REVIEW PLAN

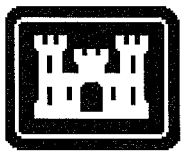
MISSISSIPPI COASTAL IMPROVEMENTS PROGRAM (MsCIP) – BAYOU CADDY ECOSYSTEM RESTORATION (SHORELINE STABILIZATION)

HANCOCK COUNTY, MS

P2: 146249

Mobile District

September, 2015



US Army Corps of Engineers®
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1. PURPOSE AND REQUIREMENTS

Purpose. This Review Plan defines the scope and level of peer review for the Bayou Caddy Ecosystem Restoration (Shoreline Stabilization), Project of the Mississippi Coastal Improvements Program, located in Hancock County, Mississippi. The RP is a living document and may change as the project progresses. This RP shall be posted to the Mobile District's website when completed.

This review plan was developed in accordance with EC 1165-2-214, which establishes an accountable, comprehensive, life-cycle review strategy for Civil Works products by providing a seamless process for review of all Civil Works projects from initial planning through design, construction, and operation, maintenance, repair, replacement and rehabilitation (OMRR&R). The EC outlines four general levels of review: District Quality Control/Quality Assurance (DQC), Agency Technical Review (ATR), Independent External Peer Review (IEPR), and Policy and Legal Compliance Review.

Documents to be reviewed under this review plan include the following Implementation Documents: Engineering Documentation Report (EDR), draft Design Documentation Report (DDR), Plans & Specifications (P&S), and the supporting Environmental Assessment (EA).

2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION

The RMO is responsible for managing the overall peer review effort described in this Review Plan. The RMO for the ATR effort will be the South Atlantic Division. DQC Review will be performed by the Mobile District in accordance with all applicable USACE policies and coordinated with the RMO, as needed.

3. DESCRIPTION OF PROJECT

Bayou Caddy restoration site is an active dredge material disposal area used for the creation/restoration of wetland habitat. The area is currently confined with geotubes; however, significant damage (i.e., shifting and elevation loss) to the tubes occurred that resulted in reduction of site function to the point that the site no longer provided adequate containment for placement of dredged material. The primary damage to the site was during Tropical Storm Lee in 2011. The tropical storm pushed the sand fill to one end of each tube, packing and swelling that end while leaving the other end slack. Additional shifting of the geotubes occurred after the storm. The primary cause of damage to the original geotube structure is believed to be under-filling of the tubes which allowed for significant movement of sand within the tubes due to storm surge and wave breaking. The U.S. Army Corps of Engineers, Mobile District (USACE) issued a contract to replace/repair the existing geotubes and has been completed (Figure 1).

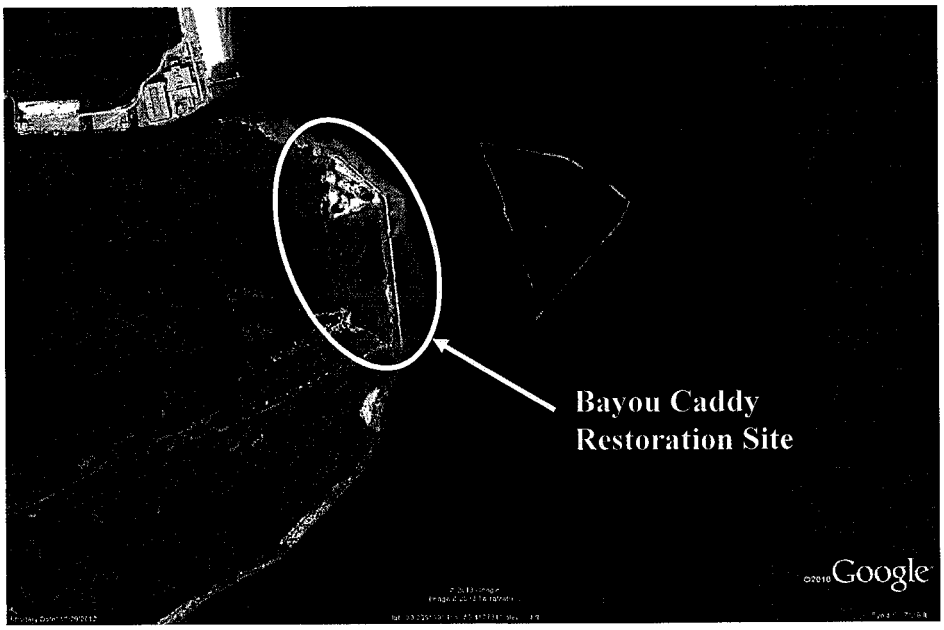

Figure 1: Bayou Caddy Ecosystem Restoration Site

This project is for the construction of an offshore breakwater feature to reduce wave energy in its lee. The intent is for the breakwater to provide protection to the geotube structure during critical design conditions of the geotubes (i.e., wave breaking at the structure crest) for containment purposes, and also provide an additional level of protection to the created wetlands after the geotubes have degraded over time. This breakwater feature is an authorized part of the Mississippi Coastal Improvements Program (MsCIP).

4. DISTRICT QUALITY CONTROL (DQC)

a. **Documentation of DQC.** All documents to be produced will undergo District Quality Control (DQC). DQC will be managed by SAM in accordance with ER 1110-1-12, Engineering & Design Quality Management, EC 1165-2-214, Civil Works Review Policy, and the District Quality Management Plan. The DQC will include quality checks and reviews, supervisory reviews, PDT reviews, independent technical review, and BCOES reviews required by ER-1110-1-12. Independent Reviewer DQC comments and responses will be documented by the Project Engineer using DrChecks. The comment and response package, along with the DQC signature sheet, will be part of the transmittal package provided to the Agency Technical Review Team.

b. **Products to Undergo DQC.** The EDR, P&S, DDR, and EA will undergo DQC at the draft design stage.

c. **Required DQC Expertise.** The SAM Mobile PDT consists of key disciplines relevant to Shoreline Stabilization: Construction (Operations), Geotechnical, Hydraulic and Coastal

Engineering, Environmental, Legal, Cost, and Real Estate. The DQC independent review and BCOES review teams will consist of non-PDT experts and experts in the supervisory chain of the same disciplines. DQC team requirements are listed in Attachment 1.

5. AGENCY TECHNICAL REVIEW (ATR)

a. Products to Undergo ATR. The EDR, DDR, P&S, and EA will undergo ATR at the final stage.

b. Required ATR Team Expertise. It is expected that the ATR Team would generally reflect the major technical disciplines of the Bayou Caddy Shoreline Stabilization PDT. As such, it is expected that the ATR team would consist of the following disciplines: Geotechnical, Hydraulic (Coastal), and Environmental. Engineering ATR team members will be selected from the CERCAP list.

ATR Team Members/Disciplines	Expertise Required
ATR Lead	The ATR lead will be a senior professional with extensive experience in preparing Civil Works implementation documents and conducting ATR. The lead will also have the necessary skills and experience to lead a virtual team through the ATR process. The ATR lead may also serve as a specific discipline reviewer. The ATR Lead will be from outside the MSC.
Environmental Resources	Minimum of 5 years expertise, and this person must have recent experience in compliance with environmental laws (NEPA, Clean Water Act, Endangered Species Act, National Historic Preservation Act, etc), the related ER 200-2-2, and be able to review the cultural resources portion of the report.
Engineer - Geotechnical	Minimum of 5 years expertise in geotechnical, soils and construction to review coastal breakwater projects with primary focus on the foundation, subsurface, and materials.
Engineer - Hydraulic	Hydraulic Engineer – Knowledge of USACE guidance related to engineering requirements for coastal structures and ecosystem restoration design. Knowledge of nearshore hydrodynamic and estuarine processes; 10 years minimum experience in nearshore coastal hydrodynamics and structural design.

c. **Documentation of ATR.** DrChecks review software will be used to document all ATR comments, responses and associated resolutions accomplished throughout the review process. Comments should be limited to those that are required to ensure adequacy of the product. The four key parts of a quality review comment will normally include:

(1) The review concern – identify the product's information deficiency or incorrect application of policy, guidance, or procedures;
(2) The basis for the concern – cite the appropriate law, policy, guidance, or procedure that has not be properly followed;
(3) The significance of the concern – indicate the importance of the concern with regard to its potential impact on the plan selection, recommended plan components, efficiency (cost), effectiveness (function/outputs), implementation responsibilities, safety, Federal interest, or public acceptability; and
(4) The probable specific action needed to resolve the concern – identify the action(s) that the reporting officers must take to resolve the concern.

In some situations, especially where there appears to be incomplete or unclear information, ATR team members may seek clarification in order to then assess whether further specific concerns may exist.

The ATR documentation in DrChecks will include the text of each ATR concern, the PDT response, a brief summary of the pertinent points in any discussion, including any vertical team coordination (the vertical team includes the District, RMO, and MSC), and the agreed upon resolution. If an ATR concern cannot be satisfactorily resolved between the ATR team and the PDT, it will be elevated to the vertical team for further resolution in accordance with the policy issue resolution process described in either ER 1110-1-12 or ER 1105-2-100, Appendix H, as appropriate. Unresolved concerns can be closed in DrChecks with a notation that the concern has been elevated to the vertical team for resolution.

At the conclusion of each ATR effort, the ATR team will prepare a Review Report summarizing the review. Review Reports will be considered an integral part of the ATR documentation and shall:

- Identify the document(s) reviewed and the purpose of the review;
- Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
- Include the charge to the reviewers;
- Describe the nature of their review and their findings and conclusions;
- Identify and summarize each unresolved issue (if any); and
- Include a verbatim copy of each reviewer's comments (either with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

ATR may be certified when all ATR concerns are either resolved or referred to the vertical team for resolution and the ATR documentation is complete. The ATR Lead will prepare a Statement of Technical Review certifying that the issues raised by the ATR team have been

resolved (or elevated to the vertical team). A Statement of Technical Review will be completed, based on work reviewed to date, for draft report, and final report. A sample Statement of Technical Review is included in Attachment 2.

6. LEVELS OF REVIEW

This Review Plan (RP) describes the levels of review and the anticipated review process for the EDR, P&S, DDR, and EA that will be produced for this effort. All levels of review are addressed in this RP: District Quality Control (DQC), Agency Technical Review (ATR), and Independent External Peer Review (IEPR).

Factors Affecting the Scope and Level of Review

This section discusses the factors affecting the risk informed decisions on the appropriate scope and level of review. The discussion is intended to be detailed enough to assess the level and focus of review and to assess the appropriate types of expertise represented on the various review teams. Factors affecting the risk informed decisions on the appropriate scope and level of review include the following:

- *If parts of the study will likely be challenging (with some discussion as to why or why not and, if so, in what ways – consider technical, institutional, and social challenges, etc.);*
  The effort requiring review is in the implementation phase of design with supporting Engineering Documentation Report, analysis and Environmental Assessment. There are no technically, institutionally, or socially challenging aspects to this study. This project is the design and construction of an offshore breakwater to reduce wave energy in its lee along approximately 2,000 feet of shoreline.
- *A preliminary assessment of where the project risks are likely to occur and what the magnitude of those risks might be (e.g., what are the uncertainties and how might they affect the success of the project);*
  Project risks include damage to the geotube feature of the project and loss of wetland habitat.
- *If the project is likely to have significant economic, environmental, and/or social effects to the Nation (with some discussion as to why or why not and, if so, in what ways);*
  The offshore breakwater will not have significant environmental or social effects to the Nation, and no additional adverse effects will result from the construction of the offshore breakwater. The breakwater will help to reduce damage to approximately 18 acres of wetland habitat within Hancock County, Mississippi.
- *If the project likely involves significant threat to human life/safety assurance (with some discussion as to why or why not and, if so, in what ways) – consider at minimum the safety assurance factors described in EC 1165-2-214 including, but not necessarily limited to, the consequences of non-performance on project economics, the*

environmental and social well-being [public safety and social justice; residual risk; uncertainty due to climate variability, etc.;

The breakwater does not involve significant threat to human life/safety assurance. The breakwater will reduce damage to approximately 18 acres of wetland habitat within Hancock County.

- *If the project/study is likely to have significant interagency interest (with some discussion as to why or why not and, if so, in what ways);*

  The Shoreline Stabilization Project has interagency interest from the Mississippi Department of Marine Resources (DMR). This agency will oversee the use of the property after the transfer of this project from USACE to the State of Mississippi. The DMR will continue to oversee the use of the site for future disposal and wetland creation.

- *If the project/study will be highly controversial (with some discussion as to why or why not and, if so, in what ways);*

  The offshore breakwater will not be controversial. This project bolsters the protection of the existing geotubes placed along the shoreline for reduction of damage of wetland habitat.

- *If the project report is likely to contain influential scientific information or be a highly influential scientific assessment (with some discussion as to why or why not and, if so, in what ways);*

  The offshore breakwater does not contain influential scientific information and is not a highly influential scientific assessment.

- *If the information in the decision document or proposed project design will likely be based on novel methods, involve the use of innovative materials or techniques, present complex challenges for interpretation, contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices (with some discussion as to why or why not and, if so, in what ways);*

  The offshore breakwater is not based on novel methods, does not use innovative materials or techniques, does not present complex challenges, is not precedent setting, and is not likely to change prevailing practices.

- *If the proposed project design will require redundancy, resiliency, and/or robustness (with some discussion as to why or why not and, if so, in what ways – see EC 1165-2-209, Appendix E, Paragraph 2 for more information about redundancy, resiliency, and robustness); and*

  The offshore breakwater does not require any additional redundancy, resilience, or robustness. The purpose of the breakwater is for nearshore wave dissipation to provide protection of the existing geotube feature.

- *If the proposed project has unique construction sequencing or a reduced or overlapping design construction schedule (with some discussion as to why or why not and, if so, in what ways).*

  The offshore breakwater does not have unique construction sequencing or an overlapping design construction. The offshore breakwater is being constructed to provide protection of the existing geotubes placed along the shoreline.

Risk Informed Decisions on Appropriate Reviews The following questions shall be explicitly considered, in accordance to EC 1165-2-214 paragraph 15b:

(1) Does it include any design (structural, mechanical, hydraulic, etc)?
Yes.
(2) Does it evaluate alternatives?
No. The design analysis determines the appropriate criteria for alignment, length, and height.
(3) Does it include a recommendation?
Yes. The Design Analysis provides recommendations for alignment, length, height and the type of breakwater materials to use.
(4) Does it have a formal cost estimate?
Yes. An IGE will be prepared to support the construction contract.
(5) Does it have or will it require a NEPA document?
Yes, it will have an accompanying EA
(6) Does it impact a structure or feature of a structure whose performance involves potential life safety risks?
No.
(7) What are the consequences of non-performance?
If the recommended project is not built, the wetland habitat will be at risk, and the wetland habitat restoration project may not function as intended.
(8) Does it support a significant investment of public monies?
No.
(9) Does it support a budget request?
No.
(10) Does it change the operation of the project?
Yes. Additional the breakwater feature of the Bayou Caddy project will also require O&M. Operations and Maintenance Manuals for the entire project will be provided upon the transfer of the project to the State of Mississippi.
(11) Does it involve ground disturbances?
Yes, minor ground disturbances will be involved within the footprint of the breakwaters.
(12) Does it affect any special features, such as cultural resources, historic properties, survey markers, etc, that should be protected or avoided?
No.
(13) Does it involve activities that trigger regulatory permitting such as Section 404 or stormwater/NPDES related actions?
Yes. Water Quality Certification and Coastal Zone Consistency Permits will be required.

(14) Does it involve activities that could potentially generate hazardous wastes and/or disposal of materials such as lead based paints or asbestos?
No.
(15) Does it reference use of or reliance on manufacturers' engineers and specifications for items such as prefabricated buildings, playground equipment, etc?
No. The specifications are performance based.
(16) Does it reference reliance on local authorities for inspection/certification of utility systems like wastewater, stormwater, electrical, etc?
No.

(17) Is there or is there expected to be any controversy surrounding the Federal action associated with the work product?
No.

7. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

a. Decision on IEPR. Type I IEPR is not applicable for the EA based on the risk informed process described below. The District Chief of Engineering, as the Engineer-In-Responsible-Charge, does not recommend a Type II IEPR Safety Assurance Review of this project based on the considerations described below.

b.

The risk informed decision for not performing a Type I IEPR or a Type II IEPR explicitly considered the following:

- *If the decision document meets the mandatory triggers for Type I IEPR described in Paragraph 11.d.(1) and Appendix D of EC 1165-2-214; and if it doesn't, then also:*
  - *the consequences of non-performance on project economics, the environmental and social well-being (public safety and social justice);*
    Not constructing the offshore breakwater increases the risk of damageto the geotubes placed for the containment of dredged material for creation of wetland habitat and potential for further erosion of wetland habitat.
  - *whether the product is likely to contain influential scientific information or be highly influential scientific assessment; and*
    The design of the offshore breakwater will not contain influential scientific information nor will they be highly influential scientific assessments.
  - *if and how the decision document meets any of the possible exclusions described in Paragraph 11.d.(3) and Appendix D of EC 1165-2-209.*
    Appendix D of Engineering Circular 1165-2-214 dated 15 December 2012 lists the factors that trigger the requirement of Independent External Peer Review (IEPR). The details provided below describe how the subject project addresses these factors.
    (1) Significant threat to human life. No. Not constructing the offshore breakwater does not potentially pose a threat to human life.
    (2) Total Project cost greater than $45 million. The estimated construction cost is less than $2 million.
    (3) Request by the State Governor. There has been no request for IEPR by the Governor of Mississippi.
    (4) Request by the head of a Federal or state agency. There has been no request for IEPR by any Federal or State Agency.
    (5) Significant public dispute as to the size, nature or effects of the project. There is no significant public dispute as to the size, nature or effects of the offshore breakwater.
    (6) Significant public dispute as to the economic or environmental cost or benefit of the project. There is no significant public dispute as to the economic or environmental cost or benefit of the project. Environmental considerations are taken into account through the NEPA process.

(7) Information is based on novel methods, presents complex challenges for interpretation, contains precedent-setting methods or models, or presents conclusions that are likely to change prevailing practices. The proposed offshore breakwater is minor in scope and is not based on novel methods or models.

(8) Any other circumstance where the Chief of Engineers determines Type II IEPR is warranted. N/A. The Chief of Engineers has not been requested for a determination that IEPR is warranted.

- *The status of any request to conduct IEPR from a head of a Federal or state agency charged with reviewing the project, if applicable; and*
  There has been no request from a head of any Federal or State agency charged with reviewing the project.
- *If the proposed project meets the criteria for conducting Type II IEPR described in Paragraph 12 and Appendix E of EC 1165-2-214, including:*
  - *if the Federal action is justified by life safety or failure of the project would pose a significant threat to human life;*
    Failure of this project does not pose a significant threat to human life.
  - *if the project involves the use of innovative materials or techniques where the engineering is based on novel methods, presents complex challenges for interpretations, contains precedent-setting methods or models, or presents conclusions that are likely to change prevailing practices;*
    The proposed project design is not based on novel methods, does not use innovative materials or techniques, does not present complex challenges, and is not precedent setting, and is not likely to change prevailing practices.
  - *if the project design requires redundancy, resiliency, and/or robustness; and/or*
    The proposed project design does not require any additional redundancy, resilience, or robustness.
  - *if the project has unique construction sequencing or a reduced or overlapping design construction schedule.*
    The construction sequencing for this project is not unique.

c. Products to Undergo Type II IEPR. N/A

d. Required Type II IEPR Panel Expertise. N/A

8. REVIEW SCHEDULES AND COSTS

The total cost for DQC review and ATR is estimated to be approximately $20,000. The documents to be reviewed and scheduled dates for reviews are as follows:

Milestone	Review	Schedule Dates
Final Draft EDR	DQC	May 22, 2015 – June 26, 2015
Final Draft EDR	ATR	July 7, 2015 – August 14, 2015
Final Draft P&S, DDR, EA	DQC	May 22, 2015 – June 26, 2015
Final Draft P&S, DDR, EA	ATR	July 7, 2015 – August 14, 2015
Construction Contract Award		November 3, 2015

9. PUBLIC PARTICIPATION

The public will be invited to comment on the Draft EA during the public review period in accordance with NEPA requirements. The public comment period for the Draft EA is currently scheduled from 13 February, 2015 – 14 March, 2015. These comments, along with ATR comments, will be incorporated before finalizing the EA.

10. REVIEW PLAN APPROVAL AND UPDATES

The South Atlantic Division Commander is responsible for approving this Review Plan. The MSC Commander's approval reflects vertical team input (involving District, MSC, and RMO) as to the appropriate scope and level of review for the work product. Like the PMP, the Review Plan is a living document and may change as the study progresses. The Home District is responsible for keeping the Review Plan up to date. Minor changes to the review plan since the last MSC Commander approval will be documented in Attachment 3. Significant changes to the Review Plan (such as changes to the scope and/or level of review) must be re-approved by the MSC Commander following the process used for initially approving the plan. The latest version of the Review Plan, along with the MSC Commander's approval memorandum, will be posted on the Home District's webpage. The latest Review Plan will also be provided to the RMO and home MSC.

11. REVIEW PLAN POINTS OF CONTACT

Public questions and/or comments on this review plan can be directed to the following points of contact:

- Mobile District Project Manager, 251-690-2328
- South Atlantic Division Point of Contact, 404-562-5121