



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-PDP

5 Apr 2019

MEMORANDUM FOR Commander, U.S. Army Corps of Engineers, Jacksonville District, 701 San Marco Blvd., Jacksonville, FL 32207

SUBJECT: Approval of the Review Plan for the San Juan Metro Coastal Storm Risk Management Feasibility Study

1. References:

a. Memorandum, CESAJ-PD, 5 March 2019, subject: San Juan Metro Coastal Storm Risk Management Study Review Plan submittal for Division review and approval.

b. Memorandum, CECW-P, 7 June 2018, subject: Revised Delegation of Authority in Section 2034(a)(5)(A) of the Water Resources Development Act of 2007 (WRDA 2007), as amended (33 U.S.C. 2343).

2. Jacksonville District prepared the review plan for the San Juan Metro Coastal Storm Risk Management Feasibility Study consistent with EC 1165-2-217. The District coordinated the review plan with the National Planning Center of Expertise for Coastal Storm Risk (PCX-CSR), which is the lead office to execute this review plan. For further information, contact [REDACTED] PCX-CSR at (347) 370-4571.

3. I approve this review plan. The approved review plan is subject to change as circumstances require, consistent with study development under the project management business process. Subsequent revisions to this approved review plan due to significant changes in the study, study scope, or level of review will require new written approval from this office.

4. The point of contact for this action is [REDACTED] Acting Chief, Planning and Policy Division, at 404-562-5226, [REDACTED]

[REDACTED]



DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
701 San Marco Boulevard
JACKSONVILLE, FLORIDA 32207-8175

CESAJ-PD

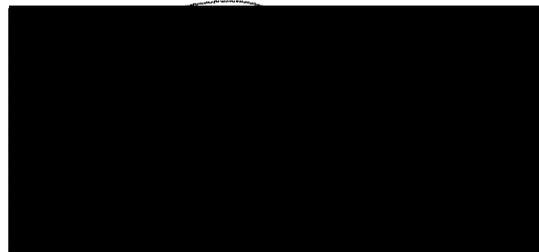
05 MAR 2019

MEMORANDUM FOR Commander, U.S. Army Corps of Engineers, South Atlantic Division, (CESAD-PDP Attn: [REDACTED] 60 Forsyth Street SW, Room 10M15, Atlanta, GA 30303

Subject: San Juan Metro Coastal Storm Risk Management Study Review Plan
submission for Division review and approval

1. This Review Plan defines the scope and level of peer review for the San Juan Metro Coastal Storm Risk Management Feasibility Study.
2. The National Planning Center of Expertise for Coastal Storm Risk Management (PCX-CSR) has reviewed the enclosed review plan and concurs that the review plan complies with current peer review policy requirements contained in EC 1165-2-217, entitled "Review Policy for Civil Works".
3. I hereby request endorsement of the enclosed subject Review Plan (Enclosure 1), consistent with the above referenced EC 1165-2-217 as endorsed by the PCX-CSR endorsement memo attached (Enclosure 2).
4. POCs for this memorandum are [REDACTED] at 904-232-1818 or email at [REDACTED] and [REDACTED] Planning Technical Lead, at 904-232-1055 or email at [REDACTED]

Encls



ENCLOSURE 1

REVIEW PLAN

March 28, 2019

Project Name: San Juan Metro Area (San Juan Back Bay) Coastal Storm Risk Management Study, Puerto Rico

P2 Number: 469423

Decision Document Type: Feasibility Report

Project Type: Coastal Storm Risk Management

District: Jacksonville District

District Contact: SAJ Peer Review Manager 904-232-1818

Major Subordinate Command (MSC): South Atlantic Division

MSC Contact: Senior Plan Formulator, 404-562-5226

Review Management Organization (RMO): Coastal Storm Risk Management PCX

RMO Contact: (651) 290-5259

**Key Review Plan
Dates**

Date of RMO Endorsement of Review Plan: 01 March 2019

Date of MSC Approval of Review Plan:

Date of IEPR Exclusion Approval: Pending

Has the Review Plan changed since PCX Endorsement? Pending

Date of Last Review Plan Revision: None

Date of Review Plan Web Posting: Pending

Date of Congressional Notifications: Pending

Milestone Schedule

	<u>Scheduled</u>	<u>Actual</u>	<u>Complete</u>
<u>FCSA Execution Date:</u>	<u>9-17-2018</u>	<u>9-17-2018</u>	<u>Yes</u>
<u>Alternatives Milestone:</u>	<u>12-13-2018</u>	<u>12-13-2018</u>	<u>Yes</u>
<u>Tentatively Selected Plan:</u>	<u>3-19-2020</u>	<u>(enter date)</u>	<u>No</u>
<u>Release Draft Report to Public:</u>	<u>5-18-2020</u>	<u>(enter date)</u>	<u>No</u>
<u>Agency Decision Milestone:</u>	<u>9-17-2020</u>	<u>(enter date)</u>	<u>No</u>

Review Plan – San Juan Metro Area Feasibility Study

<u>Final Report Transmittal:</u>	<u>6-03-2021</u>	<u>(enter date)</u>	<u>No</u>
<u>Senior Leaders Briefing*:</u>	<u>6-19-2021</u>	<u>(enter date)</u>	<u>No</u>
<u>Chief's Report:</u>	<u>9-17-2021</u>	<u>(enter date)</u>	<u>No</u>

Project Fact Sheet
March 2019

Project Name: San Juan Metro Area (San Juan Back Bay) Coastal Storm Risk Management Study

Location: San Juan, Puerto Rico and adjacent municipalities

Authority: Section 204 of the Flood Control Act of 1970, Public Law 91-611. Study funds were appropriated under Bipartisan Budget Act of 2018, P.L. 115-123.

“For an additional amount for ‘Investigations’ for necessary expenses related to the completion, or initiation and completion, of flood and storm damage reduction, including shore protection, studies which are currently authorized or which are authorized after the date of enactment of this subdivision, to reduce risk from future floods and hurricanes, at full Federal expense, \$135,000,000, to remain available until expended: Provided, That of such amount, not less than \$75,000,000 is available for such studies in States and insular areas that were impacted by Hurricanes Harvey, Irma, and Maria: Provided further, That funds made available under this heading shall be for high-priority studies of projects in States and insular areas with more than one flood-related major disaster declared pursuant to the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5121 et seq.) in calendar years 2014, 2015, 2016, or 2017: Provided further, That such amount is designated by the Congress as being for an emergency requirement pursuant to section 251 (b)(2)(A)(i) of the Balanced Budget and Emergency Deficit Control Act of 1985: Provided further, That the Assistant Secretary of the Army for Civil Works shall provide a monthly report to the Committees on Appropriations of the House of Representatives and the Senate detailing the allocation and obligation of these funds, including new studies selected to be initiated using funds provided under this heading, beginning not later than 60 days after the enactment of this subdivision.”

Sponsor: Puerto Rico Department of Natural and Environmental Resources (DNER)

Type of Study: Coastal Storm Risk Management Feasibility Study (CSRM)

SMART Planning Status: 3X3X3 compliant.

Project Area: San Juan Back Bay is located along the Northern Coastal areas of Puerto Rico, see Figure 1. The study area is located in the back-bay area of San Juan and adjacent municipalities which is surrounded by a high-density urban residential area, recreation areas, hotels and tourist facilities, and commercial areas. Currently the study area has been broken out into 6 planning areas: West San Juan Bay, East San Juan Bay, Condado Lagoon, Martin Pena Canal Area, Los Corozos & San Jose Lagoons, and Torrecilla Lagoon (Figure 2).



Figure 1. Location of San Juan Back Bay



Figure 2. San Juan Back Bay Location

Problem Statement: During coastal storms, storm surge, tidal influences, and wave contributions cause extreme flooding from lagoons and back-bay areas. This results in damages to critical infrastructure, residential and commercial structures; negative environmental and social effects; losses to the regional and national economy; and lack of resilience for affected communities.

Federal Interest: The area has approximately 35,000 structures, including critical infrastructure (roads, hospitals, utilities, etc.) with a combined estimated value of approximately \$13 billion. Flooded conditions cause major damages to these structures. Additionally, the flooded conditions are hazardous to the community (bringing disease and mold during extended periods), pollute the lagoon with automobile fluids, corrode the underside of vehicles, affect economic development of stores, hotels and restaurants, and decrease property values. This shoreline contains potential National Economic Development (NED) benefits of the San Juan area including large hotels, businesses, condominiums and other residences of high structure value.

Risk Identification: The risks associated with the project are minimal. The study is not anticipated to be technically, institutionally, or socially challenging. The project will use the same design and construction techniques that have been used in the past on similar projects throughout the region. The project will not be justified by life safety nor does it involve significant threat to human life/safety assurance. Until such time that a plan to address the problems is formulated, it is premature to know if failure of the project would pose a threat to human life. The major risk is the potential for adverse impacts if the Future Without Project (FWOP) condition (i.e. the No Action Plan) is selected, as severe storm impacts to life and property could occur.

1. FACTORS AFFECTING THE LEVELS OF REVIEW

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

- Will the study likely be challenging?
This project will consider solutions to problems caused by coastal flooding. Although the project is dealing with coastal influences within a back-bay setting, which is likely to be challenging, overall the study is within the Corps' expertise.
- Provide a preliminary assessment of where the project risks are likely to occur and assess the magnitude of those risks.
The risks associated with the project are minimal. Project risks are most likely to be in residual risks, meaning that some flooding may still occur within and near the study area depending on the solution that is ultimately recommended. Additionally, evacuation precautions and other measures would need to be applied even to areas behind project alignments designed and constructed to reduce residual risk of overtopping. The study is not anticipated to be technically, institutionally, or socially challenging. The project will use the same design and construction techniques that have been used in the past on similar projects throughout the region. The project will not be justified by life safety nor does it involve significant threat to human life/safety assurance. Until such time that a plan to address the problems is formulated, it is premature to know if failure of the project would pose a threat to human life. The major risk is the potential for adverse impacts if the Future Without Project (FWOP) condition (i.e. the No Action Plan) is selected, as severe storm impacts to life and property could occur.
- Is the project likely to be justified by life safety or is the study or project likely to involve significant life safety issues?
The project will not be justified by life safety – it will be justified by reduction in damages to infrastructure. The project alternatives would not add significant threat to human life/safety assurance, but would rather incidentally reduce the risk of flooding related problems human safety, quality of life, and resilience.
- Has the Governor of an affected state requested a peer review by independent experts? *The Governor of the Commonwealth of Puerto Rico has not requested a peer review by independent experts.*
- Will it likely involve significant public dispute as to the project's size, nature, or effects?
The project is not likely to have significant public dispute. The community is eager and in need of a project to reduce back bay flooding risk. Additionally, a

Communications Plan is being developed to communicate with the public during the planning process and ensure the general community understands and supports the alternatives and ultimately the recommended plan.

- Is the project/study likely to involve significant public dispute as to the economic or environmental cost or benefit of the project?
No significant public dispute to the economic or environmental costs or benefits is anticipated. The project is anticipated to provide significant national and regional economic developments which will be well documented, as well as provide valuable associated environmental benefits.
- Is the information in the decision document or anticipated project design likely to be based on novel methods, involve 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 study document or project design will not 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 project will use the same design and construction techniques that have been used in similar projects throughout the United States and in the Commonwealth.
- Does the project design require redundancy, resiliency, and/or robustness, unique construction sequencing, or a reduced or overlapping design/construction schedule? *The proposed project design will provide coordinated and holistic storm damage reduction along the shoreline within the back-bay areas. Redundancy will likely not be required. Resiliency of the community before, during and after storms is expected by a reduction of flooding, which could be accomplished with structural methods, such as seawalls, pumps, and storm surge barriers, and non-structural measures such as nature based features (such as mangroves) within certain areas or such as elevating homes. The construction schedule is currently unknown, and may require certain areas be constructed before others, but it is not expected to be unique or unattainable with current standards.*
- Is the estimated total cost of the project greater than \$200 million?
The total cost of the project is unknown but there is a strong likelihood that it will be greater than \$200 million, based on other back-bay study costs.
- Will an Environmental Impact Statement be prepared as part of the study?
An Environmental Assessment or an Environmental Impact Statement will be prepared and integrated into the report, once more information is assessed about environmental effects.
- Is the project expected to have more than negligible adverse impacts on scarce or unique tribal, cultural, or historic resources?
The project is not expected to adversely affect tribal, cultural, or historical resources.

- Is the project expected to have substantial adverse impacts on fish and wildlife species and their habitat prior to the implementation of mitigation measures?
At this early phase, a project has not been formulated and it is unknown what effects the potential project will have on the environment. The PDT will follow guidance to avoid, minimize and mitigate if needed. Agency consultations will be held and documented for the review process.
- Is the project expected to have, before mitigation measures, more than a negligible adverse impact on an endangered or threatened species or their designated critical habitat?
At this early phase, a project has not been formulated and it is unknown what effects the potential project will have on the environment. The PDT will follow guidance to avoid, minimize and mitigate if needed.

2. REVIEW EXECUTION PLAN

This section describes each level of review to be conducted. Based upon the factors discussed in Section 1, this study will undergo the following types of reviews:

District Quality Control. All decision documents (including data, analyses, environmental compliance documents, etc.) undergo DQC. This internal review process covers basic science and engineering work products. It fulfills the project quality requirements of the Project Management Plan.

Agency Technical Review. ATR is performed by a qualified team from outside the home district that is not involved in the day-to-day production of the project/product. These teams will be comprised of certified USACE personnel. The ATR team lead will be from outside the home MSC. If significant life safety issues are involved in a study or project a safety assurance review should be conducted during ATR.

Independent External Peer Review. Type I IEPR may be required for decision documents under certain circumstances. This is the most independent level of review, and is applied in cases that meet criteria where the risk and magnitude of the project are such that a critical examination by a qualified team outside of USACE is warranted. A risk-informed decision is made as to whether Type I IEPR is appropriate.

Cost Engineering Review. All decision documents shall be coordinated with the Cost Engineering Mandatory Center of Expertise (MCX). The MCX will assist in determining the expertise needed on the ATR and IEPR teams. The MCX will provide the Cost Engineering certification. The RMO is responsible for coordinating with the MCX for the reviews. These reviews typically occur as part of ATR.

Model Review and Approval/Certification. EC 1105-2-412 mandates the use of certified or approved models for all planning work to ensure the models are technically and theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions.

Policy and Legal Review. All decision documents will be reviewed for compliance with law and policy. ER 1105-2-100, Appendix H provides guidance on policy and legal compliance reviews. These reviews culminate in determinations that report recommendations 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. These reviews are not further detailed in this section of the Review Plan.

Table 1 provides the schedules and costs for reviews. The specific expertise required for the teams are identified in later subsections covering each review. These subsections also identify requirements, special reporting provisions, and sources of more information.

Table 1: Levels of Review*

Products to Undergo Review	Review Level	Start Date	End Date	Cost	Complete
ATR FWOP Conditions	Agency Technical Review	June 2019	July 2019	\$15,000	No
ATR FWP Conditions	Agency Technical Review	November 2019	December 2019	\$15,000	No
Draft Feasibility Report, appendices and NEPA	District Quality Control, SAJ Policy and Legal Review	April 2020	May 2020	\$20,000	No
Draft Feasibility Report, appendices and NEPA	Agency Technical Review	June 2020	July 2020	\$40,000	No
Pre-Final Feasibility Report, appendices and NEPA	District Quality Control	November 2020	December 2020	\$20,000	No
Final Feasibility Report, appendices and NEPA	Agency Technical Review	December 2020	January 2021	\$30,000	No
Final Feasibility Report, appendices and NEPA Concurrent Review	Policy and Legal Review	December 2020	January 2021	n/a	No

* IEPR Type I is expected to be conducted but is not yet a certainty because the costs might not exceed \$200M

a. DISTRICT QUALITY CONTROL

The home district shall manage DQC and will appoint a DQC Lead to manage the local review (see EC 1165-2-217, section 8.a.1). The DQC Lead should prepare a DQC Plan and provide it to the RMO and MSC prior to starting DQC reviews. Table 2 identifies the required expertise for the DQC team.

Table 2: Required DQC Expertise

DQC Team	Expertise Required
DQC Lead	A senior professional with extensive experience preparing Civil Works decision documents and conducting DQC. The lead may also serve as a reviewer for a specific discipline (such as planning, economics, environmental resources, etc.).
Planning	A senior water resources planner with experience in CSRM projects and associated planning reports and documents.
Economics	A senior economist with experience evaluating CSRM project benefits and costs. Experience with evaluating incremental analysis & storm damage reduction benefits; familiarity with the USACE tool IWR-PLAN. Experience in identifying incidental benefits (preferably recreation) is required.
Environmental Resources/NE PA Compliance	A senior biologist/ecologist/environmental engineer, preferably with experience in CSRM projects. They must be able to review for NEPA compliance (including cultural resources coordination) and have a thorough understanding of coastal ecosystems, marine ecosystems, CBRA and CSRM projects.
Coastal Engineering	The team member should be a registered professional with experience in CSRM projects, experience with or knowledge of G2CRM and measures/alternatives applicable to back bay studies.
Cost Engineering	A registered professional with experience in cost engineering and have a thorough understanding of CSRM projects, dredging costs and coastal structures estimates.
Real Estate	The real estate reviewer should be a senior real estate specialist with experience in CSRM projects.

Documentation of DQC. Quality Control should be performed continuously throughout the study. A specific certification of DQC completion is required at the draft and final report stages. Documentation of DQC should follow the District Quality Manual and the MSC Quality Management Plan. An example DQC Certification statement is provided in EC 1165-2-217, on page 19 (see Figure F). Documentation of completed DQC should be provided to the MSC, RMO and ATR Team leader prior to initiating an ATR. The ATR team will examine DQC records and comment in the ATR report on the adequacy of the DQC effort. Missing or inadequate DQC documentation can result in delays to the start of other reviews (see EC 1165-2-217, section 9).

b. AGENCY TECHNICAL REVIEW

The ATR will assess whether the analyses are technically correct and comply with guidance, and that documents explain the analyses and results in a clear manner. An RMO manages ATR. The review is conducted by an ATR Team whose members are certified to perform reviews. Lists of certified reviewers are maintained by the various technical Communities of Practice (see EC 1165- 2-217, section 9(h)(1)). Table 3 identifies the disciplines and required expertise for this ATR Team.

Table 3: Required ATR Team Expertise

ATR Team	Expertise Required
ATR Lead	A senior professional with extensive experience preparing Civil Works decision documents and conducting ATR. The lead should have the skills to manage a virtual team through an ATR. The lead may serve as a reviewer for a specific discipline (such as planning).
Planning	A senior water resources planner with experience in CSRMs projects and associated planning reports and documents. Plan formulation ATR certification is required.
Economics	The economics reviewer will be an expert in the field of economics and have a thorough understanding of CSRMs projects, BCR updates, and G2CRM.
Environmental Resources	The environmental reviewer will be an expert in the field of environmental resources and have a thorough understanding of NEPA, coastal ecosystems, marine ecosystems, CBRA and CSRMs projects.
Coastal Engineering	The coastal engineering reviewer will be an expert in the field of coastal engineering and have a thorough understanding of CSRMs projects, experience with or knowledge of G2CRM, back bay dynamics, coastal structures, have at least seven years of experience, and should be a Professional Engineer (P.E.).
Cost Engineering	A registered professional with a minimum of 5 years' experience in cost engineering. The cost engineering reviewer will be an expert in the field of cost engineering and have a thorough understanding of CSRMs projects, dredging costs and coastal structures estimates. The cost engineer should be Walla Walla Cost MCX/TCX approved cost reviewer as the cost estimate for this document is anticipated to need CSRA and Cost MCX/TCX review and Certification.
Real Estate	The real estate reviewer should be a senior real estate specialist with experience in CSRMs projects.

ATR Team	Expertise Required
Climate Preparedness and Resiliency	The reviewer should be experienced in performing and presenting climate change information in accordance with ECB 2018-14. The team member must be certified by the Climate Preparedness and Resilience CoP.
Risk Reviewer	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. This review can be combined with either the Economics or Coastal reviews.

Documentation of ATR. DrChecks will be used to document all ATR comments, responses and resolutions. Comments should be limited to those needed to ensure product adequacy. If a concern cannot be resolved by the ATR team and PDT, it will be elevated to the vertical team for resolution using the EC 1165-2-217 issue resolution process. Concerns can be closed in DrChecks by noting the concern has been elevated for resolution. The ATR Lead will prepare a Statement of Technical Review (see EC 1165-2-217, Section 9), for the draft and final reports, certifying that review issues have been resolved or elevated. ATR may be certified when all concerns are resolved or referred to the vertical team and the ATR documentation is complete.

c. INDEPENDENT EXTERNAL PEER REVIEW

IEPR may be required for other work products such as validation studies under certain circumstances. Any work product that undergoes ATR may also be required to undergo Type I and/or Type II IEPR. IEPR is the most independent level of review, and is applied in cases that meet certain criteria where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside of USACE is warranted. A risk-informed decision, as described in EC 1165-2-217, is made as to whether IEPR is appropriate. IEPR panels will consist of independent, recognized experts from outside of the USACE in the appropriate disciplines, representing a balance of areas of expertise suitable for the review being conducted. There are two types of IEPR:

(i) Type I IEPR.

Decision on Type I IEPR. The purpose of the proposed feasibility report is to determine Federal interest and recommended plan for hurricane and storm damage reduction to infrastructure along approximately 6 reaches of shoreline along the back-bay and interconnected lagoon areas in San Juan and adjacent municipalities. It is expected that the cost threshold exceedance will trigger the need for a Type 1 IEPR. Per EC 1165-2-217, Section 11:

- 11.d.(1)(a): Significant threat to human life. The project will not be justified

by life safety nor does it involve significant threat to human life/safety assurance. This criterion has not been met.

- 11.d.(1)(b): The estimated total cost of the project, including mitigation costs, is greater than \$200 million. The total cost of the project is unknown but is expected to exceed \$200 million, based on other back-bay study costs. ***Therefore, this criterion is expected to be met. However, there is still uncertainty surrounding costs at this early stage of the project and this criterion will be revisited when costs are better known.***
- 11.d.(1)(c): The Governor of an affected State requests a peer review by independent experts. To date, the Governor of the Commonwealth of Puerto Rico has not requested a peer review by independent experts. This criterion has not been 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 Director of Civil Works or the Chief of Engineers has not determined the study to be controversial. This criterion has not been met.

The Jacksonville District concludes that the San Juan Metro Area (Back Bay), Puerto Rico Study currently meets one of the four criteria Per EC 1165-2-217. Therefore, if this mandatory trigger is met, Type I IEPR will be required for this study unless an exclusion is granted.

(ii) Type II IEPR.

The second kind of IEPR is Type II IEPR. These Safety Assurance Reviews are managed outside of the USACE and are conducted on design and construction for hurricane, storm and flood risk management projects or other projects where existing and potential hazards pose a significant threat to human life. A Type II IEPR Panel will be convened to review the design and construction activities before construction begins, and until construction activities are completed, and periodically thereafter on a regular schedule.

Decision on Type II IEPR. *Based on the project as currently envisioned, the District Chief of Engineering, as the Engineer-In-Responsible-Charge, does not recommend a Type II IEPR Safety Assurance Review of this project at this time. A risk-informed decision concerning the timing and the appropriate level of reviews for the project implementation phase will be prepared and submitted for approval in an updated Review Plan prior to initiation of the design/implementation phase of this project.*

d. MODEL CERTIFICATION OR 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 are any models and analytical tools used 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 a planning product. The selection and application of the model and the input and output data is the responsibility of the users and is subject to DQC, ATR, and IEPR.

Table 5: Planning Models. The following models may be used to develop the decision document:

Model Name and	Brief Model Description and How It Will Be Used in	Certification
IWR Plan	The USACE Institute for Water Resources has developed IWR Planning Suite Decision Support Software to assist with the formulation and comparison of alternative plans. IWR Planning Suite will assist with plan formulation by combining solutions to planning problems and calculating the additive effects of each combination, or “plan.” IWR Planning Suite will also assist with plan comparison by conducting cost effectiveness and incremental cost analyses (CE/ICA), identifying the plans which are the best financial investments, and displaying the effects of each on a range of decision variables.	Certified
Generation 2 Coastal Risk Model (G2CRM)	G2CRM is a probabilistic life cycle analysis developed at ERDC-CHL as an engineering-economic planning tool to quantify the economic consequences of coastal and estuarine flood risk management projects. The study will use G2CRM to evaluate economic performance of alternatives and prioritize alternative selection based on maximized net economic benefits.	Certified

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. As part of the USACE Scientific and Engineering Technology (SET) Initiative, many engineering models have been

identified as preferred or acceptable for use on Corps studies and these models should be used whenever appropriate. The HH&C CoP list of preferred and acceptable models that may be used for this study is located on the SharePoint site <https://cops.usace.army.mil/sites/HHC/Lists/HHC%20Software%20Lists/Approved.aspx>

The selection and application of the models to be used and the input and output data is still the responsibility of the users and is subject to DQC and ATR.

The HH&C CoP list of preferred, acceptable, and approved models that may be used for this study is located on the SharePoint site: <https://cops.usace.army.mil/sites/HHC/Lists/HHC%20Software%20Lists/Approved.aspx>

Table 6: Engineering Models which may be used to develop the decision document

Model Name and Version	Brief Model Description and How It Will Be Used in the Study	Approval Status
HEC/ HEC- RAS	Translating storm events to the back bay system may require mesh resolution and potential riverine input from HEC/HEC-RAS H&H models	Approved

e. POLICY AND LEGAL REVIEW

Policy and legal compliance reviews for draft and final planning decision documents are delegated to the MSC (see Director's Policy Memorandum 2018-05, paragraph 9).

i. Policy Review.

The policy review team is identified through the collaboration of the MSC Chief of Planning and Policy and the HQUSACE Chief of the Office of Water Project Review. The team is identified in Attachment 4 of this Review Plan. The makeup of the Policy Review team will be drawn from Headquarters (HQUSACE), the MSC, the Planning Centers of Expertise, and other review resources as needed.

- The Policy Review Team will be invited to participate in key meetings during the development of decision documents as well as SMART Planning Milestone meetings. These engagements may include In-Progress Reviews, Issue Resolution Conferences or other vertical team meetings plus the milestone events.
- The input from the Policy Review team should be documented in a Memorandum for the Record (MFR) produced for each engagement with the team. The MFR should be distributed to all meeting participants.
- In addition, teams may choose to capture some of the policy review input in a risk register if appropriate. These items should be highlighted at future meetings until the issues are resolved. Any key decisions on how to address risk or other considerations should be documented in an MFR.

ii. Legal Review.

Representatives from the Office of Counsel will be assigned to participate in reviews. Members may participate from the District, MSC and HQUSACE. The MSC Chief of Planning and Policy will coordinate membership and participation with the office chiefs.

- In some cases legal review input may be captured in the MFR for the particular meeting or milestone. In other cases, a separate legal memorandum may be used to document the input from the Office of Counsel.
- Each participating Office of Counsel will determine how to document legal review input.

ATTACHMENT 1: SAMPLE STATEMENT OF TECHNICAL REVIEW FOR STUDY DOCUMENTS

COMPLETION OF AGENCY TECHNICAL REVIEW

The Agency Technical Review (ATR) has been completed for the <type of product> for <project name and location>. The ATR was conducted as defined in the project’s Review Plan to comply with the requirements of EC 1165-2-214. 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 DrCheckssm.

SIGNATURE

Name
ATR Team Leader
Office Symbol/Company

Date

SIGNATURE

Name
Project Manager
Office Symbol

Date

SIGNATURE

Name
Architect Engineer Project Manager¹
Company, location

Date

SIGNATURE

Name
Review Management Office Representative
Office Symbol

Date

CERTIFICATION OF AGENCY TECHNICAL REVIEW

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

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

SIGNATURE

Name
Chief, Engineering Division
Office Symbol

Date

SIGNATURE

Name
Chief, Planning Division
Office Symbol

Date

¹ Only needed if some portion of the ATR was contracted

ATTACHMENT 2: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph Number

ATTACHMENT 3: TEAM ROSTERS

PROJECT DELIVERY TEAM			
Name	Office	Position	Phone Number
[REDACTED]	CESAJ-PM-WN	Project Manager	904-232-2205
[REDACTED]	CESAJ-PD-PN	Planning Technical Lead	904-232-1055
[REDACTED]	CESAJ-PD-D	Economist	904-232-1053
[REDACTED]	CESAJ-PD-EC	Biologist	904-232-2918
[REDACTED]	CESAJ-PD-ES	Archaeologist	904-232-1694
[REDACTED]	CESAJ-EN-DW	Engineering Technical Lead	904-232-2437
TBD	CESAJ-EN-WC	Coastal Engineer	
[REDACTED]	CESAJ-EN-WC	Coastal Engineer	904-232-1861
[REDACTED]	CESAJ-EN-GG	Geologist	904-232-1890
[REDACTED]	CESAJ-EN-TC	Cost Engineer	904-232-1063
[REDACTED]	CESAJ-RE-A	Realty Specialist	904-232-3401
[REDACTED]	CESAJ-OC	Office of Council	904-232-3713

DISTRICT QUALITY CONTROL TEAM			
Name	Office	Position	Phone Number
[REDACTED]	CESAJ-PD-PW	PD Peer Review Manager	904.232.1818
[REDACTED]	CESAJ-PD-PN	PD-DQC Review Coordinator	904.232.1238
[REDACTED]	CESAJ-EN-QC	EN DQC Review Coordinator	904.232.3131
TBD	CESAJ-PD-PN	Branch/Section Chief/Designee	TBD
TBD	CESAJ-EN-DW	Branch/Section Chief/Designee	TBD
TBD	CESAJ-EN-TC	Branch/Section Chief/Designee	TBD
TBD	CESAJ-EN-WC	Branch/Section Chief/Designee	TBD
TBD	CESAJ-EN-GG	Branch/Section Chief/Designee	TBD
TBD	CESAJ-PD-D	Branch/Section Chief/Designee	TBD
TBD	CESAJ-PD-EC	Branch/Section Chief/Designee	TBD
TBD	CESAJ-PD-ES	Branch/Section Chief/Designee	TBD
TBD	CESAJ-RE-A	Branch/Section Chief/Designee	TBD
TBD	CESAJ-OC	Branch/Section Chief/Designee	TBD

AGENCY TECHNICAL REVIEW TEAM			
Name	Office	Position	Phone Number
TBD		CSRM PCX Review Manager	
TBD		Plan Formulator	
TBD		Economics	
TBD		Environmental	
TBD		Coastal Engineering	

AGENCY TECHNICAL REVIEW TEAM			
Name	Office	Position	Phone Number
TBD		Cost Engineering	
TBD		Real Estate	
TBD		Risk Analysis	
TBD		Climate Change	

VERTICAL TEAM			
Name	Office	Position	Phone Number
[REDACTED]	CECW-PD	Acting Chief, USACE Planning	202.761.0115
[REDACTED]	CESAD-RIT	SAD RIT Planner	904.472.5776
[REDACTED]	CECW-PC	Acting Chief, OWPR	202.761.0523
[REDACTED]	CESAD-PDP	Acting Chief Planning and Policy	404.562.5226
[REDACTED]	CENAD-PD-X	Deputy PCX-CSR	347.370.4571
[REDACTED]	CESAD-RBT	Chief, Engineering	404.562.5120

POLICY REVIEW TEAM			
Name	Office	Position	Phone Number
[REDACTED]	CESAD-PH	Review Manager	(404) 562-5177
[REDACTED]	CENAD-P	Economics	(917) 359-2819
[REDACTED]	CESAD-PD	Environmental	(404) 562-5225
[REDACTED]	CECW-PD, HQ	Plan Formulation	(202) 761-0668
[REDACTED]	CESAD-EN	Engineering	(404) 562-5120
[REDACTED]	CECW-E-	CPR CoP	(202) 761-4163
[REDACTED]	CESAD-RE	Real Estate	(404) 761-5075
[REDACTED]	CESAD-OC	Attorney	(404) 761-5017

ENCLOSURE 2



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, NORTH ATLANTIC DIVISION
FORT HAMILTON MILITARY COMMUNITY
302 GENERAL LEE AVENUE
BROOKLYN NY 11252-6700

CEPCX-CSRМ

1 Mar 2019

MEMORANDUM FOR: Commander, U.S. Army Corps of Engineers, Jacksonville District (CESAJ-PD-PM/S [REDACTED]) 701 San Marco Boulevard Jacksonville, FL 32207-8175

SUBJECT: San Juan Metro Area (San Juan Back Bay) Coastal Storm Risk Management Study, Puerto Rico

1. The National Planning Center of Expertise for Coastal Storm Risk Management (PCX-CSRМ) has reviewed the Review Plan (RP) for the subject study and concurs that the RP complies with current peer review policy requirements contained in EC 1165-2-217, entitled "Review Policy For Civil Works".
2. The review was performed by [REDACTED] and [REDACTED].
3. PCX-CSRМ has no objection to RP approval by the Commander, South Atlantic Division. Upon approval of the RP, please provide a copy of the approved RP, a copy of the SAD Commander approval memorandum and the link to where the RP is posted on the SAJ or SAD website to [REDACTED].
4. Thank you for the opportunity to assist in the preparation of the RP. PCX-CSRМ is prepared to lead the Agency Technical Review for the subject study and will continue to coordinate with the PDT. For further information, please contact me at 347-370-4571.

