DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, SOUTH ATLANTIC DIVISION
60 FORSYTH STREET SW, ROOM 10M15
ATLANTA GA 30303-8801

REPLY TO
ATTENTION OF

CESAD-CG

9 APR 2015

MEMORANDUM FOR Commander, Jacksonville District (CESAJ-PD/E. Bush)

SUBJECT: Rio de la Plata Flood Risk Reduction PAC Report – Request for Review Plan Approval

1. References:

a. Memorandum, CESAJ-PD, 06 February 2015, subject as above.

b. EC 1165-2-214, 15 December 2012, Civil Works Review.

2. The enclosed Review Plan has been prepared in accordance with Engineer Circular (EC) 1165-2-214. The Review Plan has been coordinated with the Flood Risk Management Planning Center of Expertise (FRM-PCX), which is the Review Management Organization for this Post Authorization Change Report. For further information, please contact the FRM-PCX at (314) 331-8404. This review plan includes Type I Independent External Peer Review (IEPR).

3. This Review Plan is subject to change as circumstances require consistent with study development under the Project Management Business Process. Subsequent revisions to this Review Plan or its execution will require new written approval from this office. The District shall post the approved Review Plan and a copy of this approval memorandum to the District public internet website and provide a link to South Atlantic Division for our use. Before posting to the website, the names of Corps employees should be removed.

4. The point of contact for this action is [redacted] at [redacted].

Encl
as

C. DAVID TURNER
Brigadier General, USA
Commanding

Review Plan

Rio de la Plata

Flood Risk Reduction

Post Authorization Change (PAC) Report

Puerto Rico

Jacksonville District

Project # 114175

MSC Approval Date:

Last Revision Date: None

April 2015

Review Plan: Rio de la Plata, Post Authorization Change (PAC) Report

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Review Plan for Rio de la Plata, Puerto Rico, Flood Risk Reduction Project, Post Authorization Change (PAC) Report

1.0 PURPOSE AND REQUIREMENTS

a. Purpose

This review plan defines the scope and level of peer review for the Rio de la Plata, Puerto Rico, Flood Risk Reduction Project, Post Authorization Change (PAC) Report.

b. References

(1) Engineering Circular (EC) 1165-2-214, Civil Works Review, 15 Dec 2012
(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

c. Requirements

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. In addition to these levels of review, decision documents are subject to cost engineering review and certification (per EC 1165-2-214) and planning model certification/approval (per EC 1105-2-412).

2.0 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 Flood Risk Management Planning Center of Expertise (FRM-PCX). The FRM-PCX will coordinate with other National Planning Centers of Expertise (PCX) as needed. The FRM-PCX will also coordinate review and endorsement of this review plan with the Risk Management Center (RMC) because life safety issues, associated with levee safety, must be addressed.

The RMO will coordinate with the Civil Works Cost Engineering and Agency Technical Review Mandatory Center of Expertise (Cost Engineering MCX) to ensure the appropriate expertise is included on the review teams to assess the adequacy of cost estimates, construction schedules and contingencies.

3.0 STUDY INFORMATION

a. Decision Document

The Rio de la Plata Post Authorization Change (PAC) report, to be prepared in accordance with ER 1105-2-100, Sections 4-1 and 4-5, and Appendix G, dated 30 June 2004, will document design increases in total project costs, as well as refinements to reduce cost. The level of PAC report approval is at USACE Headquarters (HQUSACE). South Atlantic Division (SAD) will review the PAC and endorse to HQUSACE. HQUSACE will approve the submittal package and transmit to the Assistant Secretary of the Army (Civil Works) for coordination with Congress. Congressional authorization will be required for the increase in cost. To ensure that the environmental effects of the recommended project's refinements will not cause adverse impacts to the quality of the human environment, natural or cultural resources of the area, the National Environmental Policy Act (NEPA) documentation currently on file will be evaluated to determine its adequacy. Previous documentation included a 1987 Environmental Impact Statement (EIS) and a 1992 Environmental Assessment (EA) to address design refinements. A supplemental EA was also conducted in September 2004. All necessary mitigation for the entire project has been constructed as a part of Contract 1A. Informal coordination with the Federal and Commonwealth of Puerto Rico resource agencies under Section 7 of the Endangered Species Act will be conducted to ensure that the proposed refinements will not jeopardize the continued existence of any listed species as threatened or endangered in the vicinity of the authorized project. It is anticipated that the existing NEPA documentation will be adequate for the PAC report. If, as expected, an additional NEPA document is not required, the decision will be documented in a Memorandum for Record (MFR).

b. Study/Project Description

Rio de la Plata is a single-purpose project to reduce flood risk in the project area. Heavy rainfall combined with very steep slopes, produces high discharges in a relatively short period of time in the project area. Flooding is a problem in the project area threatening life, property, public buildings and commercial facilities. The sponsor is the Puerto Rico Department of Natural and Environmental Resources (DNER).

The study area is the Rio de la Plata basin, located in the north central region of Puerto Rico. The Rio de la Plata basin drains an area of 241 square miles into the Atlantic Ocean at a point some 11 miles west of San Juan. The main geographic features are the Cordillera Central Mountains, which form the central spine of the island, the river valleys, and the coastal plain. The 63-mile long Rio de la Plata rises at an elevation of 2960 feet above mean sea level on the northerly slopes of the Sierra de Cayey. It flows generally west and north through the towns and communities of Cayey, Comerio, Toa Alta, San Jose, Toa Baja, Dorado, and Mameyal.

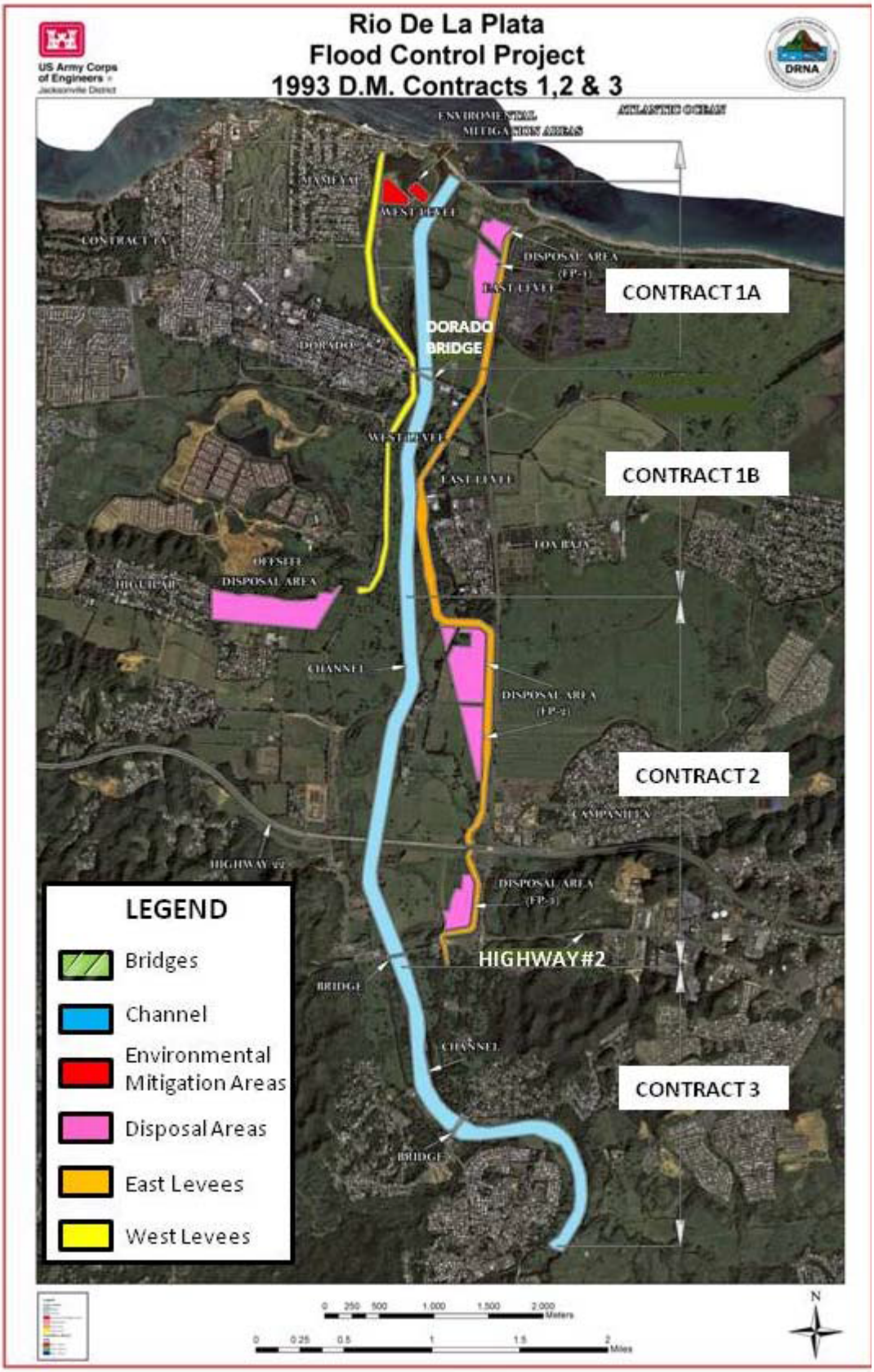
The authorized project from the 1993 Design Memorandum is shown in **Figure 1**. The project plan includes 6.95 miles of channel excavation and 7.63 miles of levees. The design discharge for the levees is the standard project flood discharge of 229,500 cubic feet per second. The design discharge for the channel is 131,000 cubic feet per second (cfs). Additional features include a grade control structure, eight culverts for interior drainage including two fixed with slide gate controls to regulate flow into Rio Cocal, wetland mitigation for the impacts produced by the construction of project levees, and recreation facilities. The project has been split into contracts 1A, 1B, Dorado Bridge, 2, and 3. Contract 1A, the first of the contracts, is currently being constructed.

The Rio de la Plata PAC is intended to document the increases in total project costs. As of 16 June 2014, the estimated Section 902 limit was $168,174,000; current project cost per the May 30, 2014 cost certification at FY2015 price levels is estimated at $232,823,000; the current project cost per the May 30, 2014 cost certification at FY2015 price levels, inflated through construction is $378,246,000.

These cost increases are the result of the multiple factors including age of the project, design refinements of materials, channel protection, seepage management and availability of material sources and/or disposal sites. The project economic analysis will also be updated as necessary.

Hydraulic modeling is underway to investigate minor design refinements within the scope of the authorized project for cost savings (i.e.: slight realignment of certain sections of the levee; analysis of sheet pile verses levee in smaller sections near the bridge abutments for a smaller footprint; potential elimination of section of levee (using just a levee “tie in” instead) in a specific area where a new Wal-Mart has been built with floodwalls), and most importantly whether the Dorado Bridge will be a retrofit or replacement. The current cost estimate shows a replacement of the Dorado Bridge. A retrofit determination will provide further cost savings to the project. Value Engineering will be conducted to assess and evaluate design modifications and associated costs. The PAC report will document design changes intended to control cost growth while providing the project per the authorizing documents. Continuing construction requires a Congressional authorization to increase the maximum project cost per Section 902 of WRDA 1986.

Figure 1: Rio de la Plata project in the 1993 Design Memorandum



c. Authorization and Development History

The Rio de la Plata Survey Report was authorized under a resolution adopted in May 5, 1966, by the Committee on Public Works of the U.S. House of Representatives. Preliminary investigations were carried out during the late 1960's and 1970's. These investigations were deferred because of changes in priorities by the sponsor regarding flood control projects. In 1982 the Governor of Puerto Rico requested the study be reinitiated. In 1982 Congress appropriated funds for continuation of detailed investigations.

The Rio de la Plata Survey Report and Environmental Impact Statement was completed in 1987 (revised April 1988), recommending the originally authorized project and associated features.

The recommendations made in the Chief of Engineers Report, dated January 3, 1989, were transmitted to the 101st Congress, 2nd Session, as House Document 101-194 by the Assistant Secretary of the Army (Civil Works), in a letter of transmittal dated April 21, 1990. The project was authorized by the Water Resources Development Act of 1990, HDM2740A, Section 101(a)(19).

> *(19) Rio de la Plata, Puerto Rico. --The project for flood control, Rio de la Plata, Puerto Rico: Report of the Chief of Engineers, dated January 3, 1989, at a total cost of $58,968,000, with an estimated first Federal cost of $35,900,000 and an estimated first non-Federal cost of $23,068,000.*

Refinements to the authorized design began as a result of the increased level of accuracy in topographic mapping since the original report approval. A Post Authorization Change (PAC) report was required because the estimated cost of the refined project exceeded the maximum allowable project cost as limited by Section 902 of Water Resources Development Act of 1986 (WRDA-86). Accordingly, a Limited Reevaluation Report (LRR) was submitted in April 1992 and approved. Design Memorandum Volumes 1 and 2 were approved in March 1993, capturing the detailed design refinements which were outlined in the LRR and are the most recently authorized documents.

d. Factors Affecting the Scope and Level of Review

This section discusses the factors affecting the risk-informed decisions about the appropriate scope and level of review. This discussion is intended to be detailed enough to assess the level and focus of review, and support the PDT, PCX, and vertical team decisions regarding the appropriate level of review and types of expertise required on the various review teams. Bulleted issues are addressed as follows:

- *If the project has a cost estimate of more than $45 million:* This is a Post Authorization Change (PAC) Report to request an increase of the Section 902 Limit. The current estimated total cost of the project per the May 30, 2014 cost

certification at FY2015 price levels is $232,823,000. Updates to the economic analysis, NEPA, and refinements to reduce cost will be addressed during the study.

- *If parts of the study will likely be challenging:* The project will be using USACE standard methods; It is not anticipated that the project will require significant engineering, planning, or environmental challenges.

- *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):* It is not anticipated that the requested design refinements and relocations as well as associated increase in the 902 limit will increase general project risks. The changes to the project should serve to further reduce risks and ensure success of project purposes. In regards to life safety, a Type I Safety Assurance Review (SAR) will be conducted on the LRR.

- *If the project will likely be justified by life safety or if the project likely involves significant threat to human life/safety assurance:* The project will be improving the life safety of residents in the project area, associated with risk and damage reduction, and delays in the project construction could have an effect on the life safety of residents. A life safety risk assessment was not conducted as part of the original authorized report but SAR will be conducted during the LRR as part of the Type I IEPR. A risk-informed decision concerning the timing and appropriate level of reviews for project implementation phase will be prepared and submitted for approval in an updated Review Plan prior to initiation of the PED/Design/implementation phase of this project. The Project Delivery Team will determine the need for a Type II IEPR when preparing that Review Plan.

- *If there is a request by the Governor of an affected state for a peer review by independent experts: To date, the Commonwealth of Puerto R*ico has not requested a peer review by independent experts.

- *If the project/study is likely to involve significant public dispute as to the size, nature, or effects of the project:* The project is not likely to involve public dispute, as it has already been partially constructed (Contract 1A is nearing construction completion).

- *If the project/study is likely to involve significant public dispute as to the economic or environmental cost or benefit of the project:* The design refinements and associated increase in the 902 limit is not expected to increase public dispute as to the economic or environmental cost or benefit of the project.

- *If the information in the decision document or anticipated project design is likely to 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: The information in the decision document will not 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.

- *If the project design is anticipated to require redundancy, resiliency, and/or robustness, unique construction sequencing, or a reduced or overlapping design construction schedule:* The project design is not anticipated to require redundancy, resiliency, and/or robustness, unique construction sequencing, or a reduced or overlapping design construction schedule.

e. In-Kind Contributions

Products and analyses provided by non-Federal sponsors as in-kind services are subject to District Quality Control (DQC), Agency Technical Review (ATR), and Independent External Peer Review (IEPR). There are no in-kind products or analyses to be provided by the non-Federal sponsor.

4.0 DISTRICT QUALITY COUNTROL (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 Jacksonville District will manage the DQC.

a. Documentation of DQC. A DQC certification sheet and documentation of the DQC reviews will be provided to the ATR ream to reflect that the district is satisfied with the quality of the document. The certification shall include a statement from each reviewer confirming that they have reviewed the document, provided comments, and comments were satisfactorily resolved. The certification shall be signed by each reviewer. The documentation of the DQC reviews will include a summary of significant comments and resolution.

b. Products to Undergo DQC. The draft and final Post Authorization Change (PAC) report will undergo DQC.

c. Required DQC Expertise. Experienced Jacksonville District team members, representing all pertinent disciplines, will participate in DQC, including: plan formulation, economics, environmental compliance, engineering design, hydraulics and hydrology, and cost engineering. These team members will not have had direct involvement throughout the development of the Post Authorization Change Report.

5.0 AGENCY TECHNICAL REVIEW (ATR)

ATR is mandatory for all decision documents (including supporting data, analyses, environmental compliance document, etc.). The objective of ATR is to ensure consistency with established criteria, guidance, procedures, and policy. The ATR will assess whether the analysis presented are technically correct and comply with published USACE guidance, and that the document explains the analyses and results in a reasonably clear manner for the public and decisions makers. ATR is managed within USACE by the designated 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 team will be comprised of senior USACE personnel and may be supplemented by outside experts as appropriate.

a. Products to Undergo ATR. The draft Post Authorization Change (PAC) report/appendices and NEPA updates will undergo ATR. The final PAC report/appendices and NEPA updates will undergo an ATR consisting of backchecks to previous comments received to ensure appropriate revisions have been made to the report. The cost estimate associated with the PAC report will undergo ATR through the Cost Engineering mandatory center of expertise (MCX).

b. Required ATR Team Expertise. The ATR team will be made up of personnel determined by the Flood Risk Management Planning Center of Expertise (FRM-PCX). The expertise represented on the ATR team should reflect the significant expertise involved in the work effort and will generally mirror the expertise on the PDT. Based on the factors affecting the scope and level of review outlined in Section 3, it is suggested that the review team include the disciplines listed in Table 1. Reviewers will be from outside of the Jacksonville District and the review lead will be from outside CESAD. The names, organizations, contact information, credentials, and years of experience of the ATR members will be included in Attachment 1 once the ATR team is established.

Table 1: ATR Team Expertise Requirements

ATR Team Members/Disciplines	Expertise Required
ATR Lead	ATR Lead: The ATR lead will be a senior professional (from a USACE division other than SAD) with extensive experience in preparing Civil Works decision documents and conducting ATR. The lead will have the necessary skills and experience to lead a virtual team through the ATR process. The ATR lead can be combined with the duties of the plan formulation reviewer, economic reviewer, or may function solely as the ATR lead.
Plan Formulator	The plan formulation reviewer will be a senior water resources planner familiar with the requirements of reporting requirements for post authorization change reports and experienced in conducting flood risk management studies, preferably familiar with Puerto Rico issues (but not mandatory).
Environmental Resources	The environmental reviewer will be an expert in the field of environmental resources and have a thorough understanding of NEPA, as related to inland and marine navigation and waterways to assess whether or not all NEPA requirements were, or will be, met.
Economics	The economics reviewer should be experienced in economic analysis of flood risk management projects. Preferably familiar with economic issues in Puerto Rico (but not mandatory).
Cost Engineering	The cost engineering reviewer should be experienced in cost engineering for flood risk reduction projects. Preferably familiar with Puerto Rico (but not mandatory). The cost engineering reviewers will be selected by the Cost MCX. The reviewer will have at least seven years of experience in the field and be a licensed Professional Engineer (P.E.).
Real Estate	The real estate reviewer should have experience with acquisition of diverse properties in support of flood risk management projects. Preferably familiar with pertinent real estate nuances in Puerto Rico (but not mandatory).

ATR Team Members/Disciplines	Expertise Required
Hydraulic Engineering and Water Control	The hydraulic engineering reviewer will be an expert in the field of hydraulics and have a thorough understanding of open channel dynamics, enclosed channel systems, application of detention/retention basins, application of levees and flood walls. The reviewer will have at least seven years of experience in the field and be a licensed Professional Engineer (P.E.).
Geotechnical Engineering	The geotechnical engineering reviewer should have extensive knowledge and experience evaluating major civil works structures and geotechnical aspects of construction. Should have design experience evaluating flood risk management projects. Preferably familiar with Puerto Rico (but not mandatory). The reviewer will have at least seven years of experience in the field and be a licensed Professional Engineer (P.E.).
Risk Analysis	The risk analysis reviewer will be experienced with performing and presenting risk analyses in accordance with ER 1105-2-101 and other related guidance, including familiarity with how information from the various disciplines involved in the analysis interact and affect the results. The risk analysis review will be provided by the FRM-PCX.

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 addressing 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, 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 EC 1165-2-214, 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 draft report and final report. A sample Statement of Technical Review is included in Attachment 2. In addition to a Statement of Completion of Technical Review, District Leadership will provide Certification of Agency Technical Review in accordance with EC 1165-2-214. A sample Certification is included in Attachment 2.

In some situations, the Cost Engineering MCX may request a separate Cost ATR DrChecks be established. This allows for separate cost comments to be evaluated and closed upon resolution. Resolution of comments is typically considered to be complete upon providing final cost products. In some cases these products are not provided by the end of the primary study ATR. Establishing a separate Cost ATR DrChecks could prevent the delay in certification of the primary study ATR.

6.0 INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

IEPR is the most independent level of review for project studies 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 1165-2-214, is made as to whether IEPR is appropriate. IEPR reviews are managed outside the USACE, panel members will be selected by an Outside Eligible Organization using the National Academies of Science (NAS) policy for selecting reviewers. 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 IEPRs 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. A 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 1165-2-214.

- **Type II IEPR.** Type II IEPRs, are performed for implementation documents and, therefore, do not apply to the decision documents covered by this review plan.

a. Decision of IEPR

As described by EC 1165-2-214, paragraph 11.d. (1), **Type I IEPR** is mandatory if any of the following are true:

- 11.d.(1)(a): *Significant threat to human life*: The project would reduce flooding and therefore would lower risk for human safety concerns during flood events; However, the potential for life safety impacts exists.
- 11.d.(1)(b): *The estimated total cost of the project (including mitigation costs) is greater than $45 million*[1], based on a reasonable estimate at the end of the reconnaissance phase: The current estimated total cost of the project is $277,260,000. This exceeds the cost threshold and therefore this condition is met.

[1] As per WRRDA 14, the threshold is now $200M.

- 11.d.(1)(c): *The Governor of an affected State requests a peer review by independent experts*: To date, the Commonwealth of Puerto Rico has not requested a peer review by independent experts. This condition is not met.
- 11.d.(1)(d): *The Director of Civil Works 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*: The project is not likely to involve significant public dispute as to the size, nature, effects, or economic or environmental costs or benefits of the project. This condition is not met.

According to EC 1165-2-214, a project study may be excluded from Type I IEPR if none of the above conditions are met and the following is true:

- "It does not include an EIS, and the DCW or the Chief determines that the project
  Is not controversial; and
- Has no more than negligible adverse impacts on scarce or unique tribal cultural, or historic resources;
- Has no substantial adverse impacts on fish and wildlife species and their habitat prior to the implementation of mitigation measures; and
- Has, before implementation of mitigation measures, no more than a negligible adverse impact on a species listed as endangered or threatened species under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.) or the critical habitat of such species designated under such Act"

The purpose of the PAC report is to request an increase in the Section 902 limit, based upon growth of real estate values, value added design modifications, modifications resulting from more detailed field data, and adjustments to contract cost for changed site conditions.

Today's estimated total project costs are increased the greatest from lapsed years of escalation factors since the project was last authorized in 1993, close to 20 years ago. The refinements to the authorized design were made for a variety of reasons, including value engineering and differing site conditions. Most importantly, the proposed engineering refinements will help best achieve the project's intent of providing a 100-year level of flood protection for the city and preserving the socio-economic stability of the region. The total cost of the project is more than $45 million[2].The proposed design refinements are minor and could be a cost savings to the project, relative to the total authorized project. Additionally, the proposed refinements do not necessitate project reformulation. Although hydrologic/hydraulic modeling and associated detailed design has not been completed to the extent necessary to determine levels of potential flooding, there is an assumed potential for life safety risk based solely on the project's location in highly developed areas that include four major evacuation routes. The District Chief of Engineering concurs with this preliminary assessment. As such, *the Jacksonville District conclusion is that this project is recommended for Type I IEPR*.

[2] As per WRRDA 14, the threshold is now $200M.

Life safety risk assessment will be addressed during the LRR by the Project Delivery Team, and reviewed during the Type I IEPR. It is suggested that the review team include disciplines listed in **Table 2**.

Products to Undergo IEPR

The Draft Post Authorization Change Report with technical appendices will be subjected to IEPR. Scope of IEPR I should include:

- General review of the draft report for completeness.
- Completeness and appropriateness of flood risk management analyses.
- Completeness and appropriateness of economic analyses.
- Completeness and appropriateness of engineering analyses.
- Safety Assurance (review of final risk assessment) and safety-related conceptual assumptions and design.

b. Required Type I IEPR Panel Expertise. The following table lists the recommended disciplines and required expertise to perform a Type I IEPR for this project.

Table 2: Required IEPR Panel Expertise

IEPR Panel Members/Disciplines	Expertise Required
Economics	The Economics Panel Member should be a professional from academia, a public agency or an Architect-Engineer or Consulting Firm with a minimum 5 years demonstrated experience in evaluating and conducting complex multi-objective public works projects with high public and interagency interest.
Cost Engineering	The Cost Engineering Panel Member should be an Engineer from academia, a public agency, non-governmental entity, or an Architect-Engineer or Consulting Firm with a minimum 5 years demonstrated experience in performing cost engineering/construction management for all phases of the project, including safety assurance. Active participation in related

	professional societies is encouraged. Panel member should be familiar with the construction industry and practices used in Florida and/or the Southeastern United States.
Construction Management	The Construction Management Panel Member should be an Engineer from academia, a public agency, non-governmental entity, or an Architect-Engineer or Consulting Firm with a minimum 5 years demonstrated experience in performing cost engineering/construction management for all phases of the project, including safety assurance. Active participation in related professional societies is encouraged. Panel member should be familiar with the construction industry and practices used in Florida and/or the Southeastern United States.
Hydraulic Engineer	The Hydraulic Engineering Panel Member should be from academia, public agency or an Architect-Engineer or Consulting Firm with a minimum 5 years demonstrated experience in hydraulic engineering. Active participation in related professional societies is encouraged.
Environmental/Ecological Evaluation	The Ecological Evaluations Panel Member should be a scientist from academia, public agency, non-governmental entity, or an Architect-Engineer or Consulting Firm with a minimum 5 years demonstrated experience in evaluating and conducting ecological evaluations for complex public works projects with competing trade-offs. Experience should encompass projects with high public and interagency interests and that may have effects on sensitive habitats.

c. Documentation of IEPR

The IEPR panel will be selected and managed by an Outside Eligible Organization (OEO) per EC 1165-2-214, 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 the section 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.

7.0 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.

8.0 COST ENGINEERING AND ATR MANDATORY CENTER OF EXPERTISE (MCX) WITH TECHNICAL EXPERTISE (TCX) REVIEW AND CERTIFICATION

All decision documents shall be coordinated with the Civil Works Cost Engineering and Agency Technical Review Mandatory Center of Expertise (MCX) with Technical expertise (TCX), located in the Walla Walla District. The MCX will assist in determining the expertise needed on the ATR team and in the development of the review change(s). The MCX will also provide the Cost Engineering Certification for the Total Project Cost Summary. The RMO is responsible for coordination with the Cost Engineering MCX.

9.0 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 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. 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 economic model is anticipated to be used in the development of the decision document: HEC-FDA. This model will determine flood damage reduction benefits.

Model Certification/Approval Schedule and Cost

The HEC-FDA flood risk damage reduction model (version 1.2.5) may be used, and is certified. In the unlikely event that other models are needed to complete the project, the approval schedule and associated costs may change.

b. **Engineering Models**. The following engineering models are anticipated to be used in the development of the decision document: HEC-HMS and HEC-RAS.

Model Certification/Approval Schedule and Cost

The HEC-HMS (version 3.5) and HEC-RAS model (version 4.1.0) will be used. Both are HH&C CoP Preferred. In the unlikely event that other models are needed to complete the project, the approval schedule and associated costs may change.

10.0 REVIEW SCHEDULES AND COSTS

Task	Duration	Start	End
District Quality Control (DQC) of Draft PAC	15	7/22/2015	8/11/2015
ATR of Draft PAC/EA/Appendices	30	8/12/2015	9/22/2015
Revise Draft PAC/EA/Appendices and Print	10	9/23/2015	10/6/2015
SAD and HQ Review and approval to release EA for public review (if needed)	20	10/7/2015	11/3/2015
SAJ makes revisions per SAD comments	14	11/4/2015	11/23/2015

Concurrent IEPR	30	11/24/2015	1/4/2016
Concurrent public review (if needed)	20	11/24/2015	12/21/2015
SAJ Revise PAC/NEPA/Appendices	20	1/5/2016	2/1/2016
DQC of Pre-Final PAC	12	2/2/2016	2/17/2016
Final ATR of PAC/NEPA/Appendices and obtain Legal Review	20	2/18/2016	3/16/2016
SAJ makes revisions and submittal preparations	15	3/17/2016	4/5/2016
SAJ Submits Draft-Final PAC to SAD	1	4/6/2016	4/6/2016
SAD and HQ Final Review of Draft-Final PAC/NEPA/Appendices	20	4/7/2016	5/4/2016
SAD and HQ provide comments	1	5/5/2016	5/5/2016
SAJ revises and prints Final Report	15	5/6/2016	5/26/2016
SAJ submits Final Report/NEPA/appendices to SAD	1	5/27/2016	5/27/2016
SAD Endorses Final PAC	5	5/30/2016	6/3/2016
Division Engineer Transmittal Letter	10	6/6/2016	6/17/2016
HQ Review Final Package	35	6/20/2016	8/5/2016
Senior Panel Briefing	5	8/8/2016	8/12/2016
Director's Report and Approval	10	8/15/2016	8/26/2016
Final Report Package submitted to ASA	10	8/29/2016	9/9/2016

a. ATR Schedule and Cost

ATR will take place after the draft and final LRR are complete and have undergone DQC. ATR of the draft Post Authorization Change (PAC) report is scheduled to begin in August 2015. This review is estimated to take approximately 6 weeks. The cost for ATR of the draft is currently estimated to be $50,000.

The ATR of the final draft is scheduled to begin 18 February 2016. The ATR review of the final is expected to be a shorter review since it will primarily be a verification ensuring that issues found in the initial draft are resolved. The ATR of the final draft is estimated to take approximately 4 weeks. The cost for ATR of the final is currently estimated to be $20,000.

b. Type I IEPR Schedule and Cost

Type I IEPR start (start of panel review) is currently scheduled for 24 November 2015. This review is estimated to take approximately 6 weeks. It is estimated to cost approximately $200,000.

11.0 PUBLIC PARTICIPATION

At this time, public participation is not anticipated. Informal coordination with the Federal and Commonwealth of Puerto Rico resource agencies under the Section 7 of the Endangered Species Act will be conducted to ensure that the proposed refinements will not jeopardize the continued existence of any species listed as threatened or endangered in the vicinity of the authorized project. SAJ has coordinated with SAD and HQ and determined that, at this time, no additional NEPA documentation will be required. If additional information arises, SAJ will re-coordinate with SAD and HQ to determine if any additional NEPA documentation will be completed.

12.0 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, and 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 that may change as the study progresses. The Jacksonville District is responsible for keeping the Review Plan up to date. Minor changes made to the Review Plan after CESAD 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 CESAD Commander following the process used for initially approving the plan. The latest version of the Review Plan, along with the Commander's approval memorandum, will be posted on the Home District's webpage, and provided to the RMO and CESAD.

13.0 REVIEW PLAN POINT OF CONTACT

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

Jacksonville District Project Manager:
Jacksonville District Planning Technical Lead:
Jacksonville District Peer Review Coordinator:
Flood Risk Management PCX Point of Contact:

ATTACHMENT 1: Team Rosters

PROJECT DELIVERY TEAM

Name	Organization	Role
	Jacksonville District	Project Manager
	Jacksonville District	Engineering Technical Lead
	Jacksonville District	Planning Technical Lead
	Jacksonville District	Environmental Lead
	Jacksonville District	Hydraulic Engineer
	Jacksonville District	Cost Estimator
	Jacksonville District	Water Quality
	Jacksonville District	Economist
	Jacksonville District	Office of Council

AGENCY TECHNICAL REVIEW TEAM (To be determined by the PCX)

Name	Organization	Role
		Plan Formulator/ATR Lead
		Economics
		Environmental Resources
		Cost Engineering
		Real Estate
		Civil Engineer
		Hydraulic Engineering and Water Control
		Geotechnical Engineering
		Risk Analysis

INDEPENDENT EXTERNAL PEER REVIEW PANEL

Name	Discipline	Phone	Email
	Economics		
	Cost		
	Construction Management		
	Hydraulics		
	Environmental		

VERTICAL TEAM

Name	Discipline	Phone	Email
	District Support Team Lead	404-562-5226	mailto:Fredrick.ragan@usace.army.mil
	Regional Integration Team	202-761-4552	

PLANNING CENTER OF EXPERTISE for FLOOD RISK MANAGEMENT

Name	Discipline	Phone	Email
	Deputy Director, PCX Flood Risk Management	415-503-6852	

ATTACHMENT 2: Statement of Technical Review for Decision Documents

COMPLETION OF AGENCY TECHNICAL REVIEW

The Agency Technical Review (ATR) has been completed for the Rio De La Plata Limited Reevaluation Report. The ATR was conducted as defined in the project's Review Plan to comply with the requirements of EC 1165-2-214. 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 DrChecks[sm].

SIGNATURE

Name Date

ATR Team Leader

Office Symbol/Company

SIGNATURE

Name Date

Project Manager

Office Symbol

SIGNATURE

Name Date

Architect Engineer Project Manager[1]

Company, location

SIGNATURE

Name Date

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

Name	Date

Chief, Engineering Division

Office Symbol

SIGNATURE

Name	Date

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