



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

CESAD-RBT

25 APR 2016

MEMORANDUM FOR COMMANDER, JACKSONVILLE DISTRICT

SUBJECT: Approval of Review Plan for Preconstruction, Engineering and Design Phase Implementation Documents for the Cano Martin Pena Ecosystem Restoration Project, San Juan, Puerto Rico

1. References:

a. Memorandum, CESAJ-EN-Q, 22 April 2016, subject: Approval of Review Plan for Preconstruction, Engineering and Design Phase Implementation Documents for Cano Martin Pena Ecosystem Restoration Project, San Juan, Puerto Rico (Encl).

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

2. The enclosed subject Review Plan (RP) submitted by the Jacksonville District via reference 1.a has been reviewed by this office and is hereby approved in accordance with reference 1.b above.

3. We concur with the determination of the District Chief of Engineering and conclusion in the RP that a Type II Independent External Peer Review (IEPR) is not required on the Design Documentation Report and Plans and Specification for this ecosystem restoration project. The primary basis for our concurrence is that the failure or loss of the features associated with this ecosystem restoration project will not pose a significant threat to human life.

4. The District should take steps to post the RP to its web site and provide a link to CESAD-RBT. Before posting to the web site, the names of Corps/Army employees should be removed. Subsequent significant changes to this RP, such as scope or level of review changes, should they become necessary, will require new written approval from this office.

5. The SAD point of contact is [REDACTED].

Encl

C. DAVID TURNER  
Brigadier General, USA  
Commanding

CF:

[REDACTED]



REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
JACKSONVILLE DISTRICT CORPS OF ENGINEERS  
701 San Marco Blvd.  
JACKSONVILLE, FLORIDA 32207

CESAJ-EN-Q

22 April 2016

MEMORANDUM FOR Commander, South Atlantic Division (CESAD-RBT)

SUBJECT: Approval of Review Plan for Preconstruction, Engineering and Design Phase Implementation Documents for Cano Martin Pena Ecosystem Restoration Project, San Juan, Puerto Rico

1. References.

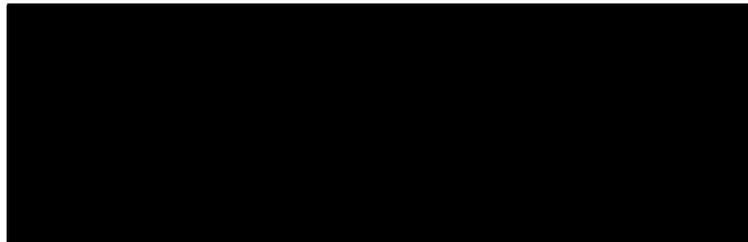
- a. EC 1165-2-214, Civil Works Review, 15 Dec 12
- b. Water Resources Development Act of 2007, Public Law 110-114, 8 Nov 07 (Project Authorization)

2. I hereby request approval of the enclosed Review Plan and concurrence with the conclusion that a Type II Independent External Peer Review (IEPR) of the subject project is not required. The recommendation to exclude Type II IEPR is based on the EC 1165-2-214 Risk Informed Decision Process as presented in the Review Plan. Documents to be reviewed include plans, specifications, and design documentation. The Review Plan complies with applicable policy, provides Agency Technical Review and has been coordinated with the CESAD. It is my understanding that non-substantive changes to this Review Plan, should they become necessary, are authorized by CESAD.

3. The district will post the CESAD approved Review Plan to its website and provide a link to the CESAD for its use. Names of Corps/Army employees will be withheld from the posted version, in accordance with guidance.

FOR THE COMMANDER:

Encl



# **PROJECT REVIEW PLAN**

For

## **Preconstruction, Engineering and Design Phase Implementation Documents**

For

### **Caño Martin Peña Ecosystem Restoration Project**

**San Juan, Puerto Rico**

**Project P2 Number: 457614**

**Jacksonville District**

**April 2016**



**US Army Corps  
of Engineers®**

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ATTACHMENT A - Approved Review Plan Revisions

ATTACHMENT B - Partial List of Acronyms and Abbreviations

ATTACHMENT C - ATR Report Outline and Completion of Agency Technical Review Form

## **1. PURPOSE AND REQUIREMENTS**

### **a. Purpose**

This Review Plan defines the scope and level of review activities for the Caño Martin Peña Ecosystem Restoration Project (CMP-ERP) in San Juan, Puerto Rico. As discussed below, the review activities consist of a District Quality Control (DQC) effort, an Agency Technical Review (ATR), and a Biddability, Constructability, Operability, Environmental, and Sustainability (BCOES) Review. Also as discussed below, an Independent External Peer Review (IEPR) is not recommended. The project is in the Pre-Construction, Engineering and Design (PED) phase. The implementation documents to be reviewed are Plans and Specifications (P&S) and a Design Documentation Report (DDR). Upon approval, this Review Plan will be included into the Project Management Plan (PMP) for this project as an appendix to the Quality Management Plan (QMP).

### **b. References**

- (1). ER 1110-2-1150, "Engineering and Design for Civil Works Projects", 31 August 1999
- (2). ER 1110-1-12, "Engineering and Design Quality Management", 31 March 2011
- (3). EC 1165-2-214, "Civil Works Review", 15 December 2012
- (4). ER 415-1-11, "Biddability, Constructability, Operability, Environmental, and Sustainability (BCOES) Review", 1 January 2013
- (5). SAJ EN QMS 02611, "SAJ Quality Control of In-House Products: Civil Works PED", 21 November 2011
- (6). SAJ EN QMS 08550, "BCOES Reviews", 21 September 2011
- (7). Enterprise Standard (ES) 08025, "Government Construction Quality Assurance Plan and Project/Contract Supplements"
- (8). Enterprise Standard (ES) 08026, "Three Phase Quality Control System"
- (9). Project Management Plan, Caño Martin Peña Ecosystem Restoration Project San Juan, Puerto Rico, P2 Number 457614

### **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 provides the procedures for ensuring the quality and credibility of U.S. Army Corps of Engineers (USACE) decision, implementation, and operations and maintenance documents and other work products. The EC outlines five levels of review: District Quality Control (DQC), Agency Technical Review (ATR), and an Independent External Peer Review (IEPR), Policy and Legal Review, and a Biddability, Constructability, Operability, Environmental, and Sustainability (BCOES) Review.

### **d. Review Plan Approval and Updates**

The South Atlantic Division Commander is responsible for approving this Review Plan. The Commander's approval reflects vertical team input (involving district, MSC, RMO, and

HQUSACE members) as to the appropriate scope and level of review. Like the PMP, the Review Plan is a living document and may change as the project progresses. The Jacksonville 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 A. Significant changes to the Review Plan (such as changes to the scope and/or level of review) will be re-approved by the MSC Commander following the process used for initially approving the plan. The latest version of the Review Plan, along with the Commanders' approval memorandum, will be posted on the Jacksonville District's webpage. The latest Review Plan will be provided to the RMO and home MSC.

#### **e. Review Management Organization**

The South Atlantic Division (SAD) is designated as the Review Management Organization (RMO). The RMO, in cooperation of the vertical team, will approve the ATR team members. CESAJ will assist SAD with management of the ATR and development of the charge to reviewers.

## **2. PROJECT INFORMATION**

### **a. Project Background**

The CMP-ERP is an urban ecosystem restoration project to restore the Caño Martín Peña (CMP) and surrounding areas of the San Juan Bay Estuary (SJBE). Restoration of the CMP would re-establish the tidal connection between the San José Lagoon and the San Juan Bay (SJB), which would improve dissolved oxygen levels and salinity stratification, increase biodiversity by restoring fish habitat and benthic conditions, and improve the functional value of mangrove habitat within the estuary.

The CMP is a tidal channel 3.75 miles long in metropolitan San Juan, Puerto Rico. It is an integral part of the SJBE, the only tropical estuary included in the U.S. Environmental Protection Agency (USEPA) National Estuary Program (NEP), which is administered in the Commonwealth by the San Juan Bay Estuary Program (SJBEP). The SJBE's watershed covers 97 square-miles and it is heavily urbanized with over 5,000 people per square-mile. The SJBE includes over 33% of the mangrove forests on the Island, with over 124 species of fish and 160 of birds. The eastern half of the CMP, historically between 200 and 400 feet wide and navigable, has a current depth of between 3.94 feet to 0 foot towards the San José Lagoon. Due to years of encroachment and filling of the mangrove swamps along the CMP, the channel no longer serves as a functional connection between the SJB and the San José Lagoon. Sedimentation rates within the Eastern CMP are nearly twice as high as in other parts of the SJBE due to infilling and extremely limited water flow. Open waters in areas closer to the San José Lagoon have been lost, as the area has started transitioning into emergent wetlands and uplands. Sediments include a combination of debris, household refuse, and other waste accounting for 10% of its composition. In some sites, thickness of this material is close to 10 feet below the bottom.

The conditions within the Eastern CMP have led to degradation within the entire estuary. Connectivity of the ecosystem has been severed and the biodiversity within the San José Lagoon has been compromised, as a reduced number of species are found when compared with other lagoons throughout the SJBE. Habitat degradation has in turn decreased the ability of those species still found to respond to natural changes, disease and other stressors,

reducing ecosystem functions and values, including losses of economic and recreational opportunities.

Water residence time in the San José Lagoon is of 16.9 days, much higher than a normal residence time, estimated to be about 3 days. This has caused strong salinity stratification, which in turn limits dissolved oxygen levels in the 702 acres of the lagoon's bottom with depths below 4 to 6 feet, severely affecting benthic habitats. Reduced flushing capacity has also led to an increase in sedimentation rates. Habitat for many species of fauna is then lost as reduced mangrove coverage and health decreases forage opportunities and reproductive success.

Ecological degradation within the estuary has also begun to affect human health and safety of surrounding communities. Inability to implement flood risk management measures due to the lack of conveyance capacity in the Eastern CMP leads to localized flooding. Subsequent human contact with CMP's waters has been associated with higher rates of asthma, dermatitis, and gastrointestinal diseases. Recreational navigation within the estuary has also been severed, restricting public and commercial waterborne traffic within the capital city.

#### **b. Project Authorization**

The Puerto Rico Department of Natural and Environmental Resources (DNER), custodian authority of the Maritime-Terrestrial Zone of the Caño Martín Peña (MTZ-CMP), and the USACE have performed preliminary technical analyses concerning the dredging of the CMP under a Support for Others Memorandum of Agreement dated March 3, 1996, and amended on May 24, 1999. This work concluded with the report "Dredging of Caño Martín Peña, Project Design Report and Environmental Impact Statement (EIS)" (USACE, March 2001).

After the Caño Martín Peña Ecosystem Restoration Project (CMP-ERP) was assigned to the Puerto Rico Highway and Transportation Authority (PRHTA), the USACE prepared the "Reconnaissance Report Section 905(b) Water Resources Development Act of 1986 (WRDA 86) Analysis, Caño Martín Peña, Puerto Rico Ecosystem Restoration." This report was prepared under a Congressional Resolution by the Committee on Transportation and Infrastructure of the U.S. House of Representatives, Docket 2702, dated September 25, 2002, which reads as follows:

*Resolved by the Committee on Transportation and Infrastructure of the United States House of Representatives, That the Secretary of the Army is requested to review the report of the Chief of Engineers on the Puerto Nuevo River, Puerto Rico, and other pertinent reports to include the dredging of Caño Martín Peña Project Design Report and Environmental Impact Statement, dated March 2001, to determine whether modifications to the recommendations contained therein are advisable at the present time in the interest of environmental restoration and protection and related purposes at the Martín Peña Canal, San Juan, Puerto Rico.*

The purpose of the reconnaissance study was to determine whether there was a Federal interest in the USACE participating in a cost shared feasibility phase study for ecosystem restoration and other related purposes along the CMP in San Juan, Puerto Rico. This Reconnaissance Report, which was completed in 2004, presented the results of studies for the CMP ecosystem restoration and concluded that there was a strong Federal interest in continuing the study into the feasibility phase. This conclusion was based on the likelihood that a Federal ecosystem restoration project would be environmentally and economically justified and implementable.

The 110th Congress enacted Public Law (PL) 110–114, known as the “Water Resources Development Act of 2007,” or WRDA 2007, on November 8, 2007. Section 5127 directed that:

*The Secretary shall review a report prepared by the non-Federal interest concerning flood protection and environmental restoration for Caño Martín Peña, San Juan, Puerto Rico, and, if the Secretary determines that the report meets the evaluation and design standards of the Corps of Engineers and that the project is feasible, the Secretary may carry out the project at a total cost of 150,000,000.*

On October 27, 2008, the Director of Civil Works issued an implementation guidance memorandum for Section 5127 of the WRDA 2007, which established that the feasibility study “will follow the requirements set forth in Appendix H of Engineering Regulation (ER) 1105-2-100 for projects authorized without a report and be submitted for approval by the Assistant Secretary of the Army (Civil Works).”

As indicated above, the proposed CMP-ERP was authorized as a multipurpose Ecosystem Restoration and Flood Risk Management project. Prior to embarking on the Feasibility Report, an appraisal of potential Flood Risk Management (FRM) benefits was conducted for the proposed project. Initial analysis indicated that the FRM National Economic Development (NED) benefits would not be equivalent to those that would be generated from a National Ecosystem Restoration (NER) analysis. As a result, it was concluded that the CMP-ERP would be more aptly formulated as a single-purpose, Ecosystem Restoration project with incidental FRM benefits. A qualitative analysis has been conducted for FRM and those benefits are identified within the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies (P&G) Four Accounts description and Recommended Plan sections of this Report. Federal recreation features have also been included in the CMP-ERP consistent with ER 1105-2-100.

### **c. Recommended Plan Elements**

**Construction schedule:** Alternative Plan 2 construction is proposed or expected to last between October 2018 and December 2020. However, project construction may be sequenced in order to get some sites within the Project Area worked in advance.

**Channel:** Alternative Plan 2 consists of dredging approximately 2.2 miles of the eastern half of the CMP to a width of 100 feet and a depth of 10 feet, with slight variations in channel width and depth at the 4 bridges to the west, the Barbosa Bridge to the east, and at the terminus of the CMP with the San José Lagoon. The walls of the Project Channel would be constructed with vertical concrete capped steel sheet piles with hydrologic connections to the surrounding lands. The sill depth of the window would be set at mean low water so that tidal exchanges are facilitated to the mangrove beds. Riprap would be placed at the four bridges. At the terminus of the Project Channel with the San José Lagoon, an extended channel would be dredged east into the San José Lagoon (over a distance of approximately 4,300 feet) as a hydraulic transition from the CMP. This extended channel would transition from the 10-foot-deep Project Channel to the 6-foot-deep areas of San José Lagoon. The extended channel would maintain the Project Channel’s 100-foot width but replace its steel sheet pile walls with a trapezoidal configuration with 5-foot to 1-foot earthen side slopes. A temporary coffer dam would be constructed to parallel the shoreline at low-lying areas such as the bend at Barrio Obrero Marina to protect the area(s) until the dredging and permanent sheet pile construction was

completed. A temporary turbidity containment coffer dam would be constructed to the east of the Martín Peña Bridge.

**Disposal of dredged material:** A barge-mounted mechanical clamshell dredge would be used to widen and deepen the Eastern CMP channel, and would place dredged material into dump scows. Approximately 76,200cy of solid waste (10%) would be screened from the 762,000cy of dredged material and transported from the staging area to the Humacao Regional Landfill site, which is located approximately 32 miles from the CMP-ERP site. Approximately 37,800cy of in situ sediments would be used to complete the sheet pile construction and mangrove bed restoration.

After screening and removal of solid waste debris, the remaining 648,000cy of in situ sediments would be encapsulated within geotextile fabric bags, and transported by shallow-draft barges to the San José Lagoon artificial subaqueous pits (SJ1 and SJ2). Additional water quality and sediment testing, such as bioassays, would be conducted prior to placement to ensure their suitability for disposal. Prior to disposal operations, SJ1 and SJ2 would be modified to increase capacity to accommodate the majority of dredged sediments and the required 2-foot sand cap. Enlarging SJ1 and SJ2 is the cost-effective approach versus disposing of dredged sediment across all five San José Lagoon artificial subaqueous pits because the surficial area in the latter approach would require significant more area for a sand cap. Approximately 506,381cy of material would be removed from both sites and deposited within the SJ 3/4/5 artificial subaqueous pits. Material for the sand cap will be quarried from upland quarry sites and transported by trucks to the construction staging area for transfer to dump scows for placement. The proposed layer of sand capping would also help reduce benthic burrowing organisms from reaching and disturbing the sediments. Silt curtains would also be employed around the pits in the San José Lagoon. In critical areas, the curtains may double ring the active area for additional precautions. The curtains would be constructed to the full depth of the water where they are placed.

For activities related to the installation of the weir in the western end of the Project Channel, a 2-acre upland staging area (Las Piedritas) east of the Martín Peña Bridge would be used to temporarily stockpile and transfer the collected solid waste excavated during the dredging process. Equipment and materials would be staged on floating barges. After the construction of the weir, and once the dredging from the eastern portion of the Project Channel opened the CMP, the temporary turbidity containment cofferdam would be removed. Solid waste and dredged sediment would be placed into trucks and hauled to the Humacao regional sanitary landfill.

Materials within the CMP-East include various types of solid waste, debris, and other materials. Such materials would require further testing prior to and/or during project construction, as appropriate, in accordance with an agreed sampling plan. If the testing determines that any materials contain hazardous substances at levels that are not suitable for unregulated disposal, they will be managed in accordance with the applicable laws and regulations of the relevant regulatory agencies.

Clearing and grubbing activities would remove on average 12 inches from the Project Area within the CMP channel, and would result in the removal of approximately 91,909cy of vegetation and mixed material, and 642 cy of asphalt paving. Transport of this material would occur by truck and would be hauled for disposal at the Humacao regional landfill site.

**Erosion Control:** A weir would be constructed at the western end of the Project Area to mitigate water flows into the adjacent waterways. The dimensions of the weir would be 800 feet in length, 115 feet wide. At the site where the weir would be installed, the channel would be 115 x 6.5 feet. It would replicate the cross sectional area of Alternative 1 (75 x 10 feet), and by providing a transition area to reduce bottom water velocities, would prevent scour around bridges, bulkheads, and other marine structures west of the Project Area. The weir would be constructed with an articulated concrete bottom, while the remainder of the Eastern CMP channel would be earthen bottom.

**Non-Structural Measures:** No non-structural measures were identified to restore circulation to San José Lagoon. Other non-structural measures are related to structure acquisitions and relocations within the confines of the Federal project have been retained and included in the development of alternatives, as well as activities outside of the CMP-ERP that would be conducted by the non-Federal sponsors. Overall, the non-structural measures considered and used in the development of alternatives included the acquisition of approximately 393 residential structures and relocation of 394 owners/families/occupants, as well as other measures independent of the Federal project to be implemented by the non-Federal sponsor and adjacent communities, such as enforcement of illegal dumping, stormwater and sewer improvements and community education.

**Mangrove Restoration:** Approximately 34.48 acres of mangrove wetlands would be restored by grading lands adjacent to the CMP and planting four native species of mangrove.

**Additional Project Components:** Additional project components are: Recreation Plan, Project Monitoring and Adaptive Management Plan, Nuisance and Exotic Vegetation Control, and Draft Project Operating Manual. The Recreation Plan includes water access areas that would replace lost functions within the Project Area.

#### **d. Public Participation**

The Jacksonville District Corporate Communications Office continually keeps the affected public informed on Jacksonville District projects and activities. There are no planned activities, public participation meetings or workshops that could generate issues needing provision to review teams. The approved Review Plan will be posted on the Jacksonville District Internet. Any comments or questions regarding the Review Plan will be addressed by the Jacksonville District.

#### **e. Civil Works Cost Engineering Mandatory Center of Expertise Certification**

The cost related documents associated with the P&S and DDR and the associated contract do not require external peer review or certification by the Cost Engineering Mandatory Center of Expertise (MCX).

### **3. DISTRICT QUALITY CONTROL**

#### **a. Requirements**

All implementation documents (including supporting data, analyses, environmental compliance documents, etc.) shall undergo a DQC. A 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. The home district shall manage the DQC. Documentation of DQC activities is required and should be in accordance with the Quality Manual of the District and the home MSC.

Quality checks may be performed by staff responsible for the work, such as supervisors, work leaders, team leaders, designated individuals from the senior staff, or other qualified personnel. However, they should not be performed by the same people who performed the original work, including managing/reviewing the work in the case of contracted efforts. Quality Checks include a review of the alternatives considered, schedules, budgets, means and methods of construction, and have lessons learned been considered. DQC is assuring the math and assumptions are correct by having a checker initial each sheet of the computations. Additionally, the PDT is responsible to ensure consistency and effective coordination across all project disciplines during project design and construction management.

District Quality Control and Quality Assurance activities for DDRs and P&S are stipulated in ER 1110-1-12, Engineering & Design Quality Management and SAJ EN QMS 02611. The subject project DDR and P&S will be prepared by the Jacksonville District using ER 1110-1-12 procedures and will undergo District Quality Control. SAJ EN QMS 02611 defines DQC as the sum of two reviews, Discipline Quality Control Review (DQCR) and Product Quality Control Review (PQCR). Product Quality Control Review Certification is the DQC Certification and will precede ATR.

#### **b. Documentation**

DQCRs occur during the design development process and are carried out as a routine management practice by each discipline. Checklists are utilized by each discipline to facilitate the review and to document the DQCR review comments. Certification of the Discipline Quality Check and Review is signed by the Branch Chief certifying that the DQCR on all design analyses and products have been completed in accordance with the EN QMS process prior to release from the Branch.

The PQCR shall ensure consistency and effective coordination across all disciplines and to assure the overall coherence and integrity of the products. Review comments and responses for this review will be documented in DrChecks. The Product Quality Control Review shall be QC certified by the Engineering Technical Lead (ETL) and all applicable Section and Branch Chiefs. This PQCR certification signifies that all Discipline Specific Quality Checks and Review Certification are complete, as well as the Product Quality Control Reviews.

### **4. AGENCY TECHNICAL REVIEW**

#### **a. Requirements**

ATR is mandatory for all implementation documents (including supporting data, analyses, environmental compliance documents, etc.). This project will include a preliminary ATR Coordination Meeting, an Intermediate Design Phase ATR, and a Final Design Phase ATR.

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, went through robust DQC, and comply with published USACE guidance, and that the document explains the analyses and results in a reasonably clear manner for the public and decision

makers. The PDT should obtain ATR agreement on key data such as hydraulic and geotechnical parameters early in design process. The goal is to have early involvement of ATR team, especially when key decisions are made. The ATR Lead should be invited virtually to all PDT meetings, in order to understand the design efforts and to know when to engage other ATR members for key decisions. Value added Lessons Learned from the ATR team should be shared early on to have the best chance of being adopted by the PDT. Most of the ATR effort should be accomplished midway through the design effort; after completion of design the ATR effort will check that the effort agreed to at mid-point was accomplished. This is consistent with the requirement that the ATR members shall not be involved in the day-to-day production of the project/product. A site visit will not be scheduled for the ATR Team.

**b. Documentation of ATR**

DrChecks review software will be used to document all ATR comments, responses and associated resolutions accomplished throughout the review process. Comments will 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.

**c. Comment Resolution**

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

**d. Products to Undergo ATR**

Products scheduled to undergo ATR shall include project drawings, specifications, and design documentation report.

**e. Required ATR Team Expertise and Requirements**

As stipulated ER 1110-1-12, ATR members will be sought from the following sources: regional technical specialists (RTS); subject matter experts (SME) certified in CERCAP; senior level experts from other districts; Center of Expertise staff; experts from other USACE commands; contractors; academic or other technical experts; or a combination of the above. The ATR

Team will be comprised of the following disciplines; knowledge, skills and abilities; and experience levels.

ATR Team Leader. The ATR Team Leader should have 10 or more years of experience with Civil Works Projects and have performed ATR Team Leader duties on complex civil works projects. The ATR Team Leader can also serve as one of the review disciplines.

Geotechnical Engineering. The team member should be a registered professional engineer and have 10 or more years of experience in geotechnical engineering, with expertise in floodwalls and earthen cofferdams.

Construction Engineering. The team member should be a registered professional and have 10 or more years of experience in construction engineering, with expertise in heavy civil construction and dredging.

Civil Engineering. The team member should be a registered professional engineer and have 10 or more years of experience in civil engineering, with expertise in heavy civil construction and dredging.

Structural Engineering. The team member should be a registered professional engineer and have 10 or more years of experience in structural engineering, with expertise in floodwalls.

Hydraulics and Hydrology Engineering. The team member should be a registered professional engineer and have 10 or more years of experience in H&H engineering, with expertise in coastal wetlands.

Environmental HTRW. The team member should be a registered professional engineer and have 10 or more years of experience in environmental cleanup, landfills, and underwater burial of hazardous waste.

Environmental Engineering. The team member should be a registered professional engineer and have 10 or more years of experience with ecosystem restoration, habitat creation, estuary flushing, water and sediment quality, flora and fauna, species of special concern, and NEPA.

**f. Completion and Certification of the ATR**

At the conclusion of the 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:

- (1) Identify the document(s) reviewed and the purpose of the review;
- (2) Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
- (3) Include the charge to the reviewers;
- (4) Describe the nature of their review and their findings and conclusions;
- (5) Identify and summarize each unresolved issue (if any); and

- (6) 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 completion of ATR and Certification of ATR. The Certification will certify that the issues raised by the ATR team have been resolved (or elevated to the vertical team). The completion and certification should be completed based on the work reviewed to date for the project. A Sample Completion of ATR and Certification of ATR are included in Attachment C.

## **5. BIDDABILITY, CONSTRUCTABILITY, OPERABILITY, ENVIRONMENTAL, AND SUSTAINABILITY REVIEW**

The value of a BCOES review is based on minimizing problems during the construction phase through effective checks performed by knowledgeable, experienced personnel prior to advertising for a contract. Biddability, constructability, operability, environmental, and sustainability requirements must be emphasized throughout the planning and design processes for all programs and projects, including during planning and design. This will help to ensure that the government's contract requirements are clear, executable, and readily understandable by private sector bidders or proposers. It will also help ensure that the construction may be done efficiently and in an environmentally sound manner, and that the construction activities and projects are sufficiently sustainable. Effective BCOES reviews of design and contract documents will reduce risks of cost and time growth, unnecessary changes and claims, as well as support safe, efficient, sustainable operations and maintenance by the facility users and maintenance organization after construction is complete. Multiple BCOES Reviews will be conducted for this project. Requirements and further details are stipulated in ER 1110-1-12, ER 415-1-11, and SAJ EN QMS 08550.

## **6. INDEPENDENT EXTERNAL PEER REVIEW**

### **a. General.**

EC 1165-2-214 provides implementation guidance for both Sections 2034 and 2035 of the Water Resources Development Act (WRDA) of 2007 (Public Law (P.L.) 110-114). The EC addresses review procedures for both the Planning and the Design and Construction Phases (also referred to in USACE guidance as the Feasibility and the Pre-construction, Engineering and Design and Construction Phases). The EC defines Section 2035 Safety Assurance Review (SAR), Type II Independent External Peer Review (IEPR). The EC also requires Type II IEPR be managed and conducted outside the Corps of Engineers.

### **b. Type I Independent External Peer Review Determination.**

A Type I IEPR is primarily associated with decision documents. A Type I IEPR is not applicable to the implementation documents covered by this Review Plan.

### **c. Type II Independent External Peer Review Determination.**

This project does not trigger WRDA 2007 Section 2035 factors for Safety Assurance Review (termed Type II IEPR in EC 1165-2-214), and therefore, a review under Section 2035 is not required. The factors in determining whether a review of design and construction activities of a

project are necessary as stated under Section 2035 along with this Review Plan's applicability statements follow.

(1) The failure of the project would pose a significant threat to human life.

*This project will remove contaminated sediment and restore the flushing capabilities of the Caño Martin Peña tidal channel. It will establish a larger cross sectional area for the Caño Martin Peña tidal channel to reduce localized flooding and it will improve and restore adjacent mangrove habitat. Failure of either feature will not pose a threat to human life.*

(2) The project involves the use of innovative materials or techniques.

*This project will utilize methods and procedures used by the Corps of Engineers on other similar works.*

(3) The project design lacks redundancy.

*The project features are not complex in nature and do not employ the concept of redundancy.*

(4) The project has unique construction sequencing or a reduced or overlapping design construction schedule.

*This project's construction does not have unique sequencing or a reduced or overlapping design. The construction sequence and schedule has been used successfully by the Corps of Engineers on other similar works.*

Based on the discussion above, the District Chief of Engineering, as the Engineer-In-Responsible-Charge, does not recommend a Type II IEPR Safety Assurance Review of the P&S and DDR.

## **7. POLICY AND LEGAL COMPLIANCE**

The Jacksonville District Office of Counsel reviews all contract actions for legal sufficiency in accordance with Engineer Federal Acquisition Regulation Supplement 1.602-2 Responsibilities. The subject implementation documents and supporting environmental documents will be reviewed for legal sufficiency prior to advertisement.

## **8. MODEL CERTIFICATION AND APPROVAL**

This project will not use any engineering models that have not been approved for use by USACE.

## 9. PROJECT DELIVERY TEAM DISCIPLINES

PDT Disciplines
Civil/Dredge Engineering
Hydrology & Hydraulics Engineering
Structural Engineering
Geotechnical Engineering
Cost Engineering
Planning Environmental

## 10. BUDGET AND SCHEDULE

### a. Project Schedule.

Milestone	Task	Start Date	End Date
CW310	Intermediate Draft P&S Complete	17-Jun-2016	15-Dec-2016
	Intermediate DQCR	16-Dec-2016	5-Jan-2017
	Intermediate PQCR/DQC*	6-Jan-2017	16-Feb-2017
	Intermediate ATR Review	17-Feb-2017	20-Mar-2017
	Intermediate BCOES	21-Mar-2017	11-Apr-2017
	Final Draft P&S Complete	14-Apr-2017	13-Jul-2017
	Final DQCR	14-Jul-2017	3-Aug-2017
	Final PQCR/DQC*	4-Aug-2017	15-Sep-2017
	Final ATR Review	18-Sep-2017	18-Oct-2017
	Final ATR Certification	19-Oct-2017	24-Oct-2017
CW320	Final BCOES Certification	27-Oct-2017	17-Nov-2017
CW400	Advertisement	20-Nov-2017	30-Nov-2017
		15-Dec-2017	1-Jan-2018

\* SAJ EN QMS 02611 defines DQC as the sum of DQCR and PQCR.

### b. ATR Cost.

Funds will be budgeted for the ATR as outlined above. It is envisioned that each reviewer will be afforded 40 hours for the review plus 16 hours for coordination. The estimated cost range is \$50,000 - \$60,000.

**ATTACHMENT A: APPROVED REVIEW PLAN REVISIONS**

<b>Revision Date</b>	<b>Description of Change</b>	<b>Page / Paragraph Number</b>

**ATTACHMENT B: PARTIAL LIST OF ACRONYMS AND ABBREVIATIONS**

<u>Acronyms</u>	<u>Defined</u>
AFB	Alternatives Formulation Briefing
ATR	Agency Technical Review
BCOES	Biddability, Constructability, Operability, Environmental, and Sustainability Review
CAP	Continuing Authorities Program
CERCAP	Corps of Engineers Reviewer Certification and Access Program
CY	Cubic Yards
DDR	Design Documentation Report
DQC	District Quality Control
DQCR	Discipline Quality Control Review
EC	Engineering Circular
EA	Environmental Assessment
ER	Engineering Regulation
ERDC-CERL	Engineer Research and Development Center – Construction Engineering Research Laboratory
ESA	Endangered Species Act
ETL	Engineering Technical Lead
FDEP	Florida Department of Environmental Protection
FONSI	Findings of No Significant Impacts
FSCA	Feasibility and Cost Sharing Agreement
FY	Fiscal Year
GRR	General Reevaluation Report
IEPR	Independent External Peer Review
LPP	Locally Preferred Plan
MCX	Mandatory Center of Expertise
MLLW	Mean Low Low Water
MSC	Major Subordinate Command
NAS	National Academy of Sciences
NEPA	National Environmental Policy Act
ODMDS	Ocean Dredged Material Disposal Site
OMB	Office of Management and Budget
OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
P&S	Plans and Specifications
PED	Preconstruction Engineering and Design
PDT	Project Delivery Team
PM	Project Manager
PMP	Project Management Plan

<u>Acronyms</u>	<u>Defined</u>
PPA	Project Partnering Agreement
PQCR	Product Quality Control Review
QA	Quality Assurance
QCP	Quality Control Plan
QMP	Quality Management Plan
QMS	Quality Management System
RMC	Risk Management Center
RMO	Review Management Organization
RP	Review Plan
RTS	Regional Technical Specialist
SAJ	South Atlantic Jacksonville District Office
SAD	South Atlantic Division Office
SAR	Safety Assurance Review (also referred as Type II IEPR)
SME	Subject Matter Expert
USACE	U.S. Army Corps of Engineers
WRDA	Water Resources and Development Act

## **ATTACHMENT C**

### **ATR REPORT OUTLINE AND COMPLETION OF AGENCY TECHNICAL REVIEW**

**Caño Martin Peña  
Ecosystem Restoration Project  
San Juan, Puerto Rico**

**Review of Plans and Specifications (P&S), Design Documentation Report (DDR)**

**ATR REPORT OUTLINE (Unneeded items, such as ATR Team Member Disciplines that are not identified as needed in the Review Plan, shall be deleted from the ATR Report.)**

- 1. Introduction:**
- 2. Project Description:**
- 3. ATR Team Members:**
  - ATR Team Leader**
  - Geotechnical Engineering**
  - Construction Engineering**
  - Civil Engineering**
  - Structural Engineering**
  - Hydraulics and Hydrology Engineering**
  - Environmental HTRW**
  - Environmental Engineering**
- 4. ATR Objective:**
- 5. Documents Reviewed:**
- 6. Findings and Conclusions:**
- 7. Unresolved Issues:**

**Enclosures:**

- 1. ATR Statement of Technical Review**
- 2. ATR Comments (DrChecks)**
- 3. Project Review Plan**
- 4. Charge to Reviewers**
- 5. Certification of District Quality Control Review**

## COMPLETION OF AGENCY TECHNICAL REVIEW

The Agency Technical Review (ATR) has been completed for the Caño Martín Peña Ecosystem Restoration Project San Juan, Puerto Rico, including the design documents, plans and specifications and DDR. The ATR was conducted as defined in the project's Review Plan to comply with the requirements of EC 1165-2-214 and ER 1110-1-12. 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.

\_\_\_\_\_  
NAME  
ATR Team Leader

\_\_\_\_\_  
Date

\_\_\_\_\_  
NAME  
Project Manager

\_\_\_\_\_  
Date

\_\_\_\_\_  
NAME  
Review Management Office Representative

\_\_\_\_\_  
Date

### CERTIFICATION OF AGENCY TECHNICAL REVIEW

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

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

\_\_\_\_\_  
NAME  
Chief, Engineering Division  
SAJ-EN

\_\_\_\_\_  
Date