

REVIEW PLAN

**Broward County, Florida Hurricane and Storm Damage Reduction Project
Segment II 2nd Renourishment
Limited Reevaluation Report and Environmental Assessment**

Jacksonville District

**MSC Approval Date: 12/13/12
Last Revision Date: None**



**US Army Corps
of Engineers ®**

REVIEW PLAN

**Broward County, Florida Hurricane and Storm Damage Reduction Project – Segment II
Limited Reevaluation 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 (single purpose) Broward County, Florida, Hurricane and Storm Damage Reduction Project - Segment II Limited Reevaluation Report (LRR) and Environmental Assessment (EA).

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, 30 Sep 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) Jacksonville District and South Atlantic Division Quality Management Plans
- (6) Memo, CECW-SAD, Subject: Martin County, FL, draft Limited Reevaluation Report (LRR): Request for exclusion from Type I Independent External Peer Review (IEPR), 15 Feb 2011

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).

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 National Planning Center of Expertise for Coastal Storm Damage Reduction (PCX-CSDR).

The PCX-CSDR will coordinate with the Cost Engineering Directory of Expertise (DX) to ensure the appropriate expertise is included on the review teams to assess the adequacy of cost estimates, construction schedules and contingencies.

3. STUDY INFORMATION

Decision Document. The decision document is the Broward County, Florida, Hurricane and Storm Damage Reduction Project – Segment II Limited Reevaluation Report and Environmental Assessment. The LRR purpose is to verify the economics of the remaining periodic nourishments for the HSDR project with the use of an expansion of the existing offshore borrow area and new upland sources. The document is to be approved at the MSC level, and Congressional Authorization is not required. An EA is the NEPA documentation being prepared along with the document.

- a. **Study/Project Description.** The Broward County Shore Protection Project , a single-purpose project, was authorized by Section 301 of Public Law 89-298, October 27, 1965. Chief of Engineers Report dated 15 June 1964. The authorization provided for initial beach fill and periodic nourishment along the entire barrier island coastline of the County as needed. Section 506(a)(1) of WRDA 96 authorized the Secretary of the Army to carry out periodic nourishment for Segments II and III of Broward County, FL, for a period of 50 years from the initial construction (1970). Segment II is from the Hillsboro Inlet to the Port Everglades inlet, a distance of 11.4 miles. Initial construction placed 1,076,000 cubic yards of material between R-32 and R-49. The first renourishment occurred in 1983 and placed an estimated 1.9 million cubic yards of material between R-26 and R-53. The 2004 GRR modified the Federal project to include a 3.4 mile long reach from R-53 to R-71. The recommended design width is a 20-foot extension of the pre-project MHW and will require 476,000 cy of design fill, an advance fill of 256,000 cy, and a renourishment cycle of 6 years. Since Federal participation expires in 2020, unless amended, the proposed nourishment is anticipated to be the last one under current authority. The non-Federal sponsor is the Broward County Board of County Commissioners.
- b. **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 support the PDT, PCX, and vertical team decisions on the appropriate level of review and 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.);*
There are no challenging aspects of this study. This project has been successfully constructed (1970), has undergone renourishment (1983), and has provided significant hurricane and storm damage reduction benefits to Broward County and the Nation. Essentially, the project remains the same as the authorized project with the exception of expansion of the borrow area to insure availability of suitable fill and consideration of commercial upland fill sources. The beach nourishment construction template is not expected to change, substantially. The purpose of the LRR is to demonstrate that the project remains justified using the new borrow area for remaining periodic nourishment. It should be noted that the 3.4 mile reach added in the 2004 GRR will have a different 50-year period of Federal participation.
 - *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);*

There are no additional performance risks to the project based on the anticipated changes documented in the subject LRR and EA. However, selection of upland fill sources will significantly affect costs and, therefore, the benefit cost ratio. Risks will be addressed in the cost analysis.

- *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 project is not likely to have significant negative economic, environmental, or social effects to the Nation, and no additional effects will result from the changes proposed in the subject LRR. The project performance and benefits will be maintained just as they have been since initial construction.
- *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 1165-2-209 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 project modifications proposed in the LRR would not add significant threat to human life/safety assurance.
- *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 project is being coordinated with the appropriate agencies and there are objections to the project from NMFS-HCD, and may have objections from NMFS-PRD. NMFS raised issues with the originally proposed Segment II portion of the project, the issue was with the amount of impacts associated with burial of nearshore hardbottom. The sponsor recognized the issue and the project was redesigned to reduce the nearshore hardbottom impacts significantly. USACE, Jacksonville District Regulatory Division, did not issue the permit holding off issuance to look at long term impacts associated with Segment III. That data will play into the evaluation of Segment II.
- *If the project/study will be highly controversial (with some discussion as to why or why not and, if so, in what ways);*
The project and this study are not highly controversial. The project has been in place, successfully, since its initial construction in 1970. Use of the expanded borrow area or upland commercial sources are not anticipated to cause any controversy.
- *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 project report does not contain influential scientific information and is not a highly influential scientific assessment. The project report is to show that the project economics remain justified.
- *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 information in the decision document and proposed project design are not based on novel methods, do not use innovative materials or techniques do not present complex challenges ,are not precedent setting, and are not likely to change prevailing practices. The dredging techniques to be used for the new borrow area are the same as those used commonly in other constructed beach fill projects. The construction methods and equipment used for beach placement will be the same as those used on this project in the past. The construction template is not anticipated to change the design profile on which project benefits are based.

- 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 proposed project design does not require any additional redundancy, resilience, or robustness. Beach fill projects for HSDR purposes such as this one are redundant in that periodic nourishments are included as part of the project plan when the beach becomes in need of sand to increase reliability. The project is resilient in that beach naturally recovers to some extent after storms, and emergency nourishment may be implemented to restore projects should a natural disaster adversely impact the project. This was the case for this particular project following the historic 2004 hurricane season. Beach nourishment projects such as this one are robust because by adding sand to the natural system, damages are reduced in a way that allows the naturally dynamic beach to adjust to the ever- changing coastal environment.
- 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 construction sequencing for this project is unique only in that construction must be completed, including mobilization and demobilization, between November 1st and May 1st due to turtle nesting. This type of construction sequencing is common in the South Florida region and has been successfully accomplished in the past.

- c. **In-Kind Contributions.** Products and analyses provided by non-Federal sponsors as in-kind services are subject to DQC, ATR and, if applicable, IEPR. The report will be prepared by the sponsor, with assistance and DQC of the Jacksonville District.

4. DISTRICT QUALITY CONTROL (DQC)

All decision documents (including supporting data, analyses, environmental compliance documents, etc.) shall undergo DQC. As the non-federal sponsor is preparing the LRR and EA, the District PDT is independent of the report preparation and can reasonably fulfill the role of 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. Documentation of DQC activities is required and should be in accordance with the Quality Manual of the District and the home MSC.

Documentation of DQC. A DQC quality checks review of the draft and final documents will be conducted by SAJ personnel using personnel from the disciplines of planning/economics, environmental, and engineering who did not perform the original work (EC 1165-2-209, ¶ 8(b)(1)). Documentation may be via DrChecks, MFR or other written documentation and kept in the project

file. DQC will be conducted at the PDT level where each of the team members review the documents for accuracy.

5. 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 USACE guidance, and that the document explains the analyses and results in a sufficiently clear manner for the public and decision makers. ATR is managed within USACE by the designated PCX-CSDR 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. The ATR team lead will be from outside the home MSC.

a. Products to Undergo ATR.

At a minimum, ATR of the Draft and Final versions of the LRR and EA will be conducted. ATR team composition will be determined by the National Coastal Storm Damage Reduction Planning Center of Expertise (PCX-CSDR).

b. Required ATR Team Expertise. The relevant National Planning Center of Expertise, in this case for Coastal Storm Damage Reduction (CSRPCX), has ultimate responsibility for accomplishing ATR. The PCX-CSDR is requested to establish an ATR team from outside the District with ATR lead from outside the Division. Also, a Cost Estimating Directory of Expertise (Cost Dx) has been established at the Corps Walla Walla District (NWW). The draft report cost estimate is also to be reviewed by the Cost Dx. The PCX will acquire cost estimation review by the Cost Dx.

Seven (7) technical disciplines were determined to be appropriate for review of the report including: plan formulation, economics, environmental/NEPA compliance, coastal engineering, geotechnical, cost, and real estate. All should be well-versed in conduct of coastal storm damage reduction studies. A listing of recommended ATR Team expertise follows.

ATR Team Members/Disciplines	Expertise Required
ATR Lead	The ATR lead should be a senior professional with experience in preparing Civil Works decision documents and conducting ATR. The lead should 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 plan formulation reviewer should be a senior water resources planner with experience in coastal storm damage reduction projects.
Economics	The economics reviewer should be a senior water resources economist with experience in coastal storm damage reduction projects.
NEPA Compliance	The NEPA compliance reviewer should be a senior environmental resources specialist with experience in coastal storm damage reduction projects.
Coastal Engineering	The coastal engineering reviewer should be a senior engineer with

	experience in coastal storm damage reduction projects.
Geotechnical Engineering	The geotechnical engineering reviewer should be a senior engineer with experience in coastal storm damage reduction projects.
Cost Engineering	The cost engineering reviewer should be a senior engineer with experience in coastal storm damage reduction projects.
Real Estate	The real estate reviewer should be a senior real estate specialist with experience in coastal storm damage reduction projects.

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 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 HQUACE), 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.

6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

IEPR may be 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 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 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.
 - **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.
- a. Decision on IEPR.** This section documents the risk informed decision on whether IEPR (Type I, Type II, both or neither) will or will not be conducted for the decision document and, if appropriate, follow-on project implementation. The decision is based on the criteria in EC 1165-2-209 and the discussion in above, Section 3 – Factors Affecting the Scope and Level of Review. The risk informed decision explicitly considered:

- If the decision document meets the mandatory triggers for Type I IEPR described in Paragraph 11.d.(1) and Appendix D of EC 1165-2-209; 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);
The project has performed well in the past and the consequences of non-performance are likely to be insignificant. The LRR-proposed changes would increase neither risk of non-performance, nor potential consequences.
 - whether the product is likely to contain influential scientific information or be highly influential scientific assessment; and
The subject documents do not contain influential scientific information nor are they 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 1165-2-209 dated 31 January 2010 lists the factors that trigger the requirement of Independent External Peer Review (IEPR). The detail provided below describe how the subject documents and project address these factors.
 - (1) Significant threat to human life. The proposed modifications to the Broward County - Segment II Hurricane and Storm Damage Reduction Project pose no threat to human life. There is not expected to be significant change to the size of the project with respect to the volume of sand being placed on the beach or the project footprint. The only change is an increase in size of the Borrow Area or use of commercial upland sources. These changes do not result in any significant threat to human life.
 - (2) Total Project cost greater than \$45 million. The LRR is not intended to support new authorities. Rather it is intended to support a new Project Partnership Agreement (PPA). Total cost increase attributable to reevaluation of Segment II is expected to be a small fraction of the \$45 million trigger.
 - (3) Request by the State Governor. There has been no request for IEPR by the Governor of Florida.
 - (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. Significant public dispute as to the size, nature or effects of the project is not anticipated.
 - (6) Significant public dispute as to the economic or environmental cost or benefit of the project. Significant public dispute as to the economic or environmental cost or benefit of the project is not anticipated. The economic benefits for this type of project are claimed for reducing storm damages to infrastructure and incidental recreation. With the proposed modifications this project will still have the same benefits as it always has. 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 project modifications are minor in scope and are not based on novel methods or models. The project will serve the same purposes as it has in the past, with the only differences being the expanded borrow area or use of commercial upland sources. There are no changes to the Design Berm.
 - (7) Any other circumstance where the Chief of Engineers determines Type I IEPR is warranted. The Chief of Engineers has not made a determination that Type I IEPR is warranted. The LRR and EA documenting the changes to the project are to be approved at the Division level. Conducting an IEPR on the subject documents would add significant costs and time with little added quality to the product.

- 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 2 of Appendix D of EC 1165-2-209, including:
 - if the Federal action is justified by life safety or failure of the project would pose a significant threat to human life;
This project is not intended to benefit life safety, nor does it 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 information in the decision document and proposed project design are not based on novel methods, do not use innovative materials or techniques do not present complex challenges ,are not precedent setting, and are not likely to change prevailing practices. The dredging techniques to be used for the expanded borrow area are the same as those used commonly in other constructed beach nourishment projects. The construction methods and equipment used for beach placement will be the same as those used commonly in other constructed beach nourishment projects. The construction template does not change the design profile on which project benefits are based.
 - 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. Beach fill projects for HSDR purposes such as this one are redundant in that periodic nourishments are included as part of the project plan when the beach becomes in need of sand to increase reliability. The project is resilient in that beach naturally recovers to some extent after storms, and emergency nourishment may be implemented to restore projects should a natural disaster adversely impact the project. Beach fill projects such as this one are robust because, by adding sand to the natural system, damages are reduced in a way that allows the naturally dynamic beach to adjust to the ever- changing coastal environment.
 - if the project has unique construction sequencing or a reduced or overlapping design construction schedule.
The construction sequencing for this project is unique only in that construction must be completed, including mobilization and demobilization, between November 1st and May 1st due to turtle nesting. This type of construction sequencing is common in the South Florida region and has been successfully accomplished in the past.

Based upon the above, the LRR is so limited in scope or impact that it would not significantly benefit from Type I IEPR. Identification and evaluation of the expanded borrow area, or using commercial upland sources is a modest change in project scope not requiring reformulation. Absent project reformulation, this report does not trigger the requirement for IEPR. **Reference Martin County, draft LRR: Request for exclusion from Type 1 Independent External Peer Review (IEPR), approved Feb 15, 2011 which discusses that an LRR does not trigger the need for an IEPR unless “verification of the project economics or the NEPA update ultimately result in the need to reformulate the project such**

that a modification of the authority is required, a risk-informed decision regarding the conduct of the IEPR or the possibility of exclusion from IEPR would then need to be evaluated.” *If verification of the project economics or NEPA updates ultimately results in the need to reformulate the project such that modification of the authority is required, a risk-informed decision regarding the conduct of IEPR or possibility of an exclusion from IEPR will be evaluated. (See reference 6) Therefore, Type I IEPR is not proposed for this project.* On a risk-informed basis, Type II IEPR is not currently contemplated. However, the decision as to whether or not to perform Type II IEPR may be revisited in a follow-on implementation phase review plan.

- b. Products to Undergo Type I IEPR.** Not applicable.
- c. Required Type I IEPR Panel Expertise.** Not applicable.
- d. Documentation of Type I IEPR.** Not applicable.

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, if applicable, 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.

Environmental Impact Mitigation Analysis Model – Modified Habitat Equivalency Analysis (HEA) Method

i) Description

HEA is a spreadsheet model that has been pulled into a Windows Gui format software package that calculates compensatory mitigation so that the total quantity of ecological services it provides is sufficient to offset the total quantity of lost ecological services resulting from project impacts.

ii) Certification/Approval for Use Process for Application of HEA

The PCX-CSDR will coordinate with the ECO-PCX. The ECO-PCX will manage review for approval for use of the modified HEA Model. Approval for use will be two-pronged, including for single use in the Broward County Shore Protection Project, Segment II LRR an EA, where hard corals are the ecological species group that takes the longest to recover after impact, although they are not the predominant hard bottom resource. Additionally, the ECO-PCX will recommend or approve one or more ATR Team members to review application of the model. SAJ recommends that the PCX coordinate with ERDC and/or POH as they have staff with the necessary biological expertise in coral and hardbottom environments.

Approval for single use, for Broward County SPP Seg II, will be via application review in an ATR, in parallel with the regional approval for use process. The Jacksonville District will submit a model documentation package for consideration for approval. The ECO-PCX will manage delivery of the ATR and HQ approval process.

Environmental Impact Mitigation Analysis Model - Uniform Mitigation Assessment Method

i) Description

UMAM is a spreadsheet model that was developed to assess impacts to various habitats (i.e. wetlands, hardbottoms, etc.) and to calculate mitigation acreage specifically for use in the State of Florida during the permit process. The review team will document the certification/approval process and provide an assessment of the technical quality, system quality, and usability of the models.

ii) Certification/Approval for Use Process for Application of UMAM

The ECO-PCX will review the mechanics of the UMAM method, while the ATR team will review the inputs and outputs of the UMAM method for the one time use of this method for the Broward County SPP Seg II project. The results of UMAM may have an impact on project decision making. Therefore, certification/approval will concentrate on compliance with technical quality criteria. The certification/approval team will be limited to internal reviewers.

Approval for single use, for Broward County SPP Seg II, will be via application review in an ATR in parallel with the regional approval for use process. The Jacksonville District will submit a model documentation package for consideration for approval. The ECO-PCX will manage delivery of the ATR and HQ approval process.

b. Engineering Models.

There are not expected to be any engineering models used in the development of the decision document.

10. REVIEW SCHEDULES AND COSTS

a. ATR Schedule and Cost.

Agency Technical Review of the draft and final reports are currently scheduled for Fiscal Year 2012 and FY 2013, at an approximate ATR Team cost of \$30,000 and \$15,000, respectively.

b. Type I IEPR Schedule and Cost. Not applicable.

c. Model Certification/Approval Schedule and Cost. The model review/approval process is scheduled for Fiscal Year 2012 at an approximate cost of \$10,000.

d. General Project Schedule.

Draft Report DQC	Complete 11/2/12
Draft Report ATR and Model Review	Complete 1/10/13
Final LRR / EA ATR Certification	Complete 3/4/13
Resource Agency Review of EA	Complete 12/11/12
SAD Review of Final Draft LRR / EA	Complete 3/5/13
Address SAD Report Comments	Complete 4/4/13
Submit Final Report	Complete 5/6/13

11. PUBLIC PARTICIPATION

One or more public workshops may be held in Broward County associated with the publication of the NEPA documents.

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 applicable) 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 are documented in Attachment 3. Significant changes to the Review Plan (such as changes to the scope and/or level of review) should 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, should be posted on the Home District's webpage. The latest Review Plan should also be provided to the RMO and home MSC.

13. REVIEW PLAN POINTS OF CONTACT

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

- Jacksonville District Review Manager, 904-232-2698
- Jacksonville District Project Manager, 904-232-1788
- South Atlantic Division Point of Contact, 404-562-5228
- Coastal Storm Damage Reduction National Center of Expertise (PCX-CSDR), 347-370-4571

ATTACHMENT 1: TEAM ROSTERS

Team Roster intentionally removed.

Tentative ATR Team Members/Disciplines to be determined by PCX-CSDR	Expertise
ATR Lead / Planning To be selected by PCX-CSDR	The ATR lead should be outside of SAD and from the PCX. They should be a senior water resources planner with experience in HSDR projects and associated civil works decision documents. The lead should also have the necessary skills to and experience to lead a virtual team through the ATR process.
Economics	Forty years experience with the Corps of engineers, most recently including the following: Developed structure databases for Caswell Beach, Oak Island, and Holden Beach in Brunswick County, NC. Developed structure databases and analysis of hurricane and storm damages for Topsail Beach, Surf City, and North Topsail Beach in Pender and Onslow counties.
Environmental Resources	Ecosystem Restoration Coordinator (GS-12 Biologist), for the Environmental Resources Section, Wilmington District - Corps of Engineers. He has 28 years experience as a Corps Biologist, with 14 years specialized experience in coastal ecosystem restoration.
Hydraulic/Coastal Engineering	Professional Engineer #11328 NC, 1983. Expertise includes: Breach closures, storm damage reduction studies, beach fill design, navigation channel impacts on adjacent beaches, breakwater design, groin design, revetment design, deep draft navigation, sedimentation, and circulation studies. Performed hydrologic and hydraulic studies. Developed the computer programs COSTDAM and GRANDUC, which analyze beach nourishment projects.
Cost Engineering	Currently assigned to SAC. At the time of this ATR served as Regional Technical Specialist for dredging projects (GS-0810 -13, Engineer) for the Wilmington Regional Engineering Center. Assignments involve work in a broad range of specialized activities related to cost engineering functions pertaining to pipeline, hopper, and mechanical dredging. Projects consisted of maintenance, new work/construction, and beach nourishment projects as well as projects that utilized drilling and blasting of hard materials before being excavated.

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 _____ Date _____
Name
ATR Team Leader
Office Symbol/Company

SIGNATURE _____ Date _____
Name
Project Manager
Office Symbol

SIGNATURE _____ Date _____
Name
Architect Engineer Project Manager¹
Company, location

SIGNATURE _____ Date _____
Name
Review Management Office Representative
Office Symbol

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 _____ Date _____
Name
Chief, Engineering Division
Office Symbol

SIGNATURE _____ Date _____
Name
Chief, Planning Division
Office Symbol

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

Term	Definition	Term	Definition
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
ER	Ecosystem Restoration	PMP	Project Management Plan
FDR	Flood Damage Reduction	PL	Public Law
FEMA	Federal Emergency Management Agency	QMP	Quality Management Plan
FRM	Flood Risk Management	QA	Quality Assurance
FSM	Feasibility Scoping Meeting	QC	Quality Control
GRR	General Reevaluation Report	RED	Regional Economic Development
Home District/MSD	The District or MSD responsible for the preparation of the decision document	RMC	Risk Management Center
HQUSACE	Headquarters, U.S. Army Corps of Engineers	RMO	Review Management Organization
IEPR	Independent External Peer Review	RTS	Regional Technical Specialist
ITR	Independent Technical Review	SAR	Safety Assurance Review
LRR	Limited Reevaluation Report	USACE	U.S. Army Corps of Engineers
MSC	Major Subordinate Command	WRDA	Water Resources Development Act