



REPLY TO
ATTENTION OF:

CESAD-PDP

DEPARTMENT OF THE ARMY

US ARMY CORPS OF ENGINEERS
SOUTH ATLANTIC DIVISION
60 FORSYTH ST, SW, ROOM 10M15
ATLANTA, GEORGIA 30303-3490

25 SEP 2012

MEMORANDUM FOR Commander, Charleston District (CESAC-PM/Dudley Patrick)

SUBJECT: Review Plan Approval for Edisto Beach Feasibility Study, Edisto Beach, South Carolina

1. References:
 - a. Memorandum, CESAC-PM, 30 August 2012, subject: Edisto Beach Coastal Storm Damage Reduction, Colleton County, South Carolina, Review Plan for Integrated Feasibility Report and Environmental Assessment.
 - b. EC 1165-2-209, Civil Works Review Policy, 31 January 2010.
2. The enclosed Review Plan for Edisto Beach Feasibility Study, Edisto Beach, SC, has been prepared in accordance with EC 1165-2-209.
3. The Review Plan has been coordinated with the Coastal Storm Damage Reduction Planning Center of Expertise (CSDRPCX) of the North Atlantic Division (NAD), which is the lead office to execute this plan. For further information, please contact the CSDRPCX at (347) 370-4571. The Review Plan includes independent external peer review.
4. I hereby approve this Review Plan, which is subject to change as circumstances require, consistent with study development under the Project Management Business Process. Subsequent significant changes to this Review Plan will require new written approval from this office.
5. The District must post the approved Review Plan and a copy of this approval memorandum to the SAC District public internet website and provide a link to the CSDRPCX for their use. Before posting to the website, the names of Corps/Army employees must be removed.

CESAD-PDP

SUBJECT: Review Plan Approval for Edisto Beach Feasibility Study, Edisto Beach, South Carolina

6. The SAD point of contact for this action is Mr. Patrick O'Donnell, CESAD-PDP, (404) 562-5226.

Encl



DONALD E. JACKSON, JR.
COL, EN
Commanding

REVIEW PLAN

**Edisto Beach Coastal Storm Damage Reduction,
Colleton County, South Carolina
Integrated Feasibility Report and Environmental Assessment**

Charleston District

**MSC Approval Date: 25 September 2012
Last Revision Date: September 2012**



**US Army Corps
of Engineers ®**

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REVIEW PLAN

**Edisto Beach Coastal Storm Damage Reduction General Investigation Study, City of Edisto Beach,
South Carolina
Integrated Feasibility Report and Environmental Assessment**

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1. PURPOSE AND REQUIREMENTS

a. Purpose. This Review Plan defines the scope and level of peer review for the integrated Feasibility Study/Environmental Assessment for the Edisto Beach Coastal Storm Damage Reduction project in Colleton County, South Carolina.

b. References

- (1) Engineering Circular (EC) 1165-2-209, Civil Works Review Policy, 31 Jan 2010
- (2) EC 1105-2-412, Assuring Quality of Planning Models, 31 Mar 2011
- (3) Engineering Regulation (ER) 1110-1-12, Quality Management, 21 Jul 2006
- (4) ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007
- (5) PMP for Edisto Beach Storm Damage Reduction Project

c. Requirements. This review plan was developed in accordance with EC 1165-2-209, 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. In addition to these levels of review, decision documents are subject to cost engineering review and certification (per EC 1165-2-209) and planning model certification/approval (per EC 1105-2-412).

- (1) District Quality Control/Quality Assurance (DQC). All **decision documents** (including supporting data, analyses, environmental compliance documents, etc.) shall undergo DQC. DQC is an internal review process of basic science and engineering work products focused on fulfilling the project quality requirements defined in the Project Management Plan (PMP). The home district shall manage DQC, and it will be performed by a team not involved in the direct conduct of the study members of the DQC team may include reviewers outside of the home district if sufficient personnel from the home district are not available. Documentation of DQC activities is required.
- (2) Agency Technical Review (ATR). ATR is mandatory for all **decision documents** (including supporting data, analyses, environmental compliance documents, etc.). The objective of ATR is to ensure consistency with established criteria, guidance, procedures, and policy. The ATR will assess whether the analyses presented are technically correct and comply with published US Army Corps of Engineers (USACE) guidance, and that the document explains the analyses and results in a reasonably clear manner for the public and decision makers. ATR is managed within USACE by a designated Risk Management Organization (RMO) and is conducted by a qualified team from outside the home district that is not involved in the day-to-day production of the project/product. ATR teams will be comprised of senior USACE personnel and may be supplemented by outside experts as appropriate. To assure independence, the leader of the ATR team shall be from outside the home MSC.
- (3) Independent External Peer Review (IEPR). IEPR is required for **decision documents** under certain circumstances. IEPR is the most independent level of review, and is applied in cases

that meet certain criteria where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside of USACE is warranted. A risk-informed decision, as described in EC 1165-2-209, is made as to whether IEPR is appropriate. IEPR panels will consist of independent, recognized experts from outside of the USACE in the appropriate disciplines, representing a balance of areas of expertise suitable for the review being conducted. There are two types of IEPR: Type I is generally for decision documents and Type II is generally for implementation products.

- (a) Type I IEPR. Type I IEPR reviews are managed outside the USACE and are conducted on project studies. Type I IEPR panels assess the adequacy and acceptability of the economic and environmental assumptions and projections, project evaluation data, economic analysis, environmental analyses, engineering analyses, formulation of alternative plans, methods for integrating risk and uncertainty, models used in the evaluation of environmental impacts of proposed projects, and biological opinions of the project study. Type I IEPR will cover the entire decision document or action and will address all the underlying engineering, economics, and environmental work, not just one aspect of the study. For decision documents where a Type II IEPR (Safety Assurance Review) is anticipated during project implementation, safety assurance shall also be addressed during the Type I IEPR per EC 1165-2-209.
 - (b) Type II IEPR. Type II IEPR, or Safety Assurance Review (SAR), are managed outside the USACE and are conducted on design and construction activities for hurricane, storm, and flood risk management projects or other projects where existing and potential hazards pose a significant threat to human life. Type II IEPR panels will conduct reviews of the design and construction activities prior to initiation of physical construction and, until construction activities are completed, periodically thereafter on a regular schedule. The reviews shall consider the adequacy, appropriateness, and acceptability of the design and construction activities in assuring public health safety and welfare.
- (4) Policy and Legal Compliance Review. All **decision documents** will be reviewed throughout the study process for their compliance with law and policy. Guidance for policy and legal compliance reviews is addressed in Appendix H, ER 1105-2-100. These reviews culminate in determinations that the recommendations in the reports and the supporting analyses and coordination comply with law and policy, and warrant approval or further recommendation to higher authority by the Chief of Engineers. DQC and ATR augment and complement the policy review processes by addressing compliance with pertinent published Army policies, particularly policies on analytical methods and the presentation of findings in decision documents.
- (5) Cost Engineering Review and Certification. All cost products supporting a **decision document** shall be coordinated with the Cost Engineering Directory of Expertise (DX), located in the Walla Walla District for ATR. The DX, or in some circumstances regional cost personnel that are pre-certified by the DX, will conduct the cost ATR. The DX will provide certification of the final total project cost.
- (6) Model Certification/Approval. EC 1105-2-412 mandates the use of certified or approved models for all planning activities to ensure the models are technically and theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable

assumptions. Planning models, for the purposes of the EC, are defined as any models and analytical tools that planners use to define water resources management problems and opportunities, to formulate potential alternatives to address the problems and take advantage of the opportunities, to evaluate potential effects of alternatives and to support decision making. The use of a certified/approved planning model does not constitute technical review of the planning product. The selection and application of the model and the input and output data is still the responsibility of the users and is subject to DQC, ATR, and IEPR. EC 1105-2-412 does not cover engineering models used in planning. The process the Hydrology, Hydraulics and Coastal Community of Practice (HH&C CoP) of USACE follows to validate engineering software for use in planning studies and to satisfy the requirements of the Corps' Scientific and Engineering Technology (SET) initiative is provided in Enterprise Standard (ES)-08101 Software Validation for the Hydrology, Hydraulics and Coastal Community of Practice. Use of engineering models is also subject to DQC, ATR, and IEPR.

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 decision documents is typically either a Planning Center of Expertise (PCX) or the Risk Management Center (RMC), depending on the primary purpose of the decision document. The RMO for the peer review effort described in this Review Plan is the National Planning Center of Expertise for Coastal Storm Damage Reduction (North Atlantic Division, NAD).

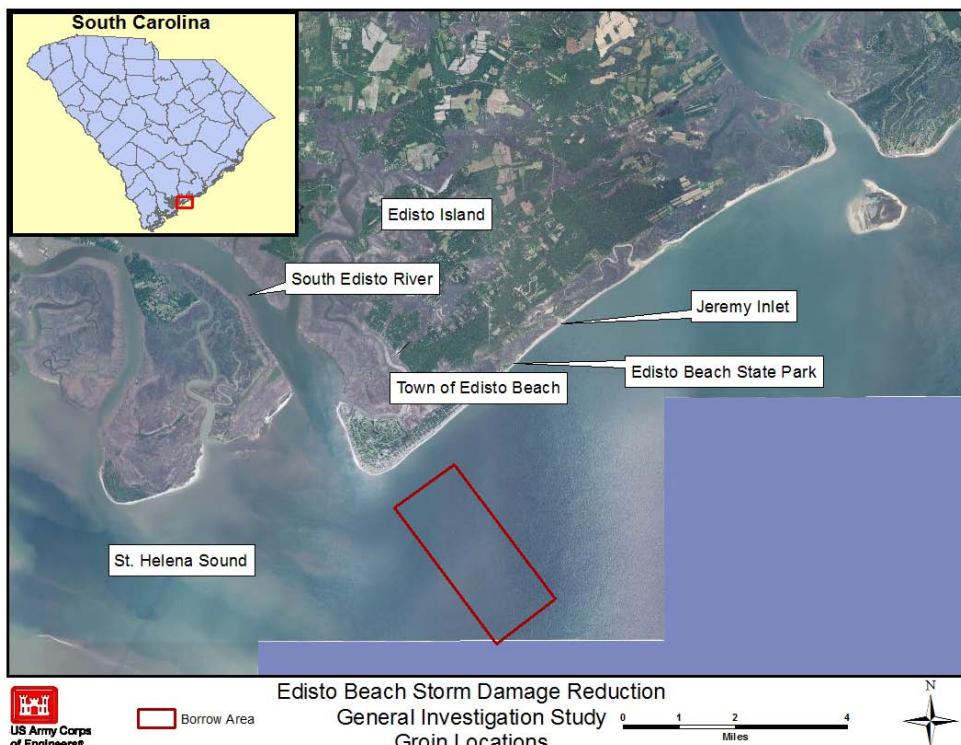
The RMO will coordinate with the Cost Engineering Directory of Expertise (DX) to conduct ATR of feasibility level cost products.

3. STUDY INFORMATION

- a. Decision Document.** The decision document to be reviewed is the Edisto Island Storm Damage Reduction Feasibility Study. The primary purpose of the feasibility study is to analyze and develop a recommendation that will provide for reduction of hurricane and storm damages to the beachfront structures and infrastructure located within the Town of Edisto Beach. The study area encompasses the entire shoreline of Edisto Island, from Jeremy Inlet in the north, which forms the boundary between Edisto Island and Edings Island, to the South Edisto River Inlet (St. Helena Sound). A variety of alternatives will be examined during the feasibility study that would sustain a higher and wider beach profile through the portion of the study area within the limits of the Town of Edisto Beach. Additionally, environmental restoration and protection opportunities exist through the entire study area to provide more stable turtle nesting habitat along the entire Edisto Island shoreline. These opportunities will be capitalized on when practicable, but this is not a dual-purpose feasibility study. The study involves plan formulation, engineering analysis, environmental and cultural considerations, economic analysis, and preparation of a real estate plan.
- b. Study/Project Description.** The Edisto Island Storm Damage Reduction Feasibility Study, when completed, will be the fourth coastal storm damage reduction feasibility study completed along the coast of South Carolina. Previous studies resulting in completed projects include the Myrtle Beach project and the Folly Beach project. The Pawleys Island Storm Damage Reduction Feasibility report was completed in May 2004 and the Chief's Report signed in December 2006. Pawleys Island was authorized for construction in WRDA 2007. There is nothing truly unique or extraordinarily challenging about this study compared to previous studies in South Carolina. It will be the first study

by Charleston District to use the required BEACH-fx software that combines coastal engineering modeling with economic benefit assessment to determine a recommended plan.

Edisto Island is approximately 4.5 miles long and is located within Colleton County in the state of South Carolina. Edisto Beach State Park, owned by the State Department of Parks Recreation and Tourism, makes up the northeastern 1.5 miles of the island. The southwestern 3 miles are within the incorporated Town of Edisto Beach. The Town of Edisto Beach is the second smallest incorporated place in coastal South Carolina. There are 920 acres of high land and 464 acres of salt marsh. The island is roughly 2.16 square miles, and elevations on the island range from sea level to 20 feet above sea level (9.1 m). Development on Edisto Beach is primarily residential in the form of single and multi-family dwelling units, with elevated single-family homes dominating the developed land. There is one gated community which was built as a planned unit development. Commercial development is limited and includes a grocery store, restaurants, service station and tourist related retail. There are only 15 commercial properties within the structure inventory of the feasibility study. The shoreface of Edisto Island is among the steepest in the state. This unique beach slope is aided by the 34 groins, constructed from 1948 to 1975, along the Town's shoreline. The groins have helped to reduce the historical shoreline rate of change in this sand starved region of the South Carolina coast.



Project Location Map for Edisto Island, South Carolina, including offshore borrow location.

c. **Factors Affecting the Scope and Level of Review.** Some of the factors influencing the scope and level of review are listed below:

- The project at Edisto Beach does not have significant economic, environmental, and social effects on the nation. The scale, type, and location of the project is not expected to result in

- substantial adverse impacts to cultural, historic, or tribal resources, threatened or endangered species, or critical habitat.
- This project does not involve a significant threat to human life. Storm damage reduction projects typically do not involve a project attempting to eliminate storm damage such that project failure would result in a catastrophe. Rather, they reduce the amount of expected damages from smaller magnitude, more frequent storms.
- The proposed project will not be a critical life-saving structure. As with typical coastal storm damage reduction projects, the proposed project can reduce, but not eliminate, storm damages. For example, hurricane speed winds can still cause extensive damage that the proposed project will not address. Therefore, the risks associated with this feasibility study are related to errors in the economic feasibility of a recommended plan, and in the amount of storm damage reduction achieved by a particular alternative plan.
- This project is not highly controversial. It implements standard storm damage reduction alternatives using standard construction methodologies and has not resulted in substantial adverse impacts.
- It is unlikely that this feasibility study will contain influential scientific information.
- This feasibility study is evaluating a type of project the Corps of Engineers has constructed many times. It is not a particularly large, complex, or unique type of analysis or proposed type of project.

- d. **In-Kind Contributions.** The sponsor is the Town of Edisto Beach. Their estimated work-in-kind is related to the town administrator attending team meetings and participating in public meetings and town council updates. The sponsor also provided beach profile survey data which was used in the feasibility study as part of establishing existing and future without project conditions data. The use of this survey data will undergo the same levels of review as the rest of the decision document.

4. DISTRICT QUALITY CONTROL (DQC)

- Documentation of DQC.** The documentation of the technical and policy review of a specific product will be sufficient to allow both planning management and other reviewers to feel confident that a comprehensive review was conducted in accordance with principles and guidelines established. DQC reviewers will not have had any direct involvement with the production of the products to be reviewed. Significant DQC comments will be recorded in DrChecks.
- Products to Undergo DQC.** All products that are to undergo ATR will also be subject to DQC.

5. AGENCY TECHNICAL REVIEW (ATR)

- Products to Undergo ATR.** All milestone products (FSM, AFB, Draft, and Final reports and associated documentation) will undergo ATR.
- Required ATR Team Expertise.** This section provides an estimate of the number of ATR team members and briefly describes the types of expertise that will be represented on the ATR team. The National Planning Center of Expertise for Coastal Storm Damage Reduction (North Atlantic Division, NAD) or RMC, in cooperation with the PDT and vertical team, will determine the final make-up of the ATR team with the exception of the Cost Engineer Reviewer, who will be identified by the Cost DX. The following table provides examples of the types of disciplines that might be included on the ATR team and some sample descriptions of the expertise required.

ATR Team Members/Disciplines	Expertise Required
ATR Lead	The ATR lead will be a senior professional with extensive experience in preparing Civil Works decision documents and conducting ATR. The lead will also have the necessary skills and experience to lead a virtual team through the ATR process. Typically, the ATR lead will also serve as a reviewer for a specific discipline (such as planning, economics, environmental resources, etc).
Plan Formulation	The reviewer will have the ability to review the planning process, which should address the Nation's water resources needs in a systems context and explore a full range of alternatives in developing solutions. The reviewer will be able to recognize innovative solutions and the application of the full range of the Corps programs and authorities that are integral to the planning process. The reviewer will thoroughly understand the Planning Guidance Notebook (ER-1105-100) and the Water Resources Council's Principles and Guidelines, particularly as it relates to Coastal Storm Damage Reduction studies.
Economics	The reviewer will have the ability to review the economics analysis done as part of a Coastal Storm Damage Reduction project, including the analysis of recreation benefits. Reviewer will have an understanding and knowledge of the application of The Planning Guidance Notebook, ER 1105-2-100 Appendix E Sections IV (Coastal) and VII (Recreation) as well as Appendix D, Economic and Social Considerations, in addition to the forthcoming Coastal Storm Risk Management - NED Manual (near finalization as of Sept 2011). Additional detail for the Planning Guidance Notebook can be found in ER 1165-2-130, Federal Participation in Shore Protection. The economics reviewer will also be familiar with Beach-fx software to ensure the adequacy of the economic inputs into the model.
Environmental Resources	The Environmental Resources reviewer will be a biologist (or similar) with experience in NEPA coordination related to coastal storm damage reduction projects. The reviewer should have a specific knowledge and understanding of dredging and beach nourishment related impacts associated with Coastal Storm Damage Reduction projects on the Mid-Atlantic coast.
Coastal Engineering	The reviewer will have experience in the design, construction and maintenance of coastal storm damage reduction projects. They will understand the life-cycle simulation NED analysis which uses a risk and uncertainty approach, and will be familiar enough with the SBEACH and Beach-fx software to ensure the adequacy of the coastal engineering inputs into the model. The reviewer will have working experience over multiple projects with the computer

	models used by coastal engineers, and with the issues regarding sea level rise. The reviewer should also be familiar with the use of ocean borrow sites and sediment compatibility.
Cost Engineering	The reviewer must be a cost estimating specialist, and should have expertise with the development of cost estimates for coastal storm damage reduction projects, more specifically, with the estimation of costs when utilizing offshore borrow sites and dredging plants. The reviewer must have experience with the development of Cost and Schedule Risk Analysis and must be approved by the Cost DX.
Real Estate	The Real Estate reviewer must have expertise in the real estate planning process for cost shared and full federal civil works projects, relocations, report preparation and acquisition of real estate interests. The reviewer should have a full working knowledge of EC 405-2-12, Real Estate Planning and Acquisition Responsibilities for Civil Works Projects and Public Law 91-646. The reviewer should be able to identify areas of the REP that are not in compliance with the guidance set forth in EC405-2-12 and should make recommendation for bringing the report into compliance. All estates suggested for use should be termed sufficient to allow project construction, and the real estate cost estimate should be validated as being adequate to allow for real estate acquisition.

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 been 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 when addressing incomplete or unclear information, comments 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, MSC, and HQUSACE), 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 should be completed, based on work reviewed to date, for the AFB, draft report, and final report. A sample Statement of Technical Review is included in Attachment 2. The Cost DX will provide the Cost Agency Technical Review Statement which will include the Total Project Cost Summary Sheet.

6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

Decision on IEPR. A Type I IEPR is required on this study unless an exclusion is granted. Per EC 1165-2-209, a Type I IEPR is mandatory if any of the following criteria are true: the project poses a significant threat to human life, the estimated total cost of the project is greater than \$45 million, the Governor of an affected State requests a peer review by independent experts, or the Chief of Engineers determines that the project study is controversial due to significant public dispute over either the size, nature, or effects of the project or the economic or environmental costs or benefits of the project. Other considerations include whether the project will generate significant interagency interest, will entail an Environmental Impact Statement (EIS), or will include novel or precedent setting approaches. With the exception of the project cost, none of the criteria or considerations apply to this study. The project cost is unknown at this time but could potentially exceed \$45 million. Therefore, the study will undergo Type I IEPR. However, this decision may be revisited and this review plan edited accordingly once the project cost is known.

Type II IEPR is not anticipated to be necessary because the Edisto Beach Storm Damage Reduction Project is not expected to involve features such that project failure would result in a catastrophe or significant threat to human life. Rather, the project would reduce the amount of expected damages from smaller magnitude, more frequent storms. Threats to human life and safety are minimized by the affected populace's compliance with existing evacuation and safety procedures prior to and during a storm. Therefore, based on the project as currently envisioned, the District Chief of Engineering, as the Engineer-In-Responsible-Charge, does not recommend a Type II IEPR Safety

Assurance Review of this project at this time. A risk-informed decision concerning the timing and the appropriate level of reviews for the project implementation phase will be prepared and submitted for approval in an updated Review Plan prior to initiation of the design/implementation phase of this project.

- a. **Products to Undergo Type I IEPR.** The Draft Feasibility Report and all supporting documentation will undergo Type I IEPR.
- b. **Required Type I IEPR Panel Expertise.**

The IEPR reviewers should have the combined, following expertise and requisite experience:

Technical areas related to **geotechnical engineering** (1 expert):

- At least ten years of experience
- Registered professional engineer.
- M.S. or higher in geotechnical engineering.
- Demonstrated experience in geotechnical studies and design of stabilizing dunes, bluffs, and beach berms.
- Familiar with geotechnical practices used in North Carolina.

Technical areas related to **economics** (1 expert):

- At least ten years of experience
- M.S. or higher in economics.
- Experience in coastal economic evaluation and flood risk evaluation.
- Familiarity with the BEACH-fx program required.

Technical areas related to **coastal engineering** (1 expert):

- At least ten years of experience
- M.S. or higher in engineering.
- Registered professional engineer with experience in coastal and hydraulic engineering with an emphasis on large public works projects **OR**
- Professor from academia with extensive background in coastal processes and hydraulic theory and practice.
- Familiar with USACE application of risk and uncertainty analyses in coastal storm damage reduction studies.
- Familiar with standard USACE coastal, hydrologic, and hydraulic computer models.
- Familiarity with the SBEACH and BEACH-fx programs required.

Technical areas related to **environmental/biology** (1 expert):

- At least ten years of experience
- Demonstrated experience with projects on the mid-Atlantic coast of the United States.
- Knowledge of tidal salt marshes, construction impacts on the marine and terrestrial ecology of coastal regions and characterization of benthic communities
- Familiar with all National Environmental Policy Act (NEPA) EIS requirements as well as have experience with ESA, EFH, and MMPA.

c. **Documentation of Type I IEPR.** The IEPR panel will be selected and managed by an Outside Eligible Organization (OEO) per EC 1165-2-209, Appendix D. Panel comments will be compiled by the OEO and should address the adequacy and acceptability of the economic, engineering and environmental methods, models, and analyses used. IEPR comments should generally include the same four key parts as described for ATR comments in Section 4.d above. The OEO will prepare a final Review Report that will accompany the publication of the final decision document and shall:

- 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; 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.

The final Review Report will be submitted by the OEO no later than 60 days following the close of the public comment period for the draft decision document. USACE shall consider all recommendations contained in the Review Report and prepare a written response for all recommendations adopted or not adopted. The final decision document will summarize the Review Report and USACE response. The Review Report and USACE response will be made available to the public, including through electronic means on the internet.

7. POLICY AND LEGAL COMPLIANCE REVIEW

All decision documents will be reviewed throughout the study process for their compliance with law and policy. Guidance for policy and legal compliance reviews is addressed in Appendix H, ER 1105-2-100. These reviews culminate in determinations that the recommendations in the reports and the supporting analyses and coordination comply with law and policy, and warrant approval or further recommendation to higher authority by the home MSC Commander. DQC and ATR augment and complement the policy review processes by addressing compliance with pertinent published Army policies, particularly policies on analytical methods and the presentation of findings in decision documents.

8. COST ENGINEERING DIRECTORY OF EXPERTISE (DX) REVIEW AND CERTIFICATION

All decision documents shall be coordinated with the Cost Engineering DX, located in the Walla Walla District. The DX will assist in determining the expertise needed on the ATR team and Type I IEPR team (if required) and in the development of the review charge(s). The DX will also provide the Cost Engineering DX certification. The RMO is responsible for coordination with the Cost Engineering DX.

9. MODEL CERTIFICATION AND APPROVAL

EC 1105-2-412 mandates the use of certified or approved models for all planning activities to ensure the models are technically and theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions. Planning models, for the purposes of the EC, are defined as any models and analytical tools that planners use to define water resources management problems and opportunities, to formulate potential alternatives to address the problems and take advantage of the opportunities, to evaluate potential effects of alternatives and to support decision making. The use of a

certified/approved planning model does not constitute technical review of the planning product. The selection and application of the model and the input and output data is still the responsibility of the users and is subject to DQC, ATR, and IEPR (if required).

EC 1105-2-412 does not cover engineering models used in planning. The responsible use of well-known and proven USACE developed and commercial engineering software will continue and the professional practice of documenting the application of the software and modeling results will be followed. As part of the USACE Scientific and Engineering Technology (SET) Initiative, many engineering models have been identified as preferred or acceptable for use on Corps studies and these models should be used whenever appropriate. The selection and application of the model and the input and output data is still the responsibility of the users and is subject to DQC, ATR, and IEPR (if required).

- a. **Planning Models.** The following planning models are anticipated to be used in the development of the decision document: None.

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Certification / Approval Status
Beach-fx	Life cycle model for measuring coastal storm damages	USACE Certified model

- b. **Engineering Models.** The following engineering models are anticipated to be used in the development of the decision document: None.

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study
SBEACH	Model determines beach morphologies post storm. Model is on list of models approved for use by the USACE engineering community of practice.

10. REVIEW SCHEDULES AND COSTS

- a. **ATR Schedule and Anticipated Cost.**

FSM: Feb 2012, \$15k

AFB: Date TBD, \$25k

Draft: Date TBD, \$15k

Final Report: Date TBD, \$10k

- b. **Type I IEPR Schedule and Cost.** The IEPR is estimated to cost \$150,000, and begin in May, 2013.

- c. **Model Certification/Approval Schedule and Cost.** Not-Applicable.

11. PUBLIC PARTICIPATION

Once completed, the Draft Integrated Feasibility Report will be disseminated to resource agencies, interest groups, and the public as part of the National Environmental Policy Act (NEPA) environmental compliance review. All significant and relevant public comments will be provided as part of the review package to Peer Reviewers as they are available and may include, but not be limited to: scoping letters, meeting minutes, other received letters, and emails.

12. REVIEW PLAN APPROVAL AND UPDATES

The South Atlantic Division Commander is responsible for approving this Review Plan. The Commander's approval reflects vertical team input (involving district, MSC, RMO, and HQUSACE members) as to the appropriate scope and level of review for the decision document. 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) will 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 Commanders' 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.

13. REVIEW PLAN POINTS OF CONTACT

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

- *Charleston District Project Manager, (843) 329-8153*
- *South Atlantic Division Economist, (404) 562-5228*
- *North Atlantic Division PCX-CSDR, (347) 370-4571*

ATTACHMENT 1: TEAM ROSTERS

NOTE: Attachment 1 should include rosters and contact information for the PDT, ATR team, vertical team (including RMO, MSC, and RIT), OEO point(s) of contact (if applicable). The credentials and years of experience for the ATR team should also be included when available. DELETE THIS TEXT BOX BEFORE FINALIZING THE REVIEW PLAN.

ATTACHMENT 2: SAMPLE STATEMENT OF TECHNICAL REVIEW FOR DECISION DOCUMENTS

COMPLETION OF AGENCY TECHNICAL REVIEW

The Agency Technical Review (ATR) has been completed for the <type of product> for <project name and location>. The ATR was conducted as defined in the project's Review Plan to comply with the requirements of EC 1165-2-209. During the ATR, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of: assumptions, methods, procedures, and material used in analyses, alternatives evaluated, the appropriateness of data used and level obtained, and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing US Army Corps of Engineers policy. The ATR also assessed the District Quality Control (DQC) documentation and made the determination that the DQC activities employed appear to be appropriate and effective. All comments resulting from the ATR have been resolved and the comments have been closed in DrCheckssm.

SIGNATURE

Name
ATR Team Leader
Office Symbol/Company

Date

SIGNATURE

Name
Project Manager
Office Symbol

Date

SIGNATURE

Name
Architect Engineer Project Manager¹
Company, location

Date

SIGNATURE

Name
Review Management Office Representative
Office Symbol

Date

CERTIFICATION OF AGENCY TECHNICAL REVIEW

Significant concerns and the explanation of the resolution are as follows: Describe the major technical concerns and their resolution.

As noted above, all concerns resulting from the ATR of the project have been fully resolved.

SIGNATURE

Name
Chief, Engineering Division
Office Symbol

Date

SIGNATURE

Name
Chief, Planning Division
Office Symbol

Date

¹ Only needed if some portion of the ATR was contracted

ATTACHMENT 3: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph Number

ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS

<u>Term</u>	<u>Definition</u>	<u>Term</u>	<u>Definition</u>
AFB	Alternative Formulation Briefing	NED	National Economic Development
ASA(CW)	Assistant Secretary of the Army for Civil Works	NER	National Ecosystem Restoration
ATR	Agency Technical Review	NEPA	National Environmental Policy Act
CSDR	Coastal Storm Damage Reduction	O&M	Operation and maintenance
DPR	Detailed Project Report	OMB	Office and Management and Budget
DQC	District Quality Control/Quality Assurance	OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
DX	Directory of Expertise	OEO	Outside Eligible Organization
EA	Environmental Assessment	OSE	Other Social Effects
EC	Engineer Circular	PCX	Planning Center of Expertise
EIS	Environmental Impact Statement	PDT	Project Delivery Team
EO	Executive Order	PAC	Post Authorization Change
FEMA	Federal Emergency Management Agency	PMP	Project Management Plan
FSM	Feasibility Scoping Meeting	PL	Public Law
HQUSACE	Headquarters, U.S. Army Corps of Engineers	QMP	Quality Management Plan
IEPR	Independent External Peer Review	QA	Quality Assurance
RTS	Regional Technical Specialist	QC	Quality Control
MSC	Major Subordinate Command	RED	Regional Economic Development
		RMC	Risk Management Center
		RMO	Review Management Organization
		SAR	Safety Assurance Review
		USACE	U.S. Army Corps of Engineers
		WRDA	Water Resources Development Act