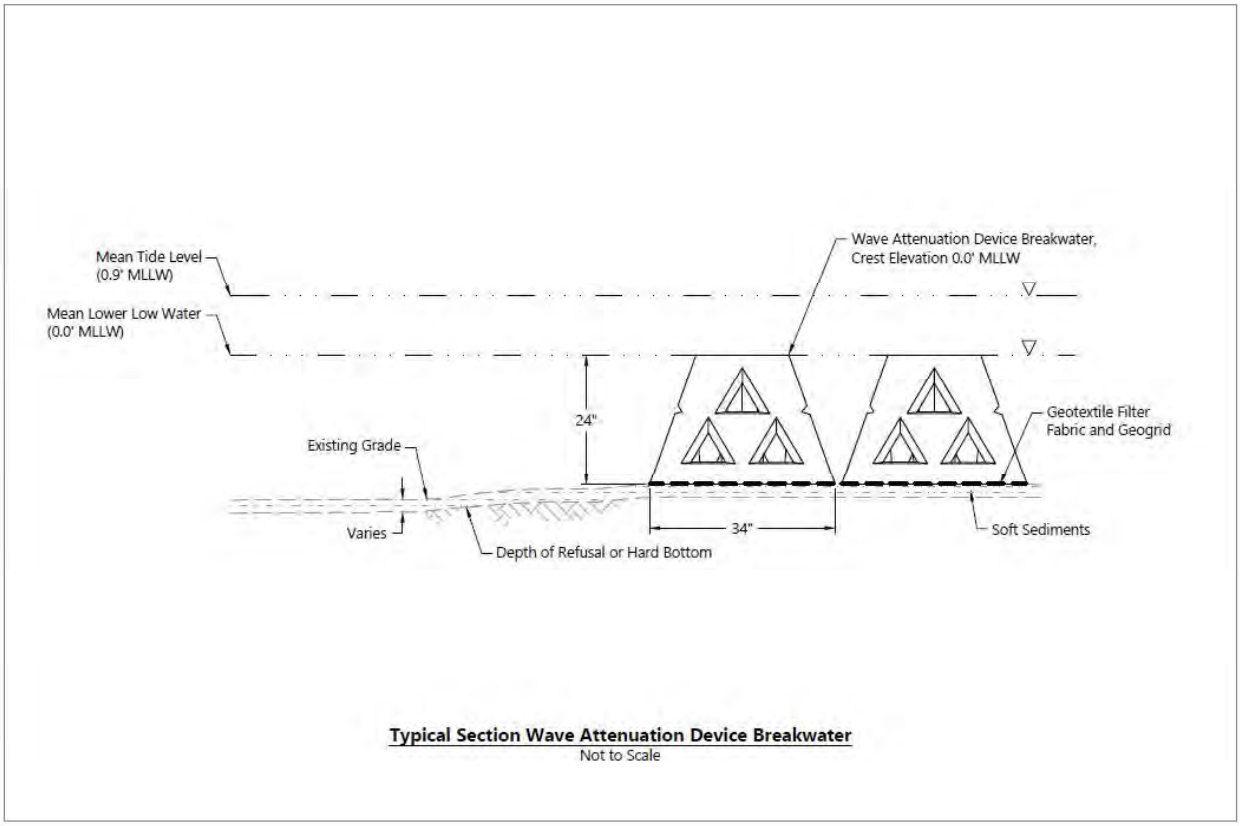


NOTES:
1. Inner breakwater to be constructed at bed elevations between -1.5 and -2.5 feet MLLW.
2. Outer breakwater to be constructed at bed elevations between -2.5 and -3.5 feet MLLW.

Typical Section Riprap Breakwaters



Typical Section OysterBreak Inner Breakwater Option



Typical Section Wave Attenuation Device Inner Breakwater Option

Miss. Code Ann. § 49-15-9

Copy Citation

Current through the 2019 Regular Session.

Mississippi Code 1972 Annotated Title 49. Conservation and Ecology (Chs. 1 — 37) Chapter 15. Seafood (Arts. 1 — 7) Article 1. General Provisions. (§§ 49-15-1 — 49-15-100.3)

§ 49-15-9. Rights of riparian owners on Gulf Coast defined.

The sole right of planting, cultivating in racks or other structures, and gathering oysters and erecting bathhouses and other structures in front of any land bordering on the Gulf of Mexico or Mississippi Sound or waters tributary thereto belongs to the riparian owner and extends not more than seven hundred fifty (750) yards from the shore, measuring from the average low water mark, but where the distance from shore to shore is less than fifteen hundred (1500) yards, the owners of either shore may plant and gather to a line equidistant between the two (2) shores, but no person shall plant in any natural channel so as to interfere with navigation, and such riparian rights shall not include any reef or natural oyster bed and does not extend beyond any channel. A riparian owner shall comply with the Coastal Wetlands Protection Act in exercising the use of these riparian rights. Stakes of such frail materials as will not injure any watercraft may be set up to designate the bounds of the plantation, but navigation shall not be impeded thereby. The riparian owner shall clearly mark such cultivation racks and other structures. The commission may adopt regulations to require that the racks are adequately marked to ensure the safety of users of public waters. Any oysters planted by such riparian owner are the private property of such riparian owner, subject to the right of the commission to adopt reasonable rules and regulations as to the planting and gathering of such oysters. All bathhouses, piers, wharfs, docks and pavilions, or other structures owned by riparian owner are likewise the private property of such owner, who shall be entitled to the exclusive use, occupancy and possession thereof, and may abate any private or public nuisance committed by any person or persons in the area of his riparian ownership and may, for such purposes, resort to any remedial action authorized by law. The governing authorities of any municipality and the board of supervisors of any county are authorized to adopt reasonable rules and regulations to protect riparian owners in the enjoyment of their riparian rights, and for such purposes may regulate the use of beaches, landings, and riparian areas abutting or fronting on roads, streets or highways.

History

Codes, 1942, § 6047-10; Laws, 1960, ch. 173, § 10; Laws, 1962, ch. 193, § 10; Laws, 1991, ch. 438 § 1, eff from and after passage (approved March 21, 1991).

Mississippi Code 1972 Annotated

Content Type:

CHECK BEFORE YOU BUILD

YOU MAY NEED ANOTHER PERMIT FROM YOUR CITY OR COUNTY:

Jackson County

Building Department -Pascagoula Office: (228) 769-3056
Building Department -Ocean Springs Office: (228) 818-1890
Building Permits: (228) 769-3057

City of Pascagoula
Planning and Building Department: (228) 938-6620
City of Moss Point
Building Inspections Department: (228) 474-0170
City of Gautier
Planning & Building Department: (228) 497-1878
City of Ocean Springs
Planning Department: (228) 875-6712

Harrison County

Engineering Department: (228) 832-4891

City of Biloxi
Engineering Department: (228) 435-6269
City of D'Iberville
Building Department: (228) 392-7966 ext. 6001
City of Gulfport
Building Code Services: (228) 868-5715
City of Long Beach
Building Department: (228) 863-1554
City of Pass Christian
Building Code & Code Enforcement Department: (228) 452-3316 or (228) 452-3324

Hancock County

Planning and Zoning Department: (228) 467-4157

City of Bay St. Louis
Planning and Zoning Department: (228) 466-5516
City of Waveland
Building/ Planning & Zoning / Blighted and Abandoned Properties Department: (228) 466-2549
City of Diamondhead
City Hall: (228) 222-4626

MS Secretary of State's Office

(228) 432-0541

DMR200009-1

Final Audit Report 2021-05-12

Created:	2021-05-12
By:	Willa Brantley (willa.brantley@dmr.ms.gov)
Status:	Signed
Transaction ID:	CBJCHBCAABAAD3o5AGDLLwa4k5fAWslPhCQ_mIO3cYin

"DMR200009-1" History

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2021-05-12 - 3:25:32 PM GMT- IP address: 69.60.32.16

Document e-signed by Joe Spraggins (joe.spraggins@dmr.ms.gov)
Signature Date: 2021-05-12 - 3:25:45 PM GMT - Time Source: server- IP address: 69.60.32.16

Agreement completed.
2021-05-12 - 3:25:45 PM GMT

APPENDIX B

U.S. Army Corps of Engineers File No. SAM-2019-00686-JRO

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, MOBILE DISTRICT
P.O. BOX 2288
MOBILE, AL 36628-0001

REPLY TO
ATTENTION OF

May 14, 2021

Mississippi Branch
Regulatory Division

SUBJECT: Department of the Army Permit Number SAM-2019-00686-JRO, MS Dept of Environmental Quality; Big Island Breakwater

Mississippi Department of
Environmental Quality
Chris Wells, Executive Director
Attention: Valerie Alley
P.O. Box 2261
Jackson, Mississippi 39225
Email: Valley@mdeq.ms.gov

Dear Sir or Madam:

PLEASE READ THIS LETTER CAREFULLY AND COMPLY WITH ITS PROVISIONS

There is attached a Department of the Army permit authorizing the Mississippi Department of Environmental Quality to perform the work specified therein in accordance with the plans shown on the drawings attached thereto. This permit is issued under provision of the Federal laws for the protection and preservation of the navigable waters of the United States. These laws provide that after the proposed work has been approved by issuance of a Department of the Army permit,

IT SHALL NOT BE LAWFUL TO DEVIATE FROM SUCH PLANS EITHER BEFORE OR AFTER COMPLETION OF THE WORK,

unless modification of said plans has previously been submitted to and received the approval of the Department of the Army.

The Mississippi Department of Environmental Quality and its contractors should study and carefully adhere to all the terms and conditions of the permit. The District must be notified of the commencement and completion of the permitted work. The attached Commencement and Completion Certification forms may be used for that purpose. Also attached is a yellow "NOTICE OF AUTHORIZATION" placard which must be conspicuously displayed at the site during construction of the permitted work.

If for any reason it becomes necessary to make a material change in the location, plans, or mitigation for this work, revised plans should be submitted promptly to the District Engineer in order that the revised plans may receive the approval required by law before work is begun.

Compliance with this and other conditions of the permit is essential. Failure to submit the requested notices may result in permit revocation.

You are receiving an electronic copy of this letter only. If you wish to receive a paper copy, you should send a written request to this office at the following address: U.S. Army Corps of Engineers, Mobile District, Regulatory Division, Post Office Box 2288, Mobile, Alabama 36628.

Electronic copies of this letter and draft permit are also being sent to your agent, Covington Civil and Environmental, LLC, Attention: Ms. Alane Young, 2510 14th Street, Suite 1010, Gulfport, Mississippi 39501, Email: acyoung@cce.ms.

Please contact me at (251) 690-3228 or at Allison.f.monroe@usace.army.mil, if you have any questions. For additional information about our Regulatory Program, please visit our web site at www.sam.usace.army.mil/Missions/Regulatory.aspx. Also, please take a moment to complete our customer satisfaction survey located near the bottom of the webpage. Your responses are appreciated and will help us improve our services.

Sincerely,

Allison Monroe

Digitally signed by Allison Monroe
Date: 2021.05.14 17:37:13 -05'00'

Allison F. Monroe
Team Leader, Mississippi Branch
Regulatory Division

DEPARTMENT OF THE ARMY PERMIT

Permittee: **Mississippi Department of Environmental Quality**

Permit No.: **SAM-2019-00686-JRO**

Issuing Office: **MOBILE 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 U.S. Army Corps of Engineers (Corps) 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: The permittee is authorized to place approximately 20,265 cubic yards of fill in waters of the U.S. to create approximately 8,000 linear feet of breakwater in Harrison County, Mississippi. The project includes a 5,200-foot long outer breakwater along and an approximately 2,800-foot long inner breakwater. The fill material will consist of riprap, oyster breaks, and/or wave attenuation devices.

ATTACHED: 1. Locations and Plan Drawings
2. Mississippi Department of Environmental Quality (DEQ) Section 401 Certification dated February 25, 2020 (WQC2019048).

Project Location: The project is located in the Back Bay of Biloxi, Section 15, Township 7 South, Range 9 West, Harrison County, Mississippi. The area is depicted on the Biloxi Quadrangle, United States Geological Survey Topographic Map, Hydrologic Unit Code 03170009. Latitude: 30.41408° Longitude: -88.87566°

Permit Conditions

General Conditions:

1. The time limit for completing the work authorized ends on **30 June 2025**. 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:

a. Only suitable material free of waste, metal, organic trash, unsightly debris, etc., may be used as fill, and material discharged must be free from toxic pollutants in toxic amounts.

b. The permittee shall comply with all requirements of the Mississippi Department of Environmental Quality 401 Water Quality Certification (WQC2019048) dated February 25, 2020.

c. All conditions of the Coastal Zone Consistency Determination issued by the Department of Marine Resources are incorporated as conditions of this DA permit.

d. It is the permittee's responsibility to ensure that the contractors working on this project are aware of all General and Special permit conditions.

e. Best management practices shall be implemented to minimize turbidity, siltation damage to adjacent wetlands and waters of the United States, and submerged aquatic vegetation. All in-water project work will be conducted during daylight hours, and noise will be kept to the minimum feasible level. All vessels/barges will travel at slow speed in and around construction zones (5 knots or less).

f. 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.

g. Prior to bringing any equipment (including personal gear, machinery, vehicles or vessels) to the work site, each item shall be inspected for mud or soil, seeds, and vegetation. If present, the equipment, vehicles, or personal gear shall be cleaned until they are free from mud, soil, seeds, and vegetation. This inspection will occur each time equipment, vehicles, and personal gear are being prepared to go to a site or prior to transferring between sites to avoid spreading exotic, nuisance species.

h. The National Ocean Service (NOS) has been notified of this authorization. You must notify NOS and this office, in writing, at least 2 weeks before you begin work and upon completion of the activity authorized by the permit. Your notification of completion must include the drawing which certifies the location and configuration of the completed activity (a certified permit drawing(s) may be used). Notification to NOS will be sent to ocs.ndb@noaa.gov or the following address: National Ocean Service, Office of Coast Survey, N/CS26, 1315 East West Highway, Silver Springs, Maryland 20910-3282.

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

j. The permittee must install and maintain, at the permittee's expense, any safety lights, signs, and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, on the permittee's authorized facilities.

Further Information:

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

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

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.

5/13/2021

(PERMITTEE) **CHRIS WELLS**
EXECUTIVE DIRECTOR
MS DEPT OF ENVIRONMENTAL QUALITY P.O. BOX 2261
JACKSON, MISSISSIPPI 39225

(DATE)

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

SEVASTIEN P. JOLY
COLONEL, U.S. ARMY
DISTRICT COMMANDER

BY: Allison Monroe Digitally signed by Allison Monroe Date: 2021.05.14 17:20:59 -05'00'

ALLISON F MONROE **(DATE)**
TEAM LEADER, SOUTH MISSISSIPPI BRANCH
REGULATORY DIVISION

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)

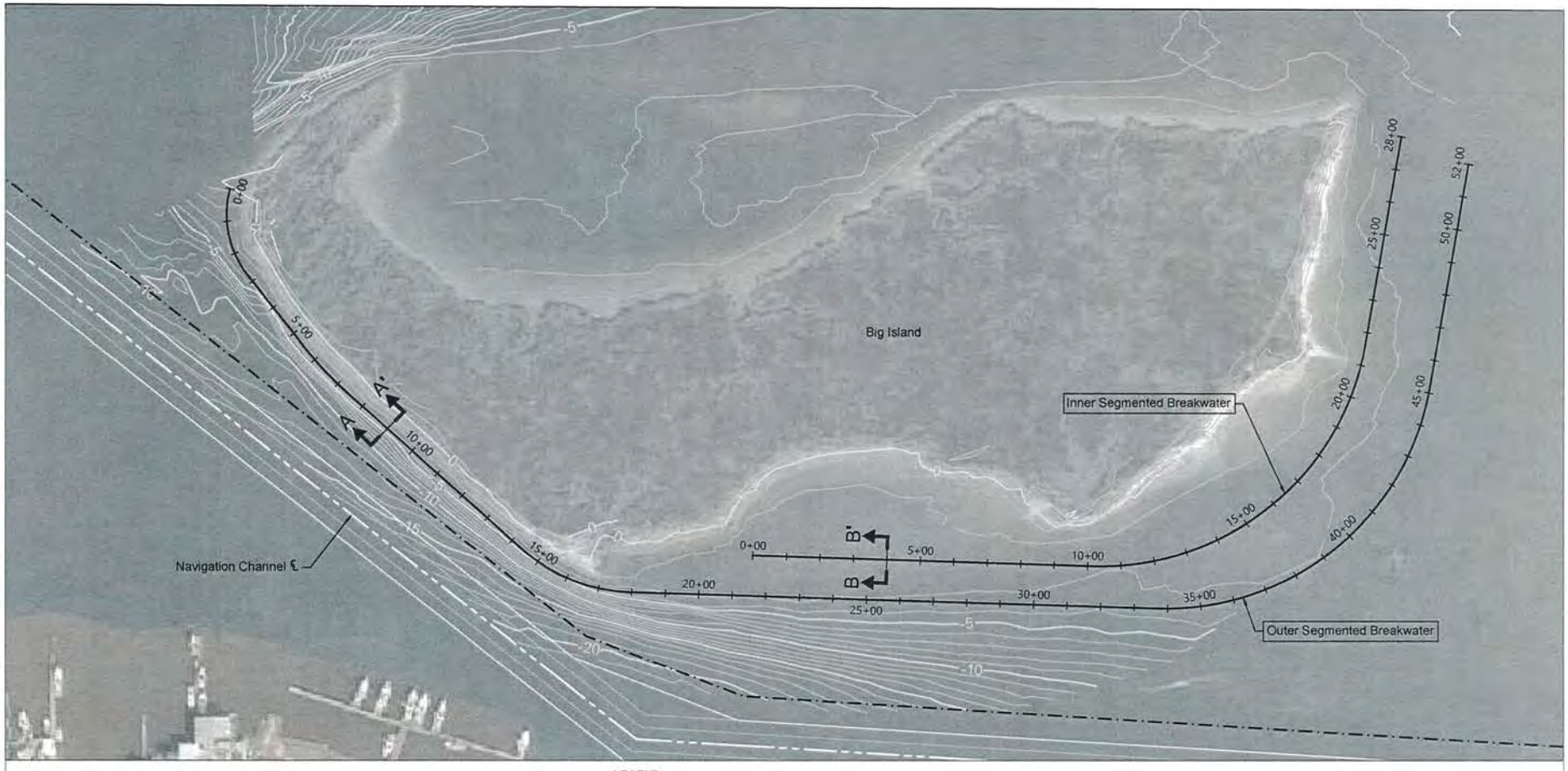
SOURCE: 2010 NAVTEC © and 2017 Microsoft Corporation.
HORIZONTAL DATUM: Mississippi State Plane East, NAD83, U.S. Feet
VERTICAL DATUM: Mean Lower Low Water (MLLW)

Publish Date: 2020/06/15 4:33 PM | User: dholmer
Filepath: K:\Projects\1232-Mississippi Department of Environmental Quality\Mississippi Estuaries Living Shoreline\1232-RP-027 (Big Island - BODR).dwg Figure 2

ANCHOR QEA

Figure 1
Big Island Living Shoreline Vicinity Map

Basis of Design Report - Big Island Living Shoreline
Restoring Living Shorelines and Reefs in Mississippi Estuaries
Mississippi Department of Environmental Quality



SOURCES:

1. Aerial image courtesy of USGS Earthstar Geographics SIO © 2016 Microsoft Corporation.
2. Survey provided by DIMCO, Inc. dated July 26 to August 10, 2016.
3. Navigation channel from drawings provided by U.S. Army Engineer District, Corps of Engineers, Mobile, Alabama dated February 5, 2016.

HORIZONTAL DATUM: Mississippi State Plane East, NAD83, U.S. Survey Feet.
VERTICAL DATUM: Mean Lower Low Water (MLLW).

LEGEND:

30+00 Segmented Breakwater Alignment

75' Offset from Navigation Channel

Cross Section Location (See Figure 4)

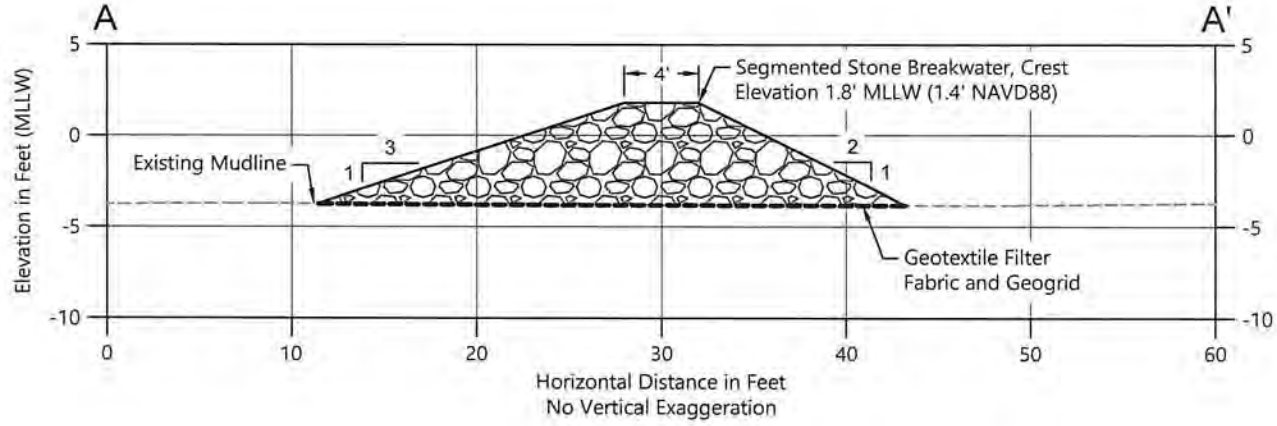
0 300
Feet

Publish Date: 2020/06/15 4:33 PM | User: dholmer
Filepath: K:\Projects\1232-Mississippi Department of Environmental Quality\Mississippi Estuaries Living Shoreline\1232-RP-016 (Big Island Breakwaters).dwg Figure 3

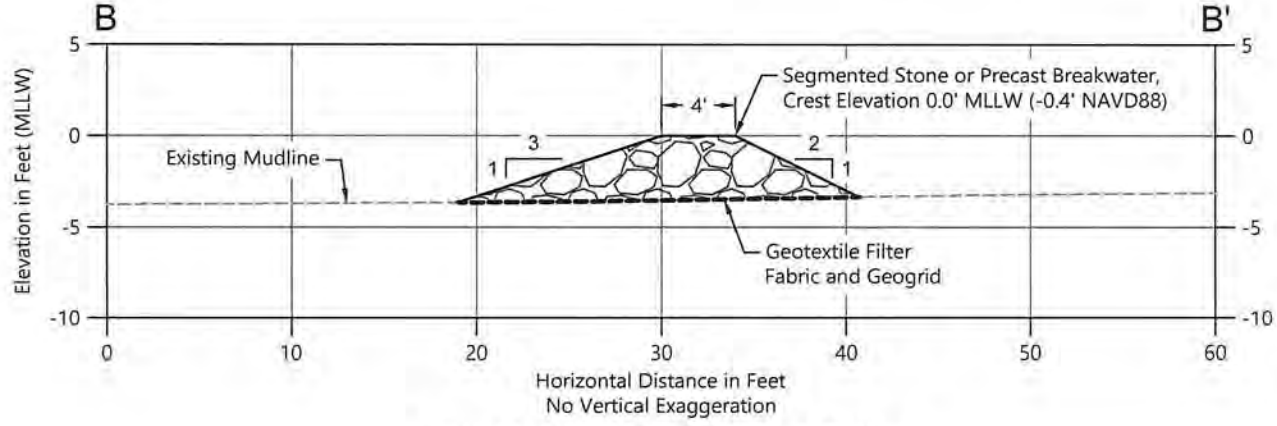
ANCHOR QEA

Figure 2
Proposed Breakwater Alignment

Basis of Design Report-Big Island Living Shoreline
Restoring Living Shorelines and Reefs in Mississippi Estuaries
Mississippi Department of Environmental Quality



Outer Breakwater



Typical Inner Breakwater – Rock Option

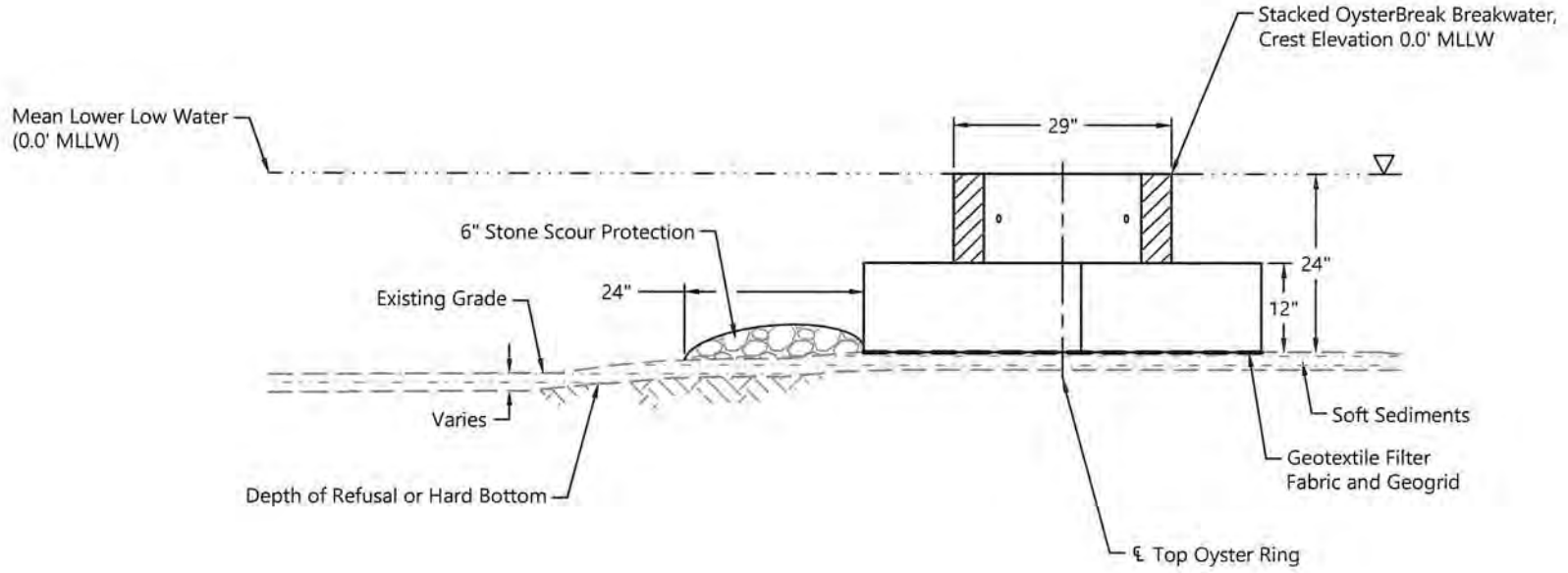
NOTES:
1. Inner breakwater to be constructed at bed elevations between -1.5 and -2.5 feet MLLW.
2. Outer breakwater to be constructed at bed elevations between -2.5 and -3.5 feet MLLW.

Publish Date: 2020/06/15 4:33 PM | User: dholmer
Filepath: K:\Projects\1232-Mississippi Department of Environmental Quality\Mississippi Estuaries Living Shoreline\1232-RP-016 (Big Island Breakwater).dwg Figure 4

ANCHOR QEA

Figure 3
Proposed Breakwater Cross Section

Basis of Design Report-Big Island Living Shoreline
Restoring Living Shorelines and Reefs in Mississippi Estuaries
Mississippi Department of Environmental Quality



Typical Inner Breakwater – Oyster Break Option

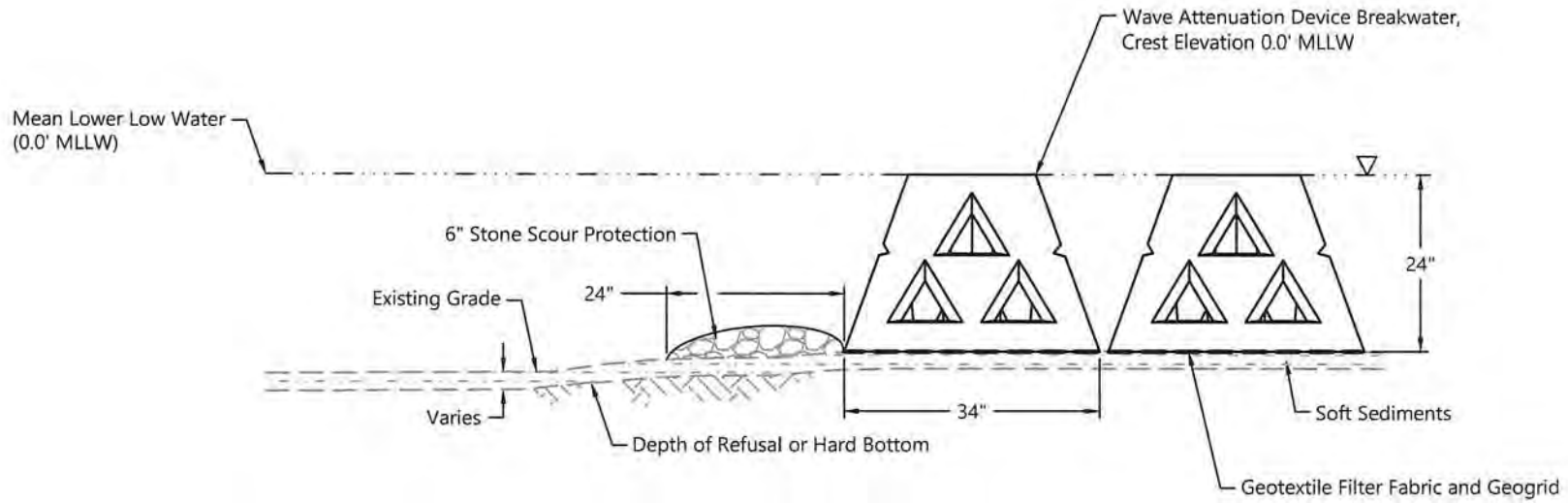
Not to Scale

Publish Date: 2020/06/15 4:33 PM | User: dholmer
Filepath: K:\Projects\1232-Mississippi Department of Environmental Quality\Mississippi Estuaries Living Shoreline\1232-RP-025 (Big Island).dwg Figure 5

ANCHOR QEA

Figure 4
Section B-B' OysterBreak Breakwater Option

Basis of Design Report - Big Island Living Shoreline
Restoring Living Shorelines and Reefs in Mississippi Estuaries
Mississippi Department of Environmental Quality



Typical Inner Breakwater – Wave Attenuation Device

Not to Scale

Publish Date: 2020/06/15 4:33 PM | User: dholmer
Filepath: K:\Projects\1232-Mississippi Department of Environmental Quality\Mississippi Estuaries Living Shoreline\1232-RP-025 (Big Island).dwg Figure 6

ANCHOR QEA

Figure 5
Section B-B' Wave Attenuation Device Breakwater Option

Basis of Design Report - Big Island Living Shoreline
Restoring Living Shorelines and Reefs in Mississippi Estuaries
Mississippi Department of Environmental Quality

STATE OF MISSISSIPPI
Tate Reeves
Governor

MISSISSIPPI DEPARTMENT OF MARINE RESOURCES
Joe Spraggins, Executive Director

NOTICE OF DEPARTMENT OF MARINE RESOURCES ORDER
PERMIT TO CONDUCT REGULATED ACTIVITIES

Certification Number:	DMR200009-1
Date:	May 12, 2021
Issued to:	Mississippi Department of Environmental Quality Attn: Valerie Alley P.O. Box 2261 Jackson, MS 39225
Project Description:	Breakwaters
Project Location:	Biloxi Back Bay South shoreline of Big Island
DMR Project Manager:	Willa J. Brantley 228-523-4108 willa.brantley@dmr.ms.gov

NOTICE: Read this document carefully. Failure to follow the listed conditions can result in substantial fines and penalties.

This document serves as certification that the subject activity has been reviewed by the Mississippi Department of Marine Resources (MDMR). The application was presented to the Mississippi Advisory Commission on Marine Resources (MACMR) and recommended for approval on April 20, 2021 and approved by the MDMR Executive Director on May 10, 2021.

In accordance with the provisions of the Mississippi Coastal Wetlands Protection Act and the findings made in compliance with the Mississippi Coastal Program (MCP), a Permit to conduct Regulated Activities is issued to you this day by the Executive Director. The activities herein authorized shall be conducted in a manner resulting in the least damaging impacts to wetlands and the coastal environment.

The following activities and impacts are authorized by this certification as indicated on the attached approved diagram:

1. Permanent fill of approximately 0.5 acres of unvegetated Coastal Wetlands for the construction of a breakwater 2,800 feet in length in accordance with the parameters outlined in the attached table of Breakwater Design Criteria; Additional materials may be added to the breakwater as needed during the life of this Permit to maintain the authorized design parameters; The DMR Bureau of Wetlands Permitting

must receive written notice of any maintenance activities at least 30 days prior to commencement

2. Permanent fill of approximately 3 acres of unvegetated Coastal Wetlands for the construction of a breakwater 5,200 feet in length in accordance with the parameters outlined in the attached table of Breakwater Design Criteria; Additional materials may be added to the breakwater as needed during the life of this Permit to maintain the authorized design parameters; The DMR Bureau of Wetlands Permitting must receive written notice of any maintenance activities at least 30 days prior to commencement

The applicant must abide by specific conditions as listed below.

Any deviations beyond the above-authorized dimensions, the project footprint as shown on the attached approved diagram, or the specific conditions as set forth below will be considered a violation and may result in the revocation of the permit. Violations of these conditions may be subject to fines, project modifications, and/or site restoration. Both the permittee and the contractor may be held liable for such violations or for conducting unauthorized work. A modification to the project dimensions or footprint or to these conditions may be requested by submitting a written request along with a revised project diagram to the MDMR. *Proposed modifications to project dimensions, footprint, or conditions must be approved in writing prior to commencement of work.*

The specific conditions of this certification are as follows:

1. Breakwaters must:
   a. Use only clean material free of waste, metal and organic trash, unsightly debris, petroleum products (asphalt), etc.
   b. Not result in fill of or adverse impacts to wetlands, submerged aquatic vegetation, or shellfish beds
   c. Be marked by safety lights, signs, and/or signals as prescribed by the U.S. Coast Guard through regulations or otherwise; Marking of the breakwaters and the plan for maintaining the markings must be approved by MDMR prior to completion of the project
   d. Be constructed in a manner that allows water flow and wildlife movement
   e. Not result in fill of or adverse impacts to submerged aquatic vegetation or shellfish beds
   f. Not pose a hazard to navigation

2. The project area must be surveyed for the presence of submerged aquatic vegetation (SAV) during the growing season prior to implementation of the project; The results of this survey must be submitted to the DMR Bureau of Wetlands Permitting at least 30 days prior to commencement of construction; If SAV is found within the project area, an additional review by and written approval from DMR staff will be required prior to commencement of construction

3. All authorized activities must:
   a. Use Best Management Practices (BMPs) at all times during construction, including, but not limited to, the use of staked hay bales; staked filter cloth; sodding, seeding, and mulching; staged construction; and the installation of turbidity screens around the immediate project site
   b. Be conducted in a manner that minimizes the discharge of turbid waters into Waters of the State (Turbidity outside the limits of a 750-foot mixing zone must not exceed the ambient turbidity by more than 50 Nephelometric Turbidity Units)
   c. Have appropriate wastewater permits and/or approvals for the proposed activity in place prior to the commencement of construction activities
   d. Have appropriate stormwater permits, approvals, and/or measures in place prior to the commencement of construction activities (For projects greater than five acres of total ground disturbances including clearing, grading, excavating, or other construction activities, the applicant shall obtain the necessary coverage under the State of Mississippi's Large Construction Storm Water General NPDES Permit; For projects greater than one to less than five acres of total ground disturbance including clearing, grading, excavating or other construction activities, the applicant shall follow the conditions and limitations of the State of Mississippi's Small Construction Storm Water General NPDES Permit)
   e. Not result in construction debris, sewage, oil, refuse, other pollutants, or unauthorized fill material entering Coastal Wetlands or Waters of the State
   f. Not impact wetlands, submerged aquatic vegetation, or shellfish beds unless specifically authorized above

4. Completion of the above-authorized activities and impacts must be reported to the MDMR through one of the methods listed below within 30 days of completion so that compliance checks may be conducted by MDMR staff:
   a. By visiting your account at citizenserve.com
   b. By calling or emailing the MDMR Project Manager listed on the first page of this authorization

Work authorized by this certification must be completed on or before: May 12, 2031

This certification is contingent on clearance from the Mississippi Department of Environmental Quality (MDEQ) and the Mississippi Department of Archives and History (MDAH). The Permittee shall maintain all standards, regulations, and restrictions as set forth by the MDEQ and the MDAH under MS state law with regards to protection of water quality and cultural resources and conservation of water resources.

Issuance of this certification by MDMR does not release the applicant from other legal requirements including but not limited to other applicable federal, state, or local laws, ordinances, zoning codes, or other regulations, including a possible Tidelands Lease from the MS Secretary of State's Office, required City or County construction setbacks, or building permits from the City or County where the project is located. A list of contacts has been provided for your assistance in determining whether any further certifications are required.

This certification conveys no title to land and water, does not constitute authority for reclamation of coastal wetlands and does not authorize invasion of private property or rights in property.

It is the responsibility of the applicant or property owner and their contractors and authorized agents to construct all authorized structures in a manner that does not impede access to riparian/littoral zones of adjacent property owners or other property owners in the vicinity (see MS Code Annotated § 49-15-9, enclosed). Failure to adhere to this could result in legal action by the affected parties. The MDMR does not make property or riparian/littoral boundary determinations.

The MDMR has also coordinated a review of your project through the Coastal Program review procedures and determined that the project referenced above is consistent with the Mississippi Coastal Program, provided that you comply with the noted conditions and reviewing Coastal Program Agencies do not disagree with said plans. By copy of this certification, we are notifying the U.S. Army Corps of Engineers of this determination.

Please notify this Department upon completion of the permitted project so that compliance checks may be conducted by MDMR staff.

THIS CERTIFICATION IS EFFECTIVE IMMEDIATELY.

Joe Spraggins (May 12, 2021 10:25 CDT)

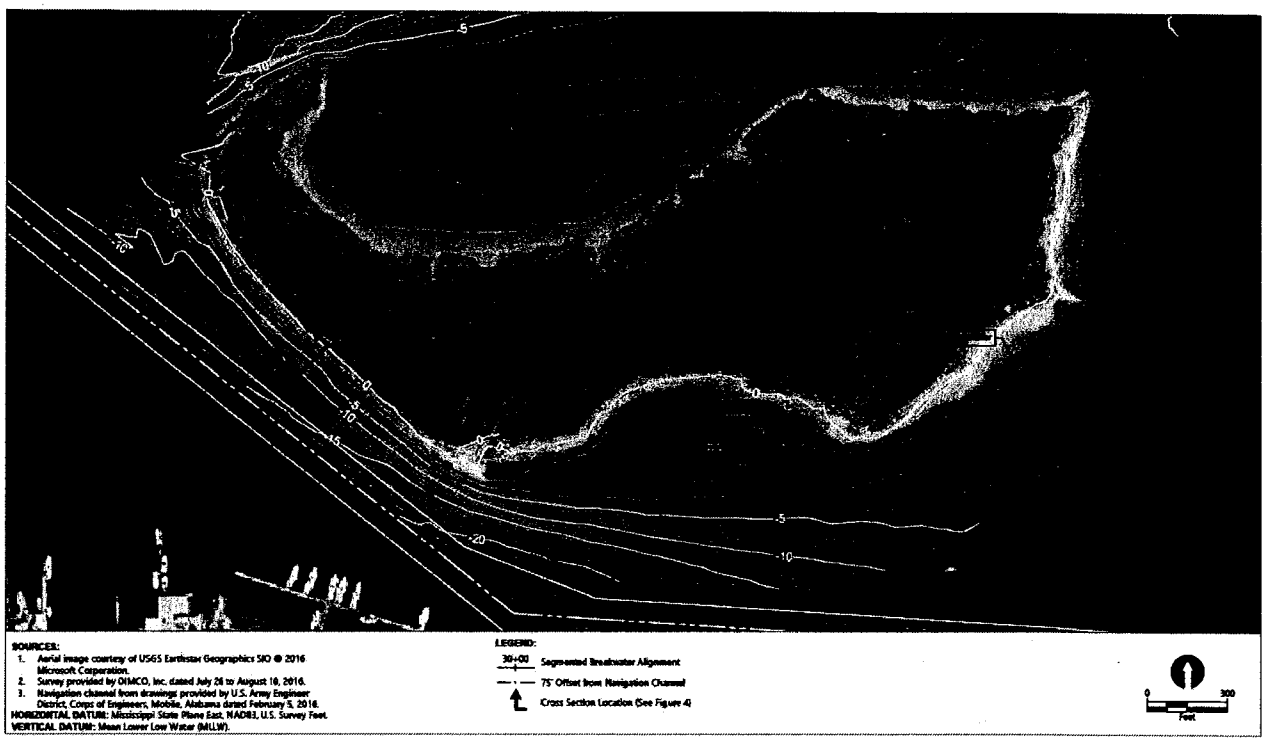
Joe Spraggins
Executive Director
MS Department of Marine Resources

JS/wjb

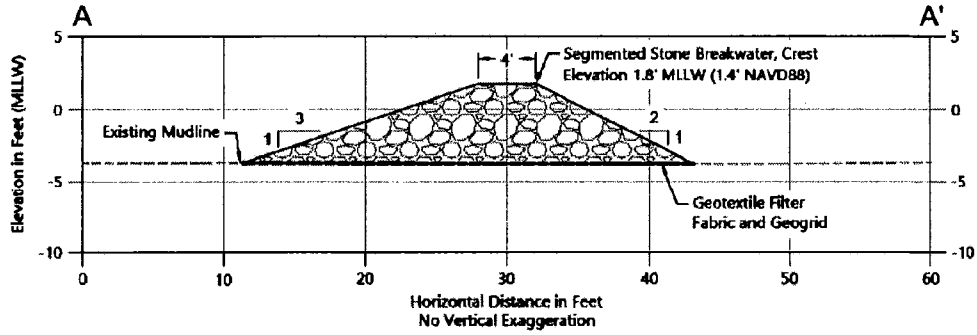
Attachments:
Approved Diagrams
MS Code Annotated - 49-15-9

CC:
MS Team Leader USACE
Ms. Florance Bass, OPC
Mr. Raymond Carter, SOS

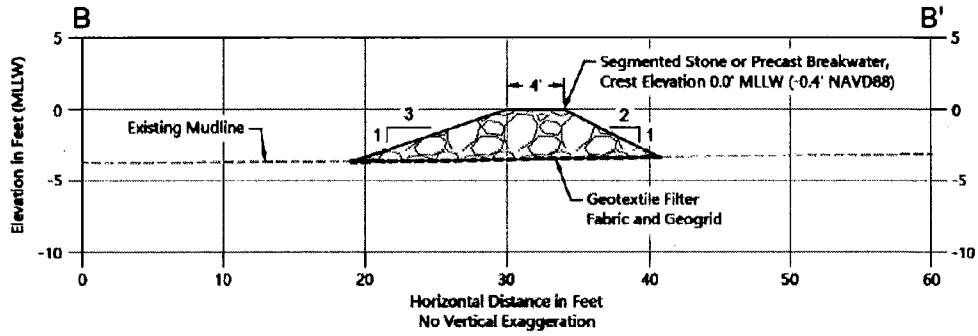
Breakwater Design Criteria	Outer Breakwater	Inner Breakwater
Total project length	5,200 feet	2,800 feet
Total project acreage	3 acres	0.5 acres
Crest width	4 feet	4 feet
Base width	Approximately 30 feet depending on contour	Approximately 20 feet depending on contour
Assumed bottom elevation	-2.5 to -3.5 feet MLLW	-1.5 to -2.5 feet MLLW
Total structure height	3.0 to 5.0 feet	2.0 to 3.0 feet
Breakwater materials	Riprap	OysterBreaks; WADs; riprap or other comparable engineered structures/materials as approved by the permitting agencies
Riprap volume	Approximately 9,500 cubic yards	Approximately 1,900 cubic yards
Thickness of material (riprap)	0.5 to 5.0 feet	0.5 to 2.0 feet
Estimated initial settlement	0.0 to 0.5 feet	0.0 to 0.5 feet
Design side slopes (island-facing slopes)	2H:1V or vertical, depending on technology	2H:1V or vertical, depending on technology
Design slide slopes (bay-facing slopes)	3H:1V to vertical, depending on technology	3H:1V to vertical, depending on technology
Breakwater distance from shoreline	50 to 550 feet	130 to 200 feet
Maximum design crest elevation	1.8 feet MLLW	0.0 MLLW



Big Island Proposed Breakwater Alignment



Outer Breakwater

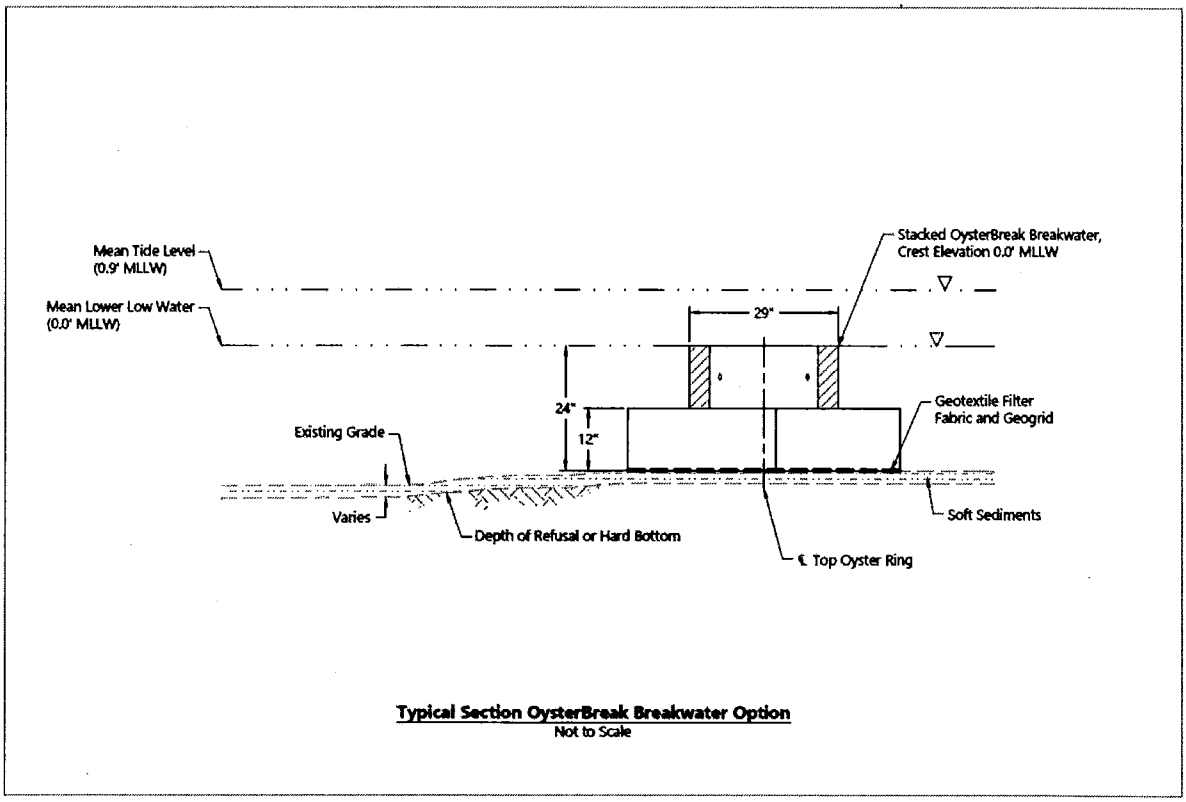


Inner Breakwater

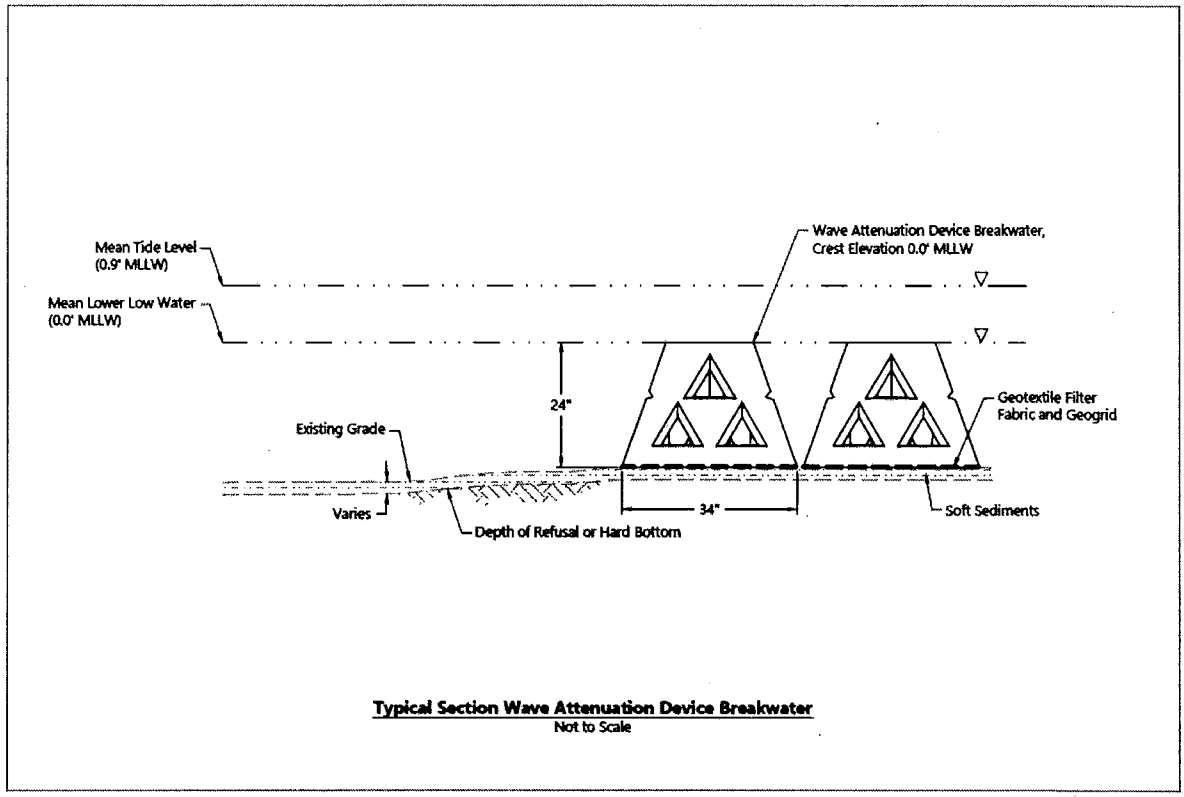
NOTES:

1. **Inner breakwater to be constructed at bed elevations between -1.5 and -2.5 feet MLLW.**
2. **Outer breakwater to be constructed at bed elevations between -2.5 and -3.5 feet MLLW.**

Typical Section Riprap Breakwaters



Typical Section OysterBreak Inner Breakwater Option



Typical Section Wave Attenuation Device Inner Breakwater Option

Miss. Code Ann. § 49-15-9

Copy Citation

Current through the 2019 Regular Session.

Mississippi Code 1972 Annotated Title 49. Conservation and Ecology (Chs. 1 — 37) Chapter 15. Seafood (Arts. 1 — 7) Article 1. General Provisions. (§§ 49-15-1 — 49-15-100.3)

§ 49-15-9. Rights of riparian owners on Gulf Coast defined.

The sole right of planting, cultivating in racks or other structures, and gathering oysters and erecting bathhouses and other structures in front of any land bordering on the Gulf of Mexico or Mississippi Sound or waters tributary thereto belongs to the riparian owner and extends not more than seven hundred fifty (750) yards from the shore, measuring from the average low water mark, but where the distance from shore to shore is less than fifteen hundred (1500) yards, the owners of either shore may plant and gather to a line equidistant between the two (2) shores, but no person shall plant in any natural channel so as to interfere with navigation, and such riparian rights shall not include any reef or natural oyster bed and does not extend beyond any channel. A riparian owner shall comply with the Coastal Wetlands Protection Act in exercising the use of these riparian rights. Stakes of such frail materials as will not injure any watercraft may be set up to designate the bounds of the plantation, but navigation shall not be impeded thereby. The riparian owner shall clearly mark such cultivation racks and other structures. The commission may adopt regulations to require that the racks are adequately marked to ensure the safety of users of public waters. Any oysters planted by such riparian owner are the private property of such riparian owner, subject to the right of the commission to adopt reasonable rules and regulations as to the planting and gathering of such oysters. All bathhouses, piers, wharfs, docks and pavilions, or other structures owned by riparian owner are likewise the private property of such owner, who shall be entitled to the exclusive use, occupancy and possession thereof, and may abate any private or public nuisance committed by any person or persons in the area of his riparian ownership and may, for such purposes, resort to any remedial action authorized by law. The governing authorities of any municipality and the board of supervisors of any county are authorized to adopt reasonable rules and regulations to protect riparian owners in the enjoyment of their riparian rights, and for such purposes may regulate the use of beaches, landings, and riparian areas abutting or fronting on roads, streets or highways.

History

Codes, 1942, § 6047-10; Laws, 1960, ch. 173, § 10; Laws, 1962, ch. 193, § 10; Laws, 1991, ch. 438 § 1, eff from and after passage (approved March 21, 1991).

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MS Secretary of State's Office

(228) 432-0541

DMR200009-1

Final Audit Report 2021-05-12

Created:	2021-05-12
By:	Willa Brantley (willa.brantley@dmr.ms.gov)
Status:	Signed
Transaction ID:	CBJCHBCAABAAD3o5AGDLLwa4k5fAWslPhCQ_mIO3cYin

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STATE OF MISSISSIPPI
TATE REEVES
GOVERNOR
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
CHRIS WELLS, INTERIM EXECUTIVE DIRECTOR

February 25, 2020

Ms. Valerie Alley
Mississippi Department of Environmental Quality
P.O. Box 2261
Jackson, Mississippi 39225

Dear Ms. Alley:

Re: MDEQ Office of Restoration,
Big Island Shoreline Component
Harrison County
COE No. SAM201900686JRO
WQC No. WQC2019048

Pursuant to Section 401 of the Federal Water Pollution Control Act (33 U. S. C. 1251, 1341), the Office of Pollution Control (OPC) issues this Certification, after public notice and opportunity for public hearing, Jeremy Overstreet , an applicant for a Federal License or permit to conduct the following activity:

> MDEQ Office of Restoration, Big Island Shoreline Component: The applicant, Mississippi Department of Environmental Quality, is proposing to place approximately 11,400 cubic yards of fill, which consists of riprap, oyster breaks, and/or wave attenuation devices, in water of the U.S. to create 8,000 linear feet of breakwater. The project is identified as "The Big Island Living Shoreline Component," which is located in the Back Bay of Biloxi, Mississippi. The purpose of this project is to restore lost secondary productivity resulting from the Deepwater Horizon Oil Spill. This is part of a programmatic portions of an early restoration agreement entitled "Framework for Early Restoration Addressing Injuries Resulting from the Deepwater Horizon Oil Spill" (Framework Agreement).
> [SAM201900686JRO,WQC2019048].

The Office of Pollution Control certifies that the above-described activity will be in compliance with the applicable provisions of Sections 301, 302, 303, 306, and 307 of the Federal Water Pollution Control Act and Section 49-17-29 of the Mississippi Code of 1972, if the applicant complies with the following conditions:

1. Fill material shall be clean and non-polluting, free of trash, debris, asphalt, etc.

2. Turbidity outside the limits of a 750-foot mixing zone shall not exceed the ambient turbidity by more than 50 Nephelometric Turbidity Units.

3. No sewage, oil, refuse, or other pollutants shall be discharged into the watercourse.

The Office of Pollution Control also certifies that there are no limitations under Section 302 nor standards under Sections 306 and 307 of the Federal Water Pollution Control Act which are applicable to the applicant's above-described activity.

This certification is valid for the project as proposed. Any deviations without proper modifications and/or approvals may result in a violation of the 401 Water Quality Certification. If you have any questions, please contact us.

Sincerely,

Krystal Rudolph

Krystal Rudolph, P.E., BCEE
Chief, Environmental Permits Division

KR: DOA

cc: Jeremy Overstreet, U.S. Army Corps of Engineers, Mobile District
Willa Brantely, Department of Marine Resources
David Felder, U.S. Fish and Wildlife Service
Molly Martin, Environmental Protection Agency
Alane Young, Covington Civil and Environmental, LLC

US Army Corps of Engineers®

This notice of authorization must be conspicuously displayed at the site of work.

A permit to perform work authorized by statutes and regulations of the Department of the Army at

Back Bay of Biloxi, Harrison County, Mississippi

has been issued to Mississippi Department of Environmental Quality **on** May 14, 2021

Address of Permittee: P.O. Box 2261, Jackson, Mississippi 39225

PERMIT NUMBER

SAM-2019-00686-JRO

Allison F. Monroe

Team Leader

For the **District Commander**

ENG FORM 4336, Jul 81 (33 CFR 320-330) EDITION OF JUL 70 MAY BE USED

Proponent: CECW-O

APPENDIX C

Mississippi Department of Environmental Quality File No. WQC-2019048

Krystal Rudolph

STATE OF MISSISSIPPI
TATE REEVES
GOVERNOR
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

October 15, 2020

Ms. Valerie Alley
Mississippi Department of Environmental Quality
P.O. Box 2261
Jackson, Mississippi 39225

Dear Ms. Alley:

Re: MDEQ Office of Restoration,
Big Island Shoreline Component
Harrison County
COE No. SAM201900686JRO
WQC No. WQC2019048

Pursuant to Section 401 of the Federal Water Pollution Control Act (33 U. S. C. 1251, 1341), the Office of Pollution Control (OPC) issues this modified Certification, to Mississippi Department of Environmental Quality, an applicant for a Federal License or permit to conduct the following activity:

> MDEQ Office of Restoration, Big Island Shoreline Component: The applicant, Mississippi Department of Environmental Quality, is proposing to place approximately 20,265 cubic yards of fill, which consists of riprap, oyster breaks, and/or wave attenuation devices, in water of the U.S. to create 8,000 linear feet of breakwater. The project is identified as "The Big Island Living Shoreline Component," which is located in the Back Bay of Biloxi, Mississippi. The purpose of this project is to restore lost secondary productivity resulting from the Deepwater Horizon Oil Spill. This is part of a programmatic portions of an early restoration agreement entitled "Framework for Early Restoration Addressing Injuries Resulting from the Deepwater Horizon Oil Spill" (Framework Agreement). [SAM201900686JRO,WQC2019048].

The Office of Pollution Control certifies that the above-described activity will be in compliance with the applicable provisions of Sections 301, 302, 303, 306, and 307 of the Federal Water Pollution Control Act and Section 49-17-29 of the Mississippi Code of 1972, if the applicant complies with the following conditions:

1. Fill material shall be clean and non-polluting, free of trash, debris, asphalt, etc.

2. Turbidity outside the limits of a 750-foot mixing zone shall not exceed the ambient turbidity by more than 50 Nephelometric Turbidity Units.

3. No sewage, oil, refuse, or other pollutants shall be discharged into the watercourse.

The Office of Pollution Control also certifies that there are no limitations under Section 302 nor standards under Sections 306 and 307 of the Federal Water Pollution Control Act which are applicable to the applicant's above-described activity.

This certification is valid for the project as proposed. Any deviations without proper modifications and/or approvals may result in a violation of the 401 Water Quality Certification. If you have any questions, please contact Paul Devine at 601-961-5171.

Sincerely,

Krystal Rudolph

Krystal Rudolph, P.E., BCEE
Chief, Environmental Permits Division

KR: pjd

cc: Jeremy Overstreet, U.S. Army Corps of Engineers, Mobile District
Willa Brantely, Department of Marine Resources
David Felder, U.S. Fish and Wildlife Service
Molly Martin, Environmental Protection Agency
Alane Young, Covington Civil and Environmental, LLC

APPENDIX D

Endangered Species Act (ESA), the Migratory Bird Treaty Act, the Bald and Golden Eagle Protection Act, and Marine Mammal Protection Act Consultations with Department of the Interior (DOI), United States Fish and Wildlife Services (USFWS), and National Oceanic and Atmospheric Administration (NOAA) Protected Resources Division (PRD), Southeast Regional Office

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701-5505
http://sero.nmfs.noaa.gov

F/SER31:MET

AUG 22 2016

MEMORANDUM FOR: F/HC3 – Leslie Craig

FROM: FOR F/SE – Roy E. Crabtree, Ph.D.

SUBJECT: Deepwater Horizon-Early Restoration Plan Phase IV, Endangered Species Act Section 7 Consultations for 10 living shoreline and subtidal reef projects in Mississippi coastal waters within the Gulf of Mexico

Project	Applicants	SER Number	Project Name/Type
1	National Marine Fisheries Service (NMFS) Restoration Center's (RC) and Mississippi Department of Environmental Quality (MDEQ)	SER-2015-16957	Wolf River Living Shoreline and Subtidal Reef
2	NMFS RC and MDEQ	SER-2015-16956	Bay St. Louis Living Shoreline
3	NMFS RC and MDEQ	SER-2015-16960	Graveline Bay Subtidal Reefs
4	NMFS RC and MDEQ	SER-2015-16959	Graveline Bay Intertidal Reefs
5	NMFS RC and MDEQ	SER-2015-16955	Grand Bay Subtidal Reefs
6	NMFS RC and MDEQ	SER-2015-16990	Grand Bay Intertidal Reefs
7	NMFS RC and MDEQ	SER-2015-16958	Back Bay Little Island Living Shoreline
8	NMFS RC and MDEQ	SER-2015-16963	Back Bay Deer Island Subtidal Reef
9	NMFS RC and MDEQ	SER-2015-16962	Back Bay Channel Island Living Shoreline and Subtidal Reefs
10	NMFS RC and MDEQ	SER-2015-16961	Back Bay Big Island Living Shoreline

This memorandum responds to the NMFS RC's July 7, 2015, memorandum and supporting materials for the 10 living shoreline and intertidal/subtidal reef projects in Mississippi coastal waters in the Gulf of Mexico, requesting concurrence under Section 7 of the Endangered Species

Endangered Species Act (ESA) with the project-effects determinations associated with these projects. We have determined that these 10 projects should be batched into a single consultation due to their spatial proximity, similarities in construction techniques, and potential effects on listed species. You determined that the proposed activities may affect, but are not likely to adversely affect, 5 sea turtle species (green, hawksbill, Kemp's ridley, leatherback, and loggerhead) and Gulf sturgeon.

NMFS requested additional information from the applicant via email on June 8, 2015 and October 13, 2015. We also conducted several teleconferences with the consulting parties to discuss and clarify project details on March 30, June 15, and July 7, 2015, and on February 25, 2016. We received the applicant's final biological evaluations for the projects on May 25, 2016, and we initiated consultation on that day. NMFS's determinations regarding the effects of the proposed actions are based on the description of the actions in this informal consultation. Any changes to the proposed actions may negate the findings of the present consultation and may require reinitiation of consultation with NMFS.

Project Location

Project Number	**Latitude/Longitude** (North American Datum 1983)	**Water body**
1	30.354289 N, 89.291246 W	Bay St. Louis, Harrison County, MS
2	30.359709 N, 89.361370 W	Bay St. Louis, Hancock County, MS
3	30.362738 N, 88.437808 W	Graveline Bay, Jackson County, MS
4	30.370111 N, 88.714440 W	Graveline Bay, Jackson County, MS
5	30.356818 N, 88.478082 W	Grand Bay, Jackson County, MS
6	30.379254 N, 88.472404 W	Grand Bay, Jackson County, MS
7	30.421308 N, 88.915534 W	Back Bay of Biloxi, Harrison and Jackson Counties, MS
8	30.385273 N, 88.857752 W	Back Bay of Biloxi, Harrison County, MS
9	30.416038 N, 88.857355 W	Back Bay of Biloxi, Harrison and Jackson Counties, MS
10	30.415435 N, 88.875274 W	Back Bay of Biloxi, Harrison County, MS

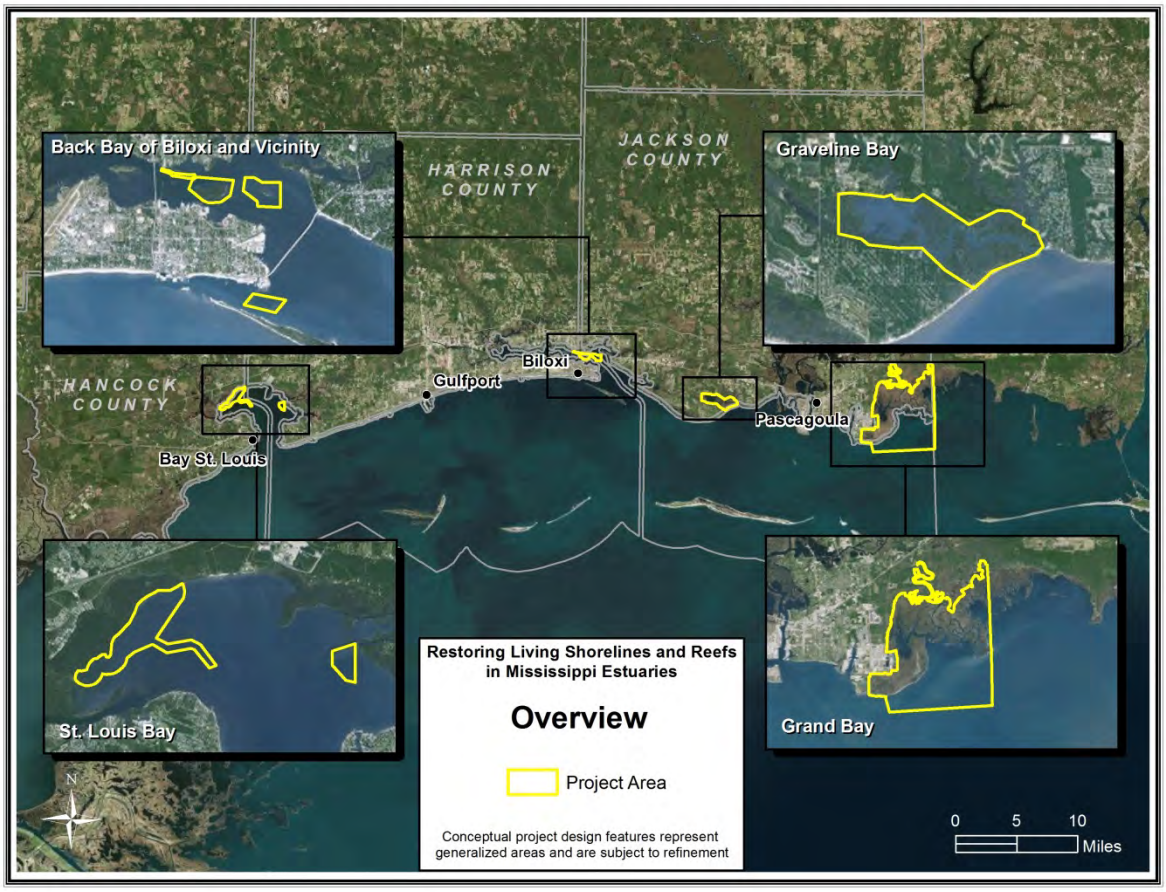

Figure 1. Image from "Endangered Species Act Biological Evaluation Form for Wolf River Living Shoreline and Subtidal Reef Project, MDEQ (2014). (Image is Figure 1: Restoring Living Shorelines and Reefs in Mississippi Estuaries-Vicinity Map Depicting Project Locations and Project Areas)

Project Descriptions

Project 1. Wolf River Living Shoreline and Subtidal Reef

The proposed project includes construction of approximately 1,388 feet (ft) of breakwater along an island at the mouth of the Wolf River in St. Louis Bay. The project also includes construction of approximately 30 acres (ac) of subtidal reef habitat in St. Louis Bay, adjacent to current reef projects at the mouth of the Wolf River. Approximate site locations for the breakwater and subtidal reefs are depicted in Figure 2, below. The substrate in the action area is composed of soft bottom sand and mud located in shallow water at a depth no greater than 6 ft below mean low lower water (MLLW). Construction of the subtidal reef would permanently cover approximately 30 ac of this substrate and the breakwater would permanently cover an additional 1.3 ac. To the extent practicable, subtidal habitat would be sited in locations where there is existing or adjacent historic oyster reef habit. Submerged aquatic vegetation (SAV) is not anticipated to be present in the project area and no impacts to SAV are anticipated at this time. If there is any potential for SAV to be present in the project area, SAV surveys would be completed prior to final site selection to avoid impacting SAV to the extent practicable. Navigation signs

may be required along the breakwater by the USCG Private Aids to Navigation Office. The maximum number of navigation signs, if required, is estimated to be 9. Navigation signs would consist of a 12-inch (in) treated wood piling with a plywood or aluminum day board sign and lighted beacon. The piles would be driven by hand to resistance and as necessary a vibratory hammer from a barge would be used to install piles to a depth ranging from 10-30 ft below the substrate. Construction is expected to take 2-6 months.

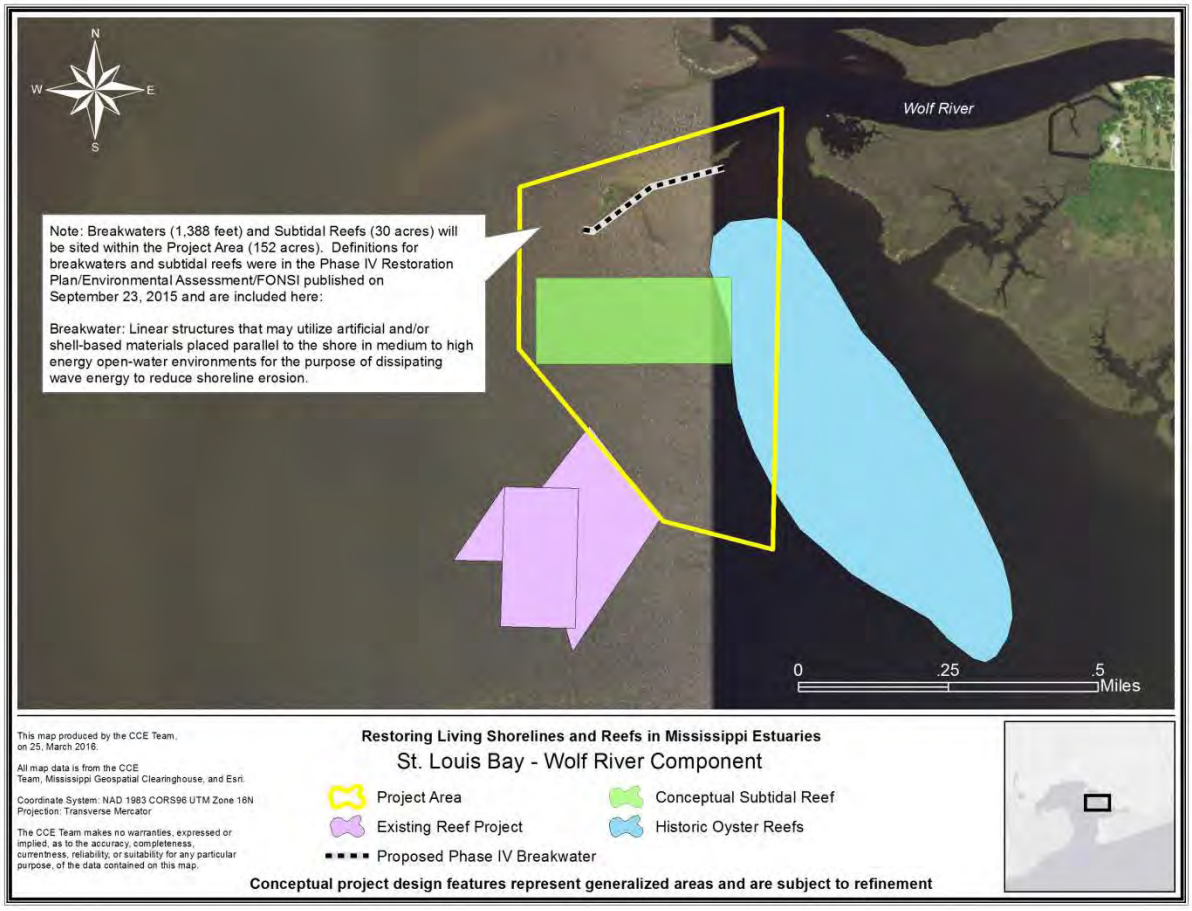

Figure 2. Image from "Endangered Species Act Biological Evaluation Form for Wolf River Living Shoreline and Subtidal Reef Project, MDEQ (2014). (Image is "Figure 3: Current Wolf River Living Shoreline and Subtidal Reef Project Component")

Project 2. Bay St. Louis Living Shoreline

The proposed project includes the construction of approximately 10,812 linear feet (lin ft) of breakwater in western St. Louis Bay near the city of Diamondhead. The approximate site location for the breakwater is depicted in Figure 3, below. The substrate in the action area is composed of soft bottom sand and mud located in shallow water at a depth of no greater than 6 ft below MLLW. Construction of the breakwater would permanently cover approximately 9.9 ac of soft bottom habitat (sand, muddy sand, and mud bottom). SAV is not anticipated to be present in the project area and no impacts to SAV are anticipated at this time. If there is any potential for SAV to be present in the project area, SAV surveys would be completed prior to final site selection to avoid impacting SAV to the extent practicable. Navigation signs may be required

along the breakwater by the USCG Private Aids to Navigation Office. The maximum number of navigation signs, if required, is estimated to be 56. Navigation signs would consist of a 12-in treated piling with a plywood or aluminum day board sign and lighted beacon. The piles would be driven by hand to resistance and as necessary a vibratory hammer from a barge would be used to push piles to a depth ranging from 10-30 ft below the substrate. The entire construction project is expected to take up to 12 months.

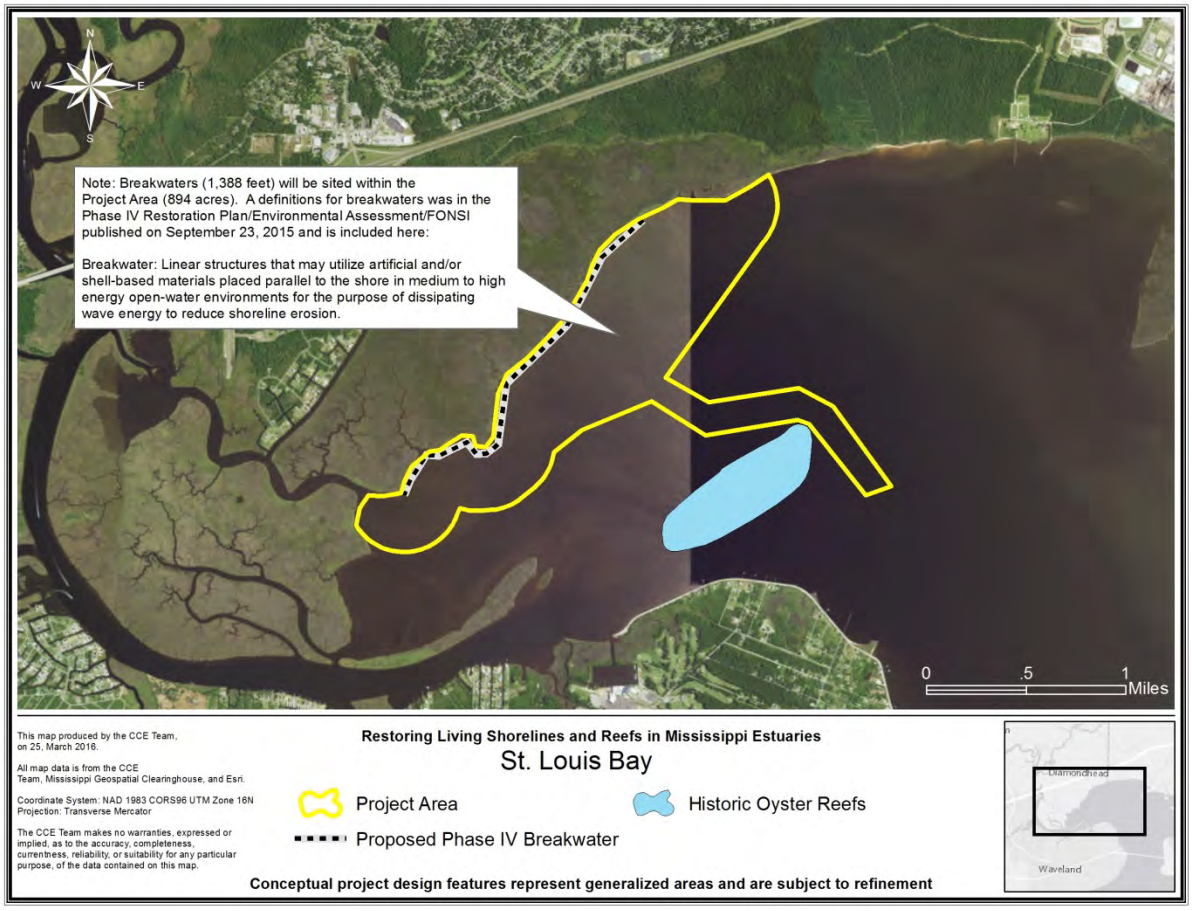

Figure 3. Image from "Endangered Species Act Biological Evaluation Form for St. Louis Bay Living Shoreline Project, MDEQ (2014). (Image is "Figure 3: Current St. Louis Bay Living Shoreline Project Component")

Project 3. Graveline Bay Subtidal Reefs

The proposed project includes the construction of up to 70 ac of subtidal reef within Graveline Bay, between the cities of Biloxi and Pascagoula, MS (see Figure 4, below). The substrate in the action area is composed of unconsolidated soft and hard bottom (sand, muddy sand, mud bottom, and remnant reef) in shallow water at a depth no greater than 7 ft below MLLW. A total of approximately 70 ac of soft bottom and remnant reef habitat would be covered with hard structure. To the extent practicable, subtidal habitat would be sited in locations where there is existing or adjacent historic oyster reef habit. SAV is not anticipated to be present in the project area, and none is expected to be impacted at this time. If there is any potential for SAV to be present in the project area, SAV surveys will be completed prior to final site selection to avoid

impacting SAV to the extent practicable. The entire construction project is expected to take 4 months.

Project 4. Graveline Bay Intertidal Reefs

The proposed project includes the construction of up to 2 ac of subtidal reefs within Graveline Bay, between the cities of Biloxi and Pascagoula, MS (see Figure 4, below). The substrate in the action area is composed of unconsolidated soft and hard bottom (sand, muddy sand, mud bottom, and remnant reef)in shallow water at a depth no greater than 5 ft below MLLW. A total of approximately 2 ac of soft bottom and remnant reef habitat would be covered with hard structure. SAV is not anticipated to be present in the project area, and none is expected to be impacted at this time. If there is any potential for SAV to be present in the project area, SAV surveys will be completed prior to final site selection to avoid impacting SAV to the extent practicable. To the extent practicable, intertidal reef would be sited adjacent to existing or historic intertidal reef habitat. The entire construction project is expected to take 4 months.

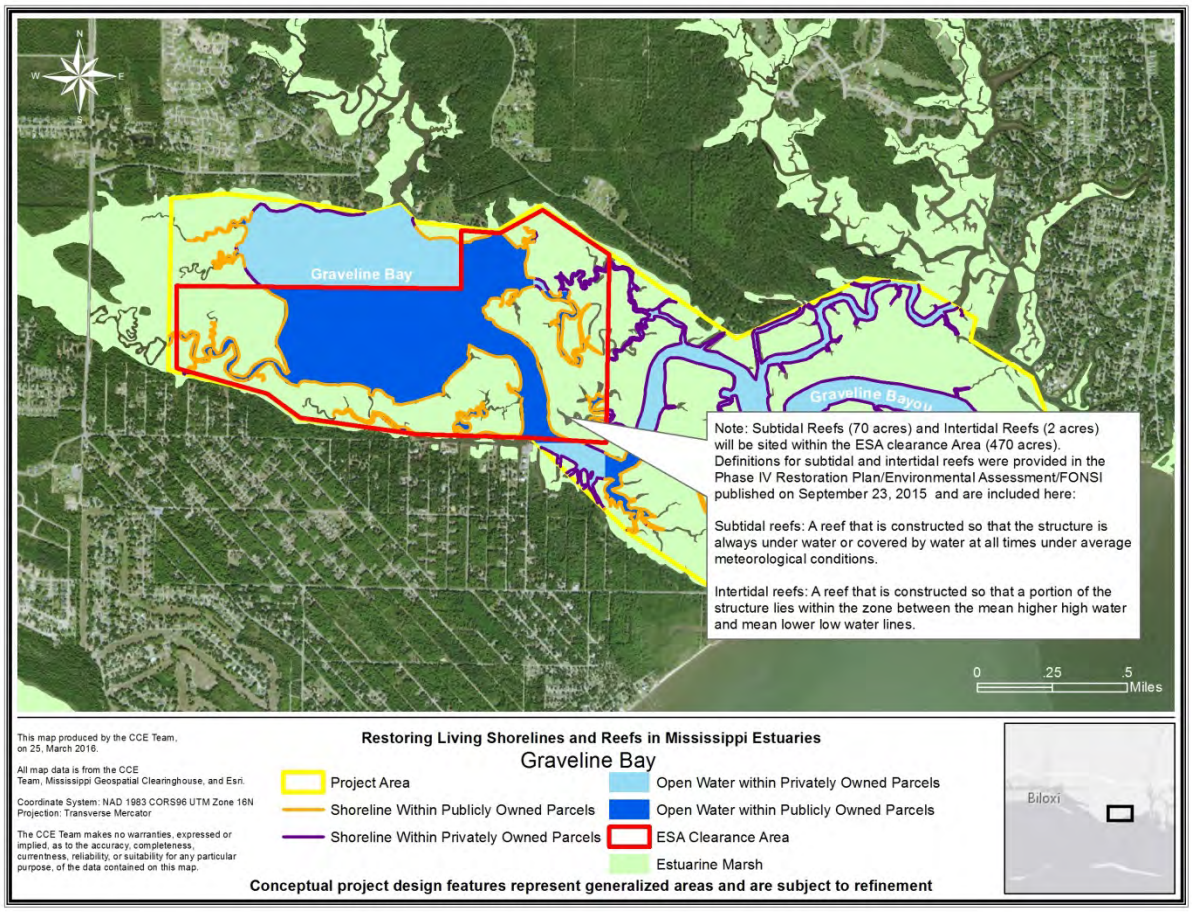

Figure 4. Image from "Endangered Species Act Biological Evaluation Form for Graveline Bay Intertidal Reefs Project, MDEQ (2014). (Image is "Figure 3: Current Graveline Bay Intertidal Reef Component")

Project 5. Grand Bay Subtidal Reefs

The proposed project includes the construction of up to 77 ac of subtidal reefs in Bangs Lake at the far western end of Grand Bay, east of the city of Pascagoula, MS. The approximate site

locations for the reefs are depicted in Figure 5, below. Substrates in the proposed subtidal reef habitat areas are unconsolidated soft and hard bottom (sand, muddy sand, mud bottom, and remnant reef) in shallow water at depths of no greater than 10 ft below MLLW. A total of approximately 77 ac of soft bottom and remnant reef habitat would be covered with hard structure. To the extent practicable, subtidal habitat would be sited in locations where there is existing or adjacent historic hard bottom habit. Large SAV beds exist in the Grand Bay estuary and are monitored by the Grand Bay NERR staff at various locations annually. The last mapping effort took place in 2010, when a total of 530 ac were documented. No SAV beds have been mapped in Bang's Lake and none are expected to be impacted at this time; the closest mapped SAV beds are located over 1 mile east of Bang's Lake. The entire construction project is expected to take 4 months.

Project 6. Grand Bay Intertidal Reefs

The proposed project includes the construction of up to 3 ac of subtidal reefs at several locations in Bangs Lake at the far western end of Grand Bay, east of the city of Pascagoula, MS. The approximate site locations for the reefs are depicted in Figure 5, below. Substrates in the proposed intertidal reef habitat areas are unconsolidated soft bottom (sand, muddy sand and mud bottom) in shallow water at depths of no greater than 6 ft below MLLW. A total of approximately 3 ac of soft bottom habitat would be covered with hard structure. Large SAV beds exist in the Grand Bay estuary and are monitored by the Grand Bay NERR staff at various locations annually. The last mapping effort took place in 2010, when a total of 530 ac of SAV were documented. No SAV beds have been mapped in Bang's Lake, and none are expected to be impacted at this time; the closest mapped SAV beds are located over 1 mile east of Bang's Lake. The entire construction project is expected to take 4 months.

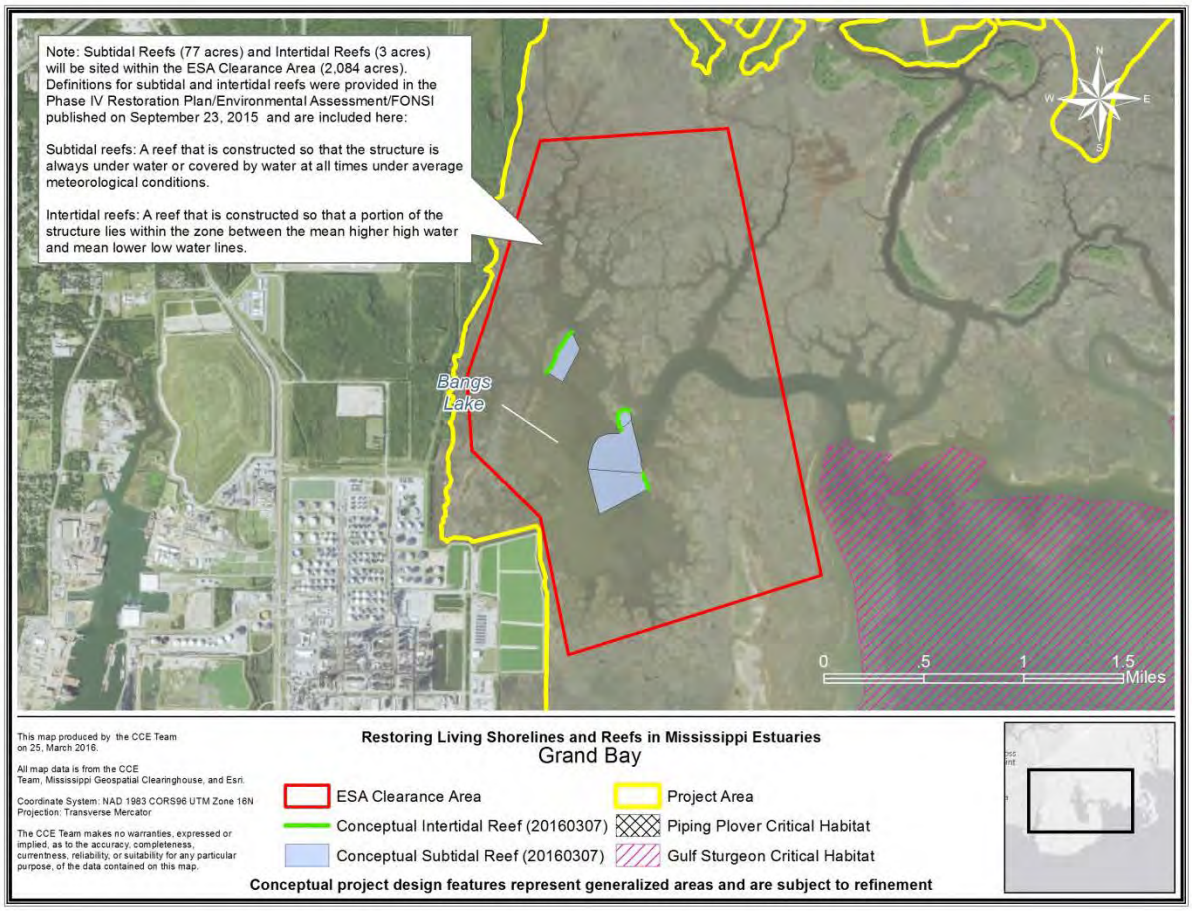

Figure 5. Image from "Endangered Species Act Biological Evaluation Form for Grand Bay Intertidal Reefs Project, MDEQ (2014). (Image is "Figure 4. Current Grand Bay Intertidal Reef Components not within Gulf Sturgeon Critical Habitat")

Project 7. Back Bay Little Island Living Shoreline

The Little Island Living Shoreline project includes construction of approximately 2,316 lin ft of breakwater along the southern facing shoreline of Little Island, north of the city of Biloxi, MS. The approximate location of the breakwater is depicted in Figure 6. The substrate in the action area is composed of soft bottom sand and mud located in shallow water at a depth no greater than 6 ft below MLLW. Construction of the breakwater would permanently cover approximately 1.6 ac of soft bottom habitat. The waters in the project area are naturally turbid and do not support large, continuous seagrasses or other marine vegetation beds. Surveys completed in 2010 found no SAV near the project area (Cho, et. al. 2010), and none is expected to be impacted by the proposed project. Navigation signs may be required along the breakwater by the USCG Private Aids to Navigation Office. The maximum number of navigation signs, if required, is estimated to be 14. Navigation signs would consist of a 12-in treated piling with a plywood or aluminum day board sign and lighted beacon. The piles would be driven by hand to resistance, and as necessary, a vibratory hammer from a barge would be used to push piles to a depth ranging from 10-30 ft below the substrate. The entire construction project is expected to take 8 months.

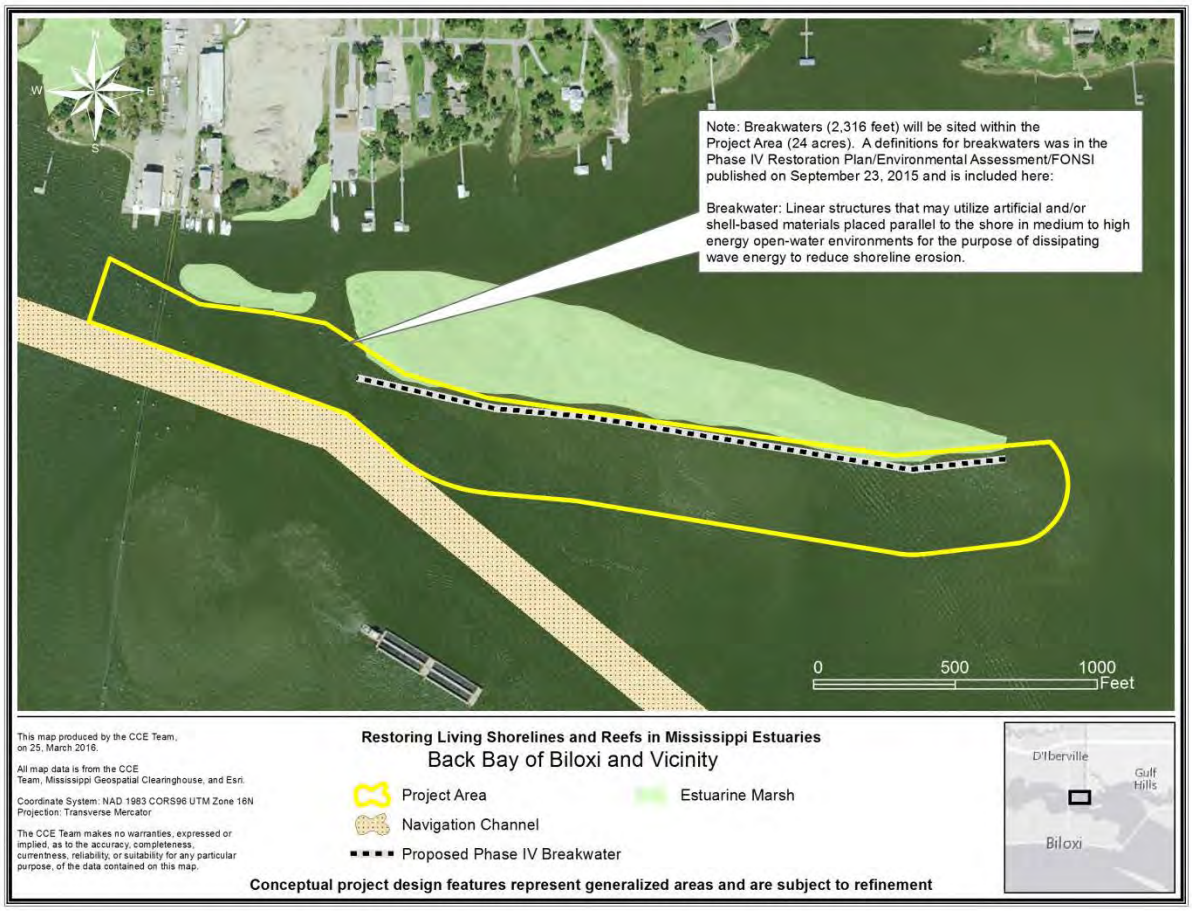

Figure 6. Image from "Endangered Species Act Biological Evaluation Form for Little Island Living Shoreline Project, MDEQ (2014). (Image is "Figure 3: Current Little Island Living Shoreline Project Component")

Project 8. Back Bay Deer Island Subtidal Reef

The Deer Island Subtidal Reef project would expand an existing MDEQ reef project to create approximately 20 ac of additional subtidal reef habitat north of Deer Island and southeast of the city of Biloxi, MS. The project area falls within Unit 8 of Gulf sturgeon critical habitat (68 FR 13370 2003). The approximate location for the subtidal reef is depicted in Figure 7, below. The substrate at the project site is composed of unconsolidated soft and hard bottom (sand, muddy sand, mud bottom, and remnant reef)in shallow water at a depth no greater than 3 ft below MLLW. A total of approximately 20 ac of soft bottom and remnant reef habitat would be covered with hard structure. To the extent practicable, subtidal habitat would be sited in locations where there is existing or adjacent historic hard bottom habit. The waters in the project area are naturally turbid and do not support large, continuous seagrasses or other marine vegetation beds. Surveys completed in 2010 found no SAV near the project area (Cho, et. al. 2010), and none is expected to be impacted by the proposed project. The entire construction period is expected to last 1-5 months, and in-water work is expected to be completed in spring and summer months.

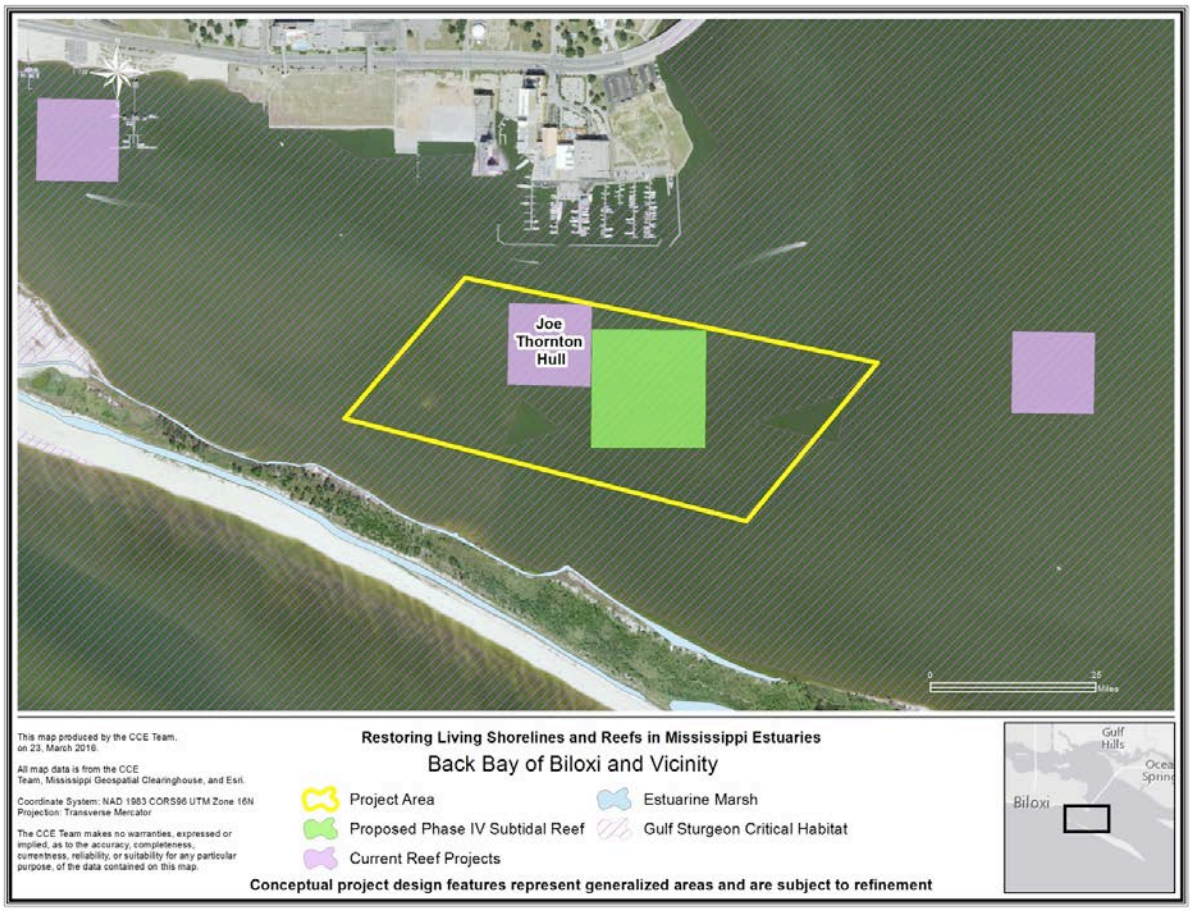

Figure 7. Image from "Endangered Species Act Biological Evaluation Form for Deer Island Subtidal Reef Project, MDEQ (2014). (Image is "Figure 3: Current Deer Island Subtidal Reef Project Component")

Project 9. Back Bay Channel Island Living Shoreline and Subtidal Reef

The Channel Island Living Shoreline and Subtidal Reefs project includes construction of approximately 2,385 ft of breakwater along the shoreline, along with approximately 70 ac of subtidal reef habitat which would connect the breakwater structure to an existing subtidal reef on the north and south sides of Channel Island in the Back Bay of Biloxi, northeast of the city of Biloxi, MS. The approximate site locations for the breakwater and subtidal reefs are depicted in Figure 8, below. The substrate at the project site is composed of unconsolidated soft and hard bottom (sand, muddy sand, mud bottom, and remnant reef) located in shallow water at a depth no greater than 6 ft below MLLW. Construction of the breakwater would permanently cover approximately 1.6 ac of soft bottom habitat and the subtidal reef would cover a total of approximately 70 ac of soft bottom and remnant reef habitat with hard structure. To the extent practicable, subtidal habitat would be sited in locations where there is existing or adjacent historic hard bottom habit. The waters in the project area are naturally turbid and do not support large, continuous seagrasses or other marine vegetation beds. Surveys completed in 2010 found no SAV near the project area (Cho, et. al. 2010), and none is expected to be impacted by the proposed project. Navigation signs may be required along the breakwater by the USCG Private Aids to Navigation Office. The maximum number of navigation signs, if required, is estimated to be 14. Navigation signs would consist of a 12-in treated piling with a plywood or aluminum

day board sign and lighted beacon. The piles would be driven by hand to resistance and as necessary a vibratory hammer from a barge would be used to push piles to a depth ranging from 10-30 ft below the substrate. The entire construction project is expected to take 8 months.

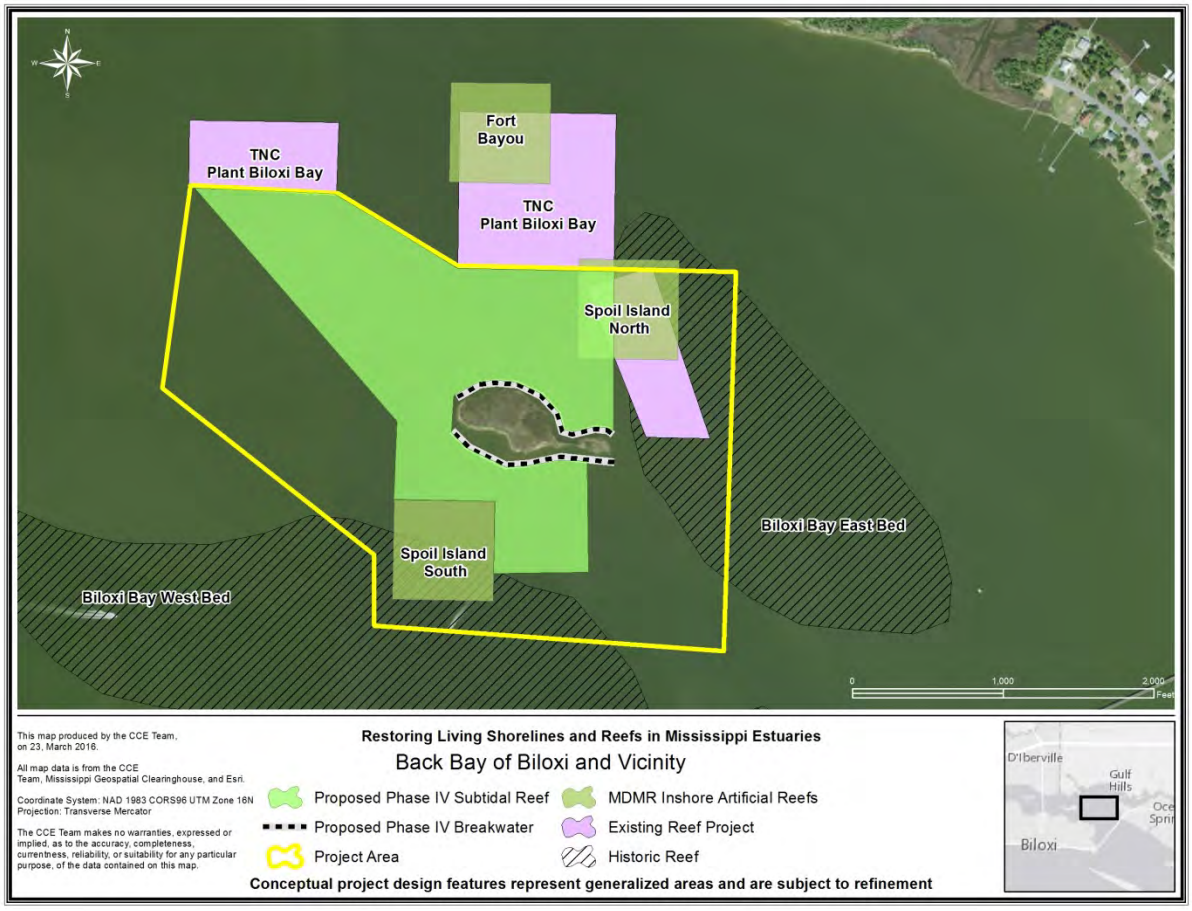

Figure 8. Image from "Endangered Species Act Biological Evaluation Form for Channel Island Living Shoreline and Subtidal Reef Project, MDEQ (2014). (Image is "Figure 3: Current Channel Island Living Shoreline and Subtidal Reef Project Component")

Project 10. Back Bay Big Island Living Shoreline

The Big Island Living Shoreline project includes construction of approximately 5,011 lin ft of breakwater along the southern facing shoreline of Big Island in the Back Bay of Biloxi, northeast of the city of Biloxi, MS. The approximate site location for the breakwater is depicted in Figure 9, below. The substrate at the project site is composed of soft bottom sand and mud located in shallow water at a depth no greater than 6 ft below MLLW. Construction of the breakwater would permanently cover approximately 1.6 ac of soft bottom habitat (sand, muddy sand, and mud bottom). The waters in the project area are naturally turbid and do not support large, continuous seagrasses or other marine vegetation beds. Surveys completed in 2010 found no SAV near the project area (Cho, et. al. 2010), and none is expected to be impacted by the proposed project. Navigation signs may be required along the breakwater by the USCG Private Aids to Navigation Office. The maximum number of navigation signs, if required, is estimated to be 27. Navigation signs would consist of a 12-in treated piling with a plywood or aluminum

day board sign and lighted beacon. The piles would be driven by hand to resistance, and as necessary, a vibratory hammer from a barge would be used to push piles to a depth ranging from 10-30 ft below the substrate. The entire construction project is expected to take 12 months.

Figure 9. Image from "Endangered Species Act Biological Evaluation Form for Big Island Living Shoreline Project, MDEQ (2014). (Image is "Figure 3: Current Big Island Living Shoreline Project Component")

General Descriptions of Project Components

Breakwaters: The breakwater dimensions presented in Table 1 (below) represent the maximum proposed footprint that would be impacted by placement of the structures for each project. Any adjustments during final design would not exceed the parameters in Table 1. Construction would take place within the maximum bottom width identified in Table 1. The alignment and limits of the breakwaters would be sited within the project study area shown in the figures for each project. Navigation signs may be required by the USCG Private Aids to Navigation Office. The numbers of navigation signs, if required, are estimated in Table 1 below.

The breakwaters would be constructed using approved manufactured and/or natural materials (quarried rock, coir logs, Reef Balls or similar products). The materials would be stockpiled at an existing, previously developed staging area (such as a parking lot) near the project area, which has water access. Mechanical equipment would be utilized to load the materials onto a material

handling barge. The materials would be transported to the work area to be deployed by a crane and/or long-armed trackhoe located on an equipment barge. Placement of the breakwater structure would be monitored to ensure the breakwater dimensions, slopes, and crest elevations are achieved. Design and materials used will not create an entanglement or entrapment risk to ESA species or block migration.

Table 1. Restoring Living Shorelines and Reefs in Mississippi Estuaries, Preliminary Design Parameters and Construction Techniques for Breakwater Structures

Project Component	Maximum Structure Width (ft)	Maximum Structure Length (ft)	Maximum Footprint (acres)	Navigation Signs (each)*	Estimated in-water Construction Time (months)
Wolf River Living Shoreline	30	1,388	1.3	0 to 9	6
St. Louis Bay Living Shoreline	40	10,812	9.9	0 to 56	12
Little Island Living Shoreline	30	2,316	1.6	0 to 14	8
Channel Island Living Shoreline	30	2,385	1.6	0 to 14	8
Big Island Living Shoreline	30	5,011	3.5	0 to 27	12

* Represents preliminary estimate of number of signs; consultation with the U.S. Coast Guard Private Aids to Navigation Division would be coordinated to determine the required type and spacing of navigation signs.

Subtidal Reef Habitat: The subtidal reef habitat would be constructed using material appropriate for development of living oyster reefs (limestone, crushed concrete, oyster shells or a combination thereof). These cultch materials would be stockpiled at an existing upland staging area, which has water access to the project area. The cultch materials would be inspected at the existing staging area prior to being loaded onto a barge to ensure the materials are clean and free of all debris. Mechanical equipment would be utilized to load the materials onto shallow draft barges or shallow draft self-powered marine vessels. The material would be deployed using a high-pressure water jet or using a clam shell bucket mounted on a crane or a long-armed trackhoe located on a separate equipment barge. The cultch material would be deployed in water depths ranging from 0 to -10 MLLW. The cultch material thickness would range from approximately 1-12 in.

Table 2. Restoring Living Shorelines and Reefs in Mississippi Estuaries, Subtidal Reef Habitat

Project Component	Subtidal Reef Habitat Area (acres)	Volume of proposed reef material (cubic yards)	Estimated Construction Time (months)
Wolf River Subtidal Reef	30	24,210	2
The Graveline Bay Subtidal Reefs	70	56,490	4

Grand Bay Subtidal Reefs	77	62,139	4
Deer Island Subtidal Reef	20	16,140	5
Channel Island Subtidal Reef	70	24,210	8

Intertidal Reef Habitat

Intertidal reef habitat would be constructed using loose or bagged oyster shells. Oyster shells would be bagged and stockpiled at an existing upland staging area which has water access to the project area. The bagged oyster shells would be loaded by hand onto shallow draft marine vessels. The shallow draft vessels would transport the bagged oyster shells to the project location where they would be unloaded and placed by hand from the vessel. The intertidal reef habitat would be constructed along the water's edge between MLLW and mean higher high waterMHHW. Tide surveys would be conducted prior to beginning construction and PVC poles would be pushed in the ground to mark the high- and low-tide elevations. To the extent practicable, intertidal reef would be sited where there is existing adjacent or historic intertidal reef habitat. Existing staging areas will be used which are not located in habitats used by listed or at-risk species. No new access to staging areas will be necessary.

Table 3. Restoring Living Shorelines and Reefs in Mississippi Estuaries, Intertidal Reef Habitat

Project Component	Intertidal Reef Habitat Area (acres)	Estimated Construction Time (months)
The Graveline Bay Intertidal Reefs	2	4
Grand Bay Intertidal Reefs	3	4

Post-Construction Monitoring

All 10 projects include standard post-construction monitoring. The basic parameters to be monitored include:

- Structural integrity of breakwaters and reefs
- As-designed height/elevation and area of breakwaters and reefs
- Infauna and epifauna species composition, density, and biomass on breakwaters and reefs
- Water temperature, salinity, and dissolved oxygen in project areas

In addition, breakwater projects will include post-construction monitoring of:

- Shoreline profile/elevation
- Marsh edge position

These monitoring activities will be conducted on foot and/or from small water craft. Monitoring will occur infrequently (once per year to once every 5 years). No heavy equipment or hazardous materials will be utilized in monitoring activities. Many of the monitoring plans include "corrective actions" to be implemented if the monitoring shows that the new structures are not meeting specific performance criterion. These corrective measures include "add structural material to existing structure or construct new structures in a more suitable location(s)." Due to

the absence of information on how, when, and where such activities might be undertaken, it is impossible to analyze the potential effects of these corrective actions at this time. Therefore, this consultation does not cover any such corrective actions. If the action agency determines that corrective actions are necessary, and that those actions may affect listed species or designated critical habitat, the action agency will need to initiate a new consultation process once sufficient detail has been developed to allow an analysis of the potential effects of the corrective actions.

Conservation Measures and Best Management Practices (BMPs)
The following conservation measures and BMPs will be implemented during all construction projects:

- Material used for construction will not contain trash, debris, or toxic pollutants.

- All vessels/barges will travel at slow speed in and around construction zones (5 knots or less).

- SAVs and living oysters would be avoided to the extent practicable.

- All in-water construction activities will comply with NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions* (NMFS March 23, 2006).

All in-water project work will be conducted during daylight hours, and noise will be kept to the minimum feasible level.

- Project components will not impede migratory paths. Design and materials used will not create an entanglement or entrapment risk to ESA species or block migration. Completed projects will not impede ingress, egress, or migration of ESA species between shoreline and open water.

- Project work will be scheduled for the spring and summer months when sturgeon are not expected in saline environments. For those projects that require work to continue outside of the May-to-October window, continued adherence to the *Sea Turtle and Smalltooth Sawfish Construction Conditions* will help to reduce the potential for impacts to Gulf sturgeon.

- Prior to bringing any equipment (including personal gear, machinery, vehicles or vessels) to the work site, each item shall be inspected for mud or soil, seeds, and vegetation. If present, the equipment, vehicles, or personal gear shall be cleaned until they are free from mud, soil, seeds, and vegetation. This inspection will occur each time equipment, vehicles, and personal gear are being prepared to go to a site or prior to transferring between sites to avoid spreading exotic, nuisance species.

Table 4. Effects Determinations for Species the Action Agency or NMFS Believes May Be Affected by the Proposed Action

Species	ESA Listing Status	Action Agency Effect Determination	NMFS Effect Determination

Species	ESA Listing Status	Action Agency Effect Determination	NMFS Effect Determination
Sea Turtles			
Green (North and South Atlantic distinct population segment [DPS])	T	NLAA	NLAA
Kemp's ridley	E	NLAA	NLAA
Leatherback	E	NLAA	NLAA
Loggerhead (Northwest Atlantic Ocean DPS)	T	NLAA	NLAA
Hawksbill	E	NLAA	NLAA
Fish			
Gulf sturgeon (Atlantic sturgeon, Gulf subspecies)	T	NLAA	NLAA
E = endangered; T = threatened; NLAA = may affect, not likely to adversely affect			

Critical Habitat

Nine of the projects are not located in critical habitat and no routes of effect to critical habitat are anticipated. One of the proposed projects (Back Bay Deer Island Subtidal Reef Project) is located in Unit 8 of Gulf sturgeon critical habitat. There are 4 essential features within Unit 8: abundant prey items, water quality, sediment quality, and safe, unobstructed migratory pathways. The proposed project has the potential to affect any or all of these essential features.

Analysis of Potential Routes of Effects to Species

NMFS has identified the following potential effects to sea turtles and Gulf sturgeon from the proposed projects and concluded that these species are not likely to be adversely affected.

Routs of Effects for Living Shoreline Projects

1. Sea turtles and Gulf sturgeon may be injured if struck by the materials placed into the water to form the breakwaters or by the heavy equipment placing those materials (bucket/arm of crane or backhoe). We believe this adverse effect is discountable because these species are highly mobile and are expected to exhibit avoidance behavior by moving away from any heavy equipment operating in the marine environment. The action agency's implementation of NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions* will further reduce the risk by requiring all construction workers to watch for listed species. Operation of any mechanical construction equipment will cease immediately if a sea turtle or Gulf sturgeon is seen within a 50-ft radius of the equipment. Activities will not resume until the protected species has departed the project area of its own volition.

2. Sea turtles and Gulf sturgeon may be injured if struck by construction related vessels or barges. Due to the species' mobility and the requirement for all construction related vessels and barges to maintain slow transit speeds (5 knots or less) to and from (and within) the construction sites renders the possibility of injury due to a vessel strike discountable.

3. Sea turtles and Gulf sturgeon may be temporarily unable to use the project sites for forage and shelter habitat due to avoidance of construction activities including placement of materials and related turbidity and noise. However, we believe any potential effects are insignificant considering the projects are located in open-water areas surrounded by large expanses of similar habitats (see images above) which would allow foraging and sheltering throughout the surrounding area.

4. Effects to sea turtles and Gulf sturgeon as a result of noise created by construction activities can physically injure these animals or change their behavior in the affected areas. Injurious effects can occur in 2 ways. First, effects can result from a single noise event's exceeding the threshold for direct physical injury to animals, and these constitute an immediate adverse effect on these animals. Second, effects can result from prolonged exposure to noise levels that exceed the daily cumulative exposure threshold for the animals, and these can constitute adverse effects if animals are exposed to the noise levels for sufficient periods. Behavioral effects can be adverse if such effects prevent animals from migrating, feeding, resting, or reproducing, for example. None of the proposed construction activities including the installation of 12-in wood signposts by vibratory hammer are expected to generate noise levels sufficient to cause peak-pressure injury to sea turtles or Gulf sturgeon, nor would they produce daily cumulative sound exposure levels over the course of a day sufficient to cause injury to these species.

   Noise from signpost installation could potentially cause behavioral effects for sea turtles and Gulf sturgeon. Due to the mobility of these species, we expect them to move away from noise disturbances. Because there is an abundance similar habitat throughout the surrounding area, we believe behavioral effects will be insignificant, as they would not prevent animals from migrating, feeding, resting, or reproducing.

5. SAV beds support the growth of healthy sea grass and algal communities fed upon by green sea turtles. SAV beds also provide important habitat for invertebrates and other prey species utilized by other sea turtles and Gulf sturgeon. Though the project proponent intends to avoid impacts to SAV "to the extent practicable", there remains a possibility that some impacts to SAV will be unavoidable, which in turn could impact the foraging success of sea turtles and Gulf sturgeon. Due to the relatively small areas that may be affected and the project proponent's goal to avoid impacts to SAV to the greatest extent practicable, any effects to SAV resulting from these projects are expected to result in insignificant effects on the foraging success of sea turtles and Gulf sturgeon.

Routs of Effects for Subtidal Reef Projects

1. Sea turtles and Gulf sturgeon may be injured if struck by the materials placed to form the subtidal reefs or by the heavy equipment placing those materials (bucket/arm of crane or backhoe). We believe this adverse effect is discountable because these species are highly mobile and are expected to exhibit avoidance behavior by moving away from any heavy equipment operating in the marine environment. The action agency's implementation of NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions* will further reduce the risk by requiring all construction workers to watch for listed species. Operation of any mechanical construction equipment will cease immediately if a sea turtle or Gulf

sturgeon is seen within a 50-ft radius of the equipment. Activities will not resume until the protected species has departed the project area of its own volition.

2. Sea turtles and Gulf sturgeon may be injured if struck by construction related vessels or barges. Due to the species' mobility and the requirement for all construction related vessels and barges to maintain slow transit speeds (5 knots or less) to and from (and within) the construction sites, the risk of adverse effects from vessel strikes is discountable.

3. Construction activities including placement of materials and related turbidity and noise may temporarily impede foraging and sheltering activities by sea turtles and Gulf sturgeon in and around the project sites, and may force these species to temporarily avoid the project sites all together. However, we believe any potential effects would be insignificant considering the projects are located in open-water areas surrounded by large expanses of similar habitats (see images above) which would allow foraging and sheltering throughout the surrounding area.

4. SAV beds support the growth of healthy sea grass and algal communities fed upon by green sea turtles. SAV beds also provide important habitat for invertebrates and other prey species utilized by other sea turtles and Gulf sturgeon. Though the project proponent intends to avoid impacts to SAV "to the extent practicable", there remains a possibility that some impacts to SAV will be unavoidable, which in turn could impact the foraging success of sea turtles and Gulf sturgeon. Due to the relatively small areas that may be affected and the project proponent's goal to avoid impacts to SAV to the greatest extent practicable, any effects to SAV resulting from these projects are expected to result in insignificant effects on the foraging success of sea turtles and Gulf sturgeon.

Routs of Effects for Intertidal Reef Projects

1. Sea turtles and Gulf sturgeon may be injured if struck by construction related vessels or barges. Due to the species' mobility and the requirement for all construction related vessels and barges to maintain slow transit speeds (5 knots or less) to and from (and within) the construction sites, the risk of adverse effects from vessel strikes is discountable.

2. Construction activities including placement of materials and related turbidity and noise may temporarily impede foraging and sheltering activities by sea turtles and Gulf sturgeon in and around the project sites, and may force these species to temporarily avoid the project sites all together. However, we believe any potential effects would be insignificant considering the projects are located in open-water areas surrounded by large expanses of similar habitats (see images above) which would allow foraging and sheltering throughout the surrounding area.

3. SAV beds support the growth of healthy sea grass and algal communities fed upon by green sea turtles. SAV beds also provide important habitat for invertebrates and other prey species utilized by other sea turtles and Gulf sturgeon. Though the project proponent intends to avoid impacts to SAV "to the extent practicable", there remains a

possibility that some impacts to SAV will be unavoidable, which in turn could impact the foraging success of sea turtles and Gulf sturgeon. Due to the relatively small areas that may be affected and the project proponent's goal to avoid impacts to SAV to the greatest extent practicable, any effects to SAV resulting from these projects are expected to result in insignificant effects on the foraging success of sea turtles and Gulf sturgeon.

Routs of Effects for Post-Construction Monitoring

1. Sea turtles and Gulf sturgeon may be injured if struck by vessels conducting post-construction monitoring. Due to the species' mobility and the requirement for all monitoring vessels to maintain slow transit speeds (5 knots or less) to and from (and within) the monitoring sites, the risk of adverse effects from vessel strikes is discountable.

Analysis of Potential Routes of Effects to Critical habitat

The Back Bay Deer Island Subtidal Reef Project is the only project that has the potential to affect designated critical habitat. The project involves creation of approximately 20 ac of subtidal reef in Unit 8 of Gulf sturgeon critical habitat, in an area with a water depth no greater than 3 ft below MLLW. The essential features that may be affected are described below.

Abundant prey items

Impacts to benthic prey species from placement of cultch material may occur in the footprint of the project area where individuals could be covered or displaced by the reef. Due to the relatively small area to be altered by this project and the ability of prey species to move out of the affected area, any effect that the proposed project may have on this essential feature would be insignificant. It should also be noted that the proposed reef is designed to restore secondary productivity. Over time, the cultch material would develop into a living reef that supports benthic secondary productivity, including, but not limited to, bivalve mollusks, annelid worms, shrimp, and crabs.

Water quality

Placement of cultch material will likely cause increased turbidity in and around the area of activity. However, the action area is naturally turbid and any increases in turbidity would be temporary and localized as disturbed sediments would settle out (likely within 1-2 days following completion of reef construction). Therefore, any effect that the proposed project may have on this essential feature would be insignificant.

Sediment quality

The creation of subtidal the reef will cover the sediments in the footprint of the activity; these sediments will no longer be accessible to Gulf sturgeon. Again, the affected area (20 ac) is a tiny fraction of the overall habitat available in Unit 8 (approximate area of critical habitat in Unit 8 is 881,231 ac). Therefore, any effect that the proposed project may have on this essential feature would be insignificant.

Safe and unobstructed migratory pathways

Subtidal reefs constructed within migratory pathways, particularly near the mouths of spawning rivers could hinder migration within and between freshwater spawning habitat and

marine/estuarine foraging habitat. The proposed project would be constructed in an area of extremely shallow water and would not block any channels or river mouths that might act as migratory pathways. Therefore, the potential for the project to adversely affect this essential feature is discountable.

Cumulative effects of the DWH Early Restoration Program

NMFS has also considered the effects of this project in conjunction with the effects associated with the Phase I and Phase III projects that involve construction activities and that have previously undergone Section 7 consultations.[1] NMFS concludes there are no additive effects of the overall projects that rise above the level of effects considered for each of the individual projects. The potential impacts to listed species from construction activities are limited in time and place, and they cease to exist once the projects are complete.

Conclusion

Because all potential project effects to listed species were found to be discountable or insignificant, we conclude that the proposed action is not likely to adversely affect listed species under NMFS's purview. This concludes your consultation responsibilities under the ESA for species under NMFS's purview. Consultation must be reinitiated if a take occurs or new information reveals effects of the action not previously considered, or if the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat in a manner or to an extent not previously considered, or if a new species is listed or critical habitat designated that may be affected by the identified action. NMFS's findings on the project's potential effects are based on the project description in this response. Any changes to the proposed action may negate the findings of this consultation and may require reinitiation of consultation with NMFS.

We've enclosed additional relevant information for your review. We look forward to further cooperation with you on other projects to ensure the conservation of our threatened and endangered marine species and designated critical habitat. If you have any questions about this consultation, please contact Mike Tucker, Consultation Biologist, at (727) 209-5981, or by email at michael.tucker@noaa.gov.

Literature Cited

Cho, H.J.; Biber, Patrick; Poirrier, Michael; and Graner, James. 2010. Aquatic Plants of Mississippi Costal River Systems. Journal of the Mississippi Academy of Sciences. Volume 55, Number 4. October.

Attachments:

1. *Sea Turtle and Smalltooth Sawfish Construction Conditions* (Revised March 23, 2006)
2. *PCTS Access and Additional Considerations for ESA Section 7 Consultations* (Revised March 10, 2015)

File: 1514-22C.

[1] All of the early restoration projects that have previously undergone Section 7 consultations are described below in "*Background: Deepwater Horizon Oil Spill Early Restoration"*

Background: Deepwater Horizon Oil Spill Early Restoration
Under the Oil Pollution Act, designated agencies of the federal government and affected state governments act as trustees on behalf of the public. The Trustees are charged with recovering damages from the responsible parties to restore the public's natural resources that sustained injuries. NOAA shares trusteeship with the other natural resource trustees over all of the resources that will benefit from these restoration actions. The Trustees developed the Early Restoration selection process to be responsive to the purpose and need for conducting Early Restoration. Early Restoration project selection is a process requiring several steps: (1) project solicitation, (2) project screening, (3) negotiation with BP, and (4) public review and comment.

The Trustees released a Phase I Early Restoration Plan (ERP) in April 2012, a Phase II ERP in December 2012, a draft Phase III ERP on May 6, 2013, and a final Phase III Plan on June 26, 2014. On February 17, 2015, the Trustees released a Phase IV ERP. These plans contain a series of restoration actions that may be selected independently by the Trustees. NMFS PRD has previously completed consultations on the Phase I ERP projects and 39 of the projects included in the Phase III ERP.[2] To date, NMFS PRD completed 2 consultations on 4 individual projects included in Phase IV (3 living shoreline projects were batched together under a single consultation as described below).

The Phase I ERP consists of 8 projects that address an array of injuries and are located throughout the Gulf of Mexico (GOM) (see Appendix 1). Specifically, Phase I includes 2 oyster projects (1 in Louisiana and 1 in Mississippi), 2 marsh projects (1 in Louisiana and 1 in Alabama), a nearshore artificial reef project in Mississippi, and 2 dune projects and a boat ramp enhancement project in Florida. Consultation on the Phase I projects was completed on April 2, 2012. NMFS PRD determined that 1 of the marsh projects and both dune projects would have no effect on listed species and that the other projects are not likely to adversely affect listed species or designated critical habitat under NMFS PRD's purview. NMFS PRD evaluated potential impacts on listed species (5 species of sea turtles, Gulf sturgeon, and smalltooth sawfish) from placement of material, site exclusion, and dredging. It determined that these effects will be discountable or insignificant because of the species' mobility and ability to find suitable habitat for foraging in the surrounding areas. NMFS PRD also evaluated potential impacts to sea turtles and Gulf sturgeon from fishing activities associated with the artificial reef project. It determined that the effects are discountable because the enhancement of the existing artificial reefs is not expected to induce new fishing effort or increase the risk of harmful interactions between recreational fishers and listed species. The boat ramp project will enhance 2 existing boat ramps and create 2 new public boat ramps that will allow the launch of an additional 92 vessels. The purpose of these projects is to relieve traffic and congestion at other boat ramps in the area. NMFS PRD determined that any increase in vessel strike risk to sea turtles is discountable because the new boat ramps are likely to be used by people who currently have vessels. A previous NMFS PRD analysis concluded that a typical dock or marina project in Florida that introduces fewer than 300 new vessels to an area will have an insignificant or discountable effect on sea turtles.[3]

[2] None of the Phase II ERP projects involved in-water work and, therefore, NMFS PRD did not receive a request for Section 7 consultation.
[3] Barnette, M. Threats and Effects Analysis for Protected Resources on Vessel Traffic Associated with Dock and Marina Construction. NMFS SERO PRD Memorandum. April 18, 2013.

Three of the Phase I projects (1 boat ramp, 1 oyster project, and the nearshore artificial reef project) are located in Gulf sturgeon critical habitat. The boat ramp is located in Unit 9, while the oyster and artificial reef projects are located in Unit 8. NMFS PRD determined that the boat ramp project is not likely to adversely affect Gulf sturgeon critical habitat in Unit 9 because the construction will occur in the same footprint and will be the same dimensions as the existing boat ramp. Any increases in suspended sediments in the water column (i.e., turbidity) are expected to be localized, temporary, and insignificant, and the texture and quality of the sediments and its ability to support prey items are expected to be the same pre- and post-project. NMFS PRD similarly concluded that the oyster project and artificial reef project will not adversely affect Gulf sturgeon critical habitat in Unit 8 because the placement of clean, toxin-free material will not alter the water or sediment quality. Also, the addition of this material to existing hard bottom will not alter prey availability.

NMFS PRD completed 20 consultations on 35 individual projects out of a total of 39 projects[4] included in Phase III (see Appendix 2). These projects are:

- 4 artificial reef projects (3 in Texas and 1 in Florida)
- 2 oyster projects (1 in Florida and 1 in Alabama)
- 4 living shoreline projects (1 in Alabama, 1 in Mississippi, and 2 in Florida)
- 10 Florida boat ramp/dock projects
- 1 Florida scallop-enhancement project
- 1 Florida beach-enhancement project
- 1 Louisiana-North Breton Island restoration project
- 1 Mississippi fishing pier project
- 2 Florida observation/canoe launch dock projects
- 1 Florida erosion-control project
- 1 Florida small fishing pier project
- 1 Florida oyster reef and salt marsh-enhancement project
- 1 Florida fish hatchery project
- 1 Florida-St. George Island bulkhead improvements project
- 1 Texas ship artificial reef
- 1 Florida Mexico Beach marina project
- 1 Florida Gulf Island National Seashore ferry service project
- 1 Louisiana outer coast restoration-Chenier Ronquille barrier island project

As with the Phase I projects, NMFS PRD evaluated potential impacts on listed species (5 species of sea turtles and Gulf sturgeon) from placement of material, site exclusion, and dredging, and determined that these effects will be discountable or insignificant because of the species' mobility and ability to find suitable habitat for foraging in the surrounding areas. NMFS PRD also evaluated the impacts of noise created from construction, where applicable, and determined that the risk of short- or long-term exposure to harmful noise is discountable, and any sound heard by the ESA-listed species will have insignificant health effects. NMFS PRD determined that the potential impacts to sea turtles and Gulf sturgeon from fishing activities associated with

[4] Five additional restoration projects were included on September 12, 2014.

the 4 artificial reef projects are discountable because the enhancement of the existing artificial reefs is not expected to produce new fishing effort. NMFS PRD also determined that the risk of vessel strike impacts to turtles from future use of the artificial reef sites is discountable because use of the site will generally coincide with fair weather patterns and calm sea states that will allow boaters to detect and avoid any sea turtles in their path. Subsequently, in the consultation on the Texas ship artificial reef, NMFS PRD recognized that the effects of recreational fishing for reef fish and reef fish vessels on sea turtles were analyzed in NMFS's GOM Reef Fish Fishery Biological Opinion dated September 30, 2011. NMFS PRD concluded that because the artificial reef would not result in any net increase in fishing activities and would not result in any measurable change in the Gulf-wide distribution of fishing effort or the distribution of turtles, the Texas ship artificial reef project would not result in any fishing or vessel impacts beyond those described in the 2011 Biological Opinion.

There were 16 of the Phase III projects located in Gulf sturgeon critical habitat:

- 3 living shoreline projects
- 1 Florida artificial reef project
- 1 Florida fish hatchery
- 3 Florida boat ramp projects
- 1 Florida beach-enhancement project
- 2 Florida oyster reef projects
- 1 scallop-enhancement project
- 1 erosion-control project
- 2 observation/canoe launch docks
- 1 Florida St. George Island bulkhead improvements project

The living shoreline projects are located in Units 8, 9, and 13. The Florida fish hatchery is located in Unit 9. The boat ramp projects are located in Units 9 and 13. The beach enhancement project is located in Unit 11. The oyster projects are located in Units 9 and 13. The scallop enhancement project is located in Units 9, 10, 12, and 13. The erosion control project is located in Unit 12, the observation/canoe launch dock projects are in Units 10 and 12, and the St. George Island bulkhead improvements project is located in Unit 13.

NMFS PRD determined that the scallop-enhancement project and Florida fish hatchery project will have no effect on Gulf sturgeon critical habitat and that the other projects are not likely to adversely affect the essential features of Gulf sturgeon critical habitat (water quality, sediment quality, prey abundance, and safe and unobstructed migratory pathways). The oyster reef projects will place clean, non-toxic material over existing hard bottom, which will make any impacts to water quality, sediment quality, or prey abundance discountable. The beach-enhancement project will improve sediment quality and effects to prey abundance, water quality and migratory pathways will be insignificant because the work will take place in shallower water than normal foraging depths. Any increased turbidity will be temporary and within natural background levels and sand placement in the shallow waters along the beach will not interfere with migration. The Florida artificial reef project will have no effect on the sediment quality. The effects to water quality and prey abundance will be insignificant because turbidity will be temporary and within natural background levels and will not reduce prey availability overall in

the areas surrounding the modules. Any impacts to migratory pathways will be discountable because the reef structures are in open water and spaced out sufficiently for Gulf sturgeon to move. The installation of the 8-in-diameter seawater intake pipe for the fish hatchery project will have no effect on sediment quality. The effects to water quality and prey abundance will be insignificant because the turbidity will be temporary, within natural background levels, and will not reduce prey availability in the areas surrounding the pipe.

Similarly, the boat ramp and dock projects will have no effect on sediment quality. The effects to water quality and prey abundance will be insignificant because turbidity will be temporary and within natural background levels and will not reduce prey availability overall in the areas surrounding the ramps or docks. The erosion-control structure project will have no effects on sediment quality as the composition of the dredge materials to be placed behind the groins are expected to be similar or identical to what is currently present. The effects to water quality and prey abundance will be insignificant because turbidity will be temporary and within natural background levels and will not reduce prey availability overall in the areas surrounding the modules. The living shoreline projects may temporarily increase turbidity and displace some prey species, but we expect these impacts to be insignificant. With respect to prey abundance, the living shoreline projects are expected to have long-term beneficial impacts by increasing prey abundance in adjacent areas. The St. George Island bulkhead improvements project may affect water and sediment quality from construction activities, but effects will be short-lived and localized. Similarly, any impacts to prey abundance will be localized but are not expected to reduce overall prey abundance in the project area or critical habitat unit.

Only 4 projects of the Phase III projects (3 Texas artificial reefs and 1 ship artificial reef project) are located in loggerhead critical habitat LOGG-S-02-Gulf of Mexico (*Sargassum*). NMFS PRD determined that none of the project actions would affect the location of convergence zones, surface-water downwelling areas, or other locations where there are concentrated components of the *Sargassum* community in water temperatures suitable for optimal growth of *Sargassum* and inhabitance of loggerheads. None of the 4 artificial reef project actions would adversely affect the availability of prey for hatchling loggerhead sea turtles or other material associated with *Sargassum* habitat. Neither will they affect the water depth or proximity to currents necessary for offshore transport, foraging, and cover. While the vessels associated with these projects may transit through *Sargassum* habitats, those vessel tracks are not anticipated to scatter *Sargassum* mats to the point of appreciably affecting the functionality of the primary constituent elements (PCEs). Therefore, any adverse effects to the PCEs of *Sargassum* habitat will be insignificant.

NMFS PRD evaluated potential impacts from Phase IV Pelagic Longline (PLL) Bycatch Reduction project on ESA-listed species (5 species of sea turtles and marine mammals) and determined that these effects from the proposed action will be completely beneficial. The PLL Bycatch Reduction project promotes both the cessation of PLL fishing and the use of greenstick gear and buoy gear in a fishery that currently allows the use of this gear as authorized by the HMS FMP. Reducing PLL fishing and increasing the use of the authorized greenstick gear and buoy gear will reduce the extent of the adverse effects to ESA-listed sea turtles and marine mammals that are anticipated from the continued harvest of PLL species. With respect to ESA-listed corals, NMFS PRD had previously determined that both green-stick and buoy gear do not come into contact with the ocean floor or any benthic habitats; thus, they are anticipated to have

no effect on listed corals. With regard to scalloped hammerhead sharks, the distribution and range of the threatened Central and Southwest Atlantic DPS of scalloped hammerhead shark does not overlap the PLL Bycatch Reduction Project area in the GOM. Therefore, the proposed action will not affect the Central and Southwest Atlantic DPS of the scalloped hammerhead shark.

The PLL Bycatch Reduction project is also located in loggerhead critical habitat LOGG-S-02-Gulf of Mexico (*Sargassum*). NMFS PRD determined that none of the project activities would affect the location of convergence zones, surface-water downwelling areas, or other locations where there are concentrated components of the *Sargassum* community in water temperatures suitable for optimal growth of *Sargassum* and inhabitance of loggerheads. The project activities would not affect the availability of prey for hatchling loggerhead sea turtles or other material associated with *Sargassum* habitat. They will not affect the water depth or proximity to currents necessary for offshore transport, foraging and cover. To the extent PLL fishing vessels may impact the *Sargassum* habitat, the voluntary repose period in PLL fishing each year would reduce the impact, resulting in effects that are completely beneficial, and the increase in use of greenstick gear and buoy gear on these vessels would have no effect on the habitat. Thus, we conclude that the proposed action is not likely to adversely affect the *Sargassum* loggerhead critical habitat.

Finally, NMFS PRD evaluated potential impacts from 3 batched living shoreline projects submitted under Phase IV. All 3 projects are located in Portersville Bay, Mobile County, Alabama. None of the projects are located within, nor will they have any effects on critical habitat designated for species under NMFS' purview. The Alabama Department of Conservation and Natural Resources proposes to deploy Wave Attenuation Units at depths of 2-3 ft (or 0.6-0.9 meters [m]) below MLLW using a small trackhoe located on a shallow-draft barge or from shore using a wide-tracked long-arm trackhoe. NMFS PRD determined that potential effects from listed species being struck by construction materials, equipment or vessels were discountable and any effects from temporary increases in turbidity or displacement from the action area would be insignificant.

Appendix 1. Phase I Early Restoration Plan Projects with Corresponding Public Consultation Tracking System (PCTS)

Reference	PCTS Tracking Number	Project	Description	NMFS PRD Determinations
P1-1	SER-2012-889	Louisiana Lake Hermitage Marsh Creation – NRDA Early Restoration Project	Project proposed involves the creation of marsh within the project footprint of the larger Lake Hermitage Marsh Creation Project. The primary goals of the project are the following: (1) to restore the eastern Lake Hermitage shoreline to reduce erosion and prevent breaching into the interior marsh, and (2) to re-create marsh in the open-water areas south and southeast of Lake Hermitage. The marsh creation project will substitute approximately 104 acres of created brackish marsh for approximately 5-6 acres (7,300 linear feet [lin ft]) of earthen terraces.	The project is not likely to adversely affect sea turtles or Gulf sturgeon. The project is not located in designated critical habitat. All activities associated with the Lake Hermitage Restoration project are outside the known range of Gulf sturgeon. Sea turtles are not likely to be at the dredge site in the Mississippi River, which is 70 miles from the Gulf of Mexico. Additionally, sea turtles are not likely to be at the marsh restoration site.
P1-2	SER-2012-889	Louisiana Oyster Cultch Project	Project involves (1) the placement of oyster cultch onto approximately 850 acres of public oyster seed grounds throughout coastal Louisiana, and (2) construction of an oyster hatchery facility that will produce supplemental larvae and seed. The project consists of placing oyster cultch material on public oyster seed grounds to produce seed- and sack-sized oysters to compensate the public for impacts to oyster areas exposed to oil, dispersant, and response activities.	The project is not likely to adversely affect sea turtles or Gulf sturgeon. The project is not located in designated critical habitat.
P1-3	SER-2012-889	Mississippi Oyster Cultch Restoration	Project consists of placing oyster cultch material on public oyster seed grounds in the footprint of existing oyster cultch areas to produce seed- and sack-sized oysters to compensate the public for impacts to oyster areas exposed to oil, dispersant, and response activities.	The project is not likely to adversely affect sea turtles, Gulf sturgeon, or Gulf sturgeon critical habitat.
P1-4	SER-2012-889	Mississippi Artificial Reef Habitat	Project includes the deployment of artificial reefs in bays and nearshore Mississippi Sound waters in and off of Hancock, Harrison, and Jackson Counties, Mississippi.	The project is not likely to adversely affect sea turtles, Gulf sturgeon, or Gulf sturgeon critical habitat.
P1-5	SER-2012-889	Mississippi Marsh Island (Portersville Bay) Marsh Creation	Project involves the addition 50 acres of salt marsh to the existing 24 acres along Marsh Island in the Portersville Bay portion of Mississippi Sound in south Mobile County, Alabama. This entails the construction of a permeable segmented breakwater, the placement of sediments, and the planting of native marsh vegetation.	The project is not likely to adversely affect sea turtles or Gulf sturgeon. The project is not located in designated critical habitat.

Reference	PCTS Tracking Number	Project	Description	NMFS PRD Determinations
P1-6	SER-2012-889	Alabama Dune Restoration Cooperative Project	Project will restore 55 acres of dune habitat by installing sand fencing and planting native dune vegetation in Orange Beach and Gulf Shores, Alabama.	The project will have no effect on listed species or designated critical habitat under NMFS PRD's jurisdiction. NMFS PRD does not believe there will be any direct or indirect effects to our listed species or designated critical habitat, as all activities will occur solely in upland areas.
P1-7	SER-2012-889	Florida Boat Ramp Enhancement and Construction Project	Project will entail repairing the existing Navy Point Park public boat ramp, located in a developed residential area in Pensacola Bay, and constructing the new Mahogany Mill public boat ramp that will be located in a commercial and industrial area in Pensacola Bay.	The project is not likely to adversely affect sea turtles, Gulf sturgeon, smalltooth sawfish, or Gulf sturgeon critical habitat. The Navy Point project is not likely to adversely affect Gulf sturgeon critical habitat in Unit 9, Pensacola Bay. The remaining boat ramp projects are not located in designated critical habitat.
P1-8	SER-2012-889	Florida (Pensacola Beach) Dune Restoration	Native dune vegetation will be planted on the primary dune on Pensacola Beach in Escambia County, Florida.	This project will have no effect on listed species or designated critical habitat under NMFS PRD's jurisdiction. NMFS PRD does not believe there will be any direct or indirect effects to listed species or designated critical habitat, as all activities will occur solely in upland areas.

Appendix 2. Phase III Early Restoration Plan Projects with Corresponding Public Consultation Tracking System (PCTS)

Reference	PCTS Tracking Number	Project	Description	NMFS PRD Determinations
P3-1	SER-2014-12910	Texas, Artificial Reefs, Corpus	The applicant will propose 3 projects to install artificial reefs in Texas coastal waters. They are not located within designated Gulf sturgeon critical habitat but are located in loggerhead sea turtle critical habitat (LOGG-S-02-Gulf of Mexico [*Sargassum*]).	These projects are not likely to adversely affect ESA-listed species (leatherback, Kemp's ridley, hawksbill, loggerhead, or green sea turtles) or loggerhead sea turtle critical habitat (LOGG-S-02-Gulf of Mexico [*Sargassum*]).
P3-2	SER-2014-12916	Texas, Artificial Reefs, Freeport		
P3-3	SER-2014-12920	Texas, Artificial Reefs, Matagorda		
P3-4	SER-2014-12924	Alabama, Oyster Cultch	The applicant proposes to restore and enhance 319 acres of oyster reefs within historic footprint of oyster reefs in Mobile Bay. It is not located within any designated critical habitat.	The project is not likely to adversely affect ESA-listed species (leatherback, Kemp's ridley, hawksbill, loggerhead, or green sea turtles, or Gulf sturgeon).
P3-5	SER-2014-12925	Florida, Hancock County Living Shorelines	The applicant proposes to reduce shoreline erosion and restore oyster and marsh habitat by (1) use of breakwater materials to reduce shoreline erosion, (2) creation of 46 acres of salt marsh, and (3) enhancement of 46 acres of oyster reef habitat that have historically supported oysters. It is located within designated Gulf sturgeon critical habitat Unit 8 but not within loggerhead sea turtle critical habitat.	The project is not likely to adversely affect ESA-listed species (Kemp's ridley, loggerhead, or green sea turtles, or Gulf sturgeon) or designated Gulf sturgeon critical habitat. Leatherback and hawksbill sea turtles were withdrawn from the ESA consultation process.
P3-6	SER-2014-12926	Florida, Swift Tract Living Shorelines	The applicant proposes to reduce shoreline erosion by creating breakwaters (8,500 ft) from natural materials (15,800 tons of riprap and 2,200 cubic yards [yd^3] of bagged oyster shell) covering 2.9 acres of fine-grained sediment. It is not located within any designated critical habitats.	The project is not likely to adversely affect ESA-listed species (Kemp's ridley, loggerhead, or green sea turtles, or Gulf sturgeon). Leatherback and hawksbill sea turtles were withdrawn from the ESA consultation process.

Reference	PCTS Tracking Number	Project	Description	NMFS PRD Determinations
P3-7	SER-2014-13016	Florida, Pensacola Bay Living Shorelines	The applicant proposes to reduce shoreline erosion by expanding existing breakwaters at 2 sites (25,000 tons of riprap, covering 5 acres of fine-grained sediment total) and backfilling marsh areas with 102,000 yd^3 of fill, total. It is located within designated Gulf sturgeon critical habitat Unit 9 but not within loggerhead sea turtle critical habitat.	The project is not likely to adversely affect ESA-listed species (Kemp's ridley, loggerhead, or green sea turtles, smalltooth sawfish, or Gulf sturgeon) or designated Gulf sturgeon critical habitat. Leatherback and hawksbill sea turtles and smalltooth sawfish were withdrawn.
P3-8	SER-2014-13083	Florida, Cat Point Living Shorelines	The applicant proposes to reduce shoreline erosion by expanding an existing breakwater structure (up to 0.3 mile) and creating 1 acre of salt marsh habitat. It is located within designated Gulf sturgeon critical habitat Unit 13, but not within loggerhead sea turtle critical habitat.	The project is not likely to adversely affect ESA-listed species (Kemp's ridley, loggerhead, or green sea turtles, smalltooth sawfish, or Gulf sturgeon) or designated Gulf sturgeon critical habitat. Leatherback and hawksbill sea turtles and smalltooth sawfish were withdrawn.
P3-9	SER-2014-13017	Florida, Beach Enhancement Project at Gulf Island National Seashore	The applicant proposes to remove fragments of asphalt and road-base material from a long, thin area approximately 20 ft wide by 2 miles long (211,200 ft^2 or ~ 4.8 acres) in the inter- and sub-tidal zone within the GUIS. The project is located within Gulf sturgeon critical habitat Unit 11 and is not in loggerhead sea turtle critical habitat.	The project is not likely to adversely affect ESA-listed species (leatherback, Kemp's ridley, hawksbill, loggerhead, or green sea turtles, or Gulf sturgeon) or designated critical habitats for these species.
P3-10	SER-2014-13018	Louisiana, North Breton Island Restoration	The applicant proposes to dredge 3.7 million yd^3 (2.8 x 10^6 cubic meters [m^3]) of sand, silt, and clay materials, using a cutterhead dredge, from 1 or more sites within offshore shoals borrow sites from a water depth range of 6-20 ft or 1.8-6.1 m mean lower low water (MLLW). The in-water project footprint is 38 square miles (mi^2) or 98.4 square kilometers (km^2); 41.4 mi^2 (or 106.4 km^2) including proposed North Breton Island restoration. The project is not located within Gulf sturgeon critical habitat or loggerhead sea	The project is not likely to adversely affect ESA-listed species (leatherback, Kemp's ridley, hawksbill, loggerhead, or green sea turtles, or Gulf sturgeon).

Reference	PCTS Tracking Number	Project	Description	NMFS PRD Determinations
			turtle critical habitat.	
P3-11	SER-2014-13026	Mississippi, Popp's Ferry Causeway Park	The applicant proposes to install 4 fishing piers and 1 overlook pier, covering approximately 5,000 ft^2 of open water with vibratory hammering. It is not located within any designated critical habitat.	These projects are not likely to adversely affect ESA-listed species (Kemp's ridley, loggerhead, or green sea turtles, or Gulf sturgeon). Leatherback and hawksbill sea turtles were withdrawn.
P3-12	SER-2014-13079	Florida, Oysters Cultch	The applicant proposes to restore and enhance oyster populations in Pensacola and Apalachicola Bays in Florida (total placement of 42,000 yd^3 of cultch material over 210 acres of previous oyster reefs). It is located within designated Gulf sturgeon critical habitat Units 9 and 13. It is not located in loggerhead sea turtle critical habitat.	These projects are not likely to adversely affect ESA-listed species (leatherback, Kemp's ridley, hawksbill, loggerhead, or green sea turtles, or Gulf sturgeon) or Gulf sturgeon-designated critical habitat.
P3-13	SER-2014-13080	Florida, Scallop Enhancement	The applicant proposes to restore and enhance scallop production by the placement of scallop spat into Florida coastal waters. It is located within designated Gulf sturgeon critical habitat Units 9, 10, 12, and 13. It is not located in loggerhead sea turtle critical habitat.	The project is not likely to adversely affect ESA-listed species (leatherback, Kemp's ridley, hawksbill, loggerhead, or green sea turtles, smalltooth sawfish, or Gulf sturgeon) and there will be no effect on Gulf sturgeon-designated critical habitat.
P3-14	SER-2014-13081	Florida, Artificial Reefs	The applicant proposes to build and deploy artificial reefs offshore in Florida coastal waters in 5 Florida counties: Escambia, Santa Rosa, Okaloosa, Walton, and Bay counties. The project spans 123 miles (107 nautical miles or 198 km) along the coast of Florida in the nearshore as well as the offshore zone. Although some project sites are located within Gulf sturgeon critical habitat Unit 11, there are no sites in loggerhead sea turtle critical habitat.	These projects are not likely to adversely affect ESA-listed species (leatherback, Kemp's ridley, hawksbill, loggerhead, or green sea turtles) and are not likely to adversely affect Gulf sturgeon critical habitat Unit 11.

Reference	PCTS Tracking Number	Project	Description	NMFS PRD Determinations
P3-15	SER-2014-13077	Florida, Gulf Coast Marine Fisheries Hatchery/ Enhancement Center	The applicant proposes to construct and operate a saltwater sportfish hatchery on a 10-acre vacant lot to enhance recreational fishing opportunities through aquaculture in Pensacola Bay, Escambia County, Florida.	The project is not likely to adversely affect ESA-listed species (leatherback, Kemp's ridley, hawksbill, loggerhead, or green sea turtles) and is not likely to adversely affect Gulf sturgeon critical habitat Unit 9.
P3-16	SER-2014-13124	Florida, Big Lagoon State Park Boat Ramp	The applicant proposes to renovate existing boat ramps and/or adjacent boat docks in Florida coastal waters located in Gulf sturgeon critical habitat Unit 9.	The project is not likely to adversely affect sea turtles, Gulf sturgeon, or Gulf sturgeon critical habitat Unit 9.
P3-17	SER-2014-13131	Florida, Gulf Breeze, Wayside Park Boat Ramp	The applicant proposes to renovate existing boat ramps and/or adjacent boat docks in Florida coastal waters located in Gulf sturgeon critical habitat Unit 9.	The project is not likely to adversely affect sea turtles, Gulf sturgeon, or Gulf sturgeon critical habitat Unit 9.
P3-18	SER-2014-13127	Florida, Franklin County Waterfront Park Improvements	The applicant proposes to renovate existing boat ramps and/or adjacent boat docks in Florida coastal waters located in Gulf sturgeon critical habitat Unit 13.	The project is not likely to adversely affect sea turtles, Gulf sturgeon, or Gulf sturgeon critical habitat Unit 13.
P3-19	SER-2014-13135	Florida, Enhancement of Franklin County Parks and Boat Ramps, Indian Creek Park	The applicant proposes to renovate existing boat ramps and/or adjacent boat docks in Florida coastal waters.	The project is not likely to adversely affect sea turtles or Gulf sturgeon.
P3-20	SER-2014-13119	Florida, Port St. Joe, Frank Pate Boat Ramp Improvements	The applicant proposes to renovate existing boat ramps and/or adjacent boat docks in Florida coastal waters.	The project is not likely to adversely affect sea turtles or Gulf sturgeon.
P3-21	SER-2014-13140	Florida, Walton County, Lafayette Creek Boat Dock Improvements	The applicant proposes to renovate existing boat ramps and/or adjacent boat docks in Florida coastal waters.	The project is not likely to adversely affect sea turtles or Gulf sturgeon.

Reference	PCTS Tracking Number	Project	Description	NMFS PRD Determinations
P3-22	SER-2014-13277	Florida, Panama City, St. Andrews Marina Boat Ramp	The applicant proposes to renovate existing boat ramps and/or adjacent boat docks in Florida coastal waters.	The project is not likely to adversely affect sea turtles or Gulf sturgeon.
P3-23	SER-2014-13272	Florida, Parker Earl Gilbert Boat Ramp	The applicant proposes to renovate existing boat ramps and/or adjacent boat docks in Florida coastal waters.	The project is not likely to adversely affect sea turtles or Gulf sturgeon.
P3-24	SER-2014-13085	Florida, Wakulla County, Marshes Sand Park Improvements	The applicant proposes to renovate existing boat ramps and/or adjacent boat docks in Florida coastal waters.	The project is not likely to adversely affect sea turtles or Gulf sturgeon.
P3-25	SER-2014-13278	Florida, City of St. Marks, Boat Ramp	The applicant proposes to renovate existing boat ramps and/or adjacent boat docks in Florida coastal waters.	The project is not likely to adversely affect sea turtles or Gulf sturgeon.
P3-26	SER-2014-13270	Florida, Bayside Ranchettes Park Improvements	The applicant proposes the construction of a new parking area, a picnic table, an observation dock, and steps from the shoreline into the water allowing access to the bay.	The project is not likely to adversely affect sea turtles, Gulf sturgeon, or Gulf sturgeon critical habitat Unit 12.
P3-27	SER-2014-13275	Florida, Navarre Beach Park Coastal Access and Dune Restoration	The applicant will construct new infrastructure to increase the public's opportunities to safely access coastal resources, including the beach and waters of Santa Rosa Sound. The project includes design and construction of 2 new beach-access boardwalks from the existing pavilion/parking lots to the Santa Rosa Sound and a new dock for launching canoes/kayaks.	The project is not likely to adversely affect sea turtles, Gulf sturgeon, or Gulf sturgeon critical habitat Unit 10.
P3-28	SER-2014-13086	Florida, Norriego Point Restoration	The applicant will enhance and increase the public's enjoyment of the natural resources by stabilizing ongoing erosion and re-establishing Norriego Point using erosion control structures (groins) and placement of dredged sand fill.	The project is not likely to adversely affect sea turtles, Gulf sturgeon, or Gulf sturgeon critical habitat Unit 12.

Reference	PCTS Tracking Number	Project	Description	NMFS PRD Determinations
P3-29	SER-2014-13101	Florida, Apalachicola River Fishing Viewing – Cash Bayou	The applicant will improve public access at Cash Bayou by providing a small fishing and wildlife observation pier, a parking area with an entrance kiosk, and an information station along State Route 65, east of the Cash Creek Bridge.	The project is not likely to adversely affect sea turtles or Gulf sturgeon.
P3-30	SER-2014-13276	Florida, Estuarine Habitat Restoration, Protection, and Education	The applicant will improve and lengthen the existing interactive boardwalks, expand existing inter-tidal oyster reefs, and restore a degraded salt marsh.	The project is not likely to adversely affect sea turtles, Gulf sturgeon, or Gulf sturgeon critical habitat Unit 10.
P3-31	SER-2014-13886	Florida, St. George Island Bulkhead Improvements	The applicant will repair approximately 275 ft of degraded bulkhead by removing existing, damaged/collapsed sections of the concrete sheet bulkhead, placing new sections of sheet pile, and constructing a new cap. The project is located in Gulf sturgeon critical habitat Unit 13.	The project is not likely to adversely affect sea turtles, Gulf sturgeon, smalltooth sawfish, or Gulf sturgeon critical habitat Unit 13.
P3-32	SER-2014-12923	Texas, Ship Artificial Reef Project	The applicant will acquire a 1,000-ft (304.80-m) ship that is a complete product ready for immediate use as an artificial reef (i.e., turnkey ship). The applicant will clean the vessel of any hazardous toxins and make any hull modifications as necessary or determined by the Texas Parks and Wildlife Department, transport the vessel to the deployment site, and subsequently sink the vessel on barren sand and silt substrate at a water depth of 135 ft (41.15 m) at MLLW. The project is not located in Gulf sturgeon critical habitat, but it is situated in loggerhead sea turtle critical habitat (LOGG-S-02-Gulf of Mexico [*Sargassum*]).	The project is not likely to adversely affect leatherback, Kemp's ridley, loggerhead, or green sea turtles, or loggerhead critical habitat LOGG-S-02-Gulf of Mexico (*Sargassum*).
P3-33	SER-2014-13144	Florida, City of Mexico Beach	The applicant proposes to construct a 1,700-lin-ft steel sheet-pile retaining wall approximately 2 ft in	The project is not likely to adversely affect sea turtles, smalltooth sawfish, and

Reference	PCTS Tracking Number	Project	Description	NMFS PRD Determinations
		Marina, Bay County	front of the existing wooden retaining wall. The proposed volume of fill between the wall and the shore will be 440.7 yd^3. The project also includes replacing 18 existing finger piers along the northern side as well as 3 finger piers along the western side, and creating 8 new finger piers (16 slips) located along the western edge of the canal, for a total of 56 boat slips. The finger piers will be 16 ft long by 3 ft wide, with a terminal pile to be installed approximately 17 ft from the terminal pier. No seagrasses or mangroves were documented at the project site. Construction will take place from the uplands for the majority of the project; a small barge will be used for pier placement and dock construction. Piles will be installed primarily by low-pressure jet; however, a drop hammer may be used to finish installing the piles when necessary.	Gulf sturgeon.
P3-34	SER-2014-15032	Florida, Gulf Island National Seashore Ferry Project	The National Park Service completed a permanent pier in the Fort Pickens Area of the GINS to accommodate a pedestrian ferry service to Fort	The project is not likely to adversely affect sea turtles, smalltooth sawfish, Gulf sturgeon, and Gulf sturgeon critical

Reference	PCTS Tracking Number	Project	Description	NMFS PRD Determinations
			Pickens from the mainland. The 2 ferryboats that will provide the service will travel a 3-stop loop, in opposite directions, 3 times a day. Ferry traffic will follow a designated navigational route. NPS anticipates that the 2 ferries combined will run 6 round-trips per day during a 15-week peak season, depending on weather conditions and demand. Ferry service will operate 6 days a week, Tuesday through Sunday, during daylight hours only. The passenger ferry vessels will be approximately 65 ft long, hold up to 150 passengers, and cruise at a maximum 12-20 knots.	habitat Unit 9.
P3-35	SER-2014-15033	Louisiana, Chenier Ronquille Barrier Island Restoration Project	The project purpose is to restore the integrity of the Chenier Ronquille barrier island by creating 309 acres of marsh and 189 acres of dune and beach. Approximately 11.1 $x10^6$ yd^3 of material may be dredged (a minimum of 2.9 $x10^6$ yd^3 will be dredged) from 4 borrow sites (S-l, S-2, D-1, and Quatre Bayou), consisting of 832 acres of unvegetated borrow site in the Gulf of Mexico southwest of Chenier Ronquille. The borrow sites will be dredged from the current depth of approximately -8 to -30 ft (North American Vertical Datum 1988) to a maximum of -37 ft. Dredged sediments will be pumped to the marsh via a dredge pipeline.	These projects are not likely to adversely affect ESA-listed species (leatherback, Kemp's ridley, loggerhead, or green sea turtles).

Appendix 3. Phase IV Early Restoration Plan Projects with Corresponding Public Consultation Tracking System (PCTS)

Reference	PCTS Tracking Number	Project	Description	NMFS PRD Determinations
P4-1	SER-2015-16919	Pelagic Longline Bycatch Reduction Project	The project's purpose is to reduce Pelagic Longline fishing bycatch and compensate fishers to not fish with PLL gear. A compensation-based, voluntary, 6-month temporary repose period in PLL fishing, having a duration between 5-10 years, will prevent bycatch of ESA-listed species from PLL gear. The repose period would be from January to June of each year. The project would promote the use of buoy gear and green-stick gear, which is more discriminate than PLL gear in regards to the species targeted, and has been shown to have low post-release mortality of bycatch, and regulatory discards. The PLL Bycatch Reduction Project repose period will reduce PLL effort, resulting in fewer PLL hook sets. In doing so, the repose period will eliminate dead discarded bycatch from participating PLL vessels that would have otherwise been caught.	This project has no effect on marine mammals, and is not likely to adversely affect ESA-listed species (leatherback, Kemp's ridley, loggerhead, or green sea turtles, or Gulf sturgeon), nor likely to adversely affect the *Sargassum* loggerhead critical habitat.
P4-2	SER-2015-16817	Point aux Pins/Living Shoreline	The Alabama Department of Conservation and Natural Resources proposes to deploy Wave Attenuation Units at depths of 2-3 ft (or 0.6-0.9 meters [m]) below mean lower low water using a small trackhoe located on a shallow draft barge.	The project is not likely to adversely affect sea turtles or Gulf sturgeon
P4-3	SER-2015-16818	Shell Belt Road/Living Shoreline	The Alabama Department of Conservation and Natural Resources proposes to deploy Wave Attenuation Units at depths of 2-3 ft (or 0.6-0.9 meters [m]) below mean lower low water using a small trackhoe located on a shallow draft barge or from shore using a wide-tracked long-arm trackhoe.	The project is not likely to adversely affect sea turtles or Gulf sturgeon

P4-4	SER-2015-16819	Coden Belt Road/Living Shoreline	The Alabama Department of Conservation and Natural Resources proposes to deploy Wave Attenuation Units at depths of 2-3 ft (or 0.6-0.9 meters [m]) below mean lower low water using a small trackhoe located on a shallow draft barge.	The project is not likely to adversely affect sea turtles or Gulf sturgeon

Alane C. Young

From: David Felder <david_felder@fws.gov>
Sent: Wednesday, July 10, 2019 8:55 AM
To: Overstreet, Jeremy R CIV USARMY CESAM (US)
Cc: Alane C. Young; Erin Chandler; Christina Fellas - NOAA Federal
Subject: Big Island Living Shoreline, Harrison County, MS
Attachments: Big Island refinements_6_26_2019.pdf

Jeremy,

Our office did an ESA Section 7 consultation on the Big Island Living Shoreline Project with our NRDAR office in 2015. This project was one component of a larger project referred to as the Restoring Living Shorelines and Reefs in Mississippi Estuaries Project. We concluded at that time that the proposed project "may affect, but is not likely to adversely affect" the Atlantic gulf sturgeon, piping plover, red knot, and West Indian manatee, and will have "no effect" on the Alabama red-bellied turtle. The changes to the project since that time are consistent with the original consultation and we have no specific concerns or objections with issuance of a permit for the proposed work.

We encourage you to use the findings from these previous consultations to fulfill the Corps obligations under Section 7 of the ESA.

Let me know if you have any questions or concerns.

Thanks
David

David Felder
Supervisory Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Mississippi Ecological Services Field Office
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Jackson, MS 39213
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United States Department of the Interior

FISH AND WILDLIFE SERVICE
1875 Century Boulevard
Atlanta, Georgia 30345

In Reply Refer To:
FWS/R4/DH NRDAR

AUG 1 2 2015

Memorandum

To: Field Supervisor, Jackson Ecological Services Field Office, Mississippi

From: Deputy *Deepwater Horizon* Department of the Interior Natural Resource Damage Assessment and Restoration (NRDAR), Case Manager Deborah LMcCay

Subject: Informal Consultation Request for the Proposed Restoring Living Shorelines and Reefs in Mississippi Estuaries project, Mississippi

As you are no doubt aware, on or about April 20, 2010, the mobile offshore drilling unit *Deepwater Horizon* experienced an explosion, leading to a fire and its subsequent sinking in the Gulf of Mexico (the Gulf). These events resulted in the discharge of millions of barrels of oil into the Gulf over a period of 87 days. In addition, various response actions were undertaken in an attempt to minimize impacts from spilled oil. These events are hereafter collectively referred to as the Oil Spill.

The Department of the Interior (DOI), acting through the U.S. Fish and Wildlife Service (the Service) and other Bureaus, is a designated natural resource trustee agency authorized by the Oil Pollution Act of 1990 (OPA) and other applicable federal laws to assess and assert a natural resource damages claim for this Oil Spill. DOI is only one of several Trustees, including an agency in the State of Mississippi, so authorized. Consistent with their federal and state authorities, the Trustees are investigating the resource injuries and losses that occurred as a result of the Oil Spill and have initiated restoration planning to identify the actions that will be needed or appropriate to restore injured natural resources to make the public whole for injuries and losses that occurred. This process is known as a Natural Resource Damage Assessment (NRDA).

On April 20, 2011, DOI, National Oceanic and Atmospheric Administration (NOAA), and the Trustees for the five Gulf states affected by the Oil Spill entered into an agreement with BP, a responsible party for the Oil Spill, under which BP agreed to provide $1 billion for early restoration projects in the Gulf to address injuries to natural resources caused by the Oil Spill. The subject project is being evaluated by the Trustees as a potential early restoration project. The early restoration project has been proposed in a draft early restoration plan that was released for public comment and review May 20, 2015. If the Trustees select the project after publication of the plan and consideration of public comment and a stipulated agreement is reached with BP, the project will be implemented by the Mississippi Department of Environmental Quality (MDEQ).

The above facts lead us to the conclusion that consultation under Section 7 of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 *et seq.*), is required for the proposed project and we wish to engage in such consultation. The proposed Restoring Living Shorelines and Reefs in Mississippi Estuaries project has multiple project components. We have reviewed each of the project components and the overall project for potential impacts to listed, candidate, and proposed species and designated and proposed critical habitats in accordance with Section 7 of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 *et seq.*). Potential effects, conservation measures and justifications for our determinations are presented for each component of the proposed project in separate Biological Evaluation (BE) forms attached to this letter. The determination for each project component is listed in Table 1 below. Our summary determination for the overall project is may affect, but is not likely to adversely affect piping plover, red knot and West Indian manatee and will have no effect on Alabama red-bellied turtle. We determined the proposed project will not result in destruction or adverse modification to piping plover critical habitat. The attached BE forms will also be used to initiate consultation with National Marine Fisheries Service (five species of sea turtles (loggerhead, green, Kemp's ridley, leatherback, and hawksbill) using in-water habitats, Gulf Sturgeon), and in regards to Marine Mammal Protection Act (MMPA) of 1972, as amended (16 U.S.C. 1461 *et seq.*).

Within the BE forms, we have also reviewed the proposed project for impacts to bald eagles and migratory birds in accordance with the Bald and Golden Eagle Protection Act (BGEPA) of 1940 (16 U.S.C. 668-668c) and the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703–712), respectively and we determined take would be avoided.

Potential effects, conservation measures and justifications for our determinations are presented for each component of the proposed project in a separate BE form to facilitate your review. However, we request your concurrence with the proposed project in totality rather than component by component. To facilitate your response, should you concur with our determinations, we have attached a template response letter. If you have questions or concerns regarding this request for consultation, please contact Ashley Mills, Fish and Wildlife Biologist, at 812-756-2712 or ashley_mills@fws.gov.

Attachments (14)

December 2014

Endangered Species Act Biological Evaluation Form
Deepwater Horizon Oil Spill Restoration
Fish and Wildlife Service & National Marine Fisheries Service

This form will be used to provide information for the initiation of informal Section 7 consultations under the Endangered Species Act, if required or to document a No Effect determination. In addition, information provided in this form may be used to inform other regulatory compliance processes such as Essential Fish Habitat (EFH), Marine Mammal Protection Act (MMPA), Section 106 of the National Historic Preservation Act (NHPA), Migratory Bird Treaty Act (MBTA), and Bald and Golden Eagle Protection Act (BGEPA). Further information may be required beyond what is captured in this form. Note: if you need additional space for writing, please attach pages as needed.

A. Project Identification

I. *Applicant Agency or Business Name:* Mississippi Department of Environmental Quality
II. *Applicant Contact Person:* Marc Wyatt
III. *Phone and Email:* (601)-961-5637 Marc_Wyatt@deq.state.ms.us
IV. *Project Name and ID# (Official name of project and ID number assigned by action agency):*
Restoring Living Shorelines and Reefs in Mississippi Estuaries – Big Island Living Shoreline

V. *Project Type:* Living Shorelines
VI. *NMFS Office (Choose appropriate office based on project location):* NMFS Southeast Regional Office
VII. *FWS Office (Choose appropriate office based on project location):* Mississippi Ecological Services Field Office (Jackson)

B. Project Location

I. *Physical Address of Project Site (If applicable):* NA

II. *State & County/Parish of Project Site:* Harrison County, MS
III. *Latitude & Longitude for Project Site (Decimal degrees and datum [e.g., 27.71622°N, 80.25174°W NAD83] [online conversion:http://transition.fcc.gov/mb/audio/bickel/DDDMMSS-decimal.html]):*
30.415435 N, -88.875274 W

IV. *Township and Range of project area:*
Township 7S, Range 9W

C. Description of Action Area

1. Attach a separate map delineating where the action will occur. 2. Describe ALL areas that may be affected directly or indirectly by the Federal action and not merely the immediate project site involved in the action, or just where species or critical habitat may be present. Provide a description of the existing environmental conditions and characteristics (e.g., topography, vegetation type, soil type, substrate type, water quality, water depth, tidal/riverine/estuarine, hydrology and drainage patterns, current flow and direction), and land uses (e.g., public, residential, commercial, industrial, agricultural). 3. If habitat for species is present in the action area, provide a general description of the current state of the habitat. 4. Identify any management or other activities already occurring in the area. 5. Detailed map of the area of potential effect for ground disturbing activities if it is different from the project area

Maps in Appendix A (Figures 1-2)

The Big Island Living Shoreline is a component of a larger project: The proposed Restoring Living Shorelines and Reefs in Mississippi Estuaries.

The proposed Restoring Living Shorelines and Reefs in Mississippi Estuaries includes the restoration of secondary productivity through the placement of intertidal and subtidal reefs and the use of living shoreline techniques including breakwaters. The projects would be implemented at proposed locations in Grand Bay, Graveline Bay, Back Bay of Biloxi and vicinity, and St. Louis Bay in Jackson, Harrison, and Hancock Counties, Mississippi (Figure 1; Appendix A). The project builds on recent collaborative projects implemented by the Mississippi Department of Marine Resources (MDMR), National Oceanic and Atmospheric Administration (NOAA), and The Nature Conservancy. When completed at all locations, the project would provide for construction of over four (4) miles of breakwaters, five (5) acres of intertidal reef habitat and 267 acres of subtidal reef habitat at four (4) locations across the Mississippi Gulf Coast. For the Grand Bay and Graveline Bay project locations, intertidal and subtidal reefs would be created in a number of sites. Over time, the breakwaters, intertidal and subtidal restoration areas would develop into living reefs that support benthic secondary productivity, including, but not limited to oysters/bivalve mollusks, annelid worms, shrimp, and crabs. Breakwaters would reduce shoreline erosion as well as marsh loss.

The Big Island Living Shoreline project component includes the construction of up to 5,011 linear feet of breakwater to prevent erosion and to restore of secondary productivity.

Big Island Living Shoreline (Figure 2, Appendix A): Would include construction of approximately 5,011 linear ft. of breakwater along the southern facing shoreline directly adjacent to the navigation channel. The conceptual site location for the breakwater and temporary flotation channels are depicted in Figure 2 and are subject to refinement. Temporary flotation channel conceptual locations and footprints have been included for the purpose of estimating the maximum impact, but may be avoided depending on project design and/or construction timing.

The Back Bay of Biloxi watershed is located along the Mississippi Gulf Coast in Jackson and Harrison Counties. The metropolitan areas of Biloxi, Gulfport, Ocean Springs, and D'Iberville are included within the watershed. The Back Bay of Biloxi provides convenient navigation and transportation services to the economic activities of the area. Besides navigation, the Back Bay of Biloxi provides recreational opportunities, as well as stimulates industrial development within the region. This industrialization, in turn, tends to promote population growth and economic development within the adjoining communities and Jackson and Harrison Counties. Since 1950, convenient water transportation, unlimited water supplies, natural gas, availability of refining products as raw materials, and extensive timber resources have provided the base for rapid industrial growth in this area. Growth has also been stimulated by resort facilities and casinos, by the presence of abundant fresh and saltwater fisheries, and by the establishment and expansion of military installations.

Back Bay of Biloxi itself is an estuarine bay that receives freshwater from the Biloxi and Tchoutacabouffa rivers as well as numerous tidal streams and bayous that drain local areas. It is surrounded by a mix of industrial, commercial and residential properties with large amounts of hardened shorelines. Portions of the shoreline of western Back Bay of Biloxi are within the Biloxi River Coastal Preserve maintained by the Mississippi Department of Marine Resources. Navigation channels are in use throughout the entire bay, and have high

traffic volume. As such, the water in Back Bay of Biloxi is turbid and in general is not conducive to submerged aquatic vegetation growth. The project area islands are composed primarily of black needle rush (*Juncus roemerianus*) marsh. Smooth cordgrass (*Spartina alterniflora*) occurs as narrow, disjunct bands along low marsh fringe.

Surveys completed in 2010 found evidence of SAV further upstream into the Biloxi River. No SAV were found near the project areas (Cho, et. al. 2010). Marsh does exist on the undeveloped islands and at some locations within the Biloxi River Coastal Preserve.

Substrate and depth at project component: The substrate at the project component is composed of soft bottom sand and mud located in shallow water at a depth of no greater than 6 ft. below MLLW.

a. *Waterbody (If applicable. Name the body of water, including wetlands (freshwater or estuarine) on which the project is located. If the location is in a river or estuary, please approximate the navigable distance from the project location to the marine environment.):*

The proposed Big Island Living Shoreline project component is located in the Back Bay of Biloxi.

b. *Existing Structures (If applicable. Describe the current and historical structures found in the project area (e.g., buildings, parking lots, docks, seawalls, groynes, jetties, marina). If known, please provide the years of construction.:*

No structures are known to exist in the proposed project component areas.

c. *Seagrasses & Other Marine Vegetation (If applicable. Describe seagrasses found in project area. If a benthic survey was done, provide the date it was completed and a copy of the report. Estimate the species area of coverage and density. Attach a separate map showing the location of the seagrasses in the project area.):*

The waters are turbid and do not support large, continuous seagrasses or other marine vegetation beds. There may be sporadic areas of marine vegetation in the Back Bay of Biloxi. Surveys completed in 2010 found evidence of SAV further upstream into the Biloxi River. No SAV were found near the project area. (Cho, et. al. 2010).

d. *Mangroves (If applicable. Describe the mangroves found in project area. Indicate the species found (red, black, white), the species area of coverage in square footage and linear footage along project shoreline. Attach a separate map showing the location of the mangroves in the project area.):*

Not Applicable

e. *Corals (If applicable. Describe the corals found in project area. If a benthic survey was done, provide the date it was completed and a copy of the report. Estimate the species area of coverage and density. Attach a separate map showing the location of the corals in the project area.):*

Not Applicable

f. *Uplands (If applicable. Describe the current terrestrial habitat in which the project is located (e.g. pasture, forest, meadows, beach and dune habitats, etc.).*

Not Applicable

D. Project Description

I. *Construction Schedule (What is the anticipated schedule for major phases of work? Include duration of in-water work.)*

The entire project is expected to last 12months, with in-water work done from late spring through fall.

II. *Describe the Proposed Action: 1. What is the purpose and need of the proposed action? 2. How do you plan to accomplish it? Describe in detail the construction equipment and methods** needed; permanent vs. temporary impacts; duration of temporary impacts; dust, erosion, and sedimentation controls; restoration areas; if the project is growth-inducing or facilitates growth; whether the project is part of a larger project or plan; and what permits will need to be obtained. 3. Attach a separate map showing project footprint, avoidance areas, construction accesses, staging/ laydown areas. **If construction involves overwater structures, pilings and sheetpiles, boat slips, boat ramps, shoreline armoring, dredging, blasting, or artificial reefs, list the method here, but complete the next section(s) in detail.*

The proposed Big Island Living Shoreline project component includes the restoration of secondary productivity through the placement of breakwater structures. Over time, the breakwaters would develop into living reefs that support benthic secondary productivity, including, but not limited to, bivalve mollusks, annelid worms, shrimp, and crabs.

The siting of breakwaters, intertidal and subtidal reefs for the Restoring Living Shorelines and Reefs in Mississippi Estuaries project components are conceptual and subject to refinement. For the purposes of impact analysis, the Trustees have conservatively estimated the maximum footprint for permanent and temporary impacts resulting from the deployment of breakwaters, subtidal reefs, and intertidal reefs, as well as the excavation of temporary construction channels. Additionally, an estimated project area in which the total impacts would occur is also provided. Temporary flotation channel (see below) conceptual locations and footprints have been included for the purpose of estimating the maximum temporary impacts, but these impacts may be avoided depending on final project design, construction techniques and/or construction timing. To the extent practicable, submerged aquatic vegetation (SAVs) would be avoided; however, none is expected to be impacted at this time. To the extent practicable, subtidal habitat would be sited in locations where there is existing or adjacent historic hard bottom habit. Intertidal oyster surveys inventories would be completed as part of siting intertidal habitat. Other reasons for refinement in project location include but are not limited to:

- Avoidance of natural or cultural resources (e.g. oysters, SAVs or archaeological sites);
- Revised siting based on natural resource inventory (e.g. locating subtidal reefs on or near existing or historic hard bottom habitat);
- Engineering considerations including but not limited to geotechnical, hydrological, navigation, construction materials, construction techniques or bathymetric design constraints;
- Input received during the public comment period.

Construction methods and activities are included to assess the environmental impacts from the proposed project. Actual construction methods and activities would be determined after final design and would be comparable to activities described below.

Breakwaters: The breakwater cross sections selected at each site represent the maximum proposed footprint that would be impacted by placement of the structure (see Table 1). Any adjustments to the proposed cross section during final design would be no greater than the parameters in Table 1. The breakwater would have gaps ranging from three to 25 feet wide throughout the length of the structure. During final design every effort will be made to reduce environmental impacts associated with the project by utilizing appropriate agency recommended BMPs. Construction would take place within the maximum bottom width identified in Table 1. Construction materials would include the placement of linear structures that would utilize approved manufactured and/or natural materials. The alignment and limits of the breakwaters would be sited within the project study area shown in Figure 2. Navigation signs are anticipated to be required by the USCG Private Aids to Navigation Office. The numbers of navigation signs are estimated in Tables 1 and 2, below. Navigation signs would consist of a 12" treated piling with a plywood or aluminum day board sign and lighted beacon. The piles would be driven by hand to resistance and as necessary a vibratory hammer from a barge would be used to

push piles to a depth ranging from 10 to 30 feet below the substrate. This would put the day board sign at approximately +10.0 Mean Lower Low Water (MLLW).

The breakwaters would be constructed using approved manufactured and/or natural materials. The materials would be stockpiled at an existing, upland staging area near the project area, which has water access. Mechanical equipment would be utilized to load the materials onto a material handling barge. The materials would be transported to the work area to be deployed by a crane and/or long armed track hoe located on the equipment barge. Placement of the breakwater structure would be monitored to ensure the breakwater dimensions, slopes, and crest elevations are achieved.

Volume of proposed breakwater material: Approximately 11,275 cubic yards. A single cross section was used to determine breakwater volume. The average equals approximately 2.25 cubic yards per overall project linear foot. The final volume will change based on location and final design.

Table 1: Restoring Living Shorelines and Reefs in Mississippi Estuaries
Preliminary Design Parameters and Construction Techniques for Breakwater Structures

Back Bay of Biloxi and Vicinity Project Components	Maximum Structure Width (ft.)	Structure Length (ft.)	Footprint (acres)	Navigation Signs (each)*	Estimated in-water Construction Time (months)
Big Island Living Shoreline	30	5,011	3.5	0 to 27	12

*Represents preliminary estimate of number of signs; Consultation with the US Coast Guard Private Aids to Navigation Division would be coordinated to determine the required type and spacing of navigation signs.

Temporary Flotation Channels: Temporary flotation channels may be required to facilitate access for work barges in shallow project areas. If required, the channels would be excavated perpendicular to the breakwater for access from navigation channels and parallel to the alignments of the breakwater for construction of the breakwater. The channels would be excavated to a maximum of 6 ft. below MLLW to accommodate barge draft. The bottom width of the channels would be approximately 80 ft. with 3H:1V side slopes. The footprint of channels would be minimized to the extent practicable. The temporary flotation channels would be filled in mechanically using a clam-shell bucket or long-arm excavator or comparable methodology after installation of the structures is completed. Best Management Practices (BMPs) would be followed during excavation and backfilling to minimize environmental impacts. The preliminary temporary flotation channel footprint was calculated based on a heavily loaded barge in order to estimate the maximum potential impact. Proposed temporary flotation channel dimensions are summarized in Table 2. Temporary flotation channels may be avoided depending on project design and/or construction timing.

Table 2: Restoring Living Shorelines and Reefs in Mississippi Estuaries Temporary Flotation Channel					
	Channel Length (ft.)	Channel Depth Below MLLW (ft.)	Channel Width (ft.)	Temporarily Impacted Area (acres)	Temporary Navigation Signs (each)
Big Island Living Shoreline	5,060	6	80	9.3	0 to 34
Note: Temporary Flotation Channel and Installation of Temporary Navigation Signs included in Estimated Construction Time (Table 1).					

Staging Areas
Existing staging areas will be used and are not located in habitats used by listed or at-risk species. No new access to staging areas will be necessary.

Summary of Impacts

SAVs are not anticipated to be present in the project component area. If warranted, SAV surveys would be completed prior to final site selection of structures to avoid impacting SAVs. SAVs would be avoided to the extent practicable.

Big Island Living Shoreline: Approximately 5,011 linear ft. of breakwater would be constructed with approved manufactured and/or natural materials. Construction of the breakwater would permanently impact approximately 1.6 acres of soft bottom habitat (sand, muddy sand, and mud bottom). Temporary flotation channels may be required for the construction of breakwaters and are depicted in Figure 2. Estimated channel lengths are 2,450 linear ft. for a total of 4.5 acres (Table 2). Temporary flotation channels would be backfilled mechanically after construction is complete.

Bottom Disturbance and Turbidity
Deployment activities associated with the construction of breakwaters and construction of temporary flotation channels would result in short-term impacts to water quality as a result of re-suspension of sediment by vessels (barges, tugs, skiffs, etc.) moving in and out of the area of proposed action. The suspended sediment may be transported into surrounding wetlands, waterways, and the Mississippi Sound. However, the area is currently exposed to elevated turbidity levels as a result of natural re-suspension of sediment during frequent storms, tides and other typical events.

Disturbance of the bottom sediment by placing hardened structure may affect prey availability in the area of proposed action for juvenile and adult fish. The impacts from placing material would be short term, and localized, affecting individuals and not entire populations. The project would result in long-term benefits and provide habitat for prey after reef development is underway.

U.S. Army Corps of Engineers Section 10/404 and State Water Quality Certifications would be required; all project activities would be conducted in compliance with permit conditions. Impacts from turbidity would be moderate, short-term and limited in spatial extent.

Figures 1 to 3 (Appendix A) show the project area and the project footprint of potential components.

III. *Specific In-Water Construction Methods (Provide a detailed account of construction methods. It is important to include step-by-step descriptions of how demolition or removal of structures is conducted and if any debris will be moved and how. Describe how construction will be implemented, what type and size of materials will be used and if machines will be used, manual labor, or both. Indicated if work will be done from upland, barge, or both.)*

a. *Overwater Structures (Place your answers to the following questions in the box below.)*

- **i.** *Is the proposed use of this structure for a docking facility or an observation platform?*
- **ii.** *If no, is this a fishing pier? Public or Private? How many people are expected to fish per day? How do you plan to address hook and line captures?*
- **iii.** *Use of "Dock Construction Guidelines"? http://sero.nmfs.noaa.gov/pr/endangered%20species/Section%207/DockGuidelines.pdf*
- **iv.** *Type of decking: Grated – 43% open space; Wooden planks or composite planks – proposed spacing?*
- **v.** *Height above Mean High Water (MHW) elevation?*
- **vi.** *Directional orientation of main axis of dock?*
- **vii.** *Overwater area (sqft)?*
- viii. *Use of "Sea Turtle and Smalltooth Sawfish Construction Conditions, March 2006"? http://sero.nmfs.noaa.gov/pr/endangered%20species/Sea%20Turtle%20and%20Smalltooth%20Sawfish%20Construction%20Conditions%20323-06.pdf*

Not Applicable

b. *Pilings & Sheetpiles (What type of material is the piling or sheetpiles? What size and how many will be used? Method used to install: impact hammer, vibratory hammer, jetting, etc.?)*

See D.II, above for description of piling installation for navigational signs, if required.

c. *Boat Slips (Describe the number and size of slips and if the number of new slips changes from what is currently available at the project. Indicate how many are wet slips and how many are dry slips. Estimate the shadow effect of the boats - the area (sqft) beneath the boats that will be shaded.)*

Not Applicable

d. *Boat Ramp (Describe the number and size of boat ramps, the number of vessels that can be moored at the site (e.g., staging area) and if this is a public or private ramp. Indicate the boat trailer parking lot capacity, and if this number changes from what is currently available at the project.)*

Not Applicable

e. *Shoreline Armoring (This includes all manner of shoreline armoring (e.g., riprap, seawalls, jetties, groins, breakwaters, etc.). Provide specific information on material and construction methodology used to install the shoreline armoring materials. Include linear footage and square footage. Attach a separate map showing the location of the shoreline armoring in the project area.)*

See D. II. Above and map figures in Appendix A.

f. *Dredging or digging (Provide details about dredge type (hopper, cutterhead, clamshell, etc.), maximum depth of dredging, area (ft^2) to be dredged, volume of material (yd^3) to be produced, grain size of material, sediment testing for contamination, spoil disposition plans, and hydrodynamic description (average current speed/direction))*

The use of temporary flotation channels is anticipated for project components and is described in D.II. Table 3 is a summary of potential impacts and is included here for convenience. Temporary flotation channel conceptual locations and footprints have been included for the purpose of estimating the maximum impact, but may be avoided depending on project design and/or construction timing.

Table 3: Restoring Living Shorelines and Reefs in Mississippi Estuaries Temporary Flotation Channel					
	Channel Length (ft.)	Channel Depth Below MLLW (ft.)	Channel Width (ft.)	Impacted Area (acres)	Temporary Navigation Signs (each)
Big Island Living Shoreline	5,060	6	80	9.3	0 to 34
Note: Temporary Flotation Channel and Installation of Temporary Navigation Signs included in Estimated Construction Time (Table 1).					

g. *Blasting (Projects that use blasting might not qualify as "minor projects," and a Biological Assessment (BA) may need to be prepared for the project. Arrange a technical consultation meeting with NMFS Protected Resources Division to determine if a BA is necessary. Please include explosive weights and blasting plan.)*

Not Applicable

h. *Artificial Reefs (Provide a detailed account of the artificial reef site selection and reef establishment decisions (i.e., management and siting considerations, stakeholder considerations, environmental considerations), deployment schedule, materials used, deployment methods, as well as final depth profile and overhead clearance for vessel traffic. For additional information and detailed guidance on artificial reefs, please refer to the artificial reef program websites for the particular state the project will occur in.*

Not Applicable; see breakwater discussion in Project Description

E. Species & Critical Habitat

1. List all species, critical habitat, proposed species and proposed critical habitat that may be found in the action area.
2. Attach a separate map identifying species/critical habitat locations within the action area.
For information on species and critical habitat under FWS jurisdiction, visit http://www.fws.gov/endangered/species/.
Under NMFS jurisdiction,
visit: http://sero.nmfs.noaa.gov/protected_resources/section_7/threatened_endangered/Documents/gulf_of_mexico.pdf.

SPECIES and/or CRITICAL HABITAT (CH)	STATUS	CH Unit
Gulf Sturgeon – estuarine/marine	Threatened	
Loggerhead sea turtle – in-water	Threatened	
Green sea turtle – in-water	Threatened	
Leatherback sea turtle – in-water	Endangered	
Hawksbill sea turtle – in-water	Endangered	
Kemp's ridley sea turtle – in-water	Endangered	
Piping plover - terrestrial	Threatened	
Red knot - terrestrial	Threatened	
West Indian Manatee – in-water	Endangered	
Alabama Red-bellied Turtle – terrestrial (nesting)	Endangered	

F. Effects of the Proposed Project

I. *Explain the potential beneficial and adverse effects to each species listed above (Describe what, when, and how the species will be impacted and the likely response to the impact. Be sure to include direct, indirect, interdependent, interrelated, connected actions, and cumulative impacts. Where possible, quantify effects. If species are present (or potentially present) and will not be adversely affected describe your rationale. If species are unlikely to be present in the general area or action area, explain why. This justification provides documentation for your administrative record, avoids the need for additional correspondence regarding the species, and helps expedite review.)*

Five species of sea turtles - The project area does not include nesting habitat for the five sea turtle species, therefore there will be no effect to nesting sea turtles. However, in-water project work may coincide with sea turtle presence (i.e. spring/summer). During this time construction crews would be operating mechanized equipment in the water including barges and light watercraft. The noise produced by the machinery and movement of the machinery in the water, and placement of materials could disturb sea turtles. All species are highly mobile and project activities would not impede transitory routes. In the section below we describe conservation measures to protect sea turtles; Sea Turtle and Smalltooth Sawfish Construction Conditions (NMFS 2006). The implementation of these measures would minimize any potential risks to sea turtles to an insignificant and discountable effect.

Piping Plover - Piping plover are not known to occur in the footprint of construction. Piping plovers do not nest in the project area, but may use habitat in the Back Bay of Biloxi and vicinity for wintering habitat. Piping plovers could be startled by work crews, vehicles, and machinery and stop foraging or roosting. However, piping plovers would be expected to move away from the disturbance to other suitable habitats outside of the disturbance area. There is an abundance of suitable foraging and roosting habitat within 2 miles of the action area in which plovers would be expected to move to or within (i.e., within their normal range of movements). The noise produced by the machinery may disturb the piping plover present on site, but piping plover could avoid disturbance by moving into adjacent areas of unimpacted habitat. Therefore it is not expected that startling and temporary displacement would interrupt or have long-term consequences to normal behaviors. Foraging habitats are relatively abundant within the Back Bay of Biloxi and in the vicinity, therefore we do not expect indirect effects to piping plover from a loss of prey base. Increased visitor use is not expected as a result of this project. Therefore, an increase of indirect effects from human use is not expected. Based upon the normal movement patterns of piping plover and the conservation measures outlined below (allowing movement of their own volition, and watching for the birds), it is determined the project may affect but is not likely to adversely affect piping plover.

Red Knot - In coastal Mississippi, the red knot is mainly a migratory species that uses coastal beaches and marine intertidal areas as stopover feeding locations or staging areas from March to April during the northward spring migration and September and October during the southward autumn migration (Niles et al. 2007; USFWS 2013). If an individual enters the project area and is disturbed, it is expected that they would be able to move to another nearby location (within normal daily movement patterns) to continue foraging, feeding and resting. In the section below we describe conservation measures to protect red knot. The implementation of these measures would minimize any potential risks to red knot to an insignificant and discountable effect.

West Indian Manatee - The West Indian manatee occasionally occurs in Mississippi coastal habitats and these visits are becoming more common (Fertl et al. 2005). The manatee migrates from wintering habitats in Florida and possibly Mexico to Mississippi and Alabama waters from spring through summer, when project implementation is expected. Although the West Indian manatee could be present in the project area in warmer months, the migration of this species is still not well understood. One study did indicate that when manatees were observed outside of Florida they were most likely found near estuaries and the mouths of rivers (Fertl et al. 2005). Manatees forage on a variety of plants, including submerged aquatic vegetation (SAV), floating plants, and emergent plants (MDWFP 2001). The estuarine shallow water habitat of the project area supports large beds of *Halodule wrightii* and *Ruppia maritima* throughout the project boundary, but intertidal and subtidal reefs sites would be selected to completely avoid areas with seagrass. If manatees were present, in-water work could startle an individual or project debris or vessels could strike a manatee. Striking a manatee generally results in injury or mortality. Conservation measures listed below would minimize risk of startle and strike to an insignificant and discountable level. Construction equipment such as a barge would likely cause increased levels of turbidity at the local scale and noise in the water column which may affect the species within a particular distance. Manatees would probably avoid any areas of increased turbidity as they are not known to use turbid habitats and avoid areas with increased noise due to their highly mobile nature. Manatees, if present, would be expected to avoid the construction areas. Standard Manatee Conditions (A-D) for In-Water Work would be implemented during construction (USFWS 2011) to minimize impacts to an insignificant and discountable level.

Gulf Sturgeon - Numerous studies in the northern Gulf have documented habitat use and seasonality of Gulf sturgeon movement from spawning areas in riverine habitat to foraging grounds in the nearshore environment (Fox et al. 2002; Heise et al. 2004, 2005; Rogillio et al. 2007; Ross et al. 2009; Havrylkoff et al. 2012). Telemetry data from Gulf sturgeon that are natal to the Pascagoula drainage system show clear seasonal migration patterns. Movement chronologies show summer habitat use upriver to take place between April and November and winter habitat use at Cat, Ship, Horn, and Petit Bois islands in the Mississippi Sound to occur between November and early March (Rogillio et al. 2007). The benthic habitat in the project area is not

preferred foraging habitat for Gulf sturgeon. Well oxygenated, clear water with sandy substrates are primarily used for feeding by the species (Fox et al. 2002; Ross et al. 2009). Benthic habitat in the project footprint is largely composed of soft, silty substrates with turbid waters. Additionally, project work would be completed in the spring and summer months when sturgeon are not expected in saline environments. Given that project activities would take place when Gulf sturgeon are not likely to be present and the lack of appropriate foraging habitat in the project area, we do not expect any effect to the species. If work continues beyond the May to October window, continued adherence to the Sea turtle and Smalltooth Sawfish Construction Conditions (NMFS 2006) will minimize the potential for impact to Gulf Sturgeon to an insignificant level. No direct or indirect impacts from construction are expected in the riverine ecosystems.

Alabama Red-Belly Turtle (*Pseudemys alabamensis*): The habitat of the Alabama red-belly turtle includes fresh and brackish habitats, river banks, submerged and emergent aquatic vegetation, and upland forested habitat for nesting (MDWFP 2001; USFWS 2010). Within the project vicinity, individuals of this species are known to be present in the Tchoutacabouffa River, the Biloxi River, and the Back Bay of Biloxi (MDWFP 2001; USFWS 2010); however, this species is mainly a freshwater species associated with river and stream channels and associated wetlands. Nesting occurs on forested uplands from mid-May to mid-July (MDWFP 2001). Since the turtles prefer a freshwater environment, it is not anticipated that they are present at the project site, and no observations have been recorded. The lack of directly adjacent submerged aquatic macrophytes for foraging and upland forests would make this species unlikely to be present in the project area. It is unlikely that there would be impacts to the Alabama red-belly turtle.

II. *Explain the potential beneficial and adverse effects to [critical habitat for] each species listed above (Describe what, when, and how the species will be impacted and the likely response to the impact. Be sure to include direct, indirect, interdependent, interrelated, connected actions, and cumulative impacts. Where possible, quantify effects. If species are present (or potentially present) and will not be adversely affected describe your rationale. If species are unlikely to be present in the general area or action area, explain why. This justification provides documentation for your administrative record, avoids the need for additional correspondence regarding the species, and helps expedite review.):*

G. Actions to Reduce Adverse Effects

!. *Explain the actions to reduce adverse effects to each species listed above (For each species for which impacts were identified, describe any conservation measures (e.g. BMPs) that will be implemented to avoid or minimize the impacts. Conservation measures are designed to avoid or minimize effects to listed species and critical habitats or further the recovery of the species under review. Conservation measures are considered part of the proposed action and their implementation is required. Any changes to, modifications of, or failure to implement these conservation measures may result in a need to reinitiate this consultation.):*

General BMPs
Material used for construction cannot contain trash, debris, and/or toxic pollutants.

Transiting vessels/barges, and/or mechanical dredge-related activities, will occur at slow transit speed of the towed barges (5 knots or less).

The project would comply with Measures for Reducing Entrapment Risk to Protected Species, revised May 22, 2012.

Sea turtles
Comply with NMFS's Sea Turtle and Smalltooth Sawfish Construction Conditions (NMFS, 2006).

All project work would be in-water, during daylight hours and no nesting habitat exists in the project area.

All construction personnel would be notified of the potential presence of sea turtles in the water and would be reminded of the need to avoid sea turtles.

If any sea turtles are found to be present in the immediate project area during activities, construction would be halted until species moves away from project area.

All construction personnel would be notified of the criminal and civil penalties associated with harassing, injuring, or killing sea turtles.

Train/instruct all construction personnel of what they are to do in the presence of a sea turtle.

Construction activities would occur during daylight hours and noise would be kept to the minimum feasible.

Shorebirds
All construction personnel would be notified of the potential presence of shorebirds within the project area.

All construction personnel would be instructed and trained in the protection of shorebirds.

Construction personnel would be notified of the criminal and civil penalties associated with harassing, injuring or killing shorebirds.

If piping plovers or red knots are present, work would not occur until the birds have moved, of their own volition, from the area by 150 feet.

Construction noise would be kept to the minimum feasible.

West Indian Manatee
Comply with U.S. Fish and Wildlife Service's *Standard Manatee Conditions (A-D) for In-Water Work* (USFWS 2011) as modified for Mississippi, see below.

All construction personnel would be notified of the potential presence of West Indian Manatee in the water and reminded of the criminal and civil penalties associated with harassing, injuring, or killing West Indian Manatees.

All on-site project personnel are responsible for observing water-related activities for the presence of manatee(s). All in-water operations, including vessels, must be shutdown if a manatee(s) comes within 50 feet of the operation. Activities will not resume until the manatee(s) have moved beyond the 50-foot radius of the project operation, or until 30 minutes elapses if the manatee(s) has not reappeared within 50 feet of the operation. Animals must not be herded away or harassed into leaving.

All vessels associated with the construction project shall operater at "Idle Speed/No Wake" at all times while in the immediate area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.

Care would be taken when lowering equipment into the water and the sediment in order to ensure that no harm is caused to West Indian Manatee that may potentially be in the water within the construction area.

Site selection will avoid seagrasses to the maximum extent practicable such that potential feeding areas will not be removed.

Construction noise would be kept to the minimum feasible.

Gulf Sturgeon
In-water construction activities would be limited to late spring/summer months when Gulf sturgeon are unlikely to be within the construction area. In addition, the Sea Turtle and Smalltooth Sawfish Construction Conditions (NMFS, 2006) will be implemented throughout as they are protective of Gulf sturgeon as well.

Project components would not impede any migratory paths during construction. Design or materials used will not create an entanglement or entrapment risk to ESA and MMPA species or block migration. Completed projects would not impede ingress, egress, and migration of species protected under ESA or MMPA (protected species) between shoreline and open water.

Post-construction Monitoring
The following parameters may be monitored after construction is complete.

- Structural integrity of breakwater structures
- Breakwater height/elevation and area
- Infauna and epifauna species composition, density, and biomass on breakwater structures
- Shoreline profile/elevation
- Marsh edge position

All sites would need to be accessed by small vessels during monitoring events. Area and elevation of breakwater area may be monitored post-construction to ensure that elevation and area meet design specifications. This may be done by boat using side-

scan sonar or other similar instrumentation, at minimum once for as-built verification and once more during 5-7 year monitoring period. Non-bivalve invertebrate infauna and epifauna surveys would be conducted using trays attached to breakwaters. This methods requires deployment from boat or by foot in shallow areas. Trays would be deployed for a 6-week period and then retrieved for at least two post-construction monitoring events. Shoreline profile/slope and marsh edge position may be monitored by foot using GPS, at minimum once post-construction.

Sample size and frequency of sampling will be determined after engineering and design are completed and monitoring contractor costs are established. Minimum number of events are outlined in the monitoring plan. All monitoring data and reporting will go through the quality assurance/ quality control process set up by the Trustees and as outlined in MDEQ's Comprehensive Quality Assurance Plan before being released to the public.

II. *Explain the actions to reduce adverse effects to critical habitat listed above (For critical habitat for which impacts were identified, describe any conservation measures (e.g. BMPs) that will be implemented to avoid or minimize the impacts. Conservation measures are designed to avoid or minimize effects to listed species and critical habitats or further the recovery of the species under review. Conservation measures are considered part of the proposed action and their implementation is required. Any changes to, modifications of, or failure to implement these conservation measures may result in a need to reinitiate this consultation.):*

H. Effect Determination Requested

From the sections above, there should be enough detailed information to provide clear and obvious support for your determinationin the section below. If the rationale for the determination is not clear, additional information must be added to one of the sections. Identify if gulf sturgeon are in saltwater, estuarine, or in freshwater in your Species and/or Critical Habitat list to determine which federal agency will perform the analysis (e.g. gulf sturgeon CH - saltwater). Identify if sea turtles are in water or on land in your Species and/or Critical Habitat list to determine which federal agency will perform the analysis (e.g. Loggerhead sea turtle CH - terrestrial).

SPECIES and/or CRITICAL HABITAT	DETERMINATION (see definitions below)
Gulf Sturgeon – estuarine	May Affect, Not Likely to Adversely Affect
Loggerhead sea turtle – estuarine	May Affect, Not Likely to Adversely Affect
Green sea turtle – estuarine	May Affect, Not Likely to Adversely Affect
Leatherback sea turtle - estuarine	May Affect, Not Likely to Adversely Affect
Hawksbill sea turtle - estuarine	May Affect, Not Likely to Adversely Affect
Kemp's ridley sea turtle - estuarine	May Affect, Not Likely to Adversely Affect
Piping plover – terrestrial	May Affect, Not Likely to Adversely Affect
Red knot – terrestrial	May Affect, Not Likely to Adversely Affect
West Indian Manatee – in water	May Affect, Not Likely to Adversely Affect
Alabama Red-bellied turtle – terrestrial (nesting)	No Effect

NE = no effect. This determination is appropriate when the proposed action will not directly, indirectly, or cumulatively impact, either positively or negatively, any listed, proposed, candidate species or designated/proposed critical habitat.

NLAA = not likely to adversely affect. This determination is appropriate when the proposed action is not likely to adversely impact any listed, proposed, candidate species or designated/proposed critical habitat or there may be beneficial effects to these resources. Response requested is "Concurrence." This conclusion is appropriate when effects to the species or critical habitat will be beneficial, discountable, or insignificant. Beneficial effects are contemporaneous positive effects without any adverse effects to the species or habitat. Insignificant effects relate to the size of the impact, while discountable effects are those that are extremely unlikely to occur. Based on best judgment, a person would not: (1) be able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur. If the Services concur in writing with the Action Agency's determination of "is not likely to adversely affect" listed species or critical habitat, the section 7 consultation process is completed.

LAA = likely to adversely affect. This determination is appropriate when the proposed action is likely to adversely impact any listed, proposed, candidate species or designated/proposed critical habitat. Response requested for listed species is "Formal Consultation". Response requested for proposed and candidate species is "Conference." This conclusion is reached if any adverse effect to listed species or critical habitat may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable or insignificant. In the event the overall effect of the

proposed action is beneficial to the listed species or critical habitat, but may also cause some adverse effect on individuals of the listed species or segments of the critical habitat, then the determination should be "is likely to adversely affect." Such a determination requires formal section 7 consultation and will require additional information.

JP = likely to jeopardize proposed species/adversely modify proposed critical habitat. For proposed species and proposed critical habitats, the Service is required to evaluate whether the proposed action is likely to jeopardize the continued existence of the proposed species or adversely modify an area proposed for designation as critical habitat. If you reach this conclusion, a section 7 conference is required.

JC = likely to jeopardize candidate species. For candidate species, the Service is required to evaluate whether the proposed action is likely to jeopardize the continued existence of the candidate species. If this conclusion is reached, intra-Service section 7 conference is required.

I. Bald Eagles

I. Are Bald Eagles present in the action area?: YES

If YES, the following conservation measures should be implemented:

1. If bald eagle breeding or nesting behaviors are observed or a nest is discovered or known, all activities (e.g., walking, camping, clean-up, use of a UTV, ATV, or boat) should avoid the nest by a minimum of 660 feet. If the nest is protected by a vegetated buffer where there is no line of sight to the nest, then the minimum avoidance distance is 330 feet. This avoidance distance shall be maintained from the onset of breeding/courtship behaviors until any eggs have hatched and eaglets have fledged (approximately 6 months).
2. If a similar activity (e.g., driving on a roadway) is closer than 660 feet to a nest, then you may maintain a distance buffer as close to the nest as the existing tolerated activity.
3. If a vegetated buffer is present and there is no line of sight to the nest and a similar activity is closer than 330 feet to a nest, then you may maintain a distance buffer as close to the nest as the existing tolerated activity.
4. In some instances activities conducted within 660 feet of a nest may result in disturbance, particularly for the eagles occupying the Mississippi barrier islands. If an activity appears to cause initial disturbance, the activity shall stop and all individuals and equipment will be moved away until the eagles are no longer displaying disturbance behaviors.

If these measures cannot be implemented, then you must contact the Service's Migratory Bird Permit Office.
Texas – (505) 248-7882 or by email: permitsR2MB@fws.gov
Louisiana, Mississippi, Alabama, Florida – (404) 679-7070 or by email: permitsR4MB@fws.gov

J. Migratory Birds

Identify the species anticipated in the project area and behaviors (breeding, roosting, foraging) anticipated during project implementation. You may list similar species on a single line and categorize by type (e.g., Wading birds - great blue heron, snowy egret, reddish egret). Use additional tables on the next page if needed.

SPECIES/SPECIES GROUP	BEHAVIOR	SPECIES/HABITAT IMPACTS
Wading birds (herons, egrets, ibises)	Foraging, feeding, resting, roosting	Wading birds primarily forage and feed at the water's edge. As such, they may be impacted locally and temporarily by the project. It is expected that they would be able to move to another nearby location to continue foraging, feeding and resting.

If species or habitat impacts could occur, identify avoidance and minimization measures to prevent incidental take. Incidental take of Migratory Birds cannot be authorized.

SPECIES/SPECIES GROUP	CONSERVATION MEASURES TO MINIMIZE IMPACTS
Wading birds (herons, egrets, ibises)	Care would be taken to minimize noise and vibration near areas where foraging or resting birds are encountered. All disturbance would be localized and temporary. The general behavior of these birds is to mediate their own exposure to human activity when given the opportunity. Roosting should not be impacted because the project would occur during daylight hours only. These birds primarily nest in trees or shrubs (e.g. pines, Baccharis), which occur outside the action area. Therefore, nesting will not be impacted.

Identify the species anticipated in the project area and behaviors (breeding, roosting, foraging) anticipated during project implementation. You may list similar species on a single line and categorize by type (e.g., Wading birds - great blue heron, snowy egret, reddish egret). Use additional tables on the next page if needed.

SPECIES/SPECIES GROUP	BEHAVIOR	SPECIES/HABITAT IMPACTS
Shorebirds (plovers, oystercatchers, stilts, sandpipers)	Foraging, feeding, resting, roosting,	Shorebirds forage, feed, rest, and roost in the action area. As such, they may be impacted locally and temporarily by the project. It is expected that they would be able to move to another nearby location to continue foraging, feeding and resting.

If species or habitat impacts could occur, identify avoidance and minimization measures to prevent incidental take. Incidental take of Migratory Birds cannot be authorized.

SPECIES/SPECIES GROUP	CONSERVATION MEASURES TO MINIMIZE IMPACTS
Shorebirds (plovers, oystercatchers, stilts, sandpipers)	Care would be taken to minimize noise and vibration near areas where foraging or resting birds are encountered. All disturbance would be localized and temporary. The general behavior of these birds is to mediate their own exposure to human activity when given the opportunity. Roosting should not be impacted because the project would occur during daylight hours only. . These birds primarily nest and roost in the dunes. This project would occur in open water away from potential shorebird nesting areas; therefore it is not anticipated to impact nesting.

Identify the species anticipated in the project area and behaviors (breeding, roosting, foraging) anticipated during project implementation. You may list similar species on a single line and categorize by type (e.g., Wading birds - great blue heron, snowy egret, reddish egret). Use additional tables on the next page if needed.

SPECIES/SPECIES GROUP	BEHAVIOR	SPECIES/HABITAT IMPACTS
Seabirds (terns, gulls, skimmers, double-crested cormorant, American white pelican, brown pelican)	Foraging, feeding, resting, roosting,	Seabirds forage, feed, rest, and roost in the action area. As such, they may be impacted locally and temporarily by the project. It is expected that they would be able to move to another nearby location to continue foraging, feeding and resting.

If species or habitat impacts could occur, identify avoidance and minimization measures to prevent incidental take. Incidental take of Migratory Birds cannot be authorized.

SPECIES/SPECIES GROUP	CONSERVATION MEASURES TO MINIMIZE IMPACTS
Seabirds (terns, gulls, skimmers, double-crested cormorant, American white pelican, brown pelican)	Care would be taken to minimize noise and vibration near areas where foraging or resting birds are encountered. All disturbance would be localized and temporary. The general behavior of these birds is to mediate their own exposure to human activity when given the opportunity. Roosting should not be impacted because the project would occur during daylight hours only. These birds primarily roost in the dunes. This project would occur in open water away from potential nesting areas; therefore it is not anticipated to impact nesting.

Identify the species anticipated in the project area and behaviors (breeding, roosting, foraging) anticipated during project implementation. You may list similar species on a single line and categorize by type (e.g., Wading birds - great blue heron, snowy egret, reddish egret). Use additional tables on the next page if needed.

SPECIES/SPECIES GROUP	BEHAVIOR	SPECIES/HABITAT IMPACTS
Raptors (osprey, hawks, eagles, owls)	Foraging, feeding, resting, roosting,	Raptors forage, feed, and rest in the action area. As such, they may be impacted locally and temporarily by the project. It is expected that they would be able to move to another nearby location to continue foraging, feeding and resting. Most raptors are aerial foragers and soar long distances in search of food.

If species or habitat impacts could occur, identify avoidance and minimization measures to prevent incidental take. Incidental take of Migratory Birds cannot be authorized.

SPECIES/SPECIES GROUP	CONSERVATION MEASURES TO MINIMIZE IMPACTS
Raptors (osprey, hawks, eagles, owls)	No work would occur within 660 feet of any bald eagle nests and all other bald eagle conservation measures (identified under Section I, above) can be implemented. Care would be taken to minimize noise and vibration in their vicinities. Roosting should not be impacted because the project would occur during daylight hours only, and because the areas where these birds nest are not within the action area. A staff biologist would advise the contractor of the nesting status of all identified raptor nests near the action area and approve of work in the vicinity. The areas in the estuary where these birds roost and nest are not within the action area.

Identify the species anticipated in the project area and behaviors (breeding, roosting, foraging) anticipated during project implementation. You may list similar species on a single line and categorize by type (e.g., Wading birds - great blue heron, snowy egret, reddish egret). Use additional tables on the next page if needed.

SPECIES/SPECIES GROUP	BEHAVIOR	SPECIES/HABITAT IMPACTS
Goatsuckers	Foraging, feeding, resting, roosting,	Goatsuckers forage, feed, rest, and roost in the project area. However, they are nocturnal/crepuscular and therefore not active during the project work period.

If species or habitat impacts could occur, identify avoidance and minimization measures to prevent incidental take. Incidental take of Migratory Birds cannot be authorized.

SPECIES/SPECIES GROUP	CONSERVATION MEASURES TO MINIMIZE IMPACTS
Goatsuckers	All work would be done during daylight hours. These birds are nocturnal/crepuscular and as such, should not be foraging or feeding while work occurs. Care would be taken to minimize noise and vibration near habitat where these birds are resting or roosting. They nest in thickets and woodlands, which are present in the action area. This project would occur in open water away from potential nesting areas; therefore it is not anticipated to impact nesting.

Identify the species anticipated in the project area and behaviors (breeding, roosting, foraging) anticipated during project implementation. You may list similar species on a single line and categorize by type (e.g., Wading birds - great blue heron, snowy egret, reddish egret). Use additional tables on the next page if needed.

SPECIES/SPECIES GROUP	BEHAVIOR	SPECIES/HABITAT IMPACTS
Waterfowl (geese, swans, ducks, loons, and grebes)	Foraging, feeding, resting, roosting,	Waterfowl forage, feed, rest, and roost in the action area. As such, they may be impacted locally and temporarily by the project. It is expected that they would be able to move to another nearby location to continue foraging, feeding and resting.

If species or habitat impacts could occur, identify avoidance and minimization measures to prevent incidental take. Incidental take of Migratory Birds cannot be authorized.

SPECIES/SPECIES GROUP	CONSERVATION MEASURES TO MINIMIZE IMPACTS
Waterfowl (geese, swans, ducks, loons, and grebes)	Care would be taken to minimize noise and vibration near areas where foraging or resting birds are encountered. All disturbance would be localized and temporary. The general behavior of these birds is to mediate their own exposure to human activity when given the opportunity. Roosting should not be impacted because the project would occur during daylight hours only. These birds primarily roost and nest in low vegetation. This project would occur in open water away from potential nesting areas; therefore it is not anticipated to impact nesting.

Identify the species anticipated in the project area and behaviors (breeding, roosting, foraging) anticipated during project implementation. You may list similar species on a single line and categorize by type (e.g., Wading birds - great blue heron, snowy egret, reddish egret). Use additional tables on the next page if needed.

SPECIES/SPECIES GROUP	BEHAVIOR	SPECIES/HABITAT IMPACTS
Doves and pigeons	Foraging, feeding, resting, roosting	Doves and pigeons could forage, feed, rest, and roost in the project area. However, they are unlikely to utilize habitat in the estuarine zone/action area.

If species or habitat impacts could occur, identify avoidance and minimization measures to prevent incidental take. Incidental take of Migratory Birds cannot be authorized.

SPECIES/SPECIES GROUP	CONSERVATION MEASURES TO MINIMIZE IMPACTS
Doves and pigeons	It is unlikely that doves and pigeons would be impacted by this project. In addition, this project would not take near habitats where the species would nest; therefore it is not anticipated to impact nesting.

Identify the species anticipated in the project area and behaviors (breeding, roosting, foraging) anticipated during project implementation. You may list similar species on a single line and categorize by type (e.g., Wading birds - great blue heron, snowy egret, reddish egret). Use additional tables on the next page if needed.

SPECIES/SPECIES GROUP	BEHAVIOR	SPECIES/HABITAT IMPACTS
Rails and coots	Foraging, feeding, resting, roosting,	Rails and coots forage, feed, rest, and roost in the action area. As such, they may be impacted locally and temporarily by the project. It is expected that they would be able to move to another nearby location to continue foraging, feeding and resting if disturbed by the project. These birds primarily roost and nest in marshes, which are within the action area, and adjacent to project activities which are in-water.

If species or habitat impacts could occur, identify avoidance and minimization measures to prevent incidental take. Incidental take of Migratory Birds cannot be authorized.

SPECIES/SPECIES GROUP	CONSERVATION MEASURES TO MINIMIZE IMPACTS
Rails and coots	Care would be taken to minimize noise and vibration near areas where foraging or resting birds are encountered. All disturbance would be localized and temporary. The general behavior of these birds is to mediate their own exposure to human activity when given the opportunity. Roosting should not be impacted because the project would occur during daylight hours only This project would occur in open water away from potential nesting areas; therefore it is not anticipated to impact nesting.

Pre-existing NEPA Documents: YES

Does this project have any pre-existing, site specific NEPA analysis? If YES, then provide final NEPA analysis, if not final then provide draft. If tiered from a programmatic EIS or EA, then provide the programmatic document or a link below.

Tiered from the DWH Phase III ERP/PEIS; http://www.gulfspillrestoration.noaa.gov/restoration/early-restoration/phase-iii/

NMF S E SA § 7 Consultation

We request that all ESA §7 consultation requests/packages be submitted electronically to: Laurel.Jennings@noaa.gov. Questions about consultation status may be directed to the same email address or by phone, 206-526-4601 or 206-794-4761 (cell).

FWS ESA § 7 Consultation

We request that all consultation requests/packages to FWS be submitted electronically to: Ashley_Mills@fws.gov. You will be notified when we receive your Biological Evaluation. Upon receipt, we will conduct a preliminary review and provide any comments and feedback, including any requests for modifications or additional information. If modifications or additional information is necessary, we will work with you until the Biological Evaluation form is considered complete. Once complete, we will send your Biological Evaluation to the appropriate Field Office to conduct consultation. If you have questions about consultation status, please contact Ashley Mills by phone 812-756-2712 or email Ashley_Mills@fws.gov.

Name of Person Completing this Form: Stephen Parker
Name of Project Lead: Marc Wyatt
Date Form Completed: 7/2/15
Date Form Updated: 8/11/15

Appendix A

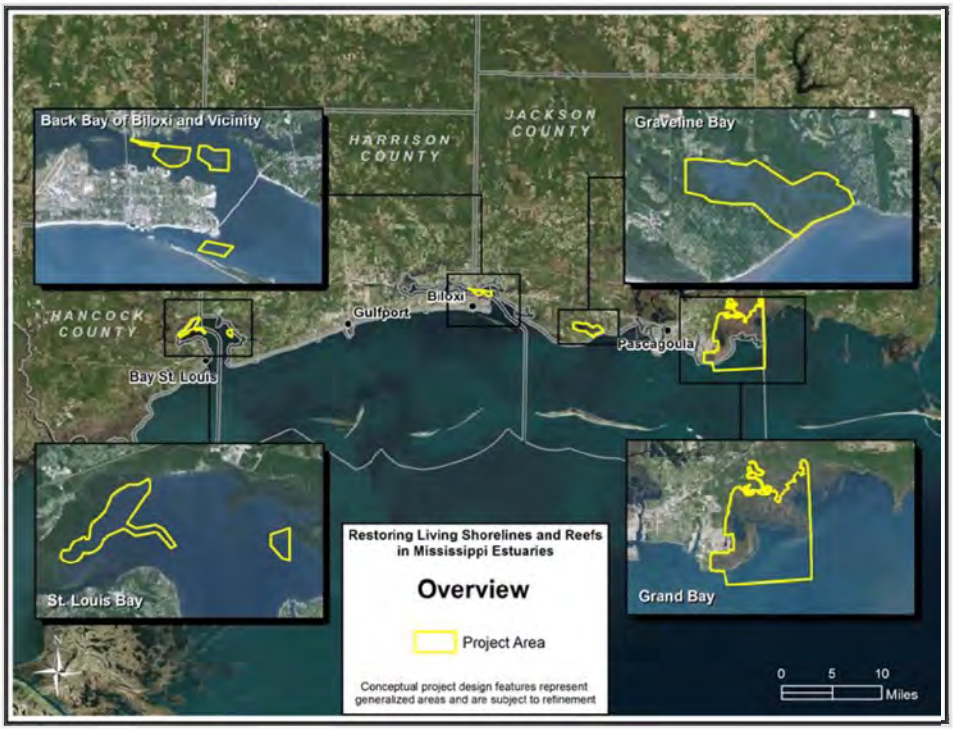

Figure 1: Restoring Living Shorelines and Reefs in Mississippi Estuaries-Vicinity Map Depicting Project Locations and Project Areas[1]

[1] Project areas encompass the project components, the direct restoration measures and potential areas for construction or indirect impacts. Conceptual design features (breakwaters, intertidal reef habitat, subtidal reef habitat, and temporary flotation channels) are subject to refinement and would be sited within respective project areas.

Figure 2. Back Bay of Biloxi and Vicinity Map

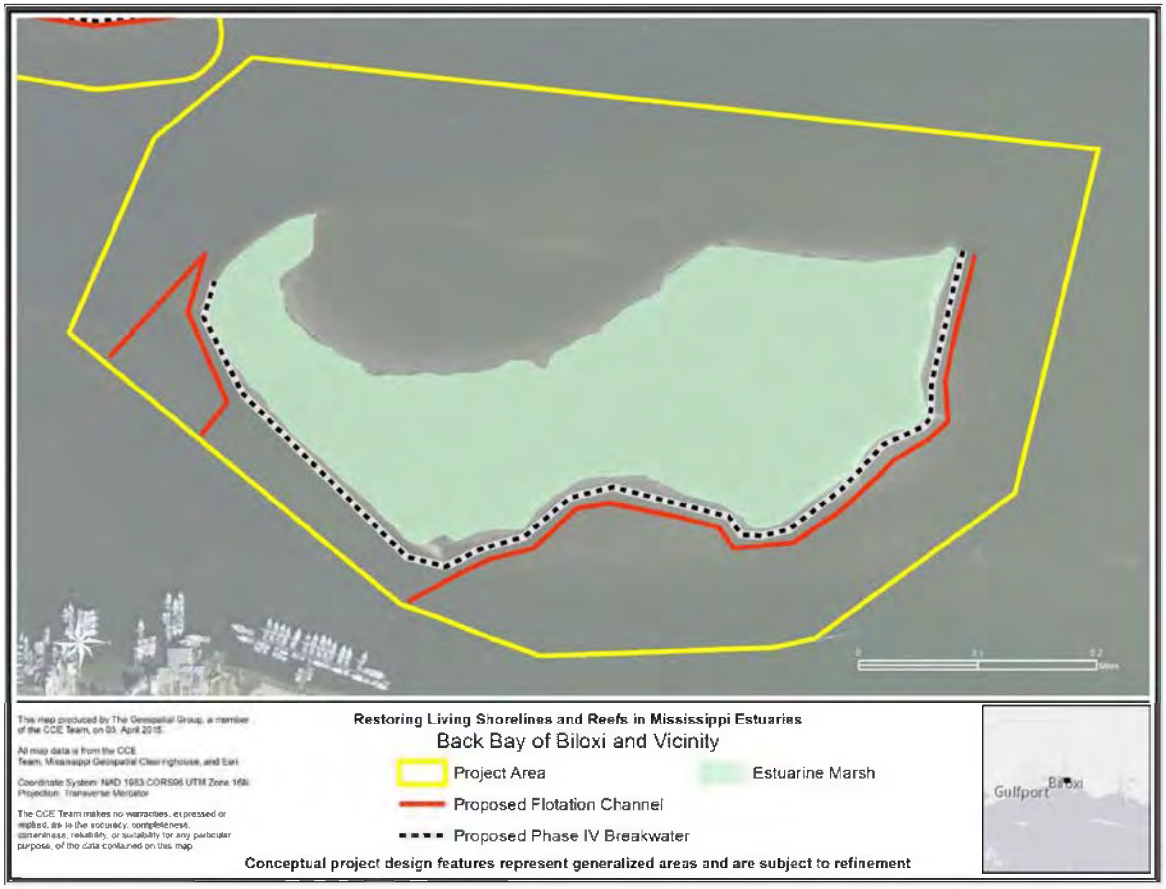

Figure 3. Big Island Living Shoreline Project Component Map

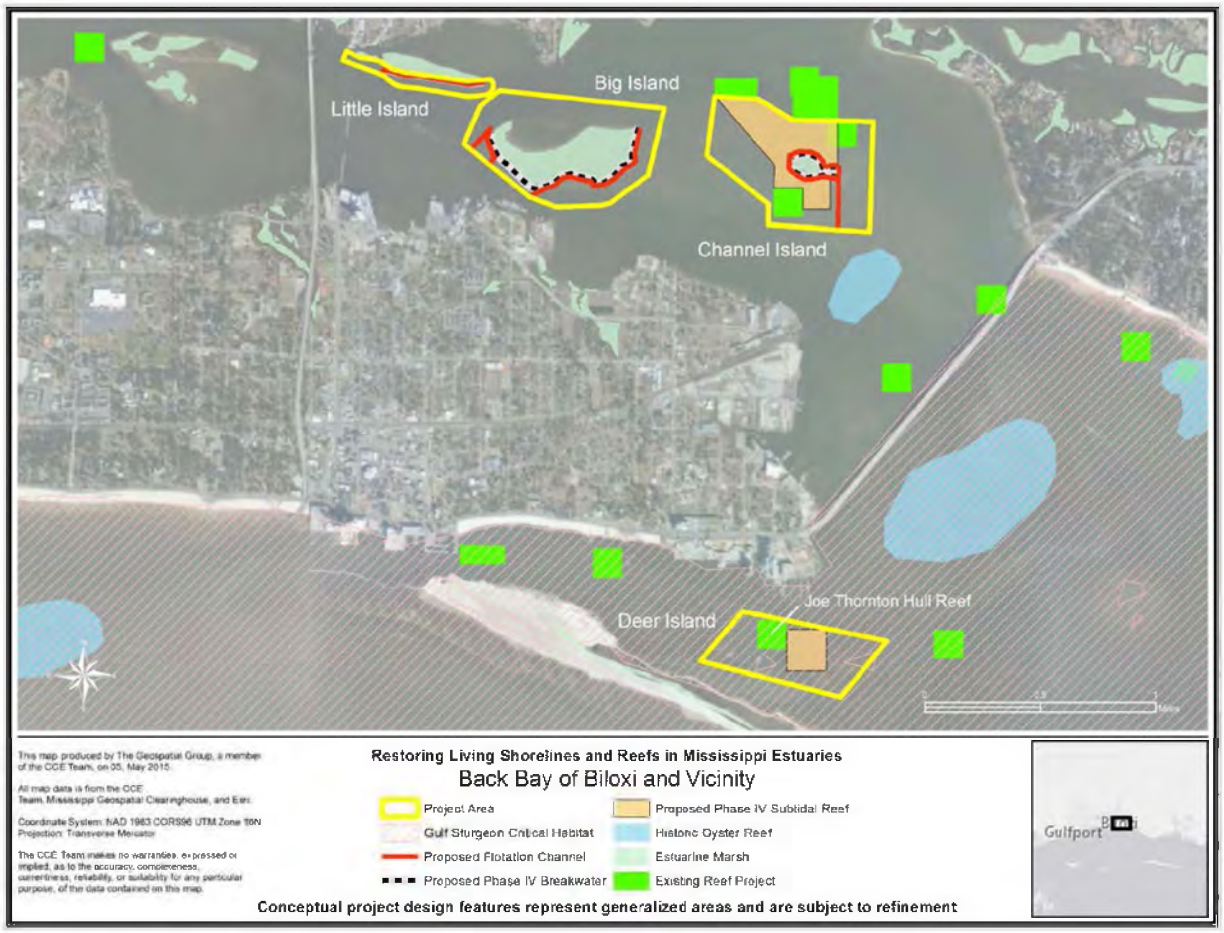

Figure 4: Historic Oysters in the Back Bay of Biloxi and Vicinity

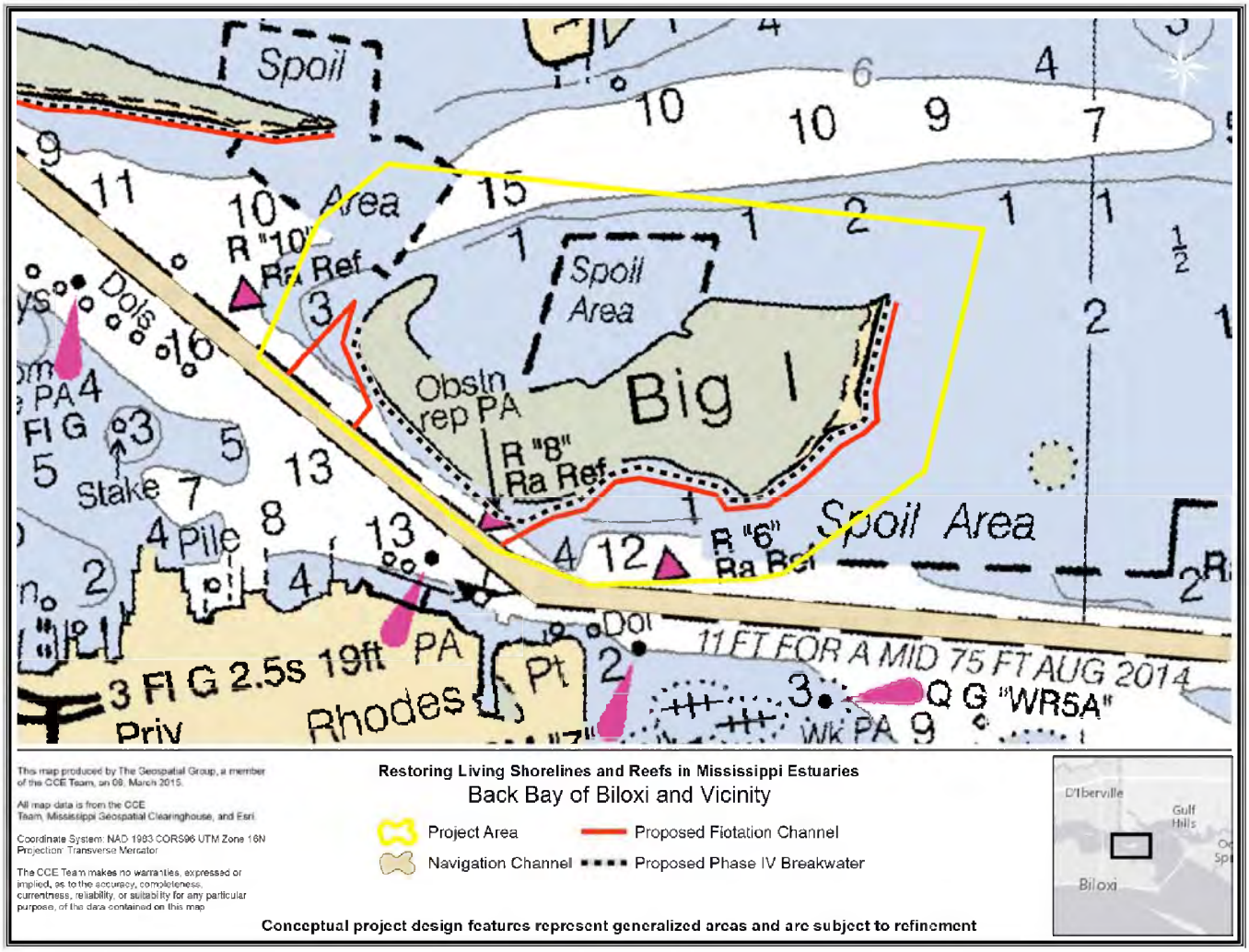

Figure 5. Big Island Depths

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In Reply Refer To:

2015-I-793

August 24, 2015

Memorandum

To: Deputy Case Manager, *Deepwater Horizon* Department of the Interior Natural Resource Damage Assessment and Restoration (NRDAR)

From: Field Supervisor, Mississippi Field Office

Subject: Informal Consultation for the Proposed Restoring Living Shorelines and Reefs in Mississippi Estuaries Project, Mississippi

This memorandum acknowledges our receipt of your memorandum on August 12, 2015. This response is in accordance with Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) (ESA). We have reviewed your proposed project and concur with your August 12, 2015 determinations for endangered and threatened species, their critical habitat, and at-risk species (should they become listed). We based our concurrence on the justification below. Where more than one justification was applicable, multiple boxes are checked and additional comments are added.

☐ Species-specific surveys were conducted and there are no endangered, threatened, or at-risk species or designated critical habitat on site. Comments: _____

☒ Endangered, threatened, and at-risk species are not known from and are not expected to occur within the vicinity of the proposed project. Comments: Alabama red-bellied turtle only

☒ Appropriate avoidance and minimization measures have been included within the project description to ensure that any effects to listed species (or at-risk species should they become listed) are insignificant or discountable. Comments: piping plover, red knot and west Indian manatee

☐ Critical habitat is not present on site and does not occur within the vicinity of the proposed project. Comments: _____

☒ Appropriate avoidance and minimization measures have been included within the project description to ensure PCEs and/or critical habitat will not be adversely modified or destroyed. Comments: Piping plover only

☐ The proposed project is completely beneficial to the listed or at-risk species and/or critical habitat considered. Comments: _____

Unless the project description changes, or new information reveals that the effects of the proposed action may affect listed species in a manner or to an extent not considered, or a new species or critical habitat is designated that may be affected by the proposed action, no further action pursuant to the ESA is necessary.

If you have questions, please contact David Felder at 601-321-1131 or email, david_felder@fws.gov.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

MEMORANDUM FOR: David Bernhart,
Assistant Regional Administrator for Protected Resources
NOAA Fisheries Service, Southeast Regional Office

FROM: Jamie Schubert, Marine Habitat Resource Specialist
NOAA Restoration Center

DATE: July 7, 2015

SUBJECT: DWH-ERP-Request for section 7 Endangered Species Act Informal Consultation for *Deepwater Horizon* Oil Spill Phase IV Early Restoration Plan project *Restoring Living Shorelines and Reefs in Mississippi Estuaries*

The National Oceanic and Atmospheric Administration (NOAA) Restoration Center requests informal consultation with your office, under section 7 of the Endangered Species Act (ESA), for impacts from the Restoring Living Shorelines and Reefs in Mississippi Estuaries Project. This project has multiple components located in: 1) Back Bay of Biloxi and Vicinity, 2) Grand Bay, 3) Graveline Bay and 4) St. Louis Bay. This project has the potential to affect the following federally listed species administered by NOAA Fisheries:

Sea Turtles (Green-T, Hawksbill-E, Leatherback-E, Loggerhead-T, Kemp's ridley-E)

Gulf Sturgeon – T

Gulf Sturgeon Critical Habitat - designated

The NOAA Restoration Center, a Lead Federal Agency, is requesting consultation on behalf of the Natural Resource Trustees for *Deepwater Horizon* Oil Spill. Please find Biological Evaluation forms for this Phase IV Early Restoration Project (multiple locations) included with this memo. It is our expectation that the proposed projects will have a significant net benefit to the Gulf of Mexico ecosystem.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
1875 Century Boulevard
Atlanta, Georgia 30345

In Reply Refer To:
FWS/R4/DH NRDAR

AUG 1 2 2015

Memorandum

To: Field Supervisor, Jackson Ecological Services Field Office, Mississippi

From: Deputy *Deepwater Horizon* Department of the Interior Natural Resource Damage Assessment and Restoration (NRDAR), Case Manager Deborah LMcCay

Subject: Informal Consultation Request for the Proposed Restoring Living Shorelines and Reefs in Mississippi Estuaries project, Mississippi

As you are no doubt aware, on or about April 20, 2010, the mobile offshore drilling unit *Deepwater Horizon* experienced an explosion, leading to a fire and its subsequent sinking in the Gulf of Mexico (the Gulf). These events resulted in the discharge of millions of barrels of oil into the Gulf over a period of 87 days. In addition, various response actions were undertaken in an attempt to minimize impacts from spilled oil. These events are hereafter collectively referred to as the Oil Spill.

The Department of the Interior (DOI), acting through the U.S. Fish and Wildlife Service (the Service) and other Bureaus, is a designated natural resource trustee agency authorized by the Oil Pollution Act of 1990 (OPA) and other applicable federal laws to assess and assert a natural resource damages claim for this Oil Spill. DOI is only one of several Trustees, including an agency in the State of Mississippi, so authorized. Consistent with their federal and state authorities, the Trustees are investigating the resource injuries and losses that occurred as a result of the Oil Spill and have initiated restoration planning to identify the actions that will be needed or appropriate to restore injured natural resources to make the public whole for injuries and losses that occurred. This process is known as a Natural Resource Damage Assessment (NRDA).

On April 20, 2011, DOI, National Oceanic and Atmospheric Administration (NOAA), and the Trustees for the five Gulf states affected by the Oil Spill entered into an agreement with BP, a responsible party for the Oil Spill, under which BP agreed to provide $1 billion for early restoration projects in the Gulf to address injuries to natural resources caused by the Oil Spill. The subject project is being evaluated by the Trustees as a potential early restoration project. The early restoration project has been proposed in a draft early restoration plan that was released for public comment and review May 20, 2015. If the Trustees select the project after publication of the plan and consideration of public comment and a stipulated agreement is reached with BP, the project will be implemented by the Mississippi Department of Environmental Quality (MDEQ).

The above facts lead us to the conclusion that consultation under Section 7 of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 *et seq.*), is required for the proposed project and we wish to engage in such consultation. The proposed Restoring Living Shorelines and Reefs in Mississippi Estuaries project has multiple project components. We have reviewed each of the project components and the overall project for potential impacts to listed, candidate, and proposed species and designated and proposed critical habitats in accordance with Section 7 of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 *et seq.*). Potential effects, conservation measures and justifications for our determinations are presented for each component of the proposed project in separate Biological Evaluation (BE) forms attached to this letter. The determination for each project component is listed in Table 1 below. Our summary determination for the overall project is may affect, but is not likely to adversely affect piping plover, red knot and West Indian manatee and will have no effect on Alabama red-bellied turtle. We determined the proposed project will not result in destruction or adverse modification to piping plover critical habitat. The attached BE forms will also be used to initiate consultation with National Marine Fisheries Service (five species of sea turtles (loggerhead, green, Kemp's ridley, leatherback, and hawksbill) using in-water habitats, Gulf Sturgeon), and in regards to Marine Mammal Protection Act (MMPA) of 1972, as amended (16 U.S.C. 1461 *et seq.*).

Within the BE forms, we have also reviewed the proposed project for impacts to bald eagles and migratory birds in accordance with the Bald and Golden Eagle Protection Act (BGEPA) of 1940 (16 U.S.C. 668-668c) and the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703–712), respectively and we determined take would be avoided.

Potential effects, conservation measures and justifications for our determinations are presented for each component of the proposed project in a separate BE form to facilitate your review. However, we request your concurrence with the proposed project in totality rather than component by component. To facilitate your response, should you concur with our determinations, we have attached a template response letter. If you have questions or concerns regarding this request for consultation, please contact Ashley Mills, Fish and Wildlife Biologist, at 812-756-2712 or ashley_mills@fws.gov.

Attachments (14)

December 2014

Endangered Species Act Biological Evaluation Form
Deepwater Horizon Oil Spill Restoration
Fish and Wildlife Service & National Marine Fisheries Service

This form will be used to provide information for the initiation of informal Section 7 consultations under the Endangered Species Act, if required or to document a No Effect determination. In addition, information provided in this form may be used to inform other regulatory compliance processes such as Essential Fish Habitat (EFH), Marine Mammal Protection Act (MMPA), Section 106 of the National Historic Preservation Act (NHPA), Migratory Bird Treaty Act (MBTA), and Bald and Golden Eagle Protection Act (BGEPA). Further information may be required beyond what is captured in this form. Note: if you need additional space for writing, please attach pages as needed.

A. Project Identification

I. *Applicant Agency or Business Name:* Mississippi Department of Environmental Quality
II. *Applicant Contact Person:* Marc Wyatt
III. *Phone and Email:* (601)-961-5637 Marc_Wyatt@deq.state.ms.us
IV. *Project Name and ID# (Official name of project and ID number assigned by action agency):*
Restoring Living Shorelines and Reefs in Mississippi Estuaries – Big Island Living Shoreline

V. *Project Type:* Living Shorelines
VI. *NMFS Office (Choose appropriate office based on project location):* NMFS Southeast Regional Office
VII. *FWS Office (Choose appropriate office based on project location):* Mississippi Ecological Services Field Office (Jackson)

B. Project Location

I. *Physical Address of Project Site (If applicable):* NA

II. *State & County/Parish of Project Site:* Harrison County, MS
III. *Latitude & Longitude for Project Site (Decimal degrees and datum [e.g., 27.71622°N, 80.25174°W NAD83] [online conversion:http://transition.fcc.gov/mb/audio/bickel/DDDMMSS-decimal.html]):*
30.415435 N, -88.875274 W

IV. *Township and Range of project area:*
Township 7S, Range 9W

C. Description of Action Area

1. Attach a separate map delineating where the action will occur. 2. Describe ALL areas that may be affected directly or indirectly by the Federal action and not merely the immediate project site involved in the action, or just where species or critical habitat may be present. Provide a description of the existing environmental conditions and characteristics (e.g., topography, vegetation type, soil type, substrate type, water quality, water depth, tidal/riverine/estuarine, hydrology and drainage patterns, current flow and direction), and land uses (e.g., public, residential, commercial, industrial, agricultural). 3. If habitat for species is present in the action area, provide a general description of the current state of the habitat. 4. Identify any management or other activities already occurring in the area. 5. Detailed map of the area of potential effect for ground disturbing activities if it is different from the project area

Maps in Appendix A (Figures 1-2)

The Big Island Living Shoreline is a component of a larger project: The proposed Restoring Living Shorelines and Reefs in Mississippi Estuaries.
The proposed Restoring Living Shorelines and Reefs in Mississippi Estuaries includes the restoration of secondary productivity through the placement of intertidal and subtidal reefs and the use of living shoreline techniques including breakwaters. The projects would be implemented at proposed locations in Grand Bay, Graveline Bay, Back Bay of Biloxi and vicinity, and St. Louis Bay in Jackson, Harrison, and Hancock Counties, Mississippi (Figure 1; Appendix A). The project builds on recent collaborative projects implemented by the Mississippi Department of Marine Resources (MDMR), National Oceanic and Atmospheric Administration (NOAA), and The Nature Conservancy. When completed at all locations, the project would provide for construction of over four (4) miles of breakwaters, five (5) acres of intertidal reef habitat and 267 acres of subtidal reef habitat at four (4) locations across the Mississippi Gulf Coast. For the Grand Bay and Graveline Bay project locations, intertidal and subtidal reefs would be created in a number of sites. Over time, the breakwaters, intertidal and subtidal restoration areas would develop into living reefs that support benthic secondary productivity, including, but not limited to oysters/bivalve mollusks, annelid worms, shrimp, and crabs. Breakwaters would reduce shoreline erosion as well as marsh loss.

The Big Island Living Shoreline project component includes the construction of up to 5,011 linear feet of breakwater to prevent erosion and to restore of secondary productivity.

Big Island Living Shoreline (Figure 2, Appendix A): Would include construction of approximately 5,011 linear ft. of breakwater along the southern facing shoreline directly adjacent to the navigation channel. The conceptual site location for the breakwater and temporary flotation channels are depicted in Figure 2 and are subject to refinement. Temporary flotation channel conceptual locations and footprints have been included for the purpose of estimating the maximum impact, but may be avoided depending on project design and/or construction timing.

The Back Bay of Biloxi watershed is located along the Mississippi Gulf Coast in Jackson and Harrison Counties. The metropolitan areas of Biloxi, Gulfport, Ocean Springs, and D'Iberville are included within the watershed. The Back Bay of Biloxi provides convenient navigation and transportation services to the economic activities of the area. Besides navigation, the Back Bay of Biloxi provides recreational opportunities, as well as stimulates industrial development within the region. This industrialization, in turn, tends to promote population growth and economic development within the adjoining communities and Jackson and Harrison Counties. Since 1950, convenient water transportation, unlimited water supplies, natural gas, availability of refining products as raw materials, and extensive timber resources have provided the base for rapid industrial growth in this area. Growth has also been stimulated by resort facilities and casinos, by the presence of abundant fresh and saltwater fisheries, and by the establishment and expansion of military installations.

Back Bay of Biloxi itself is an estuarine bay that receives freshwater from the Biloxi and Tchoutacabouffa rivers as well as numerous tidal streams and bayous that drain local areas. It is surrounded by a mix of industrial, commercial and residential properties with large amounts of hardened shorelines. Portions of the shoreline of western Back Bay of Biloxi are within the Biloxi River Coastal Preserve maintained by the Mississippi Department of Marine Resources. Navigation channels are in use throughout the entire bay, and have high

traffic volume. As such, the water in Back Bay of Biloxi is turbid and in general is not conducive to submerged aquatic vegetation growth. The project area islands are composed primarily of black needle rush (*Juncus roemerianus*) marsh. Smooth cordgrass (*Spartina alterniflora*) occurs as narrow, disjunct bands along low marsh fringe.

Surveys completed in 2010 found evidence of SAV further upstream into the Biloxi River. No SAV were found near the project areas (Cho, et. al. 2010). Marsh does exist on the undeveloped islands and at some locations within the Biloxi River Coastal Preserve.

Substrate and depth at project component: The substrate at the project component is composed of soft bottom sand and mud located in shallow water at a depth of no greater than 6 ft. below MLLW.

a. *Waterbody (If applicable. Name the body of water, including wetlands (freshwater or estuarine) on which the project is located. If the location is in a river or estuary, please approximate the navigable distance from the project location to the marine environment.):*

The proposed Big Island Living Shoreline project component is located in the Back Bay of Biloxi.

b. *Existing Structures (If applicable. Describe the current and historical structures found in the project area (e.g., buildings, parking lots, docks, seawalls, groynes, jetties, marina). If known, please provide the years of construction.:*

No structures are known to exist in the proposed project component areas.

c. *Seagrasses & Other Marine Vegetation (If applicable. Describe seagrasses found in project area. If a benthic survey was done, provide the date it was completed and a copy of the report. Estimate the species area of coverage and density. Attach a separate map showing the location of the seagrasses in the project area.):*

The waters are turbid and do not support large, continuous seagrasses or other marine vegetation beds. There may be sporadic areas of marine vegetation in the Back Bay of Biloxi. Surveys completed in 2010 found evidence of SAV further upstream into the Biloxi River. No SAV were found near the project area. (Cho, et. al. 2010).

d. *Mangroves (If applicable. Describe the mangroves found in project area. Indicate the species found (red, black, white), the species area of coverage in square footage and linear footage along project shoreline. Attach a separate map showing the location of the mangroves in the project area.):*

Not Applicable

e. *Corals (If applicable. Describe the corals found in project area. If a benthic survey was done, provide the date it was completed and a copy of the report. Estimate the species area of coverage and density. Attach a separate map showing the location of the corals in the project area.):*

Not Applicable

f. *Uplands (If applicable. Describe the current terrestrial habitat in which the project is located (e.g. pasture, forest, meadows, beach and dune habitats, etc.).*

Not Applicable

D. Project Description

I. *Construction Schedule (What is the anticipated schedule for major phases of work? Include duration of in-water work.)*

The entire project is expected to last 12months, with in-water work done from late spring through fall.

II. *Describe the Proposed Action: 1. What is the purpose and need of the proposed action? 2. How do you plan to accomplish it? Describe in detail the construction equipment and methods** needed; permanent vs. temporary impacts; duration of temporary impacts; dust, erosion, and sedimentation controls; restoration areas; if the project is growth-inducing or facilitates growth; whether the project is part of a larger project or plan; and what permits will need to be obtained. 3. Attach a separate map showing project footprint, avoidance areas, construction accesses, staging/ laydown areas. **If construction involves overwater structures, pilings and sheetpiles, boat slips, boat ramps, shoreline armoring, dredging, blasting, or artificial reefs, list the method here, but complete the next section(s) in detail.*

The proposed Big Island Living Shoreline project component includes the restoration of secondary productivity through the placement of breakwater structures. Over time, the breakwaters would develop into living reefs that support benthic secondary productivity, including, but not limited to, bivalve mollusks, annelid worms, shrimp, and crabs.

The siting of breakwaters, intertidal and subtidal reefs for the Restoring Living Shorelines and Reefs in Mississippi Estuaries project components are conceptual and subject to refinement. For the purposes of impact analysis, the Trustees have conservatively estimated the maximum footprint for permanent and temporary impacts resulting from the deployment of breakwaters, subtidal reefs, and intertidal reefs, as well as the excavation of temporary construction channels. Additionally, an estimated project area in which the total impacts would occur is also provided. Temporary flotation channel (see below) conceptual locations and footprints have been included for the purpose of estimating the maximum temporary impacts, but these impacts may be avoided depending on final project design, construction techniques and/or construction timing. To the extent practicable, submerged aquatic vegetation (SAVs) would be avoided; however, none is expected to be impacted at this time. To the extent practicable, subtidal habitat would be sited in locations where there is existing or adjacent historic hard bottom habit. Intertidal oyster surveys inventories would be completed as part of siting intertidal habitat. Other reasons for refinement in project location include but are not limited to:

- Avoidance of natural or cultural resources (e.g. oysters, SAVs or archaeological sites);
- Revised siting based on natural resource inventory (e.g. locating subtidal reefs on or near existing or historic hard bottom habitat);
- Engineering considerations including but not limited to geotechnical, hydrological, navigation, construction materials, construction techniques or bathymetric design constraints;
- Input received during the public comment period.

Construction methods and activities are included to assess the environmental impacts from the proposed project. Actual construction methods and activities would be determined after final design and would be comparable to activities described below.

Breakwaters: The breakwater cross sections selected at each site represent the maximum proposed footprint that would be impacted by placement of the structure (see Table 1). Any adjustments to the proposed cross section during final design would be no greater than the parameters in Table 1. The breakwater would have gaps ranging from three to 25 feet wide throughout the length of the structure. During final design every effort will be made to reduce environmental impacts associated with the project by utilizing appropriate agency recommended BMPs. Construction would take place within the maximum bottom width identified in Table 1. Construction materials would include the placement of linear structures that would utilize approved manufactured and/or natural materials. The alignment and limits of the breakwaters would be sited within the project study area shown in Figure 2. Navigation signs are anticipated to be required by the USCG Private Aids to Navigation Office. The numbers of navigation signs are estimated in Tables 1 and 2, below. Navigation signs would consist of a 12" treated piling with a plywood or aluminum day board sign and lighted beacon. The piles would be driven by hand to resistance and as necessary a vibratory hammer from a barge would be used to

push piles to a depth ranging from 10 to 30 feet below the substrate. This would put the day board sign at approximately +10.0 Mean Lower Low Water (MLLW).

The breakwaters would be constructed using approved manufactured and/or natural materials. The materials would be stockpiled at an existing, upland staging area near the project area, which has water access. Mechanical equipment would be utilized to load the materials onto a material handling barge. The materials would be transported to the work area to be deployed by a crane and/or long armed track hoe located on the equipment barge. Placement of the breakwater structure would be monitored to ensure the breakwater dimensions, slopes, and crest elevations are achieved.

Volume of proposed breakwater material: Approximately 11,275 cubic yards. A single cross section was used to determine breakwater volume. The average equals approximately 2.25 cubic yards per overall project linear foot. The final volume will change based on location and final design.

Table 1: Restoring Living Shorelines and Reefs in Mississippi Estuaries
Preliminary Design Parameters and Construction Techniques for Breakwater Structures

Back Bay of Biloxi and Vicinity Project Components	Maximum Structure Width (ft.)	Structure Length (ft.)	Footprint (acres)	Navigation Signs (each)*	Estimated in-water Construction Time (months)
Big Island Living Shoreline	30	5,011	3.5	0 to 27	12

*Represents preliminary estimate of number of signs; Consultation with the US Coast Guard Private Aids to Navigation Division would be coordinated to determine the required type and spacing of navigation signs.

Temporary Flotation Channels: Temporary flotation channels may be required to facilitate access for work barges in shallow project areas. If required, the channels would be excavated perpendicular to the breakwater for access from navigation channels and parallel to the alignments of the breakwater for construction of the breakwater. The channels would be excavated to a maximum of 6 ft. below MLLW to accommodate barge draft. The bottom width of the channels would be approximately 80 ft. with 3H:1V side slopes. The footprint of channels would be minimized to the extent practicable. The temporary flotation channels would be filled in mechanically using a clam-shell bucket or long-arm excavator or comparable methodology after installation of the structures is completed. Best Management Practices (BMPs) would be followed during excavation and backfilling to minimize environmental impacts. The preliminary temporary flotation channel footprint was calculated based on a heavily loaded barge in order to estimate the maximum potential impact. Proposed temporary flotation channel dimensions are summarized in Table 2. Temporary flotation channels may be avoided depending on project design and/or construction timing.

Table 2: Restoring Living Shorelines and Reefs in Mississippi Estuaries Temporary Flotation Channel					
	Channel Length (ft.)	Channel Depth Below MLLW (ft.)	Channel Width (ft.)	Temporarily Impacted Area (acres)	Temporary Navigation Signs (each)
Big Island Living Shoreline	5,060	6	80	9.3	0 to 34
Note: Temporary Flotation Channel and Installation of Temporary Navigation Signs included in Estimated Construction Time (Table 1).					

Staging Areas
Existing staging areas will be used and are not located in habitats used by listed or at-risk species. No new access to staging areas will be necessary.

Summary of Impacts

SAVs are not anticipated to be present in the project component area. If warranted, SAV surveys would be completed prior to final site selection of structures to avoid impacting SAVs. SAVs would be avoided to the extent practicable.

Big Island Living Shoreline: Approximately 5,011 linear ft. of breakwater would be constructed with approved manufactured and/or natural materials. Construction of the breakwater would permanently impact approximately 1.6 acres of soft bottom habitat (sand, muddy sand, and mud bottom). Temporary flotation channels may be required for the construction of breakwaters and are depicted in Figure 2. Estimated channel lengths are 2,450 linear ft. for a total of 4.5 acres (Table 2). Temporary flotation channels would be backfilled mechanically after construction is complete.

Bottom Disturbance and Turbidity
Deployment activities associated with the construction of breakwaters and construction of temporary flotation channels would result in short-term impacts to water quality as a result of re-suspension of sediment by vessels (barges, tugs, skiffs, etc.) moving in and out of the area of proposed action. The suspended sediment may be transported into surrounding wetlands, waterways, and the Mississippi Sound. However, the area is currently exposed to elevated turbidity levels as a result of natural re-suspension of sediment during frequent storms, tides and other typical events.

Disturbance of the bottom sediment by placing hardened structure may affect prey availability in the area of proposed action for juvenile and adult fish. The impacts from placing material would be short term, and localized, affecting individuals and not entire populations. The project would result in long-term benefits and provide habitat for prey after reef development is underway.

U.S. Army Corps of Engineers Section 10/404 and State Water Quality Certifications would be required; all project activities would be conducted in compliance with permit conditions. Impacts from turbidity would be moderate, short-term and limited in spatial extent.

Figures 1 to 3 (Appendix A) show the project area and the project footprint of potential components.

III. *Specific In-Water Construction Methods (Provide a detailed account of construction methods. It is important to include step-by-step descriptions of how demolition or removal of structures is conducted and if any debris will be moved and how. Describe how construction will be implemented, what type and size of materials will be used and if machines will be used, manual labor, or both. Indicated if work will be done from upland, barge, or both.)*

a. *Overwater Structures (Place your answers to the following questions in the box below.)*

- **i.** *Is the proposed use of this structure for a docking facility or an observation platform?*
- **ii.** *If no, is this a fishing pier? Public or Private? How many people are expected to fish per day? How do you plan to address hook and line captures?*
- **iii.** *Use of "Dock Construction Guidelines"? http://sero.nmfs.noaa.gov/pr/endangered%20species/Section%207/DockGuidelines.pdf*
- **iv.** *Type of decking: Grated – 43% open space; Wooden planks or composite planks – proposed spacing?*
- **v.** *Height above Mean High Water (MHW) elevation?*
- **vi.** *Directional orientation of main axis of dock?*
- **vii.** *Overwater area (sqft)?*
- viii. *Use of "Sea Turtle and Smalltooth Sawfish Construction Conditions, March 2006"? http://sero.nmfs.noaa.gov/pr/endangered%20species/Sea%20Turtle%20and%20Smalltooth%20Sawfish%20Construction%20Conditions%20323-06.pdf*

Not Applicable

b. *Pilings & Sheetpiles (What type of material is the piling or sheetpiles? What size and how many will be used? Method used to install: impact hammer, vibratory hammer, jetting, etc.?)*

See D.II, above for description of piling installation for navigational signs, if required.

c. *Boat Slips (Describe the number and size of slips and if the number of new slips changes from what is currently available at the project. Indicate how many are wet slips and how many are dry slips. Estimate the shadow effect of the boats - the area (sqft) beneath the boats that will be shaded.)*

Not Applicable

d. *Boat Ramp (Describe the number and size of boat ramps, the number of vessels that can be moored at the site (e.g., staging area) and if this is a public or private ramp. Indicate the boat trailer parking lot capacity, and if this number changes from what is currently available at the project.)*

Not Applicable

e. *Shoreline Armoring (This includes all manner of shoreline armoring (e.g., riprap, seawalls, jetties, groins, breakwaters, etc.). Provide specific information on material and construction methodology used to install the shoreline armoring materials. Include linear footage and square footage. Attach a separate map showing the location of the shoreline armoring in the project area.)*

See D. II. Above and map figures in Appendix A.

f. *Dredging or digging (Provide details about dredge type (hopper, cutterhead, clamshell, etc.), maximum depth of dredging, area (ft^2) to be dredged, volume of material (yd^3) to be produced, grain size of material, sediment testing for contamination, spoil disposition plans, and hydrodynamic description (average current speed/direction))*

The use of temporary flotation channels is anticipated for project components and is described in D.II. Table 3 is a summary of potential impacts and is included here for convenience. Temporary flotation channel conceptual locations and footprints have been included for the purpose of estimating the maximum impact, but may be avoided depending on project design and/or construction timing.

Table 3: Restoring Living Shorelines and Reefs in Mississippi Estuaries Temporary Flotation Channel					
	Channel Length (ft.)	Channel Depth Below MLLW (ft.)	Channel Width (ft.)	Impacted Area (acres)	Temporary Navigation Signs (each)
Big Island Living Shoreline	5,060	6	80	9.3	0 to 34
Note: Temporary Flotation Channel and Installation of Temporary Navigation Signs included in Estimated Construction Time (Table 1).					

g. *Blasting (Projects that use blasting might not qualify as "minor projects," and a Biological Assessment (BA) may need to be prepared for the project. Arrange a technical consultation meeting with NMFS Protected Resources Division to determine if a BA is necessary. Please include explosive weights and blasting plan.)*

Not Applicable

h. *Artificial Reefs (Provide a detailed account of the artificial reef site selection and reef establishment decisions (i.e., management and siting considerations, stakeholder considerations, environmental considerations), deployment schedule, materials used, deployment methods, as well as final depth profile and overhead clearance for vessel traffic. For additional information and detailed guidance on artificial reefs, please refer to the artificial reef program websites for the particular state the project will occur in.*

Not Applicable; see breakwater discussion in Project Description

E. Species & Critical Habitat

1. List all species, critical habitat, proposed species and proposed critical habitat that may be found in the action area.
2. Attach a separate map identifying species/critical habitat locations within the action area.
For information on species and critical habitat under FWS jurisdiction, visit http://www.fws.gov/endangered/species/.
Under NMFS jurisdiction,
visit: http://sero.nmfs.noaa.gov/protected_resources/section_7/threatened_endangered/Documents/gulf_of_mexico.pdf.

SPECIES and/or CRITICAL HABITAT (CH)	STATUS	CH Unit
Gulf Sturgeon – estuarine/marine	Threatened	
Loggerhead sea turtle – in-water	Threatened	
Green sea turtle – in-water	Threatened	
Leatherback sea turtle – in-water	Endangered	
Hawksbill sea turtle – in-water	Endangered	
Kemp's ridley sea turtle – in-water	Endangered	
Piping plover - terrestrial	Threatened	
Red knot - terrestrial	Threatened	
West Indian Manatee – in-water	Endangered	
Alabama Red-bellied Turtle – terrestrial (nesting)	Endangered	

F. Effects of the Proposed Project

I. *Explain the potential beneficial and adverse effects to each species listed above (Describe what, when, and how the species will be impacted and the likely response to the impact. Be sure to include direct, indirect, interdependent, interrelated, connected actions, and cumulative impacts. Where possible, quantify effects. If species are present (or potentially present) and will not be adversely affected describe your rationale. If species are unlikely to be present in the general area or action area, explain why. This justification provides documentation for your administrative record, avoids the need for additional correspondence regarding the species, and helps expedite review.)*

Five species of sea turtles - The project area does not include nesting habitat for the five sea turtle species, therefore there will be no effect to nesting sea turtles. However, in-water project work may coincide with sea turtle presence (i.e. spring/summer). During this time construction crews would be operating mechanized equipment in the water including barges and light watercraft. The noise produced by the machinery and movement of the machinery in the water, and placement of materials could disturb sea turtles. All species are highly mobile and project activities would not impede transitory routes. In the section below we describe conservation measures to protect sea turtles; Sea Turtle and Smalltooth Sawfish Construction Conditions (NMFS 2006). The implementation of these measures would minimize any potential risks to sea turtles to an insignificant and discountable effect.

Piping Plover - Piping plover are not known to occur in the footprint of construction. Piping plovers do not nest in the project area, but may use habitat in the Back Bay of Biloxi and vicinity for wintering habitat. Piping plovers could be startled by work crews, vehicles, and machinery and stop foraging or roosting. However, piping plovers would be expected to move away from the disturbance to other suitable habitats outside of the disturbance area. There is an abundance of suitable foraging and roosting habitat within 2 miles of the action area in which plovers would be expected to move to or within (i.e., within their normal range of movements). The noise produced by the machinery may disturb the piping plover present on site, but piping plover could avoid disturbance by moving into adjacent areas of unimpacted habitat. Therefore it is not expected that startling and temporary displacement would interrupt or have long-term consequences to normal behaviors. Foraging habitats are relatively abundant within the Back Bay of Biloxi and in the vicinity, therefore we do not expect indirect effects to piping plover from a loss of prey base. Increased visitor use is not expected as a result of this project. Therefore, an increase of indirect effects from human use is not expected. Based upon the normal movement patterns of piping plover and the conservation measures outlined below (allowing movement of their own volition, and watching for the birds), it is determined the project may affect but is not likely to adversely affect piping plover.

Red Knot - In coastal Mississippi, the red knot is mainly a migratory species that uses coastal beaches and marine intertidal areas as stopover feeding locations or staging areas from March to April during the northward spring migration and September and October during the southward autumn migration (Niles et al. 2007; USFWS 2013). If an individual enters the project area and is disturbed, it is expected that they would be able to move to another nearby location (within normal daily movement patterns) to continue foraging, feeding and resting. In the section below we describe conservation measures to protect red knot. The implementation of these measures would minimize any potential risks to red knot to an insignificant and discountable effect.

West Indian Manatee - The West Indian manatee occasionally occurs in Mississippi coastal habitats and these visits are becoming more common (Fertl et al. 2005). The manatee migrates from wintering habitats in Florida and possibly Mexico to Mississippi and Alabama waters from spring through summer, when project implementation is expected. Although the West Indian manatee could be present in the project area in warmer months, the migration of this species is still not well understood. One study did indicate that when manatees were observed outside of Florida they were most likely found near estuaries and the mouths of rivers (Fertl et al. 2005). Manatees forage on a variety of plants, including submerged aquatic vegetation (SAV), floating plants, and emergent plants (MDWFP 2001). The estuarine shallow water habitat of the project area supports large beds of *Halodule wrightii* and *Ruppia maritima* throughout the project boundary, but intertidal and subtidal reefs sites would be selected to completely avoid areas with seagrass. If manatees were present, in-water work could startle an individual or project debris or vessels could strike a manatee. Striking a manatee generally results in injury or mortality. Conservation measures listed below would minimize risk of startle and strike to an insignificant and discountable level. Construction equipment such as a barge would likely cause increased levels of turbidity at the local scale and noise in the water column which may affect the species within a particular distance. Manatees would probably avoid any areas of increased turbidity as they are not known to use turbid habitats and avoid areas with increased noise due to their highly mobile nature. Manatees, if present, would be expected to avoid the construction areas. Standard Manatee Conditions (A-D) for In-Water Work would be implemented during construction (USFWS 2011) to minimize impacts to an insignificant and discountable level.

Gulf Sturgeon - Numerous studies in the northern Gulf have documented habitat use and seasonality of Gulf sturgeon movement from spawning areas in riverine habitat to foraging grounds in the nearshore environment (Fox et al. 2002; Heise et al. 2004, 2005; Rogillio et al. 2007; Ross et al. 2009; Havrylkoff et al. 2012). Telemetry data from Gulf sturgeon that are natal to the Pascagoula drainage system show clear seasonal migration patterns. Movement chronologies show summer habitat use upriver to take place between April and November and winter habitat use at Cat, Ship, Horn, and Petit Bois islands in the Mississippi Sound to occur between November and early March (Rogillio et al. 2007). The benthic habitat in the project area is not

preferred foraging habitat for Gulf sturgeon. Well oxygenated, clear water with sandy substrates are primarily used for feeding by the species (Fox et al. 2002; Ross et al. 2009). Benthic habitat in the project footprint is largely composed of soft, silty substrates with turbid waters. Additionally, project work would be completed in the spring and summer months when sturgeon are not expected in saline environments. Given that project activities would take place when Gulf sturgeon are not likely to be present and the lack of appropriate foraging habitat in the project area, we do not expect any effect to the species. If work continues beyond the May to October window, continued adherence to the Sea turtle and Smalltooth Sawfish Construction Conditions (NMFS 2006) will minimize the potential for impact to Gulf Sturgeon to an insignificant level. No direct or indirect impacts from construction are expected in the riverine ecosystems.

Alabama Red-Belly Turtle (*Pseudemys alabamensis*): The habitat of the Alabama red-belly turtle includes fresh and brackish habitats, river banks, submerged and emergent aquatic vegetation, and upland forested habitat for nesting (MDWFP 2001; USFWS 2010). Within the project vicinity, individuals of this species are known to be present in the Tchoutacabouffa River, the Biloxi River, and the Back Bay of Biloxi (MDWFP 2001; USFWS 2010); however, this species is mainly a freshwater species associated with river and stream channels and associated wetlands. Nesting occurs on forested uplands from mid-May to mid-July (MDWFP 2001). Since the turtles prefer a freshwater environment, it is not anticipated that they are present at the project site, and no observations have been recorded. The lack of directly adjacent submerged aquatic macrophytes for foraging and upland forests would make this species unlikely to be present in the project area. It is unlikely that there would be impacts to the Alabama red-belly turtle.

II. *Explain the potential beneficial and adverse effects to [critical habitat for] each species listed above (Describe what, when, and how the species will be impacted and the likely response to the impact. Be sure to include direct, indirect, interdependent, interrelated, connected actions, and cumulative impacts. Where possible, quantify effects. If species are present (or potentially present) and will not be adversely affected describe your rationale. If species are unlikely to be present in the general area or action area, explain why. This justification provides documentation for your administrative record, avoids the need for additional correspondence regarding the species, and helps expedite review.):*

G. Actions to Reduce Adverse Effects

!. *Explain the actions to reduce adverse effects to each species listed above (For each species for which impacts were identified, describe any conservation measures (e.g. BMPs) that will be implemented to avoid or minimize the impacts. Conservation measures are designed to avoid or minimize effects to listed species and critical habitats or further the recovery of the species under review. Conservation measures are considered part of the proposed action and their implementation is required. Any changes to, modifications of, or failure to implement these conservation measures may result in a need to reinitiate this consultation.):*

General BMPs
Material used for construction cannot contain trash, debris, and/or toxic pollutants.

Transiting vessels/barges, and/or mechanical dredge-related activities, will occur at slow transit speed of the towed barges (5 knots or less).

The project would comply with Measures for Reducing Entrapment Risk to Protected Species, revised May 22, 2012.

Sea turtles
Comply with NMFS's Sea Turtle and Smalltooth Sawfish Construction Conditions (NMFS, 2006).

All project work would be in-water, during daylight hours and no nesting habitat exists in the project area.

All construction personnel would be notified of the potential presence of sea turtles in the water and would be reminded of the need to avoid sea turtles.

If any sea turtles are found to be present in the immediate project area during activities, construction would be halted until species moves away from project area.

All construction personnel would be notified of the criminal and civil penalties associated with harassing, injuring, or killing sea turtles.

Train/instruct all construction personnel of what they are to do in the presence of a sea turtle.

Construction activities would occur during daylight hours and noise would be kept to the minimum feasible.

Shorebirds
All construction personnel would be notified of the potential presence of shorebirds within the project area.

All construction personnel would be instructed and trained in the protection of shorebirds.

Construction personnel would be notified of the criminal and civil penalties associated with harassing, injuring or killing shorebirds.

If piping plovers or red knots are present, work would not occur until the birds have moved, of their own volition, from the area by 150 feet.

Construction noise would be kept to the minimum feasible.

West Indian Manatee
Comply with U.S. Fish and Wildlife Service's *Standard Manatee Conditions (A-D) for In-Water Work* (USFWS 2011) as modified for Mississippi, see below.

All construction personnel would be notified of the potential presence of West Indian Manatee in the water and reminded of the criminal and civil penalties associated with harassing, injuring, or killing West Indian Manatees.

All on-site project personnel are responsible for observing water-related activities for the presence of manatee(s). All in-water operations, including vessels, must be shutdown if a manatee(s) comes within 50 feet of the operation. Activities will not resume until the manatee(s) have moved beyond the 50-foot radius of the project operation, or until 30 minutes elapses if the manatee(s) has not reappeared within 50 feet of the operation. Animals must not be herded away or harassed into leaving.

All vessels associated with the construction project shall operater at "Idle Speed/No Wake" at all times while in the immediate area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.

Care would be taken when lowering equipment into the water and the sediment in order to ensure that no harm is caused to West Indian Manatee that may potentially be in the water within the construction area.

Site selection will avoid seagrasses to the maximum extent practicable such that potential feeding areas will not be removed.

Construction noise would be kept to the minimum feasible.

Gulf Sturgeon
In-water construction activities would be limited to late spring/summer months when Gulf sturgeon are unlikely to be within the construction area. In addition, the Sea Turtle and Smalltooth Sawfish Construction Conditions (NMFS, 2006) will be implemented throughout as they are protective of Gulf sturgeon as well.

Project components would not impede any migratory paths during construction. Design or materials used will not create an entanglement or entrapment risk to ESA and MMPA species or block migration. Completed projects would not impede ingress, egress, and migration of species protected under ESA or MMPA (protected species) between shoreline and open water.

Post-construction Monitoring
The following parameters may be monitored after construction is complete.

- Structural integrity of breakwater structures
- Breakwater height/elevation and area
- Infauna and epifauna species composition, density, and biomass on breakwater structures
- Shoreline profile/elevation
- Marsh edge position

All sites would need to be accessed by small vessels during monitoring events. Area and elevation of breakwater area may be monitored post-construction to ensure that elevation and area meet design specifications. This may be done by boat using side-

scan sonar or other similar instrumentation, at minimum once for as-built verification and once more during 5-7 year monitoring period. Non-bivalve invertebrate infauna and epifauna surveys would be conducted using trays attached to breakwaters. This methods requires deployment from boat or by foot in shallow areas. Trays would be deployed for a 6-week period and then retrieved for at least two post-construction monitoring events. Shoreline profile/slope and marsh edge position may be monitored by foot using GPS, at minimum once post-construction.

Sample size and frequency of sampling will be determined after engineering and design are completed and monitoring contractor costs are established. Minimum number of events are outlined in the monitoring plan. All monitoring data and reporting will go through the quality assurance/ quality control process set up by the Trustees and as outlined in MDEQ's Comprehensive Quality Assurance Plan before being released to the public.

II. *Explain the actions to reduce adverse effects to critical habitat listed above (For critical habitat for which impacts were identified, describe any conservation measures (e.g. BMPs) that will be implemented to avoid or minimize the impacts. Conservation measures are designed to avoid or minimize effects to listed species and critical habitats or further the recovery of the species under review. Conservation measures are considered part of the proposed action and their implementation is required. Any changes to, modifications of, or failure to implement these conservation measures may result in a need to reinitiate this consultation.):*

H. Effect Determination Requested

From the sections above, there should be enough detailed information to provide clear and obvious support for your determinationin the section below. If the rationale for the determination is not clear, additional information must be added to one of the sections. Identify if gulf sturgeon are in saltwater, estuarine, or in freshwater in your Species and/or Critical Habitat list to determine which federal agency will perform the analysis (e.g. gulf sturgeon CH - saltwater). Identify if sea turtles are in water or on land in your Species and/or Critical Habitat list to determine which federal agency will perform the analysis (e.g. Loggerhead sea turtle CH - terrestrial).

SPECIES and/or CRITICAL HABITAT	DETERMINATION (see definitions below)
Gulf Sturgeon – estuarine	May Affect, Not Likely to Adversely Affect
Loggerhead sea turtle – estuarine	May Affect, Not Likely to Adversely Affect
Green sea turtle – estuarine	May Affect, Not Likely to Adversely Affect
Leatherback sea turtle - estuarine	May Affect, Not Likely to Adversely Affect
Hawksbill sea turtle - estuarine	May Affect, Not Likely to Adversely Affect
Kemp's ridley sea turtle - estuarine	May Affect, Not Likely to Adversely Affect
Piping plover – terrestrial	May Affect, Not Likely to Adversely Affect
Red knot – terrestrial	May Affect, Not Likely to Adversely Affect
West Indian Manatee – in water	May Affect, Not Likely to Adversely Affect
Alabama Red-bellied turtle – terrestrial (nesting)	No Effect

NE = no effect. This determination is appropriate when the proposed action will not directly, indirectly, or cumulatively impact, either positively or negatively, any listed, proposed, candidate species or designated/proposed critical habitat.

NLAA = not likely to adversely affect. This determination is appropriate when the proposed action is not likely to adversely impact any listed, proposed, candidate species or designated/proposed critical habitat or there may be beneficial effects to these resources. Response requested is "Concurrence." This conclusion is appropriate when effects to the species or critical habitat will be beneficial, discountable, or insignificant. Beneficial effects are contemporaneous positive effects without any adverse effects to the species or habitat. Insignificant effects relate to the size of the impact, while discountable effects are those that are extremely unlikely to occur. Based on best judgment, a person would not: (1) be able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur. If the Services concur in writing with the Action Agency's determination of "is not likely to adversely affect" listed species or critical habitat, the section 7 consultation process is completed.

LAA = likely to adversely affect. This determination is appropriate when the proposed action is likely to adversely impact any listed, proposed, candidate species or designated/proposed critical habitat. Response requested for listed species is "Formal Consultation". Response requested for proposed and candidate species is "Conference." This conclusion is reached if any adverse effect to listed species or critical habitat may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable or insignificant. In the event the overall effect of the

proposed action is beneficial to the listed species or critical habitat, but may also cause some adverse effect on individuals of the listed species or segments of the critical habitat, then the determination should be "is likely to adversely affect." Such a determination requires formal section 7 consultation and will require additional information.

JP = likely to jeopardize proposed species/adversely modify proposed critical habitat. For proposed species and proposed critical habitats, the Service is required to evaluate whether the proposed action is likely to jeopardize the continued existence of the proposed species or adversely modify an area proposed for designation as critical habitat. If you reach this conclusion, a section 7 conference is required.

JC = likely to jeopardize candidate species. For candidate species, the Service is required to evaluate whether the proposed action is likely to jeopardize the continued existence of the candidate species. If this conclusion is reached, intra-Service section 7 conference is required.

I. Bald Eagles

I. Are Bald Eagles present in the action area?: YES

If YES, the following conservation measures should be implemented:

1. If bald eagle breeding or nesting behaviors are observed or a nest is discovered or known, all activities (e.g., walking, camping, clean-up, use of a UTV, ATV, or boat) should avoid the nest by a minimum of 660 feet. If the nest is protected by a vegetated buffer where there is no line of sight to the nest, then the minimum avoidance distance is 330 feet. This avoidance distance shall be maintained from the onset of breeding/courtship behaviors until any eggs have hatched and eaglets have fledged (approximately 6 months).
2. If a similar activity (e.g., driving on a roadway) is closer than 660 feet to a nest, then you may maintain a distance buffer as close to the nest as the existing tolerated activity.
3. If a vegetated buffer is present and there is no line of sight to the nest and a similar activity is closer than 330 feet to a nest, then you may maintain a distance buffer as close to the nest as the existing tolerated activity.
4. In some instances activities conducted within 660 feet of a nest may result in disturbance, particularly for the eagles occupying the Mississippi barrier islands. If an activity appears to cause initial disturbance, the activity shall stop and all individuals and equipment will be moved away until the eagles are no longer displaying disturbance behaviors.

If these measures cannot be implemented, then you must contact the Service's Migratory Bird Permit Office.
Texas – (505) 248-7882 or by email: permitsR2MB@fws.gov
Louisiana, Mississippi, Alabama, Florida – (404) 679-7070 or by email: permitsR4MB@fws.gov

J. Migratory Birds

Identify the species anticipated in the project area and behaviors (breeding, roosting, foraging) anticipated during project implementation. You may list similar species on a single line and categorize by type (e.g., Wading birds - great blue heron, snowy egret, reddish egret). Use additional tables on the next page if needed.

SPECIES/SPECIES GROUP	BEHAVIOR	SPECIES/HABITAT IMPACTS
Wading birds (herons, egrets, ibises)	Foraging, feeding, resting, roosting	Wading birds primarily forage and feed at the water's edge. As such, they may be impacted locally and temporarily by the project. It is expected that they would be able to move to another nearby location to continue foraging, feeding and resting.

If species or habitat impacts could occur, identify avoidance and minimization measures to prevent incidental take. Incidental take of Migratory Birds cannot be authorized.

SPECIES/SPECIES GROUP	CONSERVATION MEASURES TO MINIMIZE IMPACTS
Wading birds (herons, egrets, ibises)	Care would be taken to minimize noise and vibration near areas where foraging or resting birds are encountered. All disturbance would be localized and temporary. The general behavior of these birds is to mediate their own exposure to human activity when given the opportunity. Roosting should not be impacted because the project would occur during daylight hours only. These birds primarily nest in trees or shrubs (e.g. pines, Baccharis), which occur outside the action area. Therefore, nesting will not be impacted.

Identify the species anticipated in the project area and behaviors (breeding, roosting, foraging) anticipated during project implementation. You may list similar species on a single line and categorize by type (e.g., Wading birds - great blue heron, snowy egret, reddish egret). Use additional tables on the next page if needed.

SPECIES/SPECIES GROUP	BEHAVIOR	SPECIES/HABITAT IMPACTS
Shorebirds (plovers, oystercatchers, stilts, sandpipers)	Foraging, feeding, resting, roosting,	Shorebirds forage, feed, rest, and roost in the action area. As such, they may be impacted locally and temporarily by the project. It is expected that they would be able to move to another nearby location to continue foraging, feeding and resting.

If species or habitat impacts could occur, identify avoidance and minimization measures to prevent incidental take. Incidental take of Migratory Birds cannot be authorized.

SPECIES/SPECIES GROUP	CONSERVATION MEASURES TO MINIMIZE IMPACTS
Shorebirds (plovers, oystercatchers, stilts, sandpipers)	Care would be taken to minimize noise and vibration near areas where foraging or resting birds are encountered. All disturbance would be localized and temporary. The general behavior of these birds is to mediate their own exposure to human activity when given the opportunity. Roosting should not be impacted because the project would occur during daylight hours only. . These birds primarily nest and roost in the dunes. This project would occur in open water away from potential shorebird nesting areas; therefore it is not anticipated to impact nesting.

Identify the species anticipated in the project area and behaviors (breeding, roosting, foraging) anticipated during project implementation. You may list similar species on a single line and categorize by type (e.g., Wading birds - great blue heron, snowy egret, reddish egret). Use additional tables on the next page if needed.

SPECIES/SPECIES GROUP	BEHAVIOR	SPECIES/HABITAT IMPACTS
Seabirds (terns, gulls, skimmers, double-crested cormorant, American white pelican, brown pelican)	Foraging, feeding, resting, roosting,	Seabirds forage, feed, rest, and roost in the action area. As such, they may be impacted locally and temporarily by the project. It is expected that they would be able to move to another nearby location to continue foraging, feeding and resting.

If species or habitat impacts could occur, identify avoidance and minimization measures to prevent incidental take. Incidental take of Migratory Birds cannot be authorized.

SPECIES/SPECIES GROUP	CONSERVATION MEASURES TO MINIMIZE IMPACTS
Seabirds (terns, gulls, skimmers, double-crested cormorant, American white pelican, brown pelican)	Care would be taken to minimize noise and vibration near areas where foraging or resting birds are encountered. All disturbance would be localized and temporary. The general behavior of these birds is to mediate their own exposure to human activity when given the opportunity. Roosting should not be impacted because the project would occur during daylight hours only. These birds primarily roost in the dunes. This project would occur in open water away from potential nesting areas; therefore it is not anticipated to impact nesting.

Identify the species anticipated in the project area and behaviors (breeding, roosting, foraging) anticipated during project implementation. You may list similar species on a single line and categorize by type (e.g., Wading birds - great blue heron, snowy egret, reddish egret). Use additional tables on the next page if needed.

SPECIES/SPECIES GROUP	BEHAVIOR	SPECIES/HABITAT IMPACTS
Raptors (osprey, hawks, eagles, owls)	Foraging, feeding, resting, roosting,	Raptors forage, feed, and rest in the action area. As such, they may be impacted locally and temporarily by the project. It is expected that they would be able to move to another nearby location to continue foraging, feeding and resting. Most raptors are aerial foragers and soar long distances in search of food.

If species or habitat impacts could occur, identify avoidance and minimization measures to prevent incidental take. Incidental take of Migratory Birds cannot be authorized.

SPECIES/SPECIES GROUP	CONSERVATION MEASURES TO MINIMIZE IMPACTS
Raptors (osprey, hawks, eagles, owls)	No work would occur within 660 feet of any bald eagle nests and all other bald eagle conservation measures (identified under Section I, above) can be implemented. Care would be taken to minimize noise and vibration in their vicinities. Roosting should not be impacted because the project would occur during daylight hours only, and because the areas where these birds nest are not within the action area. A staff biologist would advise the contractor of the nesting status of all identified raptor nests near the action area and approve of work in the vicinity. The areas in the estuary where these birds roost and nest are not within the action area.

Identify the species anticipated in the project area and behaviors (breeding, roosting, foraging) anticipated during project implementation. You may list similar species on a single line and categorize by type (e.g., Wading birds - great blue heron, snowy egret, reddish egret). Use additional tables on the next page if needed.

SPECIES/SPECIES GROUP	BEHAVIOR	SPECIES/HABITAT IMPACTS
Goatsuckers	Foraging, feeding, resting, roosting,	Goatsuckers forage, feed, rest, and roost in the project area. However, they are nocturnal/crepuscular and therefore not active during the project work period.

If species or habitat impacts could occur, identify avoidance and minimization measures to prevent incidental take. Incidental take of Migratory Birds cannot be authorized.

SPECIES/SPECIES GROUP	CONSERVATION MEASURES TO MINIMIZE IMPACTS
Goatsuckers	All work would be done during daylight hours. These birds are nocturnal/crepuscular and as such, should not be foraging or feeding while work occurs. Care would be taken to minimize noise and vibration near habitat where these birds are resting or roosting. They nest in thickets and woodlands, which are present in the action area. This project would occur in open water away from potential nesting areas; therefore it is not anticipated to impact nesting.

Identify the species anticipated in the project area and behaviors (breeding, roosting, foraging) anticipated during project implementation. You may list similar species on a single line and categorize by type (e.g., Wading birds - great blue heron, snowy egret, reddish egret). Use additional tables on the next page if needed.

SPECIES/SPECIES GROUP	BEHAVIOR	SPECIES/HABITAT IMPACTS
Waterfowl (geese, swans, ducks, loons, and grebes)	Foraging, feeding, resting, roosting,	Waterfowl forage, feed, rest, and roost in the action area. As such, they may be impacted locally and temporarily by the project. It is expected that they would be able to move to another nearby location to continue foraging, feeding and resting.

If species or habitat impacts could occur, identify avoidance and minimization measures to prevent incidental take. Incidental take of Migratory Birds cannot be authorized.

SPECIES/SPECIES GROUP	CONSERVATION MEASURES TO MINIMIZE IMPACTS
Waterfowl (geese, swans, ducks, loons, and grebes)	Care would be taken to minimize noise and vibration near areas where foraging or resting birds are encountered. All disturbance would be localized and temporary. The general behavior of these birds is to mediate their own exposure to human activity when given the opportunity. Roosting should not be impacted because the project would occur during daylight hours only. These birds primarily roost and nest in low vegetation. This project would occur in open water away from potential nesting areas; therefore it is not anticipated to impact nesting.

Identify the species anticipated in the project area and behaviors (breeding, roosting, foraging) anticipated during project implementation. You may list similar species on a single line and categorize by type (e.g., Wading birds - great blue heron, snowy egret, reddish egret). Use additional tables on the next page if needed.

SPECIES/SPECIES GROUP	BEHAVIOR	SPECIES/HABITAT IMPACTS
Doves and pigeons	Foraging, feeding, resting, roosting	Doves and pigeons could forage, feed, rest, and roost in the project area. However, they are unlikely to utilize habitat in the estuarine zone/action area.

If species or habitat impacts could occur, identify avoidance and minimization measures to prevent incidental take. Incidental take of Migratory Birds cannot be authorized.

SPECIES/SPECIES GROUP	CONSERVATION MEASURES TO MINIMIZE IMPACTS
Doves and pigeons	It is unlikely that doves and pigeons would be impacted by this project. In addition, this project would not take near habitats where the species would nest; therefore it is not anticipated to impact nesting.

Identify the species anticipated in the project area and behaviors (breeding, roosting, foraging) anticipated during project implementation. You may list similar species on a single line and categorize by type (e.g., Wading birds - great blue heron, snowy egret, reddish egret). Use additional tables on the next page if needed.

SPECIES/SPECIES GROUP	BEHAVIOR	SPECIES/HABITAT IMPACTS
Rails and coots	Foraging, feeding, resting, roosting,	Rails and coots forage, feed, rest, and roost in the action area. As such, they may be impacted locally and temporarily by the project. It is expected that they would be able to move to another nearby location to continue foraging, feeding and resting if disturbed by the project. These birds primarily roost and nest in marshes, which are within the action area, and adjacent to project activities which are in-water.

If species or habitat impacts could occur, identify avoidance and minimization measures to prevent incidental take. Incidental take of Migratory Birds cannot be authorized.

SPECIES/SPECIES GROUP	CONSERVATION MEASURES TO MINIMIZE IMPACTS
Rails and coots	Care would be taken to minimize noise and vibration near areas where foraging or resting birds are encountered. All disturbance would be localized and temporary. The general behavior of these birds is to mediate their own exposure to human activity when given the opportunity. Roosting should not be impacted because the project would occur during daylight hours only This project would occur in open water away from potential nesting areas; therefore it is not anticipated to impact nesting.

Pre-existing NEPA Documents: YES

Does this project have any pre-existing, site specific NEPA analysis? If YES, then provide final NEPA analysis, if not final then provide draft. If tiered from a programmatic EIS or EA, then provide the programmatic document or a link below.

Tiered from the DWH Phase III ERP/PEIS; http://www.gulfspillrestoration.noaa.gov/restoration/early-restoration/phase-iii/

NMF S E SA § 7 Consultation

We request that all ESA §7 consultation requests/packages be submitted electronically to: Laurel.Jennings@noaa.gov. Questions about consultation status may be directed to the same email address or by phone, 206-526-4601 or 206-794-4761 (cell).

FWS ESA § 7 Consultation

We request that all consultation requests/packages to FWS be submitted electronically to: Ashley_Mills@fws.gov. You will be notified when we receive your Biological Evaluation. Upon receipt, we will conduct a preliminary review and provide any comments and feedback, including any requests for modifications or additional information. If modifications or additional information is necessary, we will work with you until the Biological Evaluation form is considered complete. Once complete, we will send your Biological Evaluation to the appropriate Field Office to conduct consultation. If you have questions about consultation status, please contact Ashley Mills by phone 812-756-2712 or email Ashley_Mills@fws.gov.

Name of Person Completing this Form: Stephen Parker
Name of Project Lead: Marc Wyatt
Date Form Completed: 7/2/15
Date Form Updated: 8/11/15

Appendix A

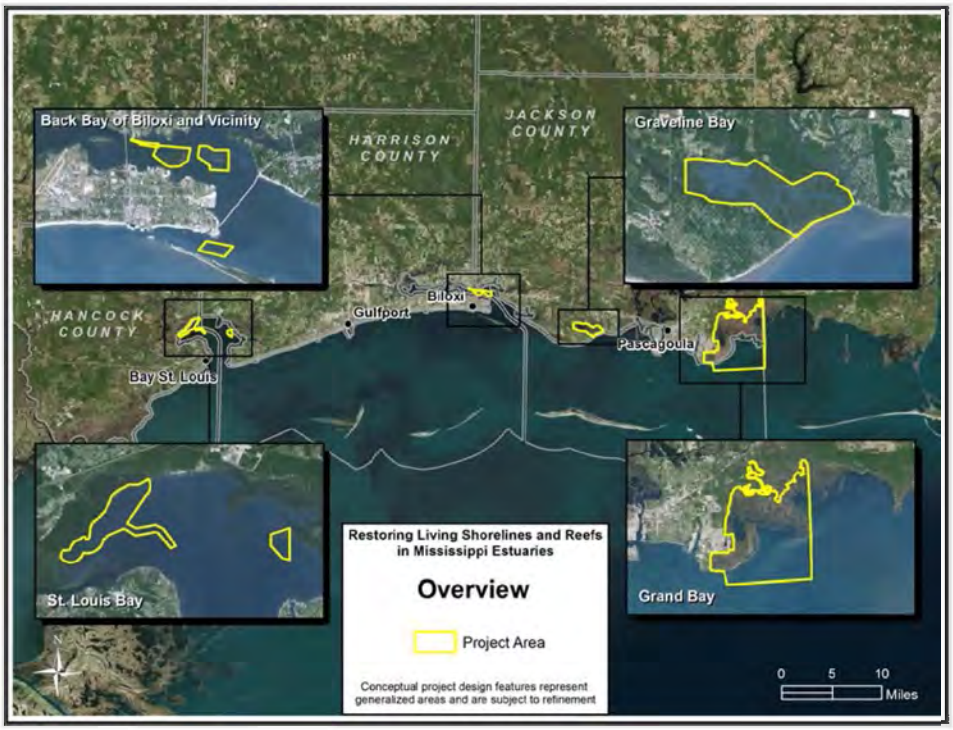

Figure 1: Restoring Living Shorelines and Reefs in Mississippi Estuaries-Vicinity Map Depicting Project Locations and Project Areas[1]

[1] Project areas encompass the project components, the direct restoration measures and potential areas for construction or indirect impacts. Conceptual design features (breakwaters, intertidal reef habitat, subtidal reef habitat, and temporary flotation channels) are subject to refinement and would be sited within respective project areas.

Figure 2. Back Bay of Biloxi and Vicinity Map

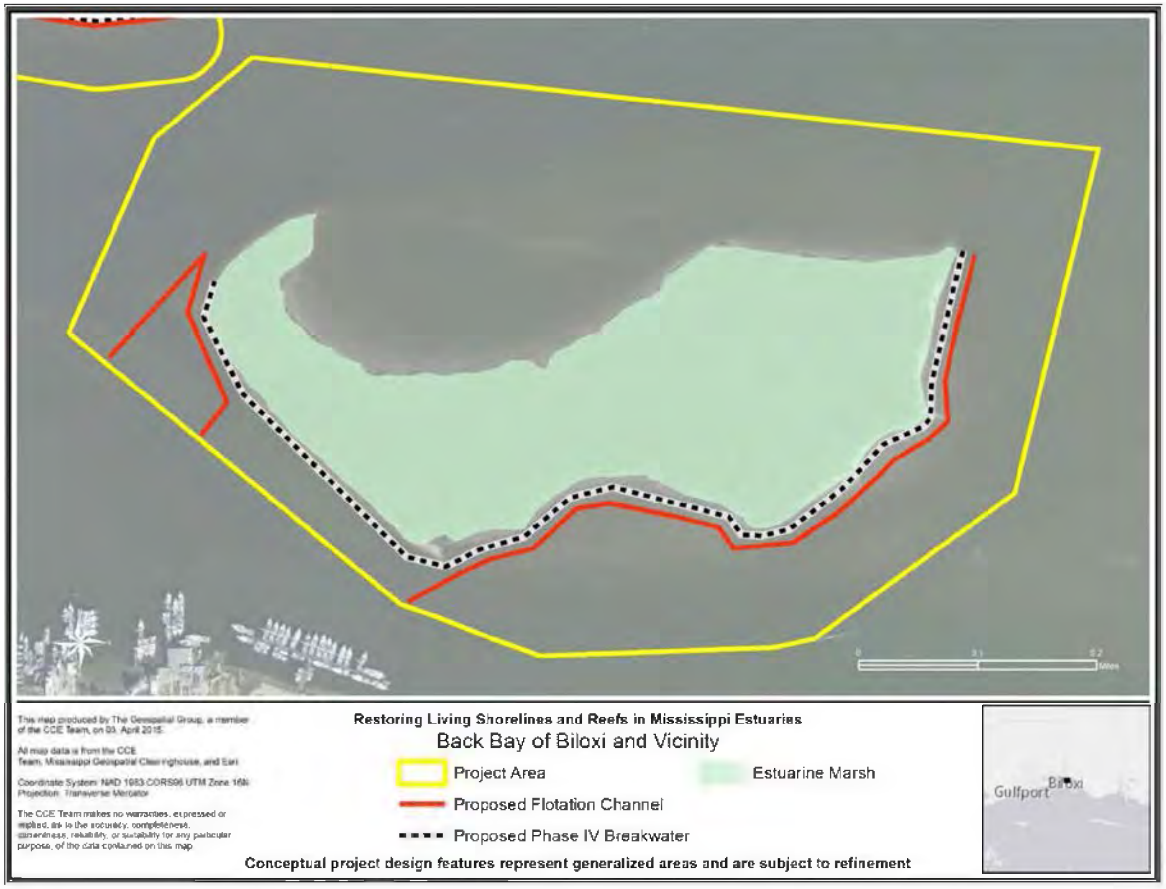

Figure 3. Big Island Living Shoreline Project Component Map

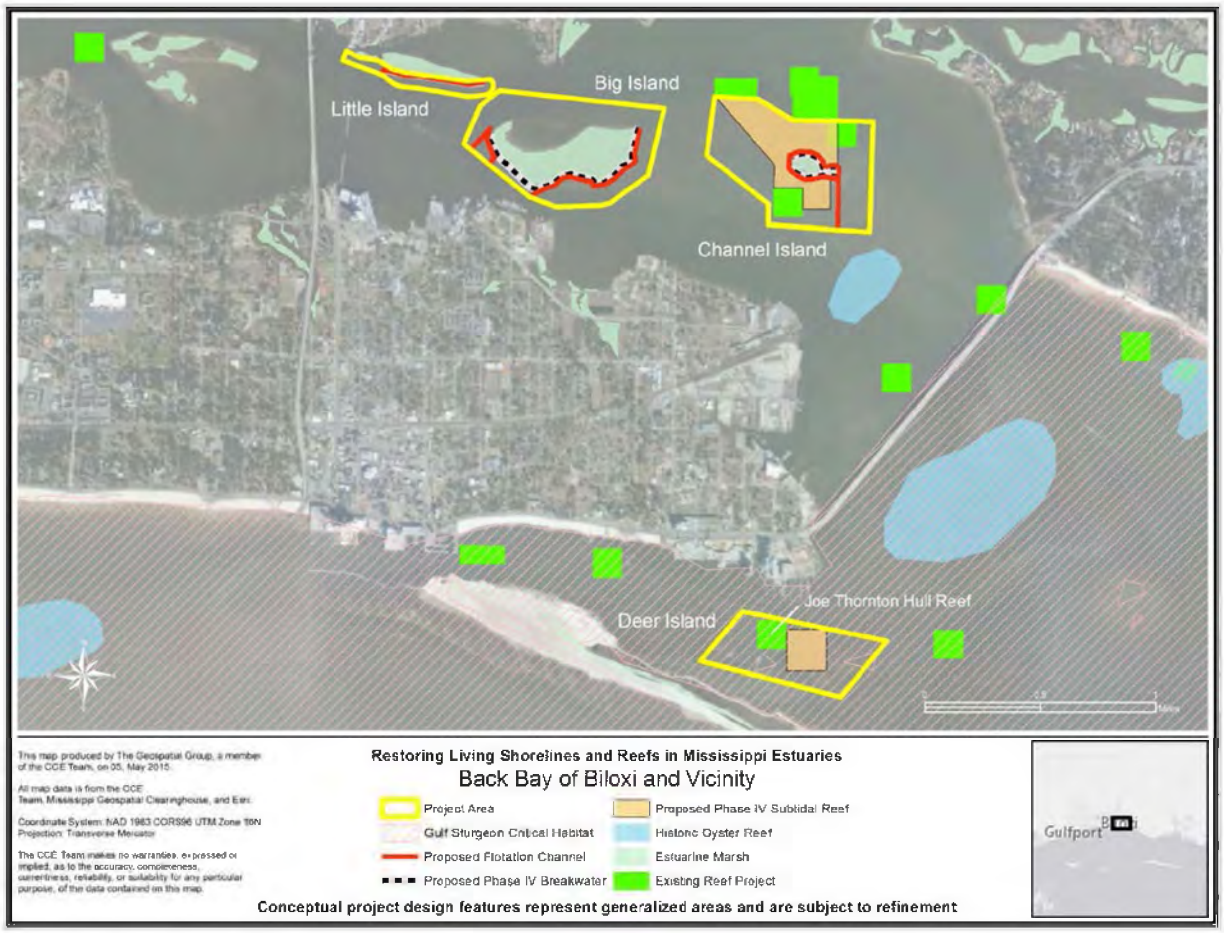

Figure 4: Historic Oysters in the Back Bay of Biloxi and Vicinity

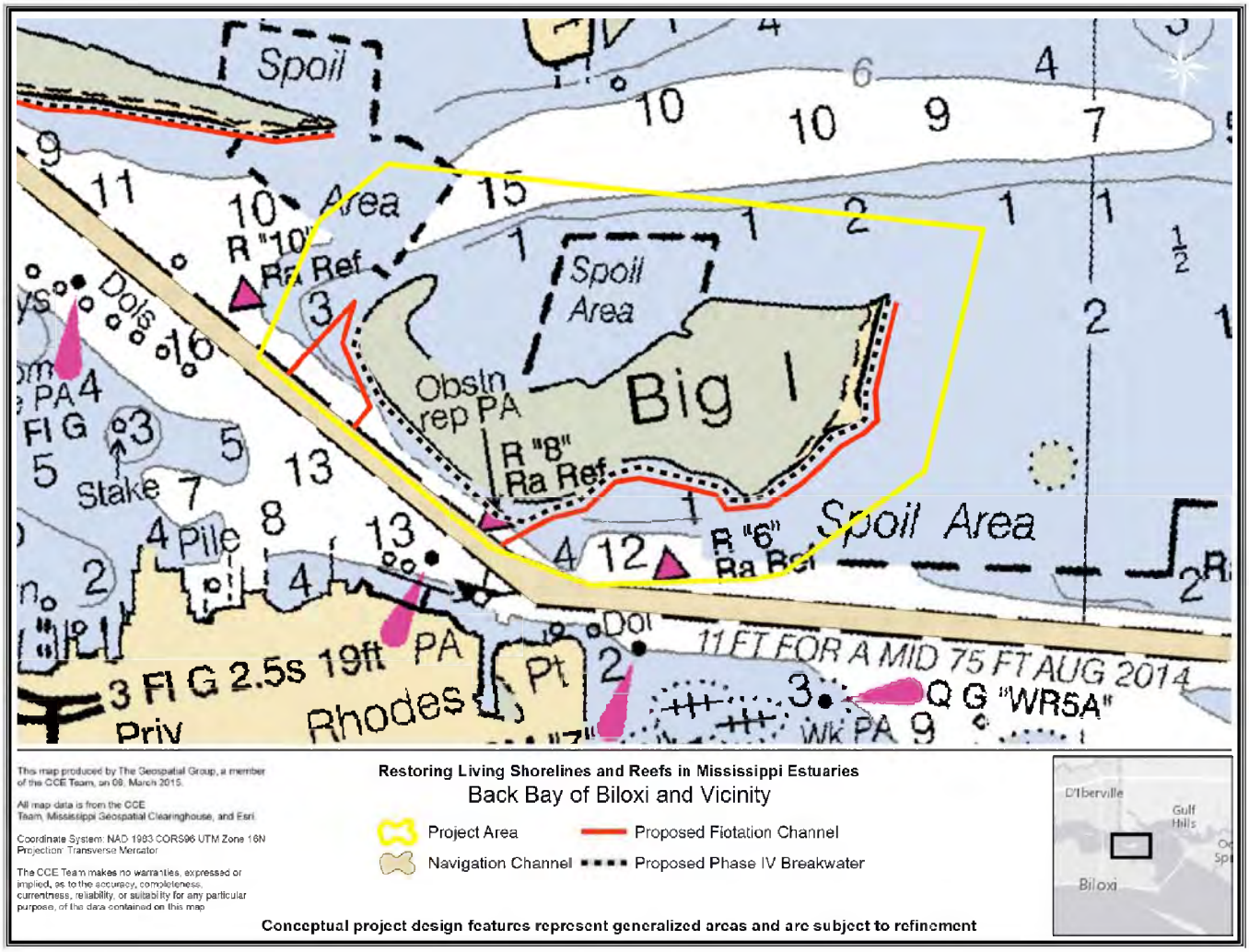

Figure 5. Big Island Depths

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In Reply Refer To:

2015-I-793

August 24, 2015

Memorandum

To: Deputy Case Manager, *Deepwater Horizon* Department of the Interior Natural Resource Damage Assessment and Restoration (NRDAR)

From: Field Supervisor, Mississippi Field Office

Subject: Informal Consultation for the Proposed Restoring Living Shorelines and Reefs in Mississippi Estuaries Project, Mississippi

This memorandum acknowledges our receipt of your memorandum on August 12, 2015. This response is in accordance with Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) (ESA). We have reviewed your proposed project and concur with your August 12, 2015 determinations for endangered and threatened species, their critical habitat, and at-risk species (should they become listed). We based our concurrence on the justification below. Where more than one justification was applicable, multiple boxes are checked and additional comments are added.

☐ Species-specific surveys were conducted and there are no endangered, threatened, or at-risk species or designated critical habitat on site. Comments: _____

☒ Endangered, threatened, and at-risk species are not known from and are not expected to occur within the vicinity of the proposed project. Comments: Alabama red-bellied turtle only

☒ Appropriate avoidance and minimization measures have been included within the project description to ensure that any effects to listed species (or at-risk species should they become listed) are insignificant or discountable. Comments: piping plover, red knot and west Indian manatee

☐ Critical habitat is not present on site and does not occur within the vicinity of the proposed project. Comments: _____

☒ Appropriate avoidance and minimization measures have been included within the project description to ensure PCEs and/or critical habitat will not be adversely modified or destroyed. Comments: Piping plover only

☐ The proposed project is completely beneficial to the listed or at-risk species and/or critical habitat considered. Comments: _____

Unless the project description changes, or new information reveals that the effects of the proposed action may affect listed species in a manner or to an extent not considered, or a new species or critical habitat is designated that may be affected by the proposed action, no further action pursuant to the ESA is necessary.

If you have questions, please contact David Felder at 601-321-1131 or email, david_felder@fws.gov.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

MEMORANDUM FOR: FILE

FROM: Christy Fellas, DWH Environmental Compliance Coordinator
NOAA Restoration Center, Southeast Region

DATE: July 10, 2019

SUBJECT: No Additional ESA or EFH Consultation Needed for Design Refinements to the Big Island Living Shoreline Component, Phase IV Early Restoration, Mississippi

Based on my review of project materials including design updates (see attached) and in coordination with representatives from NOAA's Protected Resource Division and Habitat Conservation Division in the South East Regional Office, the NOAA Restoration Center determined that design updates do not require re-initiation of consultation with NOAA.

The inner breakwater is likely to be built with a pre-fabricated wave attenuation device. While the device has openings on the side, it also has a sufficient opening on the top and therefore is not likely to entrap any protected species (see attachment for drawings).

Project elements have been refined within the previously considered action area and will not result in any discernible changes to the effects of the project to designated Essential Fish Habitat or species protected under the Endangered Species Act. The EFH and ESA consultations were concluded in 2015 and 2016 and can be found in the DWH administrative record. All BMPs and minimization measures in these consultations remain in effect for implementation.

Restoring Living Shorelines and Reefs in Mississippi Estuaries

Big Island Living Shoreline Component

June 26, 2019

Memo to: Christy Fellas, NOAA Restoration Center, Deepwater Horizon NRDA Program

Erin Chandler, Environmental Compliance Coordinator, Deepwater Horizon Gulf Restoration Office, USFWS

David Felder, Mississippi Field Office, USFWS

The Restoring Living Shorelines and Reefs in Mississippi Estuaries project includes the restoration of secondary productivity through the placement of intertidal and subtidal reefs and the use of living shoreline techniques to reduce shoreline erosion. The project was proposed, evaluated and selected in the *Deepwater Horizon Oil Spill: Final Phase IV Early Restoration Plan and Environmental Assessments* (DOI 2015) referred to hereafter as the Phase IV RP/EA. As the designated Mississippi State Trustee under the Oil Pollution Act, the Mississippi Department of Environmental Quality (MDEQ) is responsible for implementing this project. Eight components were originally identified in the RP/EA as part of the project; three have been eliminated and five components are now in the permitting phase. The project goal is to restore secondary productivity and reduce shoreline erosion.

ESA consultations for the Big Island Living Shoreline were previously coordinated with NOAA NMFS (SER-2015-16961) and USFWS (2015-I-793) in 2015 and 2016. EFH consultations were coordinated with NOAA NMFS in 2015. Geotechnical and bathymetric studies and subsequent engineering design has been conducted for the project.

The project is moving into the permitting phase, and a pre-application meeting will soon be scheduled with the USACE, MDMR and your agency representatives. The following is provided as a brief summary of the relevant refinements to the project design since your agency's review. For the purposes of your review, Table 1 summarizes the engineering design and compares the current design to the data previously presented in the 2015 and 2016 Final Biological Evaluations. The Conceptual Project Design that was analyzed in the 2015 Biological Evaluation is shown in Figure 1 and the design analyzed in the 2016 Biological Evaluation is shown in Figure 2. The project location area is depicted in Figure 3, and the design developed in the Final Basis of Design Report is depicted in Figures 4-7. The current design includes the

construction of two breakwaters instead of one: an outer breakwater constructed of riprap with crest elevation at mean higher high water to reduce wave energy, and an inner breakwater constructed of riprap, Wave Attenuation Devices (WADs), OysterBreaks or other comparable engineered structures/materials as approved by the permitting agencies, with a crest elevation at mean lower low water to provide additional wave attenuation and to maximize secondary productivity benefits. Please note that the latest design does not affect the total project footprint (3.5 acres) or the project location, and has eliminated the flotation channels originally proposed in the 2015 consultation.

We do not anticipate that the current design refinements would change your EFH and ESA findings, and are requesting confirmation by email that your agency's project concurrence remains in effect.

Table 1. Big Island Living Shoreline-Design Refinements post ESA and EFH consultation					
Project Element	**Parameters**	**2015 BE**	**2016 BE**	**Current Design**	
				Outer breakwater	**Inner breakwater**
Breakwater	**Length**	Up to 5,011 linear feet of breakwater and 5,060 linear feet of temporary flotation channel	Up to 5,011 linear feet of breakwater	5,200 feet	2,800 feet
	Base Width	30 ft.	30 ft.	Approximately 30 ft. depending on contour	Approximately 20 ft. depending on contour
	Crest width	Not specified	Not specified	4 ft.	4 ft.
	Footprint	3.5 acres	3.5 acres	3 acres	0.5 acres
	Construction materials	Approved manufactured and/or natural materials	Approved manufactured and/or natural materials	Riprap	OysterBreaks, WADS; riprap or other comparable engineered structures/materials as approved by the permitting agencies
	Volume of materials	11,275 cubic yards	11,275 cubic yards	Approx. 9,500 cubic yards	Approx.1,900 cubic yards
	Substrate	Unconsolidated soft bottom and mud	Unconsolidated soft bottom and mud	Unconsolidated soft bottom and mud	Unconsolidated soft bottom and mud
	Water depth	0 – 6 feet MLLW	No greater than 15 feet MLLW	-2.5 to -3.5 MLLW	-1.5 to -2.5 MLLW

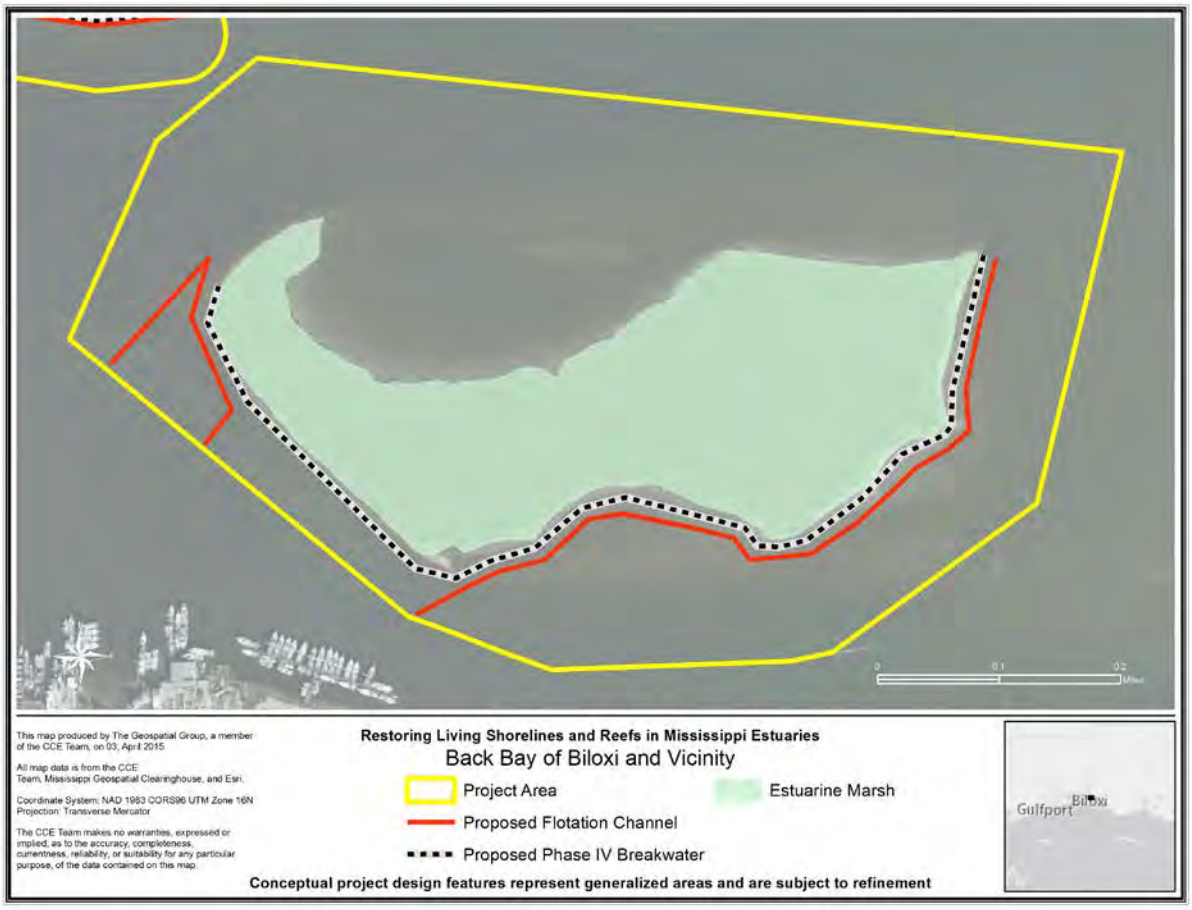


Figure 1: Conceptual project design proposed in the 2015 Final Biological Evaluation, Proposed Big Island Living Shoreline

Figure 2: Conceptual project design proposed in the 2016 Final Biological Evaluation

Figure 3: Current Big Island Project Location

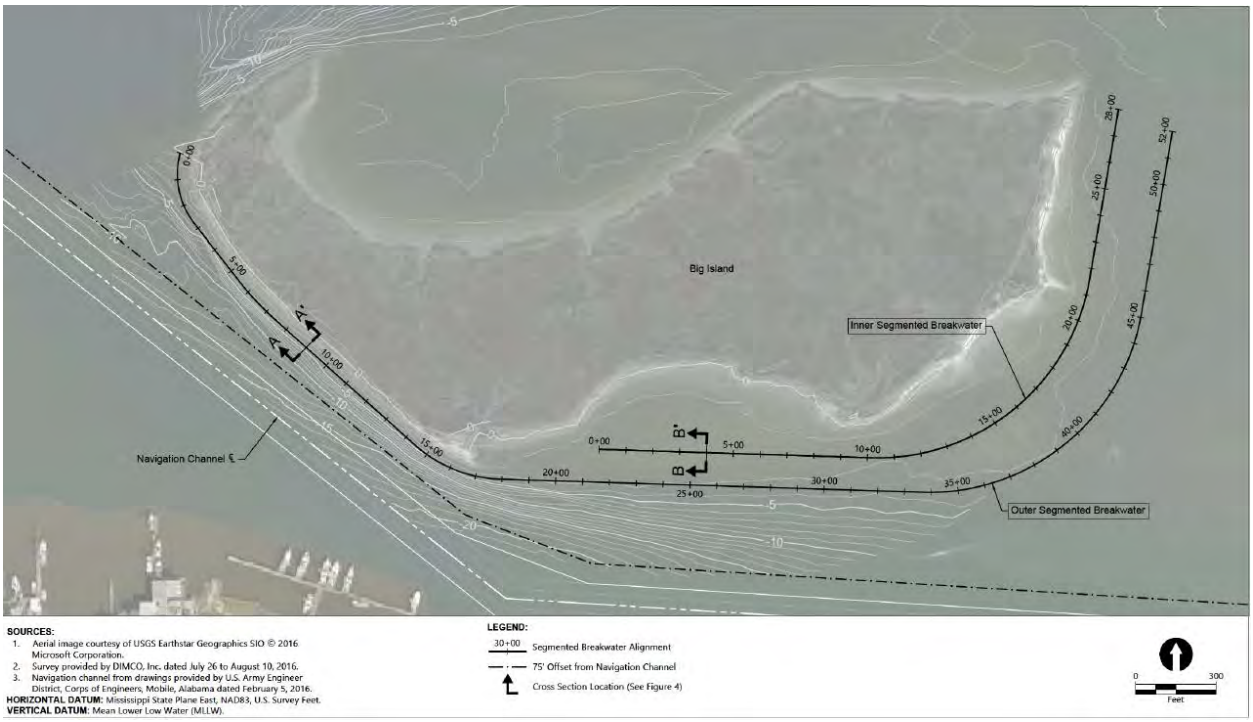


Figure 4: Current Design Big Island Living Shoreline in Plan View

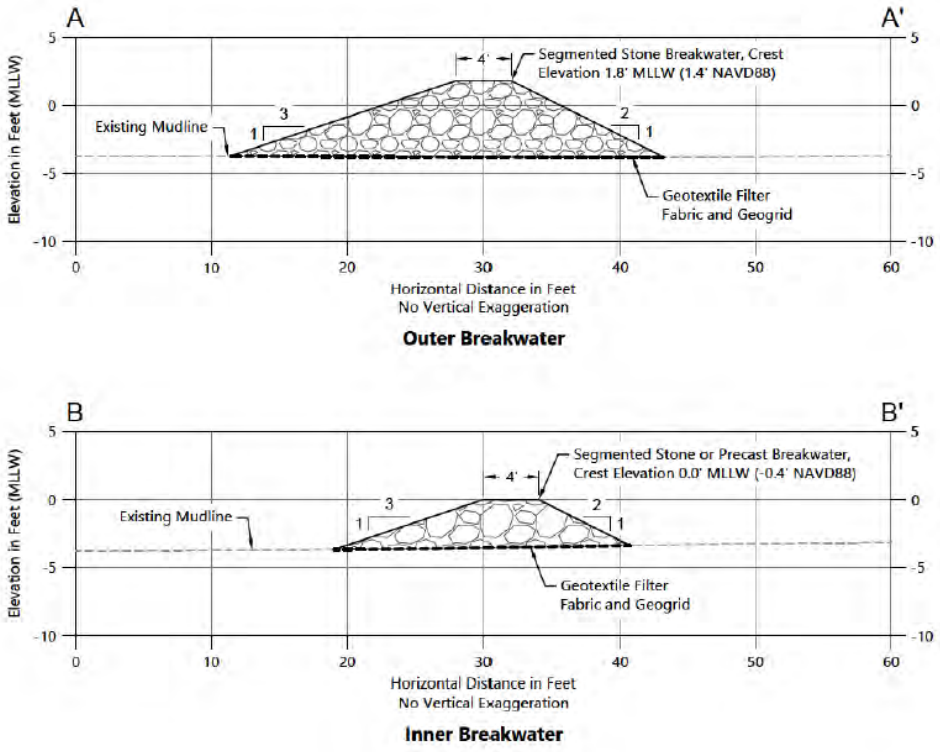
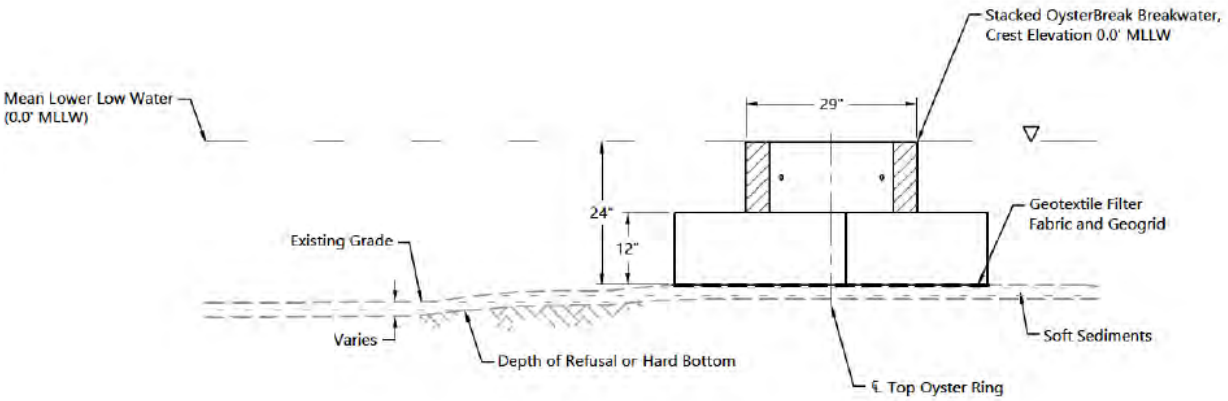
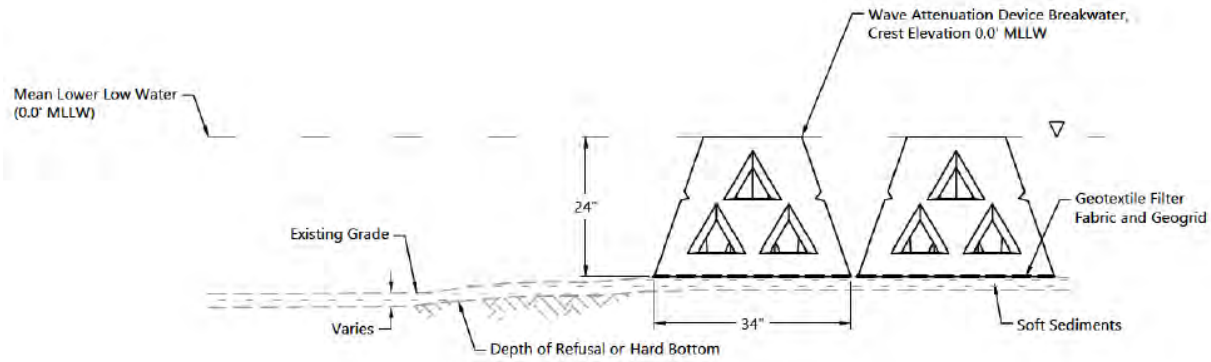


Figure 5: Current Design Big Island Living Shoreline (Inner breakwater riprap option) in Profile View



Typical Section OysterBreak Breakwater Option
Not to Scale

Figure 6: Current Design Big Island Living Shoreline (Inner breakwater OysterBreak option) in Profile View

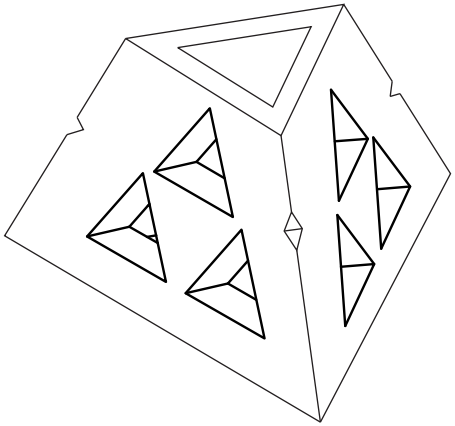


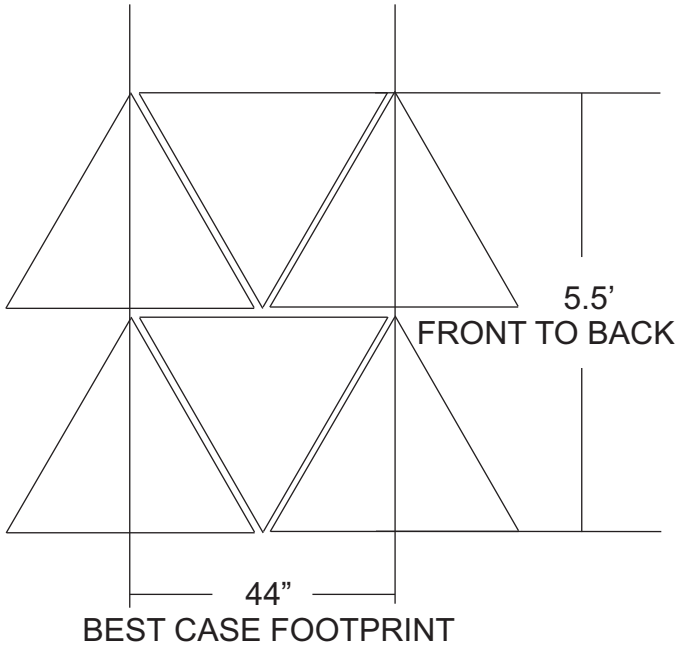
Typical Section Wave Attenuation Device Breakwater
Not to Scale

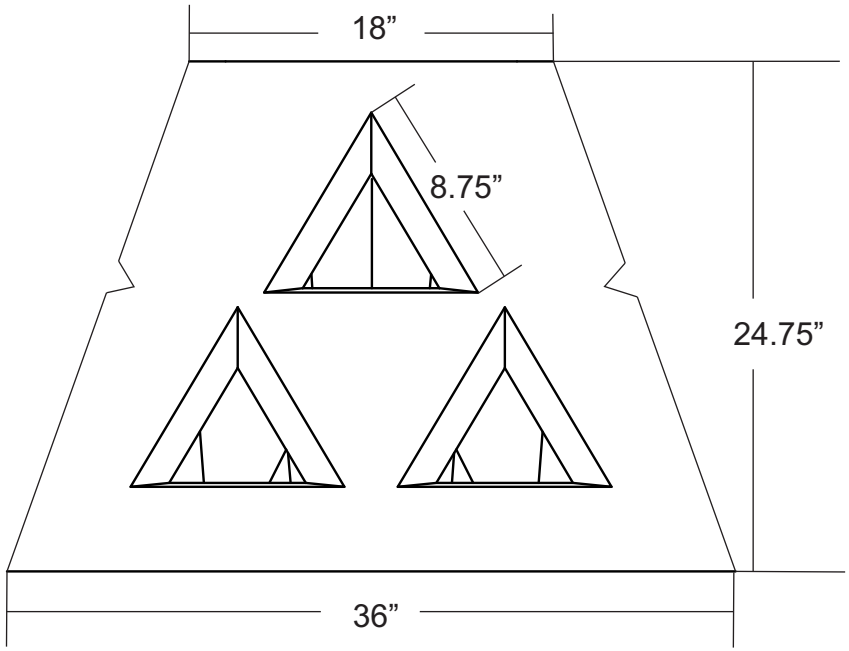
Figure 7: Current Design Big Island Living Shoreline (Inner breakwater WAD option) in Profile View

References: DOI (Department of the Interior), 2015. *Deepwater Horizon Oil Spill: Final Phase IV Early Restoration Plan and Environmental Assessments*. September 2015.

2 FOOT TALL 3 FOOT BASE
4 INCHES THICK ~ 400 POUNDS







FOOTPRINT IS 4 WADS EVERY
4.0’ LF WITH PLACEMENT FOR ESTIMATION

Living Shoreline Solutions Inc.
U.S. PATENT 6,186,702 B1
WAD
www.livingshorelinesolutions.com

APPENDIX E

DOI National Historic Preservation Act Section 106 Review Documentation

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Deepwater Horizon Gulf Restoration Office
341 Greeno Road North, Suite A
Fairhope, Alabama 36532

In Reply Refer To:
FWS/R4/DH NRDAR

11/19/2019

Mr. Gary Rikard
Mississippi Department of Environmental
Quality Post Office Box 2261
Jackson, Mississippi 39225-2261

Re: Restoring Living Shorelines and Reefs in Mississippi Estuaries Big Island Living Shoreline Component, *Deepwater Horizon* Oil Spill Natural Resource Damage Assessment and Restoration (NRDAR)

Dear Mr. Rikard:

The Department of the Interior (DOI), on behalf of the National Oceanic and Oceanographic Administration, the U.S. Department of Agriculture, and the U.S. Environmental Protection Agency, has completed a review of the Big Island Living Shoreline component of the Project under section 106 of the National Historic Preservation Act (NHPA), as amended (16 U.S.C. 470 et seq.) and its implementing regulations (36 CFR Part 800). As part of this review, DOI consulted with the Mississippi Historic Preservation. DOI has concluded that this project will have "No Adverse Effect" on historic properties.

The absences of known historic properties within the APE, the negative findings of the cultural resource survey of the APE, and the absences of dredging as part of the project design leads DOI to determine that this project will have "No Effect" on historic properties.

If, during the construction of this project, any cultural material not accounted for by this consultation is discovered, work will cease in the vicinity of the discovery and the project proponent shall contact the DOI Gulf Restoration Office (GRO) immediately. A GRO representative will contact the relevant Tribal Historic Preservation Officers and the State Historic Preservation Office. The discovery of cultural or historic resources may necessitate additional review of this project under NHPA Section 106.

If you have any questions, please contact James Chapman at james_chapman@fws.gov.

Sincerely yours,

Benjamin Frater
Assistant Gulf Restoration Manager

APPENDIX F

Magnuson-Stevens Act (Essential Fish Habitat) National Marine Fisheries Service Review and Documentation

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701-5505
http://sero.nmfs.noaa.gov

June 2, 2015

MEMORANDUM FOR: Leslie Craig
Southeast Region Supervisor, NOAA Restoration Center

FROM: Virginia M. Fay
Assistant Regional Administrator, Habitat Conservation Division

SUBJECT: Essential fish habitat review of the construction of the Restoring Living Shorelines and Reefs in Mississippi Estuaries project

In response to the Deepwater Horizon oil spill, NOAA and the other Trustee agencies propose to fund the construction of four miles of living shoreline breakwaters, five acres of intertidal reefs, and 267 acres of subtidal reef at a total of eight locations in coastal Mississippi. The approximate cost of construction is $30 million using Phase IV Early Restoration funds. The activities described in the EFH assessment would provide temporary short and long term minor impacts to water bottoms and water column categorized as essential fish habitat (EFH) under provisions of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act).

As specified in the Magnuson-Stevens Act, EFH consultation is required for federal actions which may adversely affect EFH. The NOAA's Restoration Center prepared an EFH assessment for this project and provided the document for our review by electronic mail dated May 27, 2015. The Southeast Region's Habitat Conservation Division (SER HCD) has reviewed the EFH assessment and finds the document adequately evaluates potential project impacts to EFH supportive of a number of federally managed fishery species. While project implementation would temporarily impact water bottoms and water column supportive of a variety of federally managed fishery species, best management practices to minimize short term impacts have been developed and were included in the EFH assessment.. Additionally, SERO HCD believes the proposed work should enhance the fishery productivity of the project area and concurs with the statements in the EFH assessment that effects of project implementation are expected to be minor and would have no substantial impacts to EFH. Therefore, SER HCD has no EFH conservation recommendations to provide pursuant to Section 305(b)(2) of the Magnuson-Stevens Act at this time. Further consultation on this matter is not necessary unless future modifications are proposed and such actions may result in adverse impacts to EFH.

cc:
F/SER – Giordano
F/HCD – Schubert
F/SER4 – Dale
F/SER46 - Hartman

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

MEMORANDUM FOR: FILE

FROM: Christy Fellas, DWH Environmental Compliance Coordinator
NOAA Restoration Center, Southeast Region

DATE: July 10, 2019

SUBJECT: No Additional ESA or EFH Consultation Needed for Design Refinements to the Big Island Living Shoreline Component, Phase IV Early Restoration, Mississippi

Based on my review of project materials including design updates (see attached) and in coordination with representatives from NOAA's Protected Resource Division and Habitat Conservation Division in the South East Regional Office, the NOAA Restoration Center determined that design updates do not require re-initiation of consultation with NOAA.

The inner breakwater is likely to be built with a pre-fabricated wave attenuation device. While the device has openings on the side, it also has a sufficient opening on the top and therefore is not likely to entrap any protected species (see attachment for drawings).

Project elements have been refined within the previously considered action area and will not result in any discernible changes to the effects of the project to designated Essential Fish Habitat or species protected under the Endangered Species Act. The EFH and ESA consultations were concluded in 2015 and 2016 and can be found in the DWH administrative record. All BMPs and minimization measures in these consultations remain in effect for implementation.

Restoring Living Shorelines and Reefs in Mississippi Estuaries

Big Island Living Shoreline Component

June 26, 2019

Memo to: Christy Fellas, NOAA Restoration Center, Deepwater Horizon NRDA Program

Erin Chandler, Environmental Compliance Coordinator, Deepwater Horizon Gulf Restoration Office, USFWS

David Felder, Mississippi Field Office, USFWS

The Restoring Living Shorelines and Reefs in Mississippi Estuaries project includes the restoration of secondary productivity through the placement of intertidal and subtidal reefs and the use of living shoreline techniques to reduce shoreline erosion. The project was proposed, evaluated and selected in the *Deepwater Horizon Oil Spill: Final Phase IV Early Restoration Plan and Environmental Assessments* (DOI 2015) referred to hereafter as the Phase IV RP/EA. As the designated Mississippi State Trustee under the Oil Pollution Act, the Mississippi Department of Environmental Quality (MDEQ) is responsible for implementing this project. Eight components were originally identified in the RP/EA as part of the project; three have been eliminated and five components are now in the permitting phase. The project goal is to restore secondary productivity and reduce shoreline erosion.

ESA consultations for the Big Island Living Shoreline were previously coordinated with NOAA NMFS (SER-2015-16961) and USFWS (2015-I-793) in 2015 and 2016. EFH consultations were coordinated with NOAA NMFS in 2015. Geotechnical and bathymetric studies and subsequent engineering design has been conducted for the project.

The project is moving into the permitting phase, and a pre-application meeting will soon be scheduled with the USACE, MDMR and your agency representatives. The following is provided as a brief summary of the relevant refinements to the project design since your agency's review. For the purposes of your review, Table 1 summarizes the engineering design and compares the current design to the data previously presented in the 2015 and 2016 Final Biological Evaluations. The Conceptual Project Design that was analyzed in the 2015 Biological Evaluation is shown in Figure 1 and the design analyzed in the 2016 Biological Evaluation is shown in Figure 2. The project location area is depicted in Figure 3, and the design developed in the Final Basis of Design Report is depicted in Figures 4-7. The current design includes the

construction of two breakwaters instead of one: an outer breakwater constructed of riprap with crest elevation at mean higher high water to reduce wave energy, and an inner breakwater constructed of riprap, Wave Attenuation Devices (WADs), OysterBreaks or other comparable engineered structures/materials as approved by the permitting agencies, with a crest elevation at mean lower low water to provide additional wave attenuation and to maximize secondary productivity benefits. Please note that the latest design does not affect the total project footprint (3.5 acres) or the project location, and has eliminated the flotation channels originally proposed in the 2015 consultation.

We do not anticipate that the current design refinements would change your EFH and ESA findings, and are requesting confirmation by email that your agency's project concurrence remains in effect.

Table 1. Big Island Living Shoreline-Design Refinements post ESA and EFH consultation					
Project Element	**Parameters**	**2015 BE**	**2016 BE**	**Current Design**	
				Outer breakwater	**Inner breakwater**
Breakwater	**Length**	Up to 5,011 linear feet of breakwater and 5,060 linear feet of temporary flotation channel	Up to 5,011 linear feet of breakwater	5,200 feet	2,800 feet
	Base Width	30 ft.	30 ft.	Approximately 30 ft. depending on contour	Approximately 20 ft. depending on contour
	Crest width	Not specified	Not specified	4 ft.	4 ft.
	Footprint	3.5 acres	3.5 acres	3 acres	0.5 acres
	Construction materials	Approved manufactured and/or natural materials	Approved manufactured and/or natural materials	Riprap	OysterBreaks, WADS; riprap or other comparable engineered structures/materials as approved by the permitting agencies
	Volume of materials	11,275 cubic yards	11,275 cubic yards	Approx. 9,500 cubic yards	Approx.1,900 cubic yards
	Substrate	Unconsolidated soft bottom and mud	Unconsolidated soft bottom and mud	Unconsolidated soft bottom and mud	Unconsolidated soft bottom and mud
	Water depth	0 – 6 feet MLLW	No greater than 15 feet MLLW	-2.5 to -3.5 MLLW	-1.5 to -2.5 MLLW

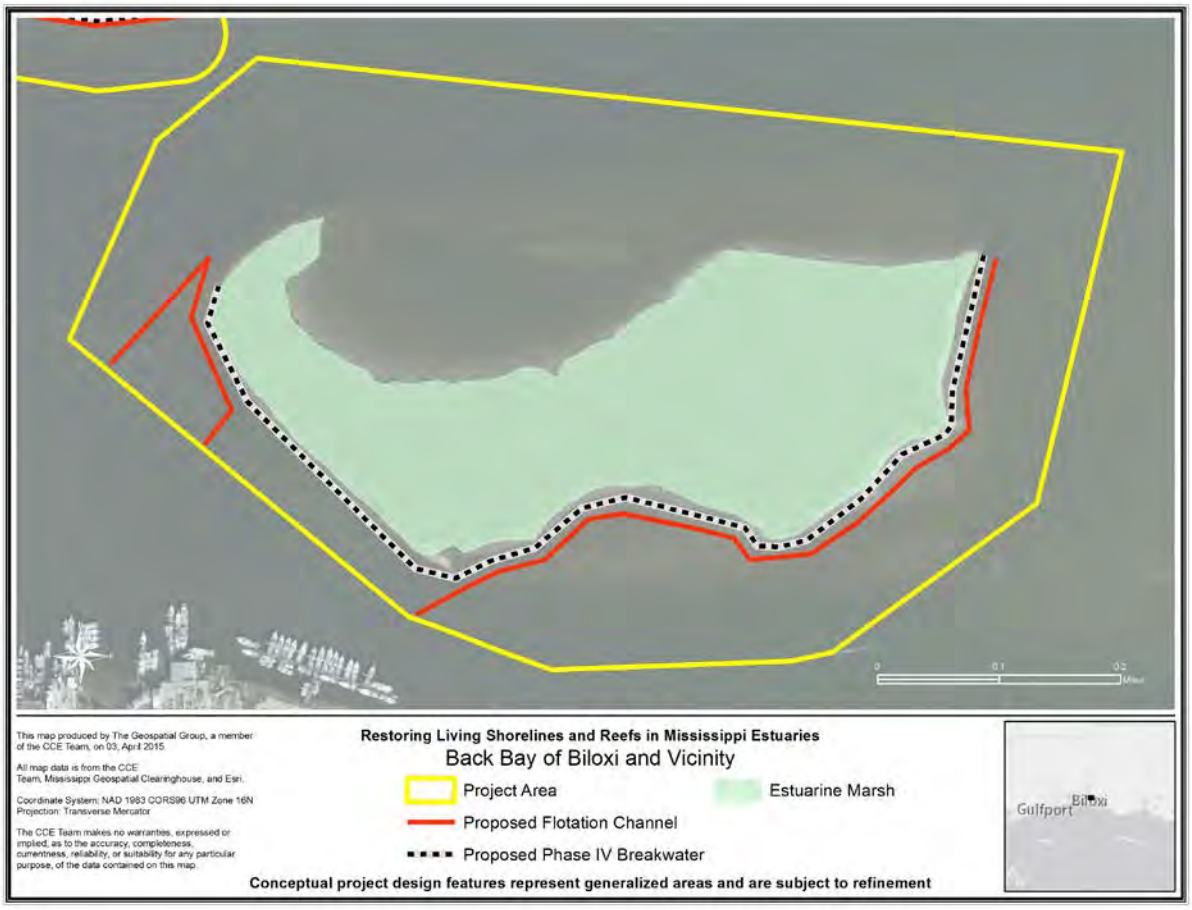


Figure 1: Conceptual project design proposed in the 2015 Final Biological Evaluation, Proposed Big Island Living Shoreline

Figure 2: Conceptual project design proposed in the 2016 Final Biological Evaluation

Figure 3: Current Big Island Project Location

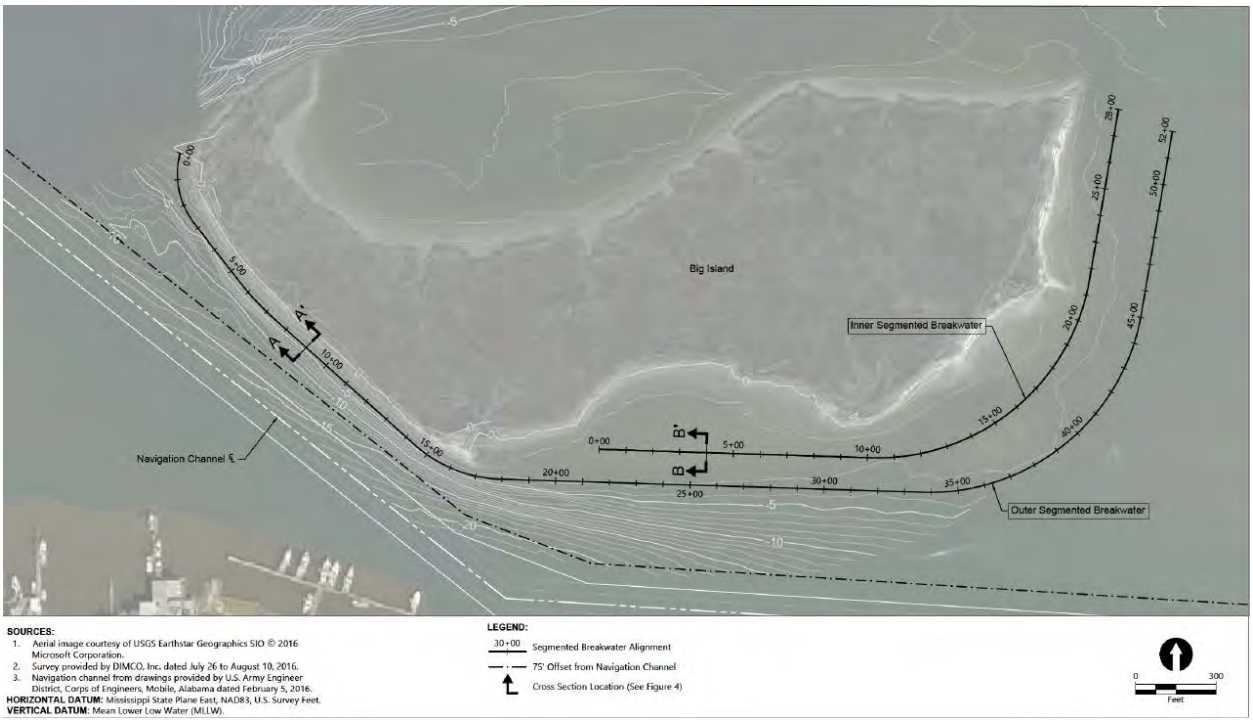


Figure 4: Current Design Big Island Living Shoreline in Plan View

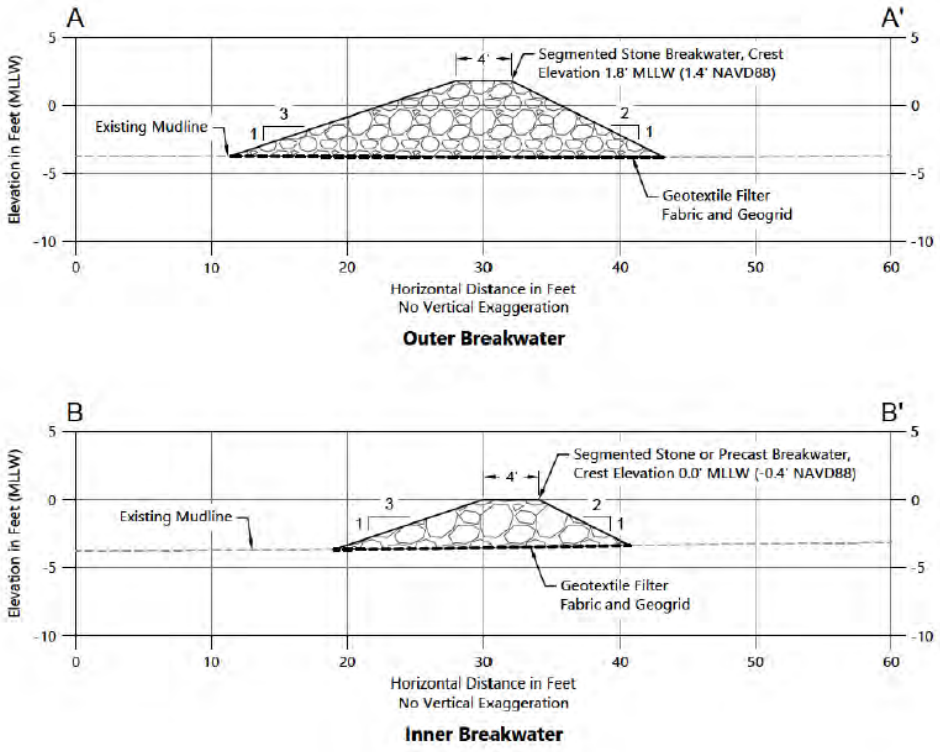
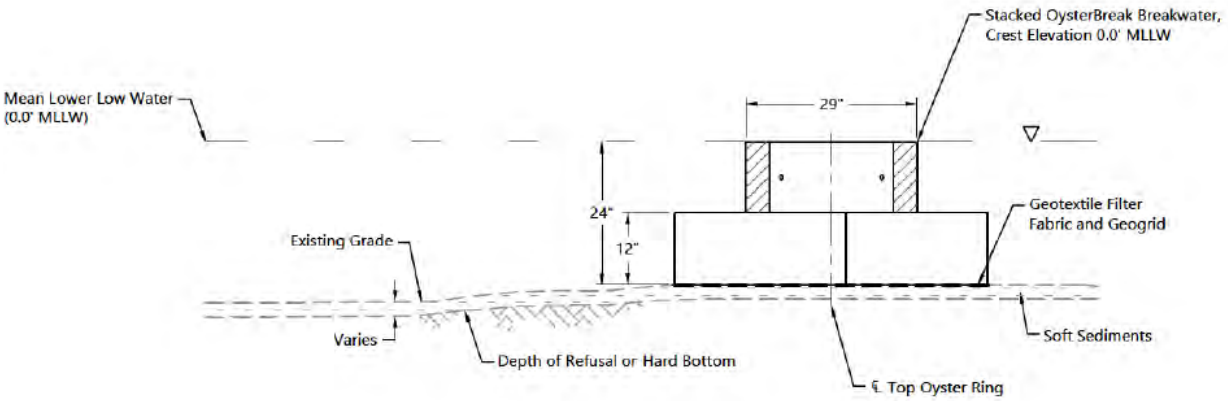
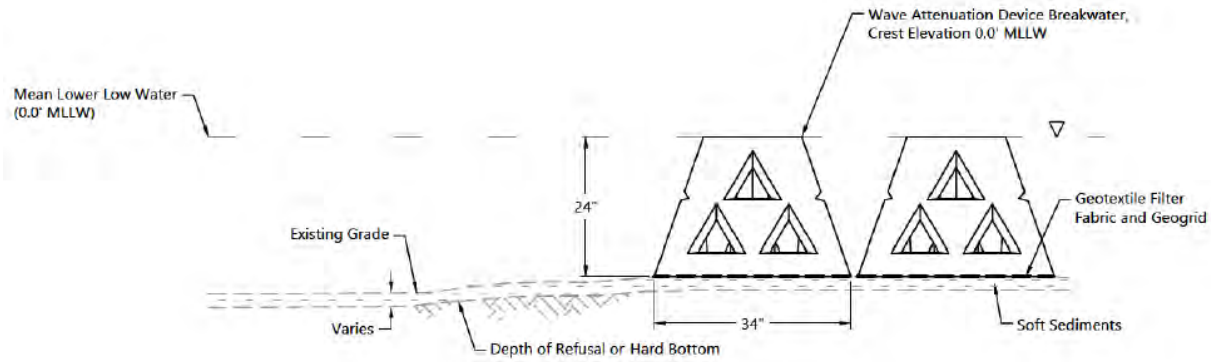


Figure 5: Current Design Big Island Living Shoreline (Inner breakwater riprap option) in Profile View



Typical Section OysterBreak Breakwater Option
Not to Scale

Figure 6: Current Design Big Island Living Shoreline (Inner breakwater OysterBreak option) in Profile View

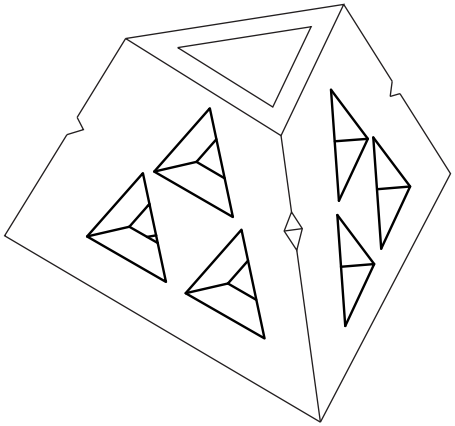


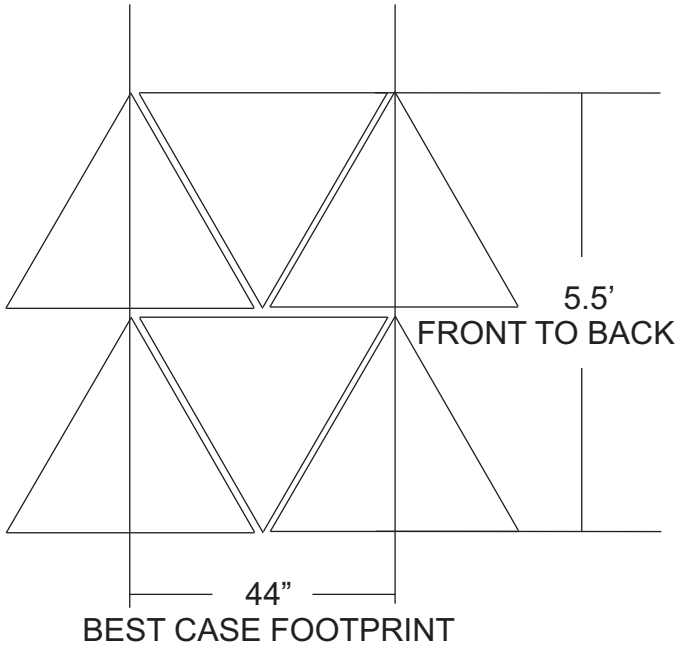
Typical Section Wave Attenuation Device Breakwater
Not to Scale

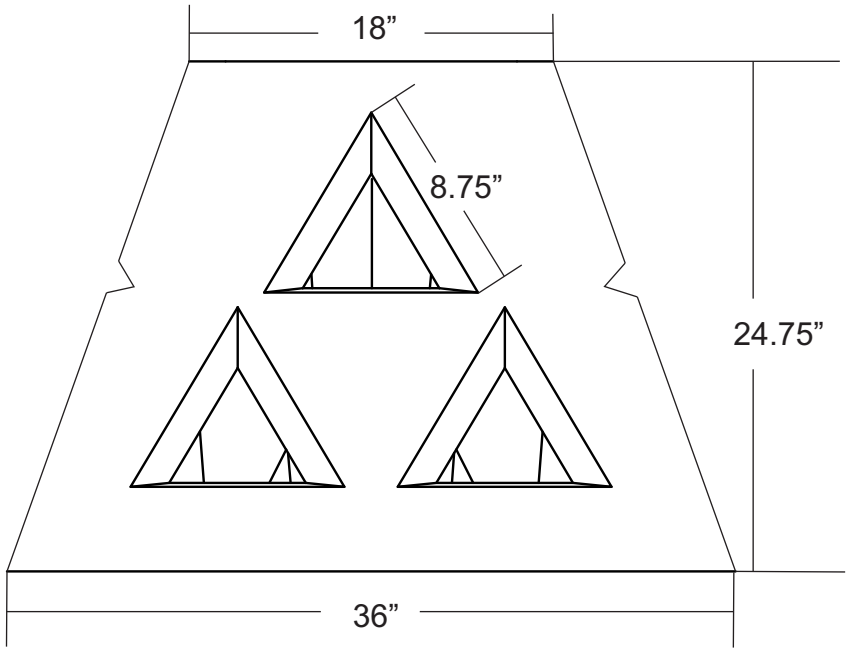
Figure 7: Current Design Big Island Living Shoreline (Inner breakwater WAD option) in Profile View

References: DOI (Department of the Interior), 2015. *Deepwater Horizon Oil Spill: Final Phase IV Early Restoration Plan and Environmental Assessments*. September 2015.

2 FOOT TALL 3 FOOT BASE
4 INCHES THICK ~ 400 POUNDS







FOOTPRINT IS 4 WADS EVERY
4.0’ LF WITH PLACEMENT FOR ESTIMATION

Living Shoreline Solutions Inc.
U.S. PATENT 6,186,702 B1
WAD
www.livingshorelinesolutions.com

APPENDIX G

National Environmental Policy Act (NEPA) Documentation

APPENDIX G-2:

FINDING OF NO SIGNIFICANT IMPACT
For the Restoring Living Shorelines and Reefs in Mississippi Estuaries Project

Overview and Background

The Department of the Interior (DOI), National Oceanic and Atmospheric Administration (NOAA), Environmental Protection Agency (EPA), and United States Department of Agriculture (USDA), (collectively "Federal Trustees") have conducted an environmental assessment (EA) for the construction of over four miles of breakwaters, five acres of intertidal reef habitat and 267 acres of subtidal reef habitat at four locations across the Mississippi Gulf Coast. The Restoring Living Shorelines and Reefs in Mississippi Estuaries Project will be implemented by the Mississippi Department of Environmental Quality. The project is an early restoration project to be funded as part of the *Deepwater Horizon* Natural Resource Damage Assessment and Restoration process in accordance with the "Framework for Early Restoration Addressing Injuries Resulting from the *Deepwater Horizon* Oil Spill." This project is one of several projects to be implemented by the Trustees as identified in the Final Phase IV Early Restoration Plan and Environmental Assessments (Final Phase IV ERP/EA) to accelerate restoration, and represents an initial step toward the restoration of natural resources injured by the *Deepwater Horizon* oil spill.

Under the Oil Pollution Act of 1990, damages recovered from parties responsible for natural resource injuries are used to restore, replace, rehabilitate and/or acquire the equivalent of the injured natural resources and services they provide (33 U.S.C. § 2706). When Federal Trustees are involved, these restoration activities are subject to the requirements of the National Environmental Policy Act (NEPA), 42 U.S.C. § 4321 et seq. Therefore, the Federal Trustees prepared this EA to evaluate the potential environmental impacts associated with the Restoring Living Shorelines and Reefs in Mississippi Estuaries Project. This EA tiers from the Final Phase III Early Restoration Plan and Programmatic Environmental Impact Statement (Final Phase III ERP/PEIS) prepared by the Trustees in 2014 and is prepared in accordance with NEPA, Council on Environmental Quality (CEQ) NEPA regulations, and all applicable agency NEPA regulations and guidance.

Summary of Proposed Action and Alternatives

The CEQ NEPA regulations require the decision maker to consider the environmental effects of the proposed action and a reasonable range of alternatives, including the No Action Alternative, (40 CFR § 1502.14). The EA addresses the Proposed Action and a No Action alternative. The purpose of the proposed action is to restore secondary productivity through the placement of intertidal and subtidal reefs and the use of living shoreline techniques including breakwaters. Over time, the breakwaters, intertidal and subtidal restoration areas would develop into living reefs that support benthic secondary

productivity including but not limited to oysters/bivalves mollusks, annelid worms, shrimp, and crabs. Breakwaters would reduce shoreline erosion as well as marsh loss.

Under the proposed action, the Restoring Living Shorelines and Reefs in Mississippi Estuaries Project would be implemented at selected locations in Grand Bay, Graveline Bay, Back Bay of Biloxi and vicinity, and St. Louis Bay in Jackson, Harrison, and Hancock Counties, Mississippi and would consist of the overall construction of over four miles of breakwaters, five acres of intertidal reef habitat and 267 acres of subtidal reef habitat. The Proposed Action is being selected because it will result in more efficient recovery of injured salt marsh and lost benthic secondary productivity compared to the No Action Alternative. Under the No Action Alternative, the Trustees would not receive funding to restore secondary productivity through the placement of intertidal and subtidal reefs and the use of living shoreline techniques and the Trustees would not pursue Restoring Living Shorelines and Reefs in Mississippi Estuaries as part of Phase IV Early Restoration. The Federal Trustees prepared the Final EA and this Finding of No Significant Impact after considering input from the public during the public comment period for the Draft Phase IV ERP/ EA.

Analysis Summary

The Federal Trustees evaluated potential environmental effects of the proposed action and analyzed the significance of this action based on NEPA, CEQ NEPA regulations, and all applicable agency NEPA regulations and guidance. CEQ regulations (40 CFR §1508.27) state that the significance of an action should be analyzed both in terms of "context" and "intensity." Analysis discussed and summarized below is relevant to making a finding of no significant impact. See Phase IV ERP/EA Chapter 6, sections 6.2.5, 6.2.7, 6.2.8, and 6.2.9 (overall summary). When environmental consequences were reviewed across the Restoring Living Shorelines and Reefs in Mississippi Estuaries Project, the analysis suggests that there will be long-term minor to moderate adverse impacts to geology and substrates, and there will be minor short-term adverse impacts to other project specific resource categories. The project will provide long-term benefits by creating approximately 267 acres subtidal reef habitat, five acres of intertidal reef habitat, and approximately four miles (17.9 acres) of reef, as discussed below and in the Phase IV ERP/EA Chapter 6:

- Impacts to the physical environment (geology and substrates, hydrology and water quality) were assessed in Phase IV ERP/EA Chapter 6, sections 6.2.7.1.1 and 6.2.7.1.2.
    - Geology and substrates: Placement of structures such as breakwaters, intertidal and subtidal reefs will permanently cover existing geology and substrates. The adverse effects will be minor to moderate and long-term, because they will affect substrate/geologic characteristics of the project footprint, and could extend beyond the construction period. There will be long term, minor to moderate impacts to 289.9 acres of soft bottom and hard bottom habitat due to the construction of breakwaters (17.9 acres), subtidal reefs (267 acres) and intertidal reefs (5 acres). There will be short term, minor impacts to 85.4 acres of soft bottom habitat for the construction of temporary flotation channels (if needed for construction of breakwaters) and subtidal and intertidal reef habitat. The impacts resulting from the temporary flotation channels will

be short-term because the channels will be backfilled as part of the construction process. The project will result in long-term benefit resulting from the development of 289.9 acres of substrate (breakwater materials and cultch) into living reefs that support benthic secondary productivity. There will be long-term benefits to shorelines and marsh resulting from the placement of 21,912 linear feet of breakwater along eroding shorelines. Breakwaters will reduce the wave energy, thereby slowing shoreline and marsh erosion and resulting in the long-term protection of the shoreline. Therefore, the project will have a long-term beneficial impact on geology and substrate.

- Hydrology, tides and currents
    - Breakwater construction: Shoreline protection and erosion reduction could generally help reduce storm surges on shorelines and marshes. Breakwater construction could reduce the loss of the wetlands and channel networks particularly in St. Louis Bay. Gaps will be present between breakwater segments that will allow tidal exchange flows and waterway access. Breakwaters will change natural current patterns, sediment accretion and erosion rates. Wave energy and resulting erosion will be reduced. This could be a long-term beneficial effect to shorelines that will extend beyond the construction period.
    - Intertidal and subtidal reef habitat: Creating intertidal and subtidal reef habitat could help protect eroding wetlands and shallow water areas. Placement of cultch and other materials to establish living reefs adjacent to shorelines and breakwaters will reduce wave energy reaching shorelines. This will provide long-term beneficial effects by reducing wave energy of storm surges as well.
- Water quality: Placement of the breakwaters, subtidal and intertidal reef will result in short-term, minor adverse impacts to water quality as a result of resuspension of sediment by vessels (barges, tugs, skiffs, etc.) moving in and out of the project area, excavation of the temporary flotation channels, placement of breakwaters and deployment of intertidal and subtidal reefs. The suspended sediment may be transported into surrounding wetlands and waterways. However, the area is currently exposed to elevated turbidity levels as a result of resuspension of sediment from river transport and during frequent storms, tides, and other typical weather events. Impacts from turbidity will be minor, short-term and limited in spatial extent.
    - In addition to turbidity, the water quality could be adversely impacted by leaks or spills of fuel and lubricants used by vessels and other equipment during the construction of the temporary flotation channels, breakwater, and reefs. Impacts, if any, will be short-term, localized and minor.
    - Breakwaters, once established as living reefs, could benefit local water clarity because bi-valves such as oysters and mussels feed by filtering the water column. The reef could also reduce wave energy reaching the shoreline, minimizing erosion, and decreasing sediment suspended in the water column

from erosion. Long-term this method could result in minor improvements to water quality. The benefits will be long-term because they will extend beyond the construction period.

- Floodplains: The majority of the project is located below the mean high water level and will not impact the floodplain in the project area. Shoreline protection and erosion reduction could generally help reduce storm surges on coastal wetlands, and limit the shoreward extent of saltwater flow.

- Wetlands: There will be short-term, minor, and localized indirect adverse impacts from sediment movement that could temporarily impact the shoreline edge near the project components. The project will result in long-term beneficial impacts to salt marsh by reducing shoreline erosion and resulting marsh degradation. These actions could reduce the pace and extent of future saltwater intrusion to freshwater and brackish systems and reduce erosion and loss of the wetlands and channel networks.

- Impacts to the biological environment were assessed in Phase IV ERP/EA Chapter 6, sections 6.2.7.2.1:

  - Submerged aquatic vegetation (SAV): No long-term adverse effects to SAVs are expected. Short-term, minor, adverse impacts to SAVs could occur in the vicinity of the project resulting from temporary sedimentation in beds. Any disturbance will be temporary in nature; it is anticipated that SAV beds will recover naturally. Construction of the breakwaters in St. Louis Bay and Back Bay could provide or protect areas conducive to SAV growth which could provide long term benefits as established or ephemeral SAV beds in these water bodies.

  - Invasive species: No long-term adverse effects from invasive species are expected. Any adverse impacts from invasive species are expected to be short-term and minor. Mitigation measures and best management practices (BMPs) will reduce the likelihood of impacts from invasive species.

  - Benthic infauna and epifauna: Potential short-term minor impacts to benthic organisms may occur from increased turbidity, substrate disturbance, or siltation during construction. Following construction, there is expected to be increased habitat utilization of the zone between the breakwater and the existing eroded shoreline, and long-term benefit due to the placement of hardened structure. This represents a long-term benefit for these organisms.

  - Protected species: The Trustees are coordinating with the U.S. Fish and Wildlife Service (USFWS) and NOAA National Marine Fisheries Service (NMFS) to determine affects to protected species. A summary of impacts to protected species and critical habitats is provided below:

- Marine mammals: Short-term minor adverse effects due to noise and turbidity associated with placement of structures could temporarily disturb marine mammal species if they are in the vicinity of the project area. Based on the mobility of these species, the short duration of construction activities, the selected construction methodology, and implementation of BMPs, effects on marine mammals are not anticipated.

- Sea turtles: Loggerhead (threatened), Green (threatened), Kemp's ridley (endangered), Leatherback (endangered), Hawksbill (endangered): Applicable to all project components. While not likely to be impacted, sea turtles are a mobile marine species and project activities will not impede transit routes. There is no nesting habitat in the project area. There is no designated or proposed critical habitat for sea turtles within the action area. If individuals enter construction areas, construction will be halted. Accordingly, the Trustees have made a "Not Likely to Adversely Affect" determination under the ESA for the five species of sea turtles, and coordination with NOAA Nation Marine Fisheries Service is ongoing.

- Piping plover and red knot (both threatened) and piping plover Critical Habitat: Applicable to all project components. Piping plover Critical habitat applicable to Grand Bay Intertidal and Subtidal Reefs. Piping plover could be present between August and May. The red knot could be present from March to April and September to October. If individuals of either species are within 150 feet of the construction area, work will stop until the individual(s) leave of their own volition. The project will be implemented so as to ensure no effects to the PCEs of nearby piping plover critical habitat in the Grand Bay area are impacted. Accordingly, the Trustees have made a "Not Likely to Adversely Affect" determination under the ESA for piping plover and red knot, and a "No destruction or adverse modification" determination for piping plover designated critical habitat, occurring near Grand Bay Intertidal and Subtidal Reefs. In August 2015, the Trustees requested concurrence from the U.S. Fish and Wildlife Service (USFWS) regarding these determinations (DOI 2015). The USFWS provided concurrence with this determination on August 24, 2015 (USFWS 2015).

- West Indian manatee (endangered): Applicable to all project components. West Indian manatees are not likely to occur in the project area. Short-term minor impacts could occur if manatees come into contact with construction activities. Manatees are a mobile marine species and project activities will not impede transitory routes. If individuals are within 50 feet of construction areas, construction will be halted until the individual leaves the area of its own volition. Standard Manatee Conditions for In-Water Work (USFWS 2011) will be followed. Accordingly, the Trustees have made a "Not Likely to Adversely Affect" determination under the ESA for the West Indian manatee. In August

2015, the Trustees requested concurrence from the USFWS regarding this determination (DOI 2015). The USFWS provided concurrence with this determination on August 24, 2015 (USFWS 2015).

- Gulf sturgeon (threatened) and Critical Habitat: Applicable to Grand Bay Intertidal and Subtidal Reefs; and Deer Island Subtidal Reef. The project is in designated critical habitat. The Trustees have made a "Not Likely to Adversely Affect" determination under the ESA for Gulf sturgeon, and a "No destruction or adverse modification" determination for Gulf sturgeon designated critical habitat. Coordination with NOAA Nation Marine Fisheries Service is ongoing. To the extent practicable, project construction at the Deer Island Subtidal Reef and the Grand Bay Intertidal and Subtidal Reef project components will be limited to the window between May and October, after sturgeon have migrated to their riverine habitat. No project components are located within riverine ecosystems. If work continues beyond the May to October window, continued adherence to the Sea turtle and Smalltooth Sawfish Construction Conditions (NMFS 2006) will minimize the potential for impacting Gulf Sturgeon. If individuals enter construction areas, short-term, minor impacts could be the result.

- Migratory Birds/Bald and Golden Eagles (protected under MBTA and BGEPA): Golden eagles are not present in the area. Potential adverse effects to migratory birds include elevated noise levels due to the presence of construction equipment. These species are mobile and will likely exit the area during construction. Due to the implementation of best management practices no "take" is anticipated for bald eagles and migratory birds. Coordination under the MBTA and BGEPA has been completed (DOI 2015).

- Alabama red-belly turtle (endangered): Applicable to all projects in Back Bay and vicinity. Due to the lack of SAVs for foraging at the project site it is unlikely that the species will be present in the project area, therefore no impacts are expected to occur to the Alabama red-belly turtle. Accordingly, the Trustees have made a "No Effect" determination under the ESA and in August 2015, requested concurrence from the USFWS regarding this determination (DOI 2015). The USFWS provided concurrence with this determination on August 24, 2015 (USFWS 2015).

- Mississippi diamondback terrapin: This is a state listed species, ranked by the Mississippi Department of Wildlife Fisheries and Parks as S2: Imperiled in Mississippi. Applicable to all project components, which could contain nesting habitat. In order to avoid impacting the diamondback terrapin and habitat, the Trustee will identify and also avoid pocket beaches to the maximum extent practicable in the design of the project. Since work will be conducted in the shallow water marine environment, impacts to diamondback terrapin and habitat are not anticipated.

- Essential Fish Habitat (EFH):
    - It is anticipated that finfish will move away to other readily available aquatic habitats during the construction period. Fish present in the area of the project component could be subject to a temporary increase in sound pressure levels, a temporary decrease in water quality, entrainment in dredge sediments, and removal of benthos from areas. Sound pressure level increases or entrainment could result in mortality of individual finfish. Overall, this will be a minor short-term adverse effect that will not be expected to reduce local fish populations or designated EFH.
    - There will be minor, long-term, adverse impacts to EFH for species that rely on soft bottom habitat as a result of the project.
    - There will be short term, minor, impacts to EFH for species that utilize both soft and hard bottom habitat.
    - There will be a long term benefit to EFH by creation of reef habitat.

- Impacts to human uses and socioeconomics were analyzed in Phase IV ERP/EA Chapter 6 sections 6.2.7.3.1; 6.2.7.3.2; 6.2.7.3.3, and 6.2.7.3.4:
    - Land and Marine Management: Implementation of the project will be consistent with planned land and marine management and will not disrupt existing or planned land uses. There could be short-term minor adverse impacts due to deployment of subtidal and intertidal reefs. There will be long term ecological benefits that will be consistent with planned land and marine management.
    - Aesthetics and Visual Resources: During construction, there will be short-term, minor adverse aesthetic and visual impacts for recreational boaters and fishermen due to construction equipment in and around the project area. Residents, people who use the bays and estuaries for recreation, and businesses along the shoreline may experience minor adverse aesthetic and visual impacts during construction. The deployed materials will not adversely affect aesthetic and visual resources.
    - Public Health and Safety and Shoreline Protection: There could be minor short-term adverse impacts resulting from the operation of heavy equipment or from the incidental releases of surface water contaminates from barge and boats. The selected breakwater structures will have long-term benefits by helping to protect the shoreline from wave erosion.

- Because the proposed project has reasonably foreseeable effects on coastal uses or resources that are the subject of federally approved Coastal Zone Management Plans in Mississippi, the Federal Trustees submitted a consistency determination for the project to the Mississippi

Department of Marine Resources (MDMR). MDMR concurred with that determination on behalf of its state. As noted in that response, additional consistency review may be required pursuant to federal regulations (see 15 C.F.R. Part 930) prior to project implementation.

- No significant adverse cumulative effects are anticipated from implementation of this project. The Restoring Living Shorelines and Reefs in Mississippi Estuaries Project will occur across the Mississippi Gulf Coast, at eight sites in four bays, and construction is likely to occur at different times. This project will not contribute adverse cumulative impacts when added to past, present or reasonably foreseeable future actions.

- The proposed action is not expected to result in the introduction or spread of any invasive species.

Copies of the draft EA for this project were available to the public as provided in a Federal Register notice published on May 20, 2015. See *Deepwater Horizon* Oil Spill, Draft Phase IV Early Restoration Plan and Environmental Assessments; 80 FR 29019-29021 (May 20, 2015). Public comments on the Draft Phase IV ERP/EA were taken during a 47-day public comment period extending from May 20, 2015 to July 6, 2015 (80 FR 35393, June 19, 2015). Public comments received during this period have been considered and addressed by the Trustees in the Final Phase IV ERP/EA (Chapter 15, Response to Public Comments). The Final Phase IV ERP/EA is hereby incorporated by reference.

Agency Coordination and Consultation Summary

A summary of the results from each coordination and consultation process is provided below:

- Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA): NOAA reviewed the Restoring Living Shorelines and Reefs in Mississippi Estuaries Project for compliance with the MSFCMA. It was determined that some activities have the potential for short and long-term minor site-specific adverse impacts to water bottom and water column characterized as EFH, however, NMFS concurred that the BMPs proposed for implementation would be sufficient to avoid, minimize or offset impacts and no additional conservation recommendations were required.

- Endangered Species Act (ESA), Migratory Bird Treaty Act (MBTA), Bald and Golden Eagle Protection Act (GEPA), and Marine Mammal Protection Act (MMPA): To fulfill requirements and obligations under ESA and MMPA, NOAA is reviewing and DOI completed a review of the Restoring Living Shorelines and Reefs in Mississippi Estuaries Project for compliance with Section 7 of the ESA of 1973 , as amended (16 U.S.C. 1531 et seq.) and Section 101 of the MMPA of 1972, as amended (16 U.S.C. 1371(a)(5) et seq.). Biological Evaluation forms were submitted to the USFWS for consultation and coordination on the ESA, MBTA, and BGEPA (DOI 2015) and to NMFS for ESA (NOAA 2015). The USFWS local field office concurred by letter dated August 24, 2015. See Phase IV ERP/EA Chapter 6, sections 6.2.7.2.1. The Trustees are awaiting NMFS SERO's response on ESA. The Trustees coordinated with NMFS SERO's Protected Resources Division to determine that this project does not require authorization under the MMPA.

Impacts to cultural and historical resources protected under Section 106 of the National Historic Preservation Act (NHPA) were evaluated in the Final Phase IV ERP/EA Chapter 6. The formal compliance review for this project including NHPA section 106 and Tribal consultations has been initiated and will be completed prior to project implementation.

If any further need arises to coordinate and consult with other regulatory authorities, including for example Clean Water Act Section 404 or the Rivers and Harbors Act, the additional coordination or consultation requirements will be addressed prior to project implementation. The status of Federal regulatory permits/approvals will be maintained online (http://www.gulfspillrestoration.noaa.gov/environmental-compliance/) and updated as regulatory compliance information changes. The Federal Trustees' Finding of No Significant Impact for this project is issued subject to the completion of all outstanding compliance reviews under other Federal laws. If the proposed action changes or information is brought to light as a result of completing such reviews that is potentially relevant to the environmental evaluation supporting this finding of no significant impact, that evaluation will be updated or supplemented as required by NEPA and a new determination made by the Federal Trustees under NEPA as to whether the proposed action is likely to significantly affect the quality of the human environment.

Determination

In view of the information presented in this document and the environmental analysis contained in the supporting Phase IV ERP/EA for the Restoring Living Shorelines and Reefs in Mississippi Estuaries Project, the Federal Trustees have determined that project will not significantly impact the quality of the human environment. Accordingly, preparation of an environmental impact statement for this action is not necessary.

FINDING OF NO SIGNIFICANT IMPACT

For the Restoring Living Shorelines and Reefs in Mississippi Estuaries Project

Date: ___9/10/15_____

Signature: _____

Cynthia K. Dohner
Authorized Official, U.S. Department of the Interior

Date: 9/8/2015

Signature:

David Westerholm
Director, Office of Response and Restoration
National Ocean Service, NOAA

Date: 9/4/2015

Signature:

Frederick C. Sutter III
Director, Office of Habitat Conservation
National Marine Fisheries Service, NOAA

FINDING OF NO SIGNIFICANT IMPACT

For the Restoring Living Shorelines and Reefs in Mississippi Estuaries Project

Date: __9/10/15____

Signature: _____

Ann C. Mills

Deputy Under Secretary, USDA

FINDING OF NO SIGNIFICANT IMPACT
For the Restoring Living Shorelines and Reefs in Mississippi Estuaries Project

Date: __9/10/15_____

Signature: 

Kenneth J. Kopocis
Principal Representative, EPA

APPENDIX H

Permit Certification Letter

APPENDIX H

CERTIFICATION LETTER ACKNOWLEDGING ALL PERMITS ARE ON FILE

I, _____, have a copy of all permits and consultations (Specification Section 01 35 43 – Environmental Protection and Appendices A – J) for the RESTORING LIVING SHORELINES AND REEFS IN MISSISSIPPI ESTUARIES – BIG ISLAND LIVING SHORELINE CONSTRUTION project and have read and understand the conditions in the permits and consultations.

_____

Signature

_____

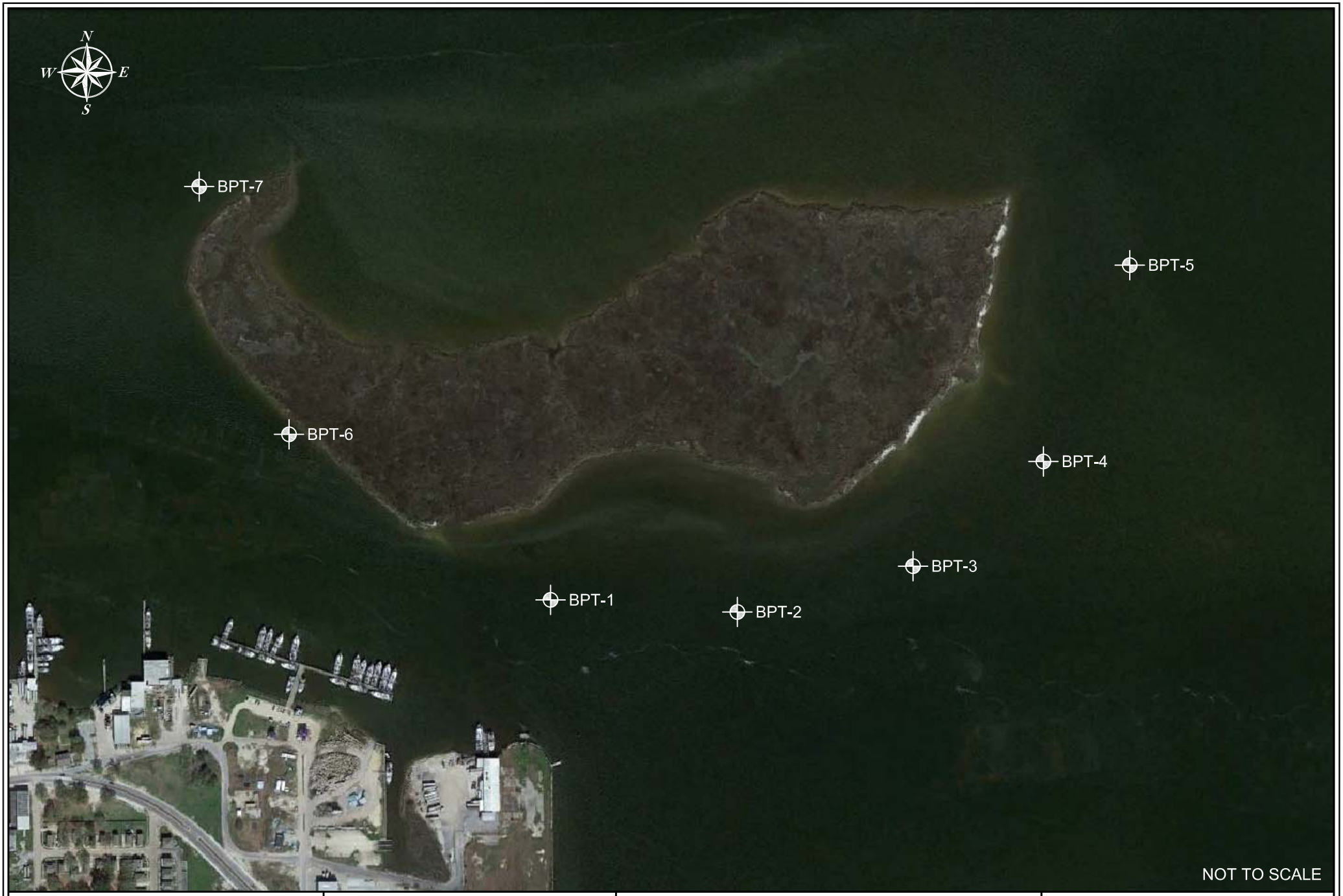
Title

_____

Date

Appendix I

Geotechnical Investigations



CPT SOUNDING

MISSISSIPPI LIVING SHORELINE
BIG ISLAND
BILOXI, MS

SOUTHERN EARTH SCIENCES, INC.

Geotechnical, Environmental & Construction Materials Testing
www.soearth.com

TEST LOCATION PLAN
SESI JOB #: M17-041

SOIL TEST BORING

MISSISSIPPI LIVING SHORELINE
BIG ISLAND
BILOXI, MS

SOUTHERN EARTH SCIENCES, INC.

Geotechnical, Environmental & Construction Materials Testing
www.soearth.com

TEST LOCATION PLAN
SESI JOB #: M17-041

Big Island Boring Locations		
	Latitude	Longitude
BID1	30°24'58.90"N	88°52'52.05"W
BID2	30°24'54.76"N	88°52'46.77"W
BID3	30°24'51.04"N	88°52'41.70"W
BID4	30°24'57.10"N	88°52'54.69"W
BID5	30°24'53.48"N	88°52'49.01"W
BID6	30°24'49.76"N	88°52'43.27"W

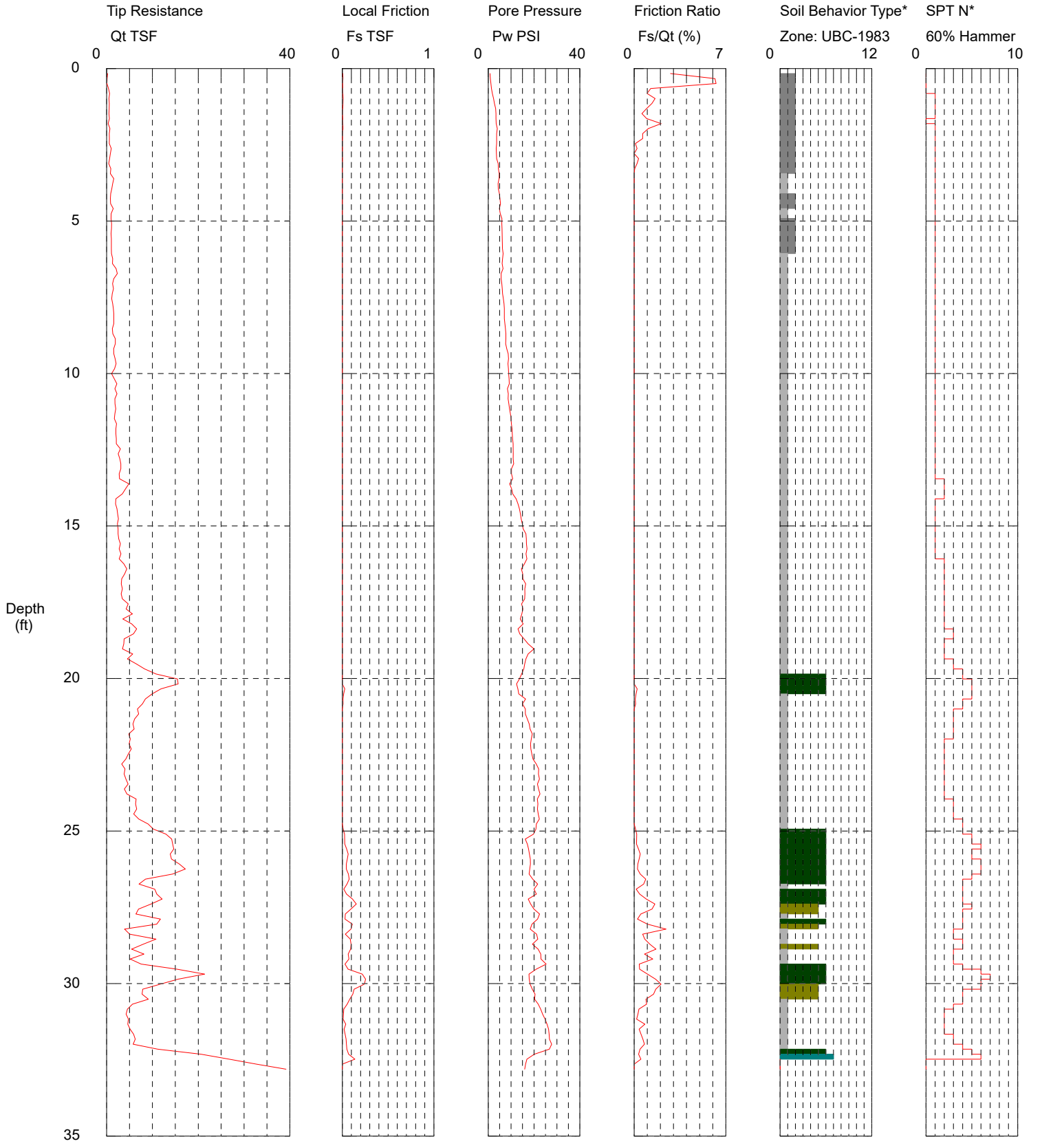
Big Island CPT Locations		
	Latitude	Longitude
BPT1	30°24'48.74"N	88°52'35.90"W
BPT2	30°24'48.27"N	88°52'27.52"W
BPT3	30°24'50.05"N	88°52'19.59"W
BPT4	30°24'54.09"N	88°52'13.77"W
BPT5	30°25'1.73"N	88°52'9.84"W
BPT6	30°24'55.23"N	88°52'47.57"W
BPT7	30°25'4.78"N	88°52'51.71"W
BPT8	30°25'7.57"N	88°52'48.74"W

Big Island CPT Logs

Southern Earth Sciences INC

Operator: Jamison Short
Sounding: BPT1
Cone Used: DSG1116

CPT Date/Time: 4/19/2017 9:43:41 AM
Location: Mississippi Living Shore Lines
Job Number: M17-041



Maximum Depth = 32.81 feet

Depth Increment = 0.164 feet

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 (*)

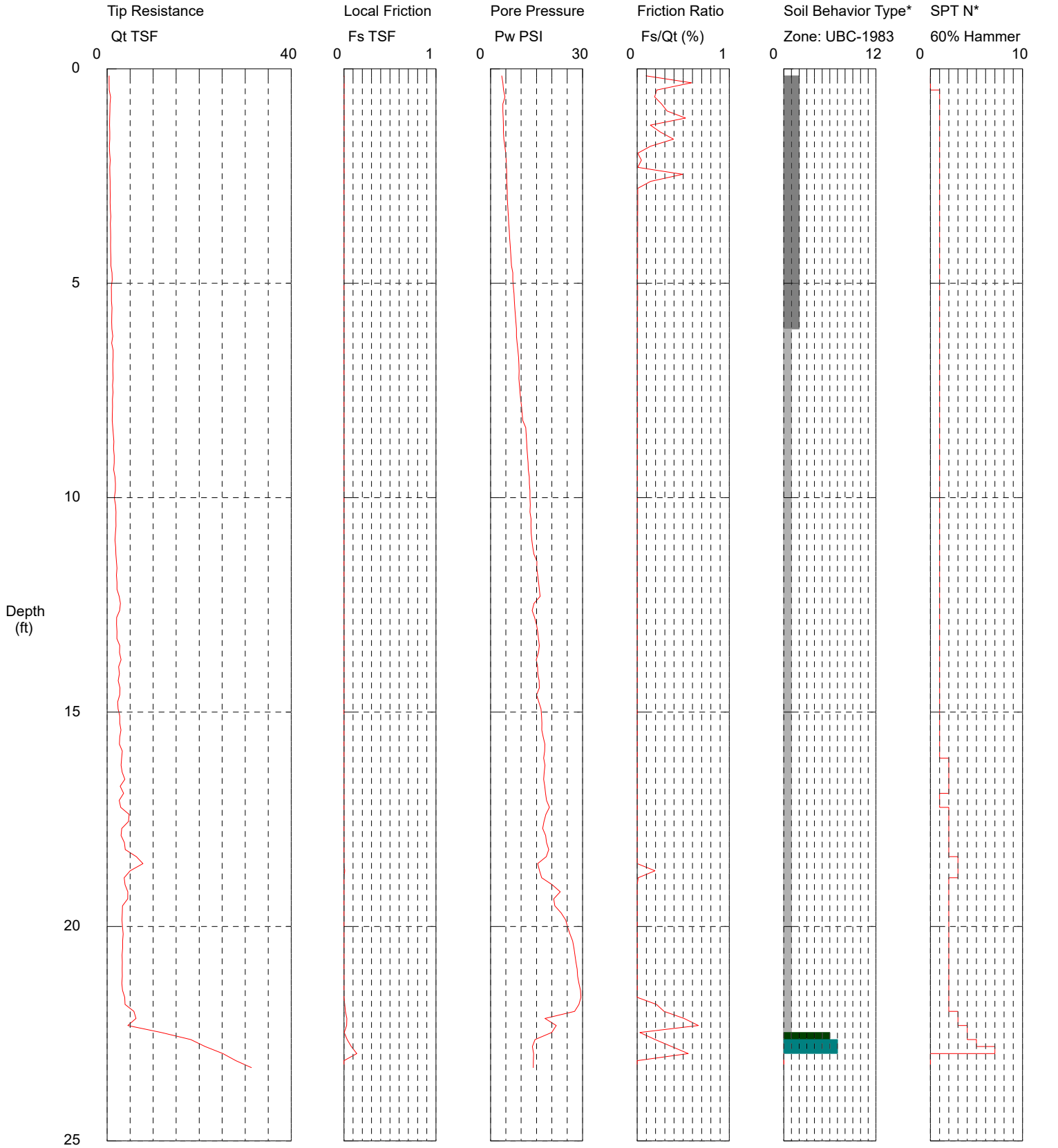
Water Depth = 5.5 feet

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

Southern Earth Sciences INC

Operator: Jamison Short
Sounding: BPT2
Cone Used: DSG1116

CPT Date/Time: 4/19/2017 9:08:38 AM
Location: Mississippi Living Shore Lines
Job Number: M17-041



Maximum Depth = 23.29 feet

Depth Increment = 0.164 feet

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 (*)

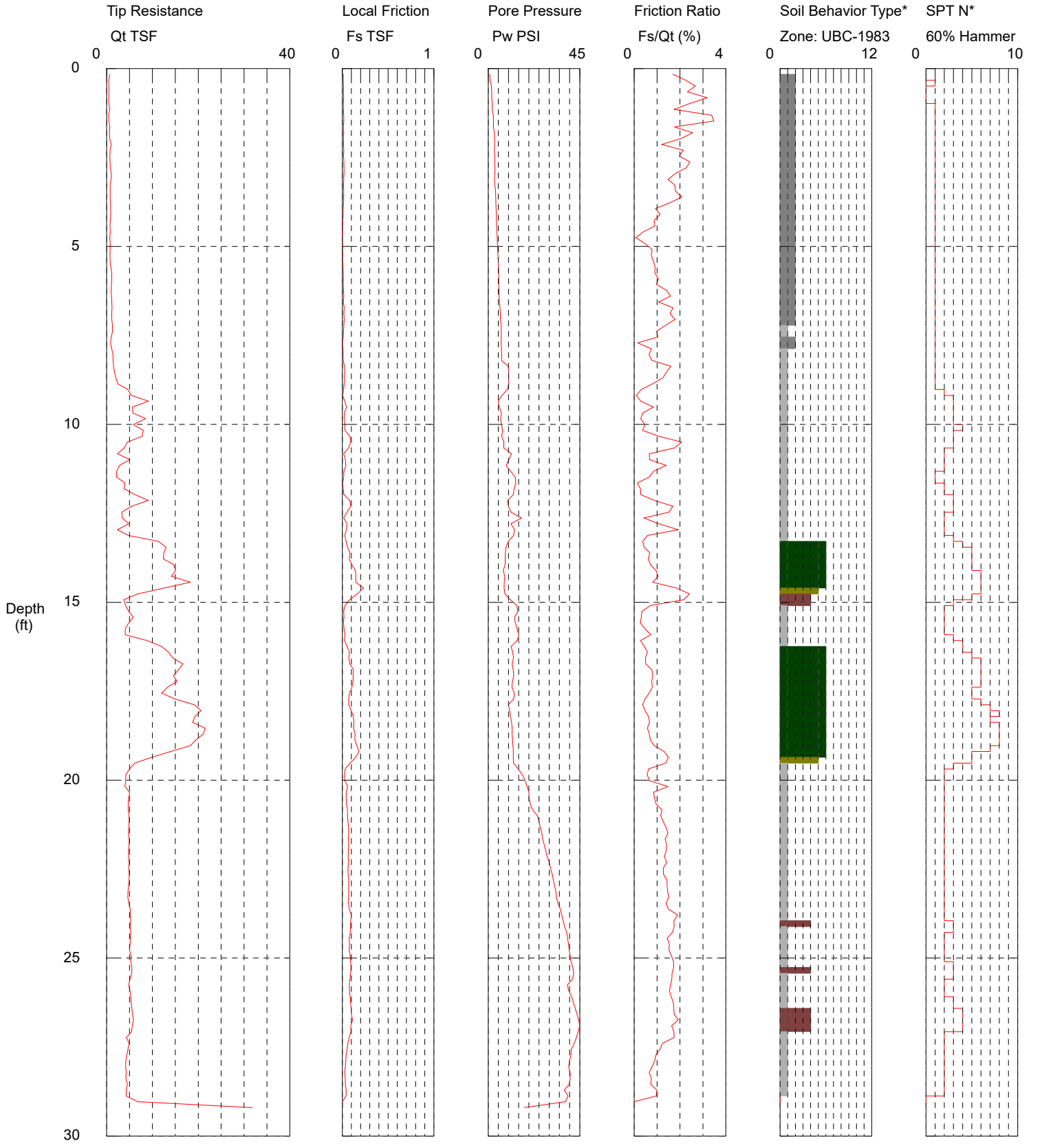
Water Depth = 10 feet

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

Southern Earth Sciences INC

Operator: Jamison Short
Sounding: BPT3
Cone Used: DSG1116

CPT Date/Time: 4/19/2017 8:33:13 AM
Location: Mississippi Living Shore Lines
Job Number: M17-041



Maximum Depth = 29.20 feet

Depth Increment = 0.164 feet

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 (*)

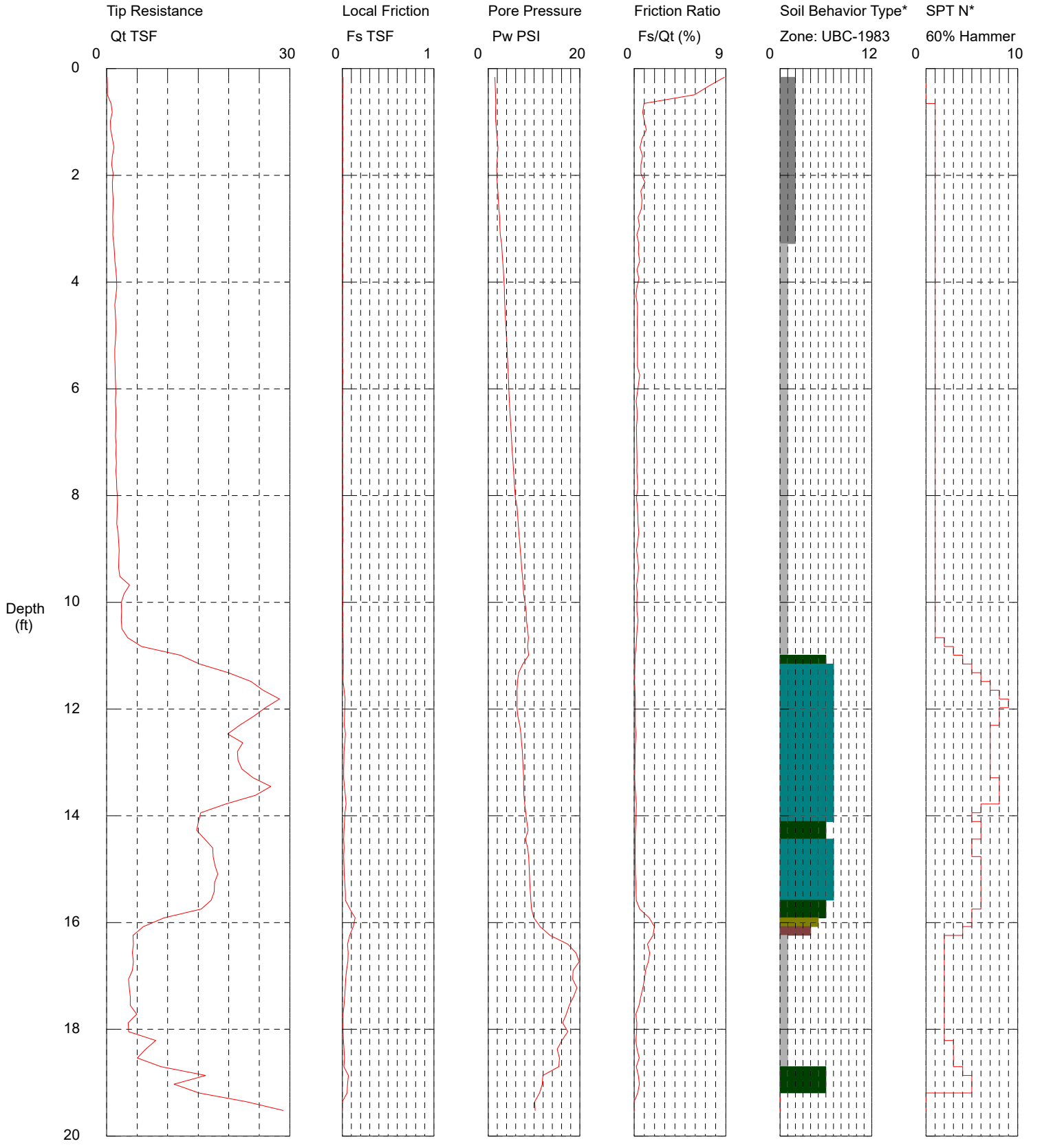
Water Depth = 4 feet

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

Southern Earth Sciences INC

Operator: Jamison Short
Sounding: BPT4
Cone Used: DSG1116

CPT Date/Time: 4/19/2017 8:05:10 AM
Location: Mississippi Living Shore Lines
Job Number: M17-041



Maximum Depth = 19.52 feet

Depth Increment = 0.164 feet

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 (*)

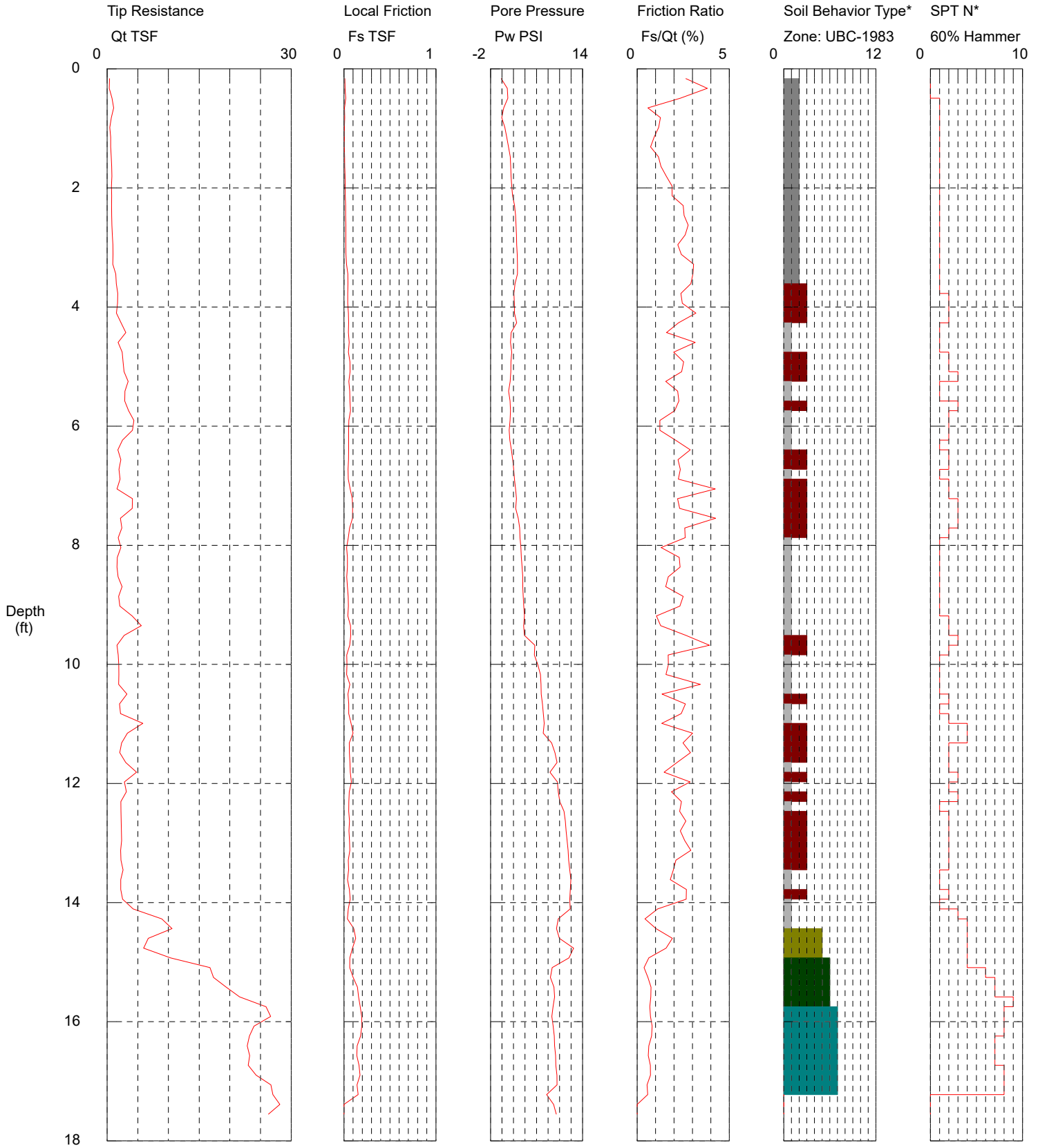
Water Depth = 5 feet

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

Southern Earth Sciences INC

Operator: Jamison Short
Sounding: BPT5
Cone Used: DSG1116

CPT Date/Time: 4/19/2017 7:36:12 AM
Location: Mississippi Living Shore Lines
Job Number: M17-041



Maximum Depth = 17.55 feet

Depth Increment = 0.164 feet

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 (*)

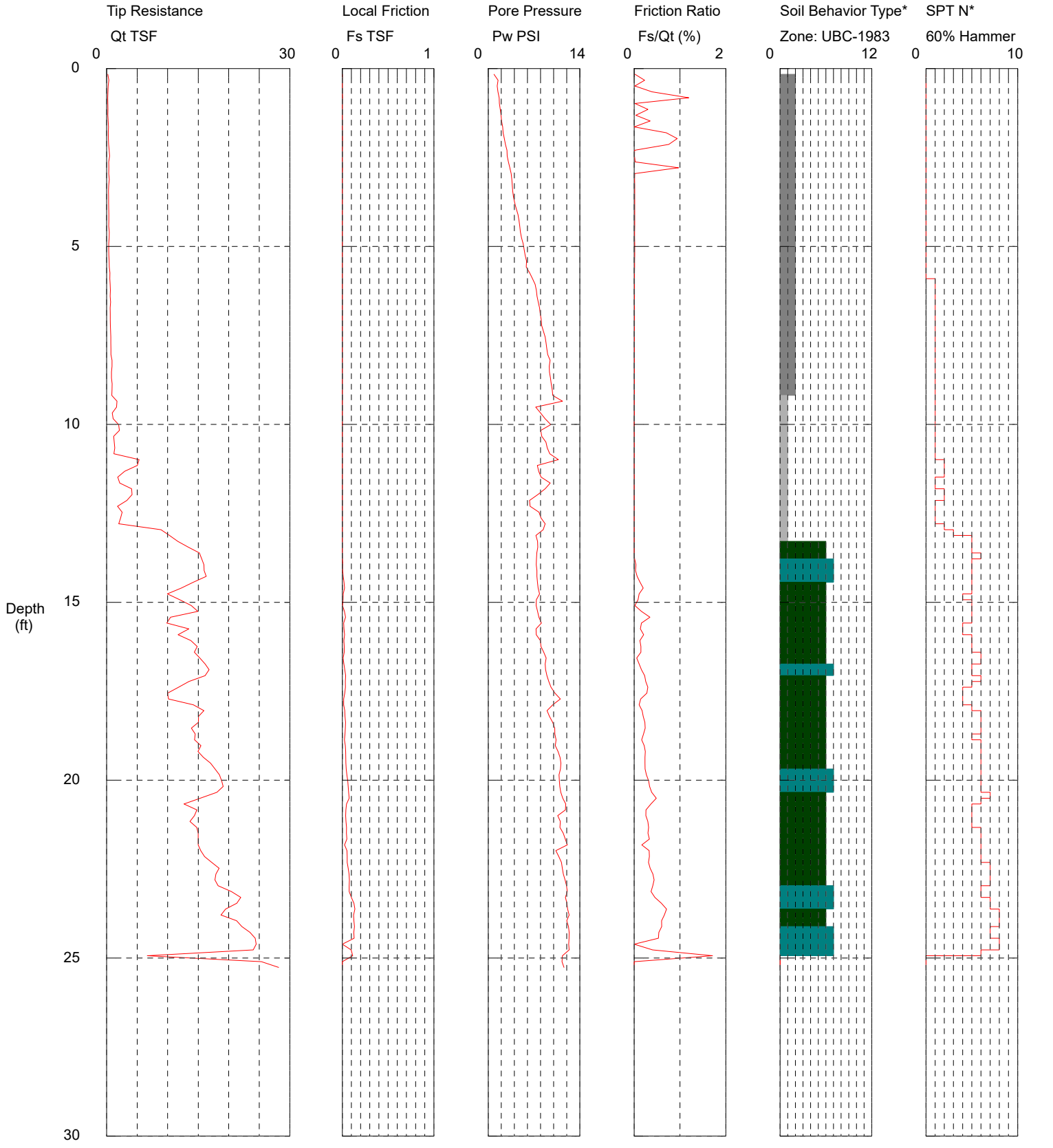
Water Depth = 5 feet

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

Southern Earth Sciences INC

Operator: Jamison Short
Sounding: BPT6
Cone Used: DSG1116

CPT Date/Time: 4/19/2017 10:38:14 AM
Location: Mississippi Living Shore Lines
Job Number: M17-041



Maximum Depth = 25.26 feet

Depth Increment = 0.164 feet

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 (*)

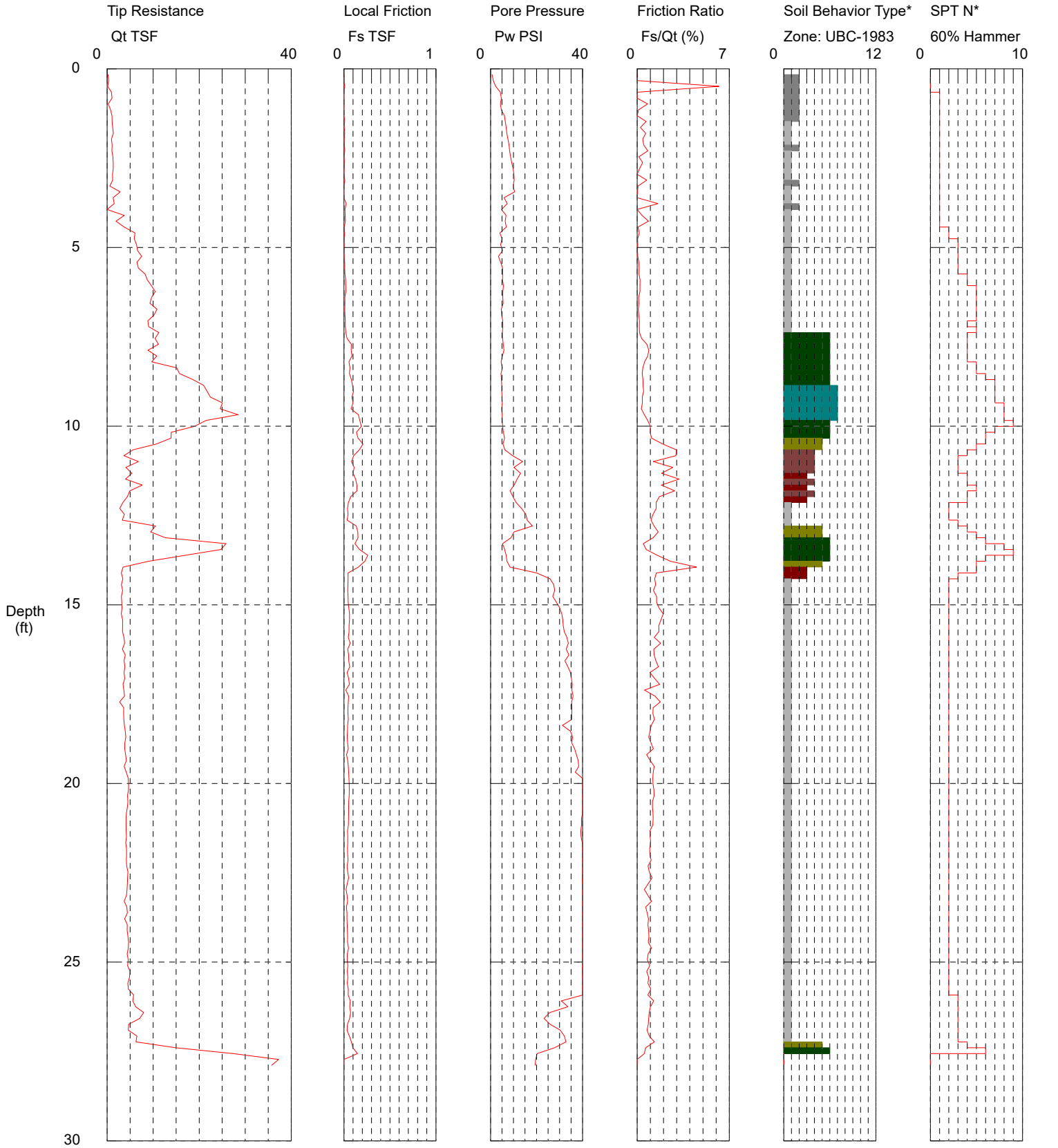
Water Depth = 3.5 feet

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

Southern Earth Sciences INC

Operator: Jamison Short
Sounding: BPT7
Cone Used: DSA1033

CPT Date/Time: 4/14/2017 11:16:29 AM
Location: Mississippi Living Shore Lines
Job Number: M17-041



Maximum Depth = 27.89 feet

Depth Increment = 0.164 feet

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 (*)

Living Shore Lines3

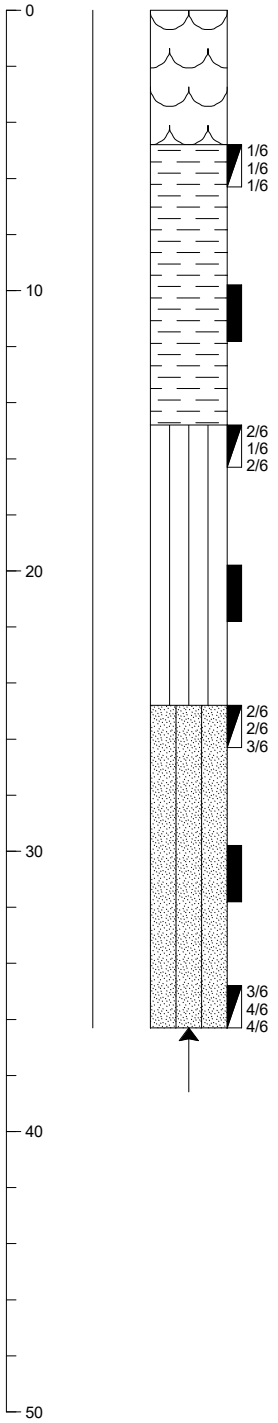
Groundwater:

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

Big Island Boring Logs

SOIL BORING LOG

BORING NO.: BID-1
PROJECT: MISSISSIPPI LIVING SHORELINE - BIG ISLAND **PROJECT NO.:** M17-041
PROJECT LOCATION: BILOXI, MISSISSIPPI **METHOD:** MUD ROTARY
BORING LOCATION: SEE TEST LOCATION PLAN **BORING ELEVATION:** EXISTING GROUND
DATE DRILLED: 05/03/17 **DATE COMPLETED:** 05/03/17
WATER LEVEL: Water Depth 4.8 ft **WATER LEVEL DATE:** 05/03/17
GEOL / ENGR: M. COAKER **DRILLER:** D. GARDNER



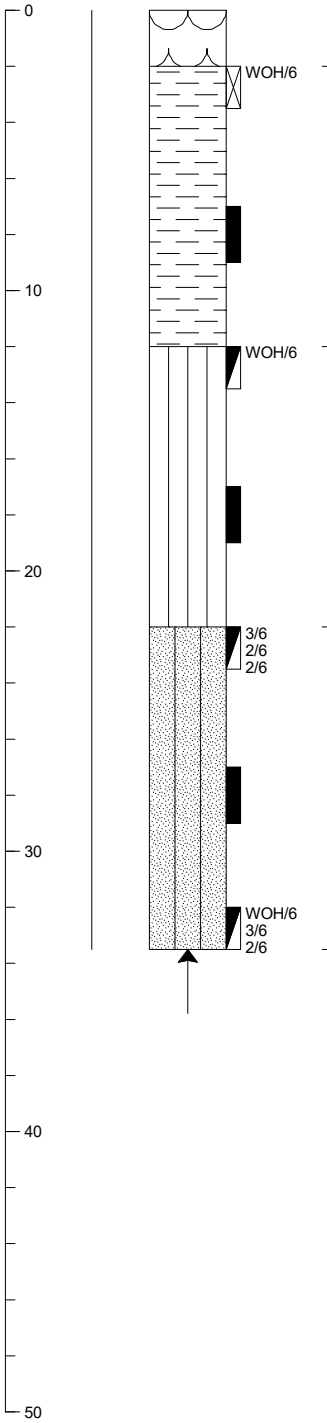
Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	Description	SPT N
			4.8 FT WATER	
		OL	Soft Black Organic SILT	2
		ML	Soft Brown SILT with Fine Silty Sand	3
		SM	Loose Brown and Gray Silty SAND	5
				8

Remarks: N30.41634 W088.88107

GEOLOG F:\PROJECTS\JOB FOLDERS\2017\17-041 MISSISSIPPI LIVING SHORELINE\BID\GINT\M17-041.GPJ SO_EARTH.GDT 6/6/17

SOIL BORING LOG

BORING NO.: BID-2
PROJECT: MISSISSIPPI LIVING SHORELINE - BIG ISLAND **PROJECT NO.:** M17-041
PROJECT LOCATION: BILOXI, MISSISSIPPI **METHOD:** MUD ROTARY
BORING LOCATION: SEE TEST LOCATION PLAN **BORING ELEVATION:** EXISTING GROUND
DATE DRILLED: 04/27/17 **DATE COMPLETED:** 04/27/17
WATER LEVEL: Water Depth 2.0 ft **WATER LEVEL DATE:** 04/27/17
GEOL / ENGR: M. COAKER **DRILLER:** D. GARDNER

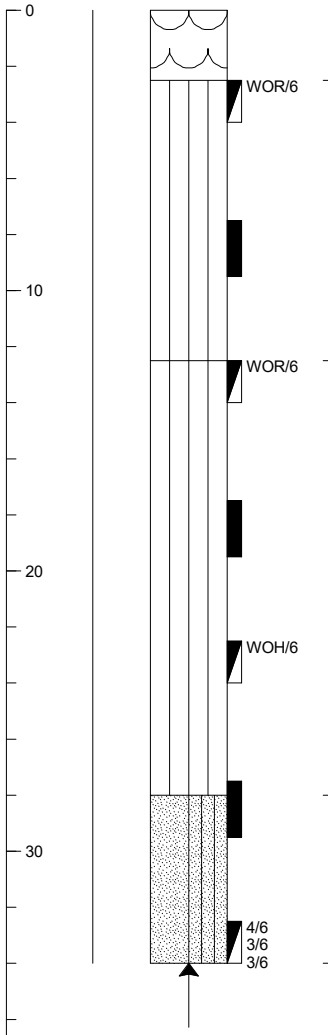


Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	Description	SPT N
			2.0 FT WATER	
	WOH/6	OL	Black Organic SILT with traces of WOOD	WOH
	WOH/6	ML	Very Soft Gray SILT with Fine Silty Sand	WOH
	3/6 2/6 2/6	SM	Very Loose to Loose Gray Silty SAND	4
	WOH/6 3/6 2/6			5

Remarks: N30.41519 W088.87971

SOIL BORING LOG

BORING NO.: BID-3
PROJECT: MISSISSIPPI LIVING SHORELINE - BIG ISLAND **PROJECT NO.:** M17-041
PROJECT LOCATION: BILOXI, MISSISSIPPI **METHOD:** MUD ROTARY
BORING LOCATION: SEE TEST LOCATION PLAN **BORING ELEVATION:** EXISTING GROUND
DATE DRILLED: 04/27/17 **DATE COMPLETED:** 04/27/17
WATER LEVEL: Water Depth 2.5 ft **WATER LEVEL DATE:** 04/27/17
GEOL / ENGR: M. COAKER **DRILLER:** D. GARDNER



Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	Description	SPT N
			2.5 FT WATER	
	WOR/6	ML	Very Soft Brown SILT with Shells	WOR
	WOR/6	ML	Very Soft Gray SILT	WOR
	WOH/6			WOH
		SP-SM	Loose Gray SAND with Silt	
	4/6 3/6 3/6			6

Remarks: N30.41422 W088.87831

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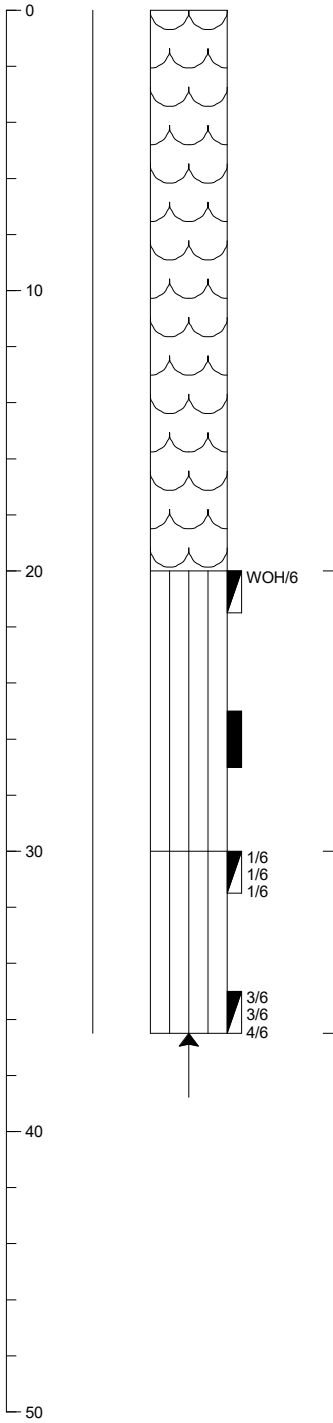
SOIL BORING LOG

BORING NO.: BID-4
PROJECT: MISSISSIPPI LIVING SHORELINE - BIG ISLAND **PROJECT NO.:** M17-041
PROJECT LOCATION: BILOXI, MISSISSIPPI **METHOD:** MUD ROTARY
BORING LOCATION: SEE TEST LOCATION PLAN **BORING ELEVATION:** EXISTING GROUND
DATE DRILLED: 04/27/17 **DATE COMPLETED:** 04/27/17
WATER LEVEL: Water Depth 20 ft **WATER LEVEL DATE:** 04/27/17
GEOL / ENGR: M. COAKER **DRILLER:** D. GARDNER

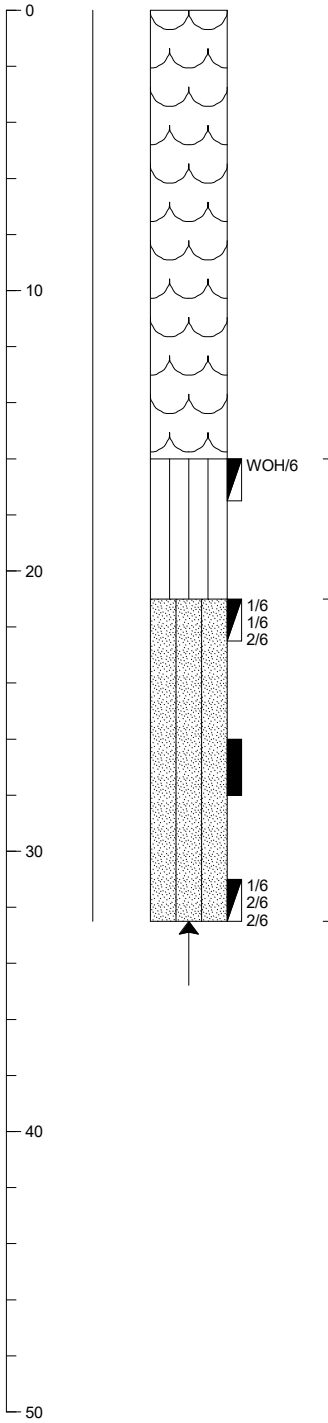


Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	Description	SPT N
			20 FT WATER	
20	WOH/6	ML	Very Soft Gray SILT	WOH
30	1/6 1/6 1/6	ML	Soft to Medium Gray SILT with Fine Silty SAND	2
	3/6 3/6 4/6			7

Remarks: N30.41586 W088.88186

SOIL BORING LOG

BORING NO.: BID-5
PROJECT: MISSISSIPPI LIVING SHORELINE - BIG ISLAND **PROJECT NO.:** M17-041
PROJECT LOCATION: BILOXI, MISSISSIPPI **METHOD:** MUD ROTARY
BORING LOCATION: SEE TEST LOCATION PLAN **BORING ELEVATION:** EXISTING GROUND
DATE DRILLED: 04/27/17 **DATE COMPLETED:** 04/27/17
WATER LEVEL: Water Depth 16 ft **WATER LEVEL DATE:** 04/27/17
GEOL / ENGR: M. COAKER **DRILLER:** D. GARDNER



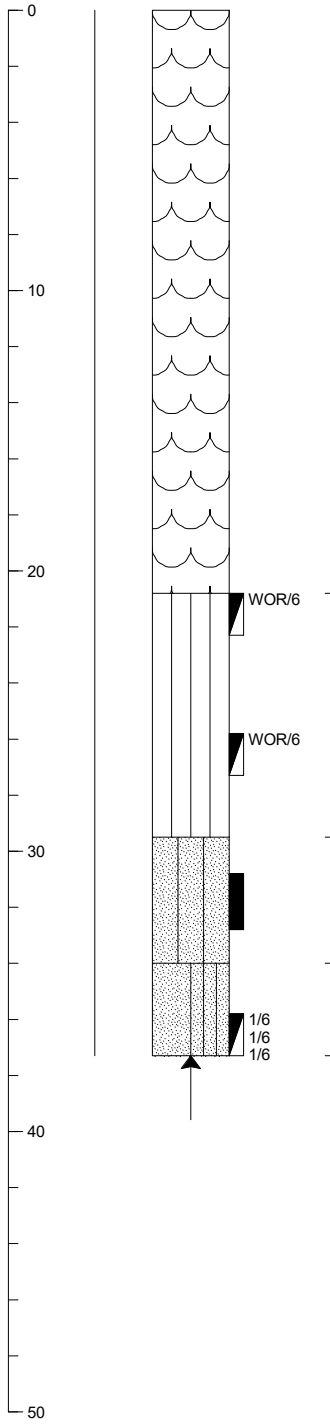
Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	Description	SPT N
			16.0 FT WATER	
	WOH/6	ML	Very Soft Gray SILT	WOH
	1/6 1/6 2/6	SM	Very Loose Gray Fine Silty SAND	3
	1/6 2/6 2/6			4

Remarks: N30.41486 W088.88028

GEOLOG F:\PROJECTS\JOB FOLDERS\2017\17-041 MISSISSIPPI LIVING SHORELINE\BID\GINT\M17-041.GPJ SO_EARTH.GDT 6/6/17

SOIL BORING LOG

BORING NO.: BID-6
PROJECT: MISSISSIPPI LIVING SHORELINE - BIG ISLAND **PROJECT NO.:** M17-041
PROJECT LOCATION: BILOXI, MISSISSIPPI **METHOD:** MUD ROTARY
BORING LOCATION: SEE TEST LOCATION PLAN **BORING ELEVATION:** EXISTING GROUND
DATE DRILLED: 04/27/17 **DATE COMPLETED:** 04/27/17
WATER LEVEL: Water Depth 20.8 ft **WATER LEVEL DATE:** 04/27/17
GEOL / ENGR: M. COAKER **DRILLER:** D. GARDNER



Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	Description	SPT N
			20.8 FT WATER	
		ML	Very Soft Black SILT with Shells	WOR
				WOR
		SM	Very Loose Gray Silty SAND with Shells	
		SP-SM	Very Loose Gray SAND with Silt and Shells	2

Remarks: N30.41389 W088.87876

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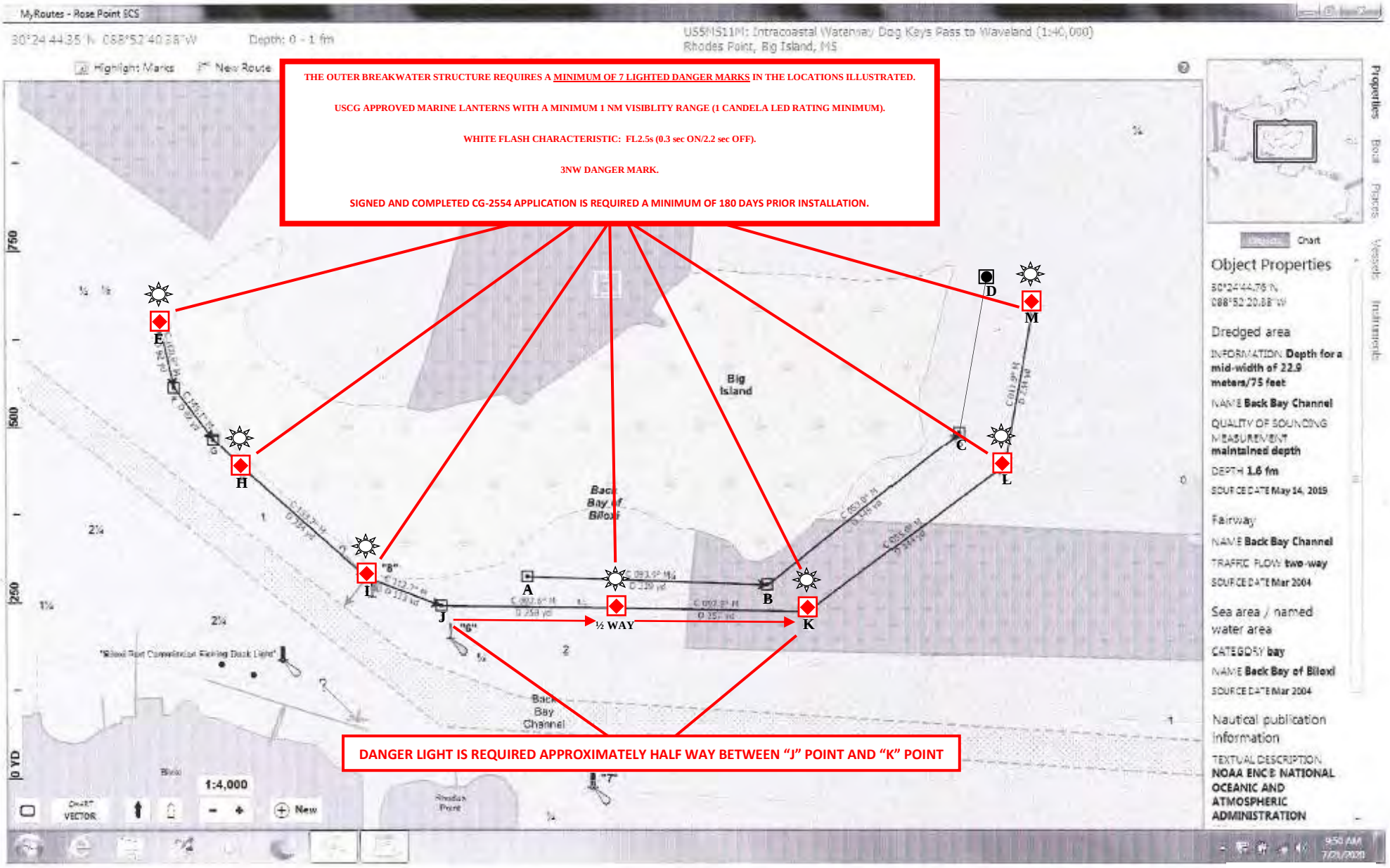
APPENDIX J

USCG Marking Determination Package



CGD8-TBB-07JUL20

THE FOLLOWING MINIMUM LED MARINE LANTERN REQUIREMENTS
APPLY TO THE EIGHTH COAST GUARD DISTRICT ONLY

The manufacturer of "Obstruction lights" (LED marine lanterns) must certify that the LED lantern(s) meets the minimum requirements of 33 CFR 66; must certify to meet the "minimum respective intensities" for the respective uses in the 8th CG District: **Class A (5NM) = 125 candelas**; **Class B (3NM) = 25 candelas**; and **Class C (1NM) = 1 candela**; and certify the LED lantern will meet the minimum intensities over the projected life of the lantern. We highly recommend that you publish the minimum requirements on your manufacturer website or make it immediately available for customers upon request.

*The transmissivity in the Gulf of Mexico of 0.67 sea-mile candelas is the average for the Eighth CG District. This translates to the intensities of: Class A (5NM) = 125 candelas; Class B (3NM) = 25 candelas; and Class C (1NM) = 1 candela.

Other CG Districts may require greater/lesser LED intensity lights. The Eighth CG District makes no claim to establish any such minimum requirement(s) for other CG District areas. You are required to consult each respective CG District Commander for clarification of the minimum requirements for other areas and ascertain approval for each respective CG District.

***As per D8 transmissivity of 0.67 sea mile candelas average updated 28MAR14**


DANGER

5.E.

ALL WATERWAYS WARNING MARKS

System: All waterways.

Function: No lateral significance warning marks.

Nominal Range: 1nm (*as designated in Figure 5-11, below-use Table 5-5 for dimensions of warning marks with nominal ranges of 1-, 2- and 3-nm: except that the letter sizes for the word "DANGER" will be 6-in for a 3NW, 8-in for a 4NW and 10-in for a 6NW. Other wording will have 3-in letters on a 3NW, 4-in on a 4NW and 5-in on a 6NW).

Additional Data: The word "DANGER" will be centered on the daymark. Informational words may be placed above and/or below, as necessary (see examples below). Warning marks are used in the ICW without addition of the yellow strip.

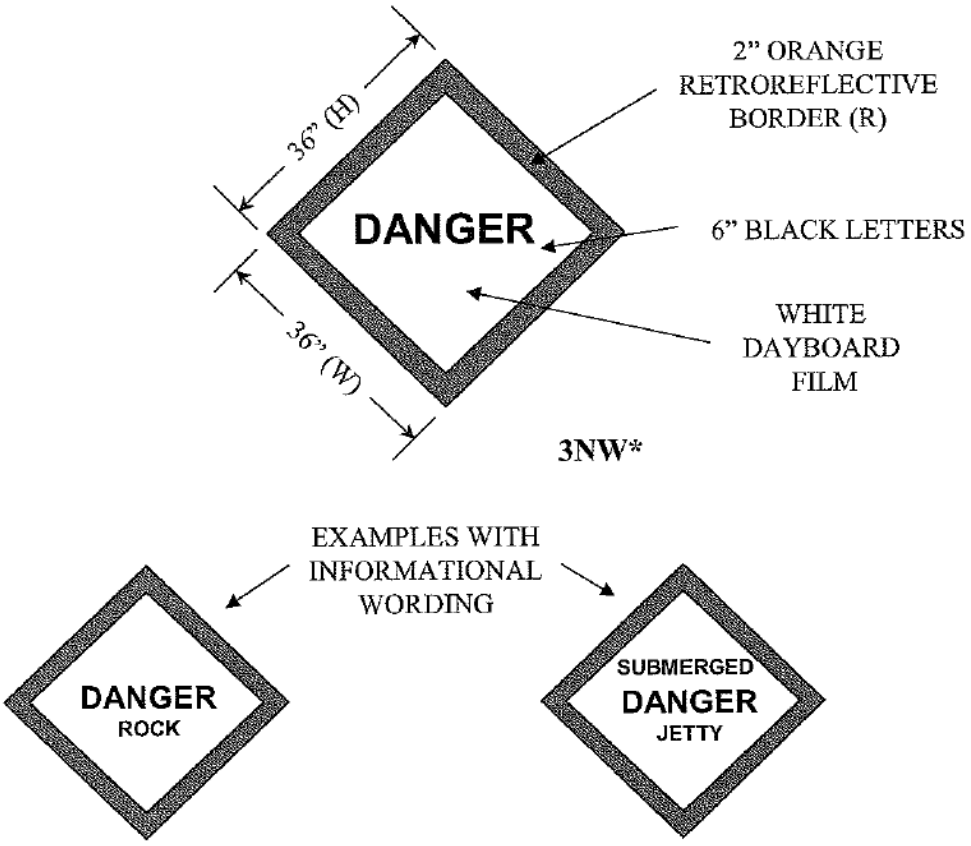


Figure 5-11. All waterways warning marks.

Data Sheet 5-E(8). All waterways warning marks (nominal ranges 1, 2 and 3 nm).

DECEMBER 2009

AIDS TO NAVIGATION EQUIPMENT MANUFACTURERS AND SUPPLIERS LIST

This is a listing of aids to navigation equipment, manufacturers and suppliers that were compiled to assist you. Inclusion of companies here does not imply that all equipment is approved by the U. S. Coast Guard nor does it imply that all equipment listed will meet the requirements of Title 33, Code of Federal Regulations.

ACME Welding & Fabrication, Inc.
Contact Mr. Jim Moore or Mr. Larry French
18525 West Clover Lane
P.O. Box 1047
Friendswood, TX 77546
PHONE: (800) 313-8265 or FAX: (281) 482-4716
(281) 482-0114

ASME "U" stamped pressure vessels, API tanks and custom fabrication. Also they have ASME "R" stamps and can register vessels with the national board.

ATN Signal, Inc.
Contact Mr. Don Sanders
P.O. Box 1818
Friendswood, TX 77549
PHONE: (800) 284-1558 or (281) 331-4444
FAX: (281) 331-4447
Shipping: 427 CR 281
Alvin, TX 77511

Marine lanterns, fog signals, batteries, solar chargers, buoys and all associated equipment and parts. Offering a complete sales, rentals and service function.

Automatic Power, Inc.
Contact Mr. David Cummiskey
1340 West Bank Expwy
P.O. Box 414
Westwego, LA 70094-0141
PHONE: (504) 347-2384 or FAX: (504) 348-2306

Contact Mr. Bob Nichols
P.O. Box 230-0738
Houston, TX 77223
PHONE: (713) 228-5208 or FAX: (718) 228-3717

Range, obstruction and navigational lights. buoys electronic fog signals and power supplies. Solar panels, lampchangers, and flashers, also repairs and other services.

Contact Mr. Rene LeBlanc
251 Gus Savole Street
P.O. Box 673
Larose, LA 70373
PHONE: (504) 693-3646 or FAX: (504) 798-7648

Automated Technical Services, Inc.
Contact Mr. Bob Nebling
150 44th Street
Corpus Christi, TX 78405
absorb@swbell.net
PHONE: (512) 888-5300 or FAX: (512) 888-5308

Obstruction and navigational lights, and buoys. Electronic fog signals and power supplies. Solar panels, lampchangers, flashers, navigational batteries, ect.

B & B, Inc.
Contact Mrs. Shannon Kirkland
14113 Main Street
P.O. Box 99
Norwood, LA 70761
PHONE: (800) 367-0387 or FAX: (504) 629-5727

Navigation lights, beacons, warning barrier, swing gates and perimeter security products, ect.

The Carlisle & Finch Company
Contact Mr. Garth S. Finch, Vice President
Or Mr. Ken DeLong, Customer Service
4562 West Michell Avenue
Cincinnati, OH 45232
Searchlights@MSN.com
www.carlislefich.com
PHONE: (513) 681-6080 or FAX: (513) 681-6226

Rotating Beacons. 14-inch and 24-inch range lanterns, and lampchangers.

Carmanah
360 El Pueblo Suite 101
Scotts Valley
Santa Cruz, CA
USA 95066
PHONE: 1-800-635-7497

A sales and warehouse facility for Carmanah's Solar Power Systems Division, formerly Soltek Powersource Ltd., is located in Santa Cruz, California, United States

---

Don Wolf, Inc.
102 West Bend Ridge
Lafayette, LA 70508-5032
PHONE: (381) 235-4919

Marine aids to navigation services.

Effective Solar Products, L.L.C.
Contact Mr. Bryan Martin
4560 Hwy. 1, Suite 9
Raceland, LA 70394
esp@effectivesolar.com
www.effectivesolar.com
PHONE: (888) 824-0090 or FAX: (504) 537-0093
(504) 537-0090
P.O. Box 269
Mathews, LA 70375

Batteries, battery boxes, solar panels, and regulators.

Essi Corporation
4021 Highway 90 East
Broussard, LA 70518
www.essicorp.com
PHONE: (337) 837-Essi (3774) or 3712
FAX: (337) 837-3712

Fog signals, beacons, flashers/lampchangers and power relays, bulbs, sun switches, solar panels, wind energy and wave energy generators, batteries, cathodic protection, gas and fog detectors, skids, battery boxes, buoys and accessories, racon radar enhancing marine beacons, day beacons, net protectors, etc.

Graytag McBeth LLC
Contact Customer Service at Ext. 278
617 Little Britain Road
New Windsor, NY 12553-6148
PHONE: (800) 622-2384 or FAX: (914) 561-0267

Lighting equipment.

McDermott Light & Signal
Contact Mr. John Boc
1639 Stephen Street
Ridgewood, NY 11385
www.mcdermottlight.com
PHONE: (800) 842-5708 or FAX: (718) 381-0229

Buoys, anchors, bridge, dracone, dredge, obstruction lights, barge navigation, solar, dry, lights. Battle hand lanterns, arc, spot, flood lights. day markers.

---

3 M Company
Contact Mrs. Jean Dowler
Traffic Control Division
3 M Center
St. Paul, MN 55144
PHONE: (800) 553-1380 or FAX: (651) 733-5012

Reflective products.

Municipal Supply & Sign Company
Contact Bob Furnas
1095 5th Avenue North
P.O. Box 1765
Naples, FL 34106-1765
www.municipalsigns.com (website)
sales@municipalsigns.com (email)
PHONE: (800) 329-5366 or FAX: (239) 262-4645
(239) 262-4639

Fabrication of buoys, daymarkers, reflective products and other aids to navigation.

Prosafe Inc.
Contact Jim Singleterry
Highway 35 South
Rockport, TX 78382
PHONE: (800) 333-9247 or FAX: (512) 729-3544

Batteries, solar panels, fog horns, marine lanterns, flashers, lampchangers, battery boxes, marine signal lamps, cable, cable support system, parts, repairs and field services.

Safety Light Company
Contact Mr. Paul Schubring
6811 Dixie Drive
Houston, TX 77063-1705
PHONE: (713) 644-7379 or FAX: (713) 644-2649

Dayboards and daymarkers.

Samson Systems, Inc.
7501 Creekwood Drive
Houton, TX 77063-1705
PHONE: (713) 784-8448 or (713) 569-8560
FAX: (713) 784-9161

Daymarkers, fabrication of SG, TR and other aids to navigation.

Seanav
Contact Albert Rozas
P.O. Box 82237
Lafayette, LA 70598-2237
PHONE: (337) 235-1004 or FAX: (337) 235-1055

Fog horns, flashers, marine lamps and lanterns. Battery boxes battery and solar chargers. Lighted and sound buoys. Also 24 hour repairs.

Sola Communications, Inc.
Contact Mr. Terry Smith
9203 Belle Chase Hwy 23
Belle Chase, LA 70037
PHONE: (800) 654-5987 or FAX: (504) 393-0570
(504) 393-0444

Marine lanterns, flashers, lampchangers, photocells, solar energy changes, batteries, battery boxes, daymarkers, racon radar, enhancing devices, buoys, engineering services, electronic repairs and field services.

Sola Safety & Controls Division:
PHONE: (318) 237-0371 or FAX: (318) 237-0377
113 North Pat Street
P.O. Box 90663
Lafayette, LA 70583
PHONE: 800-252-3086 or FAX:(318) 261-3233
(318) 261-0895 (318) 235-1503 (318) 232-7039

PHONE: (318) 235-1515 or FAX: (318) 235-5119
4300 Wayside, Suite 103
Houston, TX 77087
PHONE: (800) 580-7652 or FAX: (713) 641-5152
(713) 641-5023

7437 South 3rd
P.O. Box 548
Sabine Pass, TX 77655
PHONE: (409) 971-2102 or FAX: (713) 287-7915

13268 West Main Street
P.O. Box 999
Larose, LA 70373
PHONE: (800) 321-8874 or FAX: (504) 798-7706

8001 Highway 90 East
Morgan City, LA 70380
PHONE: (504) 385-9999 or FAX: (504) 385-9991

Highway South Palm Harbor Plaza
P.O. Box 2230
Rockport, TX 78382
PHONE: (512) 729-3639 or FAX: (512) 729-3623

International Group:
PHONE: (713) 365-0660 or FAX: (713) 365-9125

Sotec
5800 Jefferson Highway, Suite E
New Orleans, LA 70123
sotecno@sotecfire.com
www.sotecfire.com
PHONE: (504) 733-3337 or FAX: (504) 733-9090

315 Industrial Parkway
Layfayette, LA 70508
soteclaf@sotecfire.com
PHONE: (318) 237-8295

Parts, repairs and services of safety equipment.

Superior Diving Company, Inc.
Contact Charles Zamova
221 Gunter Lane
Belle Chase, LA 70037
PHONE: (504) 393-1596 or FAX: (504) 393-1828

Custom buoys.

Tideland Signal Corporation
Contact: Carson Louviere
P.O. Box 52370
Lafayette, LA 70505

PHONE: (800) 824-0575 or FAX: (337) 269-9052
(337) 269-9113

Contact: Jeff Rosner or Jody Sturtze
4310 Directors Row
Houston, TX 77092
PHONE: (713) 681-6101 or FAX: (713) 681-6233

Marine lanterns, range lights, fog signals, flashers, lampchangers, power supplies, solar chargers, battery boxes, buoys, daymarkers, parts, repairs and services.

Urethane Technologies, Inc.
Contact Reg Dunbar
30150 Eden Church Road
Denham Springs, LA 70726
www.utibuoys.com
PHONE: (225) 664-9936 or FAX: (225) 664-9938

Buoys ship fendering and dock fendering.

FOR THE MOST CURRENT (2009) INFORMATION AVAILABLE REGARDING AIDS TO NAVIGATION SUPPLIES, PLEASE GO THE THE FOLLOWING INTERNET WEB SITE:
http://www.masterseek.com/q/Navigational-Aids/0/5/Navigational-Aids.htm