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

26 JUL 2017

CESAD-RBT

MEMORANDUM FOR COMMANDER, JACKSONVILLE DISTRICT

SUBJECT: Approval of the Review Plan for the Plans and Specification and Design Documentation Report for Dorado Bridge Channel Widening, Rio de la Plata Flood Control Project, Puerto Rico

1. References:

a. Memorandum, CESAJ-EN-Q, 28 Jun 2017, subject: Approval of Revised Review Plan for Rio de la Plata Flood Control Project, Puerto Rico (Encl).

b. Memorandum, CEIWR-RMC, 19 June 2017, subject: Risk Management Center Endorsement – Rio de la Plata Flood Control Project, Puerto Rico, Review Plan (Encl).

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

2. The enclosed Review Plan (RP) for the Plans and Specifications and Design Documentation Report for the subject project effort submitted by the Jacksonville District via reference 1.a and endorsed by the Risk Management Center (RMC) via reference 1.b has been reviewed by this office and is hereby approved in accordance with reference 1.c above.

3. The RMC will serve as the Review Management Organization for the Dorado Bridge Channel Widening and Scour Protection design effort. SAD concurs with the conclusion of the Jacksonville District and the RMC that a Type II Independent External Peer Review (IEPR) as identified in the RP is required on the design efforts for this project.

4. The District should take steps to post the approved RP to its web site and provide a link to CESAD-RBT and the RMC Senior Review Manager [redacted]). 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]

[redacted]
Brigadier General, USA
Commanding

Encl

CF:
[redacted]

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
701 SAN MARCO BOULEVARD
JACKSONVILLE, FLORIDA 32207

REPLY TO
ATTENTION OF

CESAJ-EN-Q

28 JUN 2017

MEMORANDUM FOR Commander, South Atlantic Division (CESAD-RBT), 60 Forsyth Street SW 10M15, Atlanta, GA 30303

SUBJECT: Approval of Revised Review Plan for Rio de la Plata Flood Control Project, Puerto Rico

1. References:

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

b. WRDA 1990, Public Law 101-640, 12 November 1990

c. Risk Management Center Endorsement of Revised Review Plan for Rio de la Plata Flood Control Project, 19 June 2017

2. I hereby request approval of the enclosed revised review plan for the Rio de la Plata Flood Control Project. This revision updates the scope and schedules for the individual construction contracts so that required review activities can be scheduled and completed. The Review Plan complies with applicable policy, provides for Agency Technical Review (ATR), provides for Type II Independent External Peer Review (IEPR), and has been coordinated with CESAD and RMC. 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.

4. If you have any questions regarding the information in this letter, please feel free to contact [redacted]

Encl

[redacted]
Colonel, EN
Commanding

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
RISK MANAGEMENT CENTER
12596 WEST BAYAUD AVE., SUITE 400
LAKEWOOD, CO 80228

REPLY TO
ATTENTION OF

CEIWR-RMC

19 June 2017

MEMORANDUM FOR: Commander, Jacksonville District, ATTN: CESAJ-EN-Q

SUBJECT: Risk Management Center Endorsement –Rio de la Plata Flood Control Project, Puerto Rico, Review Plan

1. The Risk Management Center (RMC) has reviewed the Review Plan (RP) for – Rio de la Plata Flood Control Project, Puerto Rico, dated 31 May 2017, and concurs that this RP complies with the current peer review policy requirements outlined in EC 1165-2-214 "Civil Works Review Policy", dated 15 December, 2012.

2. This review plan was prepared by Jacksonville District, reviewed by the RMC, and all RMC review comments have been satisfactorily resolved. For this project a Type II IEPR will be performed.

3. The RMC endorses this document to be approved by the MSC Commander. Upon approval of the RP, please provide a copy of the approved RP, a copy of the MSC Commander's approval memorandum to the RMC Senior Review Manager [redacted].

4. Thank you for the opportunity to assist in the preparation of this RP. Please coordinate all aspects of the Agency Technical Review and the Independent External Peer Review (as appropriate) efforts defined in the RP. For further information, please contact me at [redacted]

[redacted]
Review Manager
Risk Management Center

CF:
[redacted]

Review Plan
U.S. Army Corps of Engineers
SAD Division
SAJ District

Rio de la Plata Flood Control Project

Puerto Rico

MSC Approval Date: *XX*

Last Revision Date: *15 October 2009*

US Army Corps of Engineers®

Table of Contents

1. Purpose and Requirements

a. Purpose

This Review Plan is intended to ensure a quality-engineering project is developed by the Corps of Engineers. This Review Plan has been developed for the Rio de la Plata Flood Control Project, hereafter called the Project. This Review Plan was prepared in accordance with EC 1165-2-214, "Civil Works Review Policy". The Review Plan describes the scope of review for the current phase of work and shall layout a process that assures the correctness of the information shown. Upon approval, this review plan will be included into the Project Management Plan (PMP) for this project (P2 #114175) as an appendix to the Quality Management Plan (QMP).

The Project is broken into multiple phases/contracts: Contract 1A, Contract for Dorado Bridge Protection, Contract 1B, Contract 2, and Contract 3. The implementation documents to be reviewed throughout the phases of the Project are the Plans and Specifications (P&S) and a Design Documentation Report (DDR). This Review Plan provides an update to the original Review Plan that was approved in October 2009, which only provided the scope and schedule of reviews for Contract 1A of the Project.

As discussed later in this Review Plan, the reviews planned for Contract 1A were accomplished in 2009 and 2010. Only the scope and schedule of the reviews for the Dorado Bridge Channel Widening and Scour Protection (CWSP) Contract are provided in this updated Review Plan. There will be subsequent updates to the Review Plan for the remaining phases/contracts of the Project once more information is known for those phases. It is estimated that approximately 45% of the project work will be left to be constructed after the completion of the Dorado Bridge CWSP Contract.

b. Guidance and Policy References

- EC 1165-2-214, Civil Works Review Policy, 15 December 2012
- ER 1110-1-12, Quality Management, 31 Mar 2011
- ER 1110-2-1156, Safety of Dams – Policy and Procedure, 31 Mar 2014
- ER 1110-2-1150, "Engineering and Design for Civil Works Projects", 31 August 1999
- ER 10-1-51, "Organizations and Function, Roles and Responsibilities – Dam Safety Modification Mandatory Center of Expertise", 29 June 2012.
- ER 415-1-11, "Biddability, Constructability, Operability, Environmental, and Sustainability (BCOES) Review", 1 January 2013
- SAJ EN QMS 02611, "SAJ Quality Control of In-House Products: Civil Works PED", 21 November 2011
- SAJ EN QMS 08550, "BCOES Reviews", 21 September 2011
- Enterprise Standard (ES) 08025, "Government Construction Quality Assurance Plan and Project/Contract Supplements"
- Enterprise Standard (ES) 08026, "Three Phase Quality Control System"

- Project Management Plan, Rio de la Plata Flood Control Project, P2 Number 114175
- Jacksonville District, "Rio de la Plata Limited Re-evaluation Report," USACE, Jacksonville, FL, 2015

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 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. The RP identifies the most important skill sets needed in the reviews and the objective of the review and the specific advice sought, thus setting the appropriate scale and scope of review for the individual project. This Review Plan should be provided to the PDT, DQC, ATR, BCOES, and IEPR Teams.

d. Review Management Organization

The USACE Risk Management Center (RMC) is the Review Management Organization (RMO) for the project. Contents of this review plan have been coordinated with the RMC and the U.S. Army Corps of Engineers South Atlantic Division (SAD), the Major Subordinate Command (MSC). This review plan will be updated for each new project phase. The U.S. Army Corps of Engineers Jacksonville District (SAJ) will assist the RMC with management of the ATR and IEPR reviews and development of the draft ATR and IEPR "charges".

e. 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 4. 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.

2. Project Information

a. Authority and Description

The Water Resources Development Act of 1990 authorized the Rio de la Plata Flood Control Project. The project features are intended to reduce the frequency and severity of flooding events in Mameyal Community and Dorado Town, Puerto Rico. The basin is located 11 miles west of San Juan and drains approximately 240 square miles. Heavy rainfall combined with the steep headwater slopes causes frequent flooding in the towns of Dorado, Toa Baja, and Toa Alta. The non-Federal Sponsor is the Puerto Rico Department of Natural Resources (DNER).

The recommended plan provides 100-year protection upstream of PR Highway 2 and Standard Project Flood protection downstream. Project features consist of 7.0 miles of channel improvements, 7.6 miles of levee construction, the replacement of 3 bridges, recreation facilities, and mitigation for the loss of environmental habitats.

The project is broken into multiple phases/contracts: Contract 1A, Contract for Dorado Bridge protection, Contract 1B, Contract 2, and Contract 3. This separation was due to funding streams and breakpoints in construction. Contract 1A includes 2.2 miles of levee construction and 1 mile of channel improvements. Contracts 1B, 2, and 3 will complete the remaining portions of levee construction and channel improvements.

b. Current Project Description

Contract 1A includes 2.2 miles of levee construction, 4 flood control structures, mitigation areas, and 1 mile of channel improvements. Contract 1A was completed in May 2015.

The features that are part of the Dorado Bridge Channel Widening and Scour Protection Contract include the construction of a boat ramp, recreation berm, approximately 1,017 meters of channel excavation, approximately 910 meters of levee construction with temporary opening and seepage filters, electrical line replacement, stone and scour protection (ACBM armoring installed with sheetpile cofferdam) under Dorado Bridge. This work also includes excavated material temporary depot areas, material disposal areas, demolition of abandoned structures and incidental related work along secondary tributary areas.

Project information for the remaining features of work will be included in subsequent updates to this review plan.

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. See Attachment 2 for PDT and DQC members and disciplines.

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 shall ensure 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 Certifications are complete, as well as the Product Quality Control Review.

4. Agency Technical Review

a. Requirements

ATR is mandatory for all implementation documents (including supporting data, analyses, environmental compliance documents, etc.). The P&S and DDR of the Dorado Bridge Channel Widening and Scour Protection Contract will include 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. The ATR will also assess that the documents explain 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 the design process. The goal is to have early involvement of the ATR team, especially when key decisions are made. This approach is still consistent with the requirement that the ATR members shall not be involved in the day-to-day production of the project/product.

For the Dorado Bridge Channel Widening and Scour Protection Contract, a site visit will not be scheduled for the ATR Team. A presentation will be given to the ATR team during the ATR kickoff meeting that will include photos and information about the project site and existing conditions. Upon request by the ATR team, the PDT can provide the ATR team with additional photos and videos of the project site taken on previous site visits by the PDT.

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 assess whether further specific concerns may exist.

The ATR documentation in DrChecks[sm] 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[sm] with a notation that the concern has been elevated to the vertical team for resolution.

d. Products to Undergo ATR

For the Dorado Bridge CWSP Project, the products scheduled to undergo ATR shall include project drawings, specifications, and design documentation report. Other products to be reviewed for subsequent contracts will be identified in future updates to the Review Plan.

e. Required ATR Team Expertise and Requirements

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 Members/Disciplines	Expertise Required
ATR Lead	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 Lead may serve co-duty with one of the other ATR Team disciplines.
Hydrology and Hydraulics	The team member should be a registered professional with 10 years of experience in conducting and evaluating hydrologic and hydraulic analyses for flood risk management projects. Experience with 2D modeling and performance of risk assessments is required.
Civil Engineering	The team member should be a registered professional with 10 or more years of experience with civil/site work projects to include levee systems, roads and highways, relocations, paving and drainage.
Geotechnical Engineering	The team member should be a registered professional with 10 or more years of experience in geotechnical engineering. Experience will include geotechnical evaluation of flood risk management

	structures such as static and dynamic slope stability evaluation, evaluation of the seepage through earthen embankments and underseepage through the foundation of the flood risk management structures, including levee embankments, floodwalls, closure structures and other pertinent features, and in settlement evaluations.
Structural Engineering	The team member should be a registered professional with 10 or more years of experience in structural engineering. Experience will include bridge design and bridge evaluations for modifications associated with flood risk management projects.

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 1.

5. Independent External Peer Review /Safety Assurance Review

a. Requirements

IEPR may be required for implementation documents under certain circumstances. IEPR is the most independent level of review, and is applied in cases that meet certain criteria where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside of USACE is warranted. A risk-informed decision, as described in EC 1165-2-214, 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.

Type II IEPR, or Safety Assurance Review (SAR), are managed outside the USACE and are conducted on design and construction activities for hurricane, storm, and flood risk management projects or other projects where existing and potential hazards pose a significant threat to human life. Type II IEPR panels will conduct reviews of the design and construction activities prior to initiation of physical construction and, until construction activities are completed, periodically thereafter on a regular schedule. The reviews shall consider the adequacy, appropriateness, and acceptability of the design and construction activities in assuring public health safety and welfare.

For the Dorado Bridge Channel Widening and Scour Protection Contract, a site visit will not be scheduled for the IEPR Team. A presentation will be given to the IEPR team during the kickoff meeting that will include photos and information about the project site and existing conditions. Upon request by the IEPR team, the PDT can provide the IEPR team with additional photos and videos of the project site taken on previous site visits by the PDT.

b. Decision on Type II IEPR

Type II IEPRs will be performed during the various design phases of the Rio de la Plata Project development, including the Dorado Bridge CWSP phase of the Project. Companion Type II IEPRs will be performed during the construction of the various phases/contracts of the Rio de la Plata Project.

IEPR reports can be found on the Jacksonville District webpage at: http://www.saj.usace.army.mil/About/Divisions-Offices/Planning/Completed-Peer-Review-Reports-USACE-Reponses/

The previous IEPR for Contract 1A was conducted in two phases. Phase I was for the remainder of the Pre-construction and Engineering Phase (PED) and Phase II was for the Construction Phase. Each phase's panel consisted of one member. For the PED Phase, the panel member addressed the flood hazard and was an expert in the fields of hydrology and hydraulics. For the Construction Phase, the panel member addressed levee construction and was an expert in geotechnical engineering.

For the Dorado Bridge Channel Widening and Scour Protection Contract, a risk-informed decision was made as to whether IEPR is appropriate based on the factors to

consider for conducting a Type II IEPR review that are outlined in EC 1165-2-214, Appendix E, Section 2 (a) thru (c). For this phase of the project, a risk informed decision was made that failure of certain project features potentially poses a significant threat to human life (public safety) and that therefore a Type II IEPR review is appropriate for the DDR and P&S and construction of the Dorado Bridge CWSP Contract. Further information on risk drivers for the Project are included in Attachment 3.

c. Products to Undergo Type II IEPR

For the Dorado Bridge CWSP Project, products to undergo Type II IEPR shall include the Project drawings, specifications, and design documentation report. Other products to be reviewed for subsequent contracts will be identified in future updates to the Review Plan.

d. Required Type II IEPR Panel Expertise

The following provides an estimate of the Type II IEPR panel members and the types of expertise that should be represented on the review panel. All panel members shall be recognized experts in their field and have specialized experience pertaining to the work being performed on this project. In addition, all panel members should have an advanced degree and be professionally registered.

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

Hydrology and Hydraulics Engineering (H&H) Panel Member. The H&H Panel Member shall be a registered professional from academia, a public agency, or an Architect-Engineer or consulting firm with 10 or more years of experience in hydraulic engineering with special expertise in conducting and evaluating hydrologic and hydraulic analyses for flood risk management projects. Experience with 2D modeling and performance risk assessments is desired.

Geotechnical Engineering Panel Member. The team member shall be a registered professional engineer and have 10 or more years of experience in geotechnical engineering with special expertise in seepage barriers, earthen levees or embankment impoundments. Experience needs will include geotechnical evaluation of flood risk management structures such as static and dynamic slope stability evaluation, settlement evaluations, evaluation of the seepage through earthen embankment dams and under seepage through the foundation of the flood risk management structures including dams, levee embankments, floodwalls, closure structures other pertinent features.

Structural/Civil/Construction Engineering Panel Member. The team member shall be a registered professional and have 10 or more years of experience in construction engineering. Experience will be relevant to flood risk management project features such

as water control structures, conveyance culverts, spillways and embankment dams. Experience will include bridge design and bridge evaluations for modifications associated with flood risk management projects.

The Geotechnical Panel Member and the H&H Panel Member shall be required for the Design Type II IEPR. The Geotechnical Panel Member and Construction Engineering Panel Member shall be required for the Construction Type II IEPR.

e. Documentation of Type II IEPR

The Type II IEPR will be managed by an AE firm which meets the criteria set forth in EC 1165-2-214. DrChecks^{sm} review software may be used to document the Type II IEPR comments and aid in the preparation of the Review Report but is not required.

No later than 60 days following each milestone, the Type II IEPR panel will prepare a Review Report that will accompany the publication of the final report for the project 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.

This review report, including reviewer comments and a recommendation letter will be provided to the RMC as soon as they become available. Written responses to the IEPR Review Report will be prepared to explain the agreement or disagreement with the views expressed in the report, the actions undertaken or to be undertaken in response to the report, and the reasons those actions are believed to satisfy the key concerns stated in the report (if applicable). These comment responses will be provided to the RMC for concurrence. The revised submittal will be provided to the RMO with the USACE response and all other materials related to the review.

6. 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. A BCOES Review will be conducted for this project at the Final Design Phases. Requirements and further details are stipulated in ER 1110-1-12, ER 415-1-11, and SAJ EN QMS 08550.

7. Policy and Legal Compliance Review

All implementation documents will be reviewed for their compliance with law and policy. These reviews culminate in determinations that the recommendations in the reports and the supporting analyses and coordination comply with law and policy. DQC and ATR augment and complement the policy review processes by addressing compliance with pertinent published Army policies.

8. Review Schedule and Costs

a. Schedule of Reviews

A Design Phase Type II IEPR was completed on the Hydrologic and Hydraulic Report and DDR for Contract 1A in May 2009. A Design Phase Type II IEPR was also performed in May 2010 on the geotechnical design of Contract 1A. An ATR was performed on the P&S and DDR for Contract 1A in March 2010.

The table below provides an overall review schedule that shows timing and sequence of all reviews for the Dorado Bridge Channel Widening and Scour Protection Contract.

DORADO BRIDGE CWSP REVIEW SCHEDULE		
Activity	**Review Start Date**	**Review End Date**
DQCR	20 JAN 2017	24 JAN 2017
PQCR(1)	24 MAR 2017	29 MAR 2017
Type II IEPR	11 APR 2017	24 APR 2017
ATR	11 APR 2017	24 APR 2017
BCOES	24 MAY 2017	7 JUN 2017

(1) SAJ EN QMS 02611 defines DQC as the sum of DQCR and PQCR.

b. ATR Schedule and Cost

The total cost for the ATR activities for the Dorado Bridge Channel Widening and Scour Protection Contract is approximately $40,000.

c. IEPR Schedule and Costs

A Type II IEPR will be required for the Dorado Bridge Phase of the Project. The estimated cost for the Type II IEPR is in the range of approximately $100,000. This estimate will be refined when the Scope of Work for the IEPR Type II contract is

completed. The IEPR Type II contractor will be involved with the project through the construction phase and into the OMRR&R phase. More specific milestone dates will be added in the future during the construction phase, but it can be assumed to occur near the mid-point of construction and near the end of construction.

9. Public Participation of Review Plan

As required by EC 1165-2-214, the approved Review Plan will be posted on the District public website (http://www.saj.usace.army.mil/Missions/CivilWorks/ReviewPlans.aspx). The public will have 30 days to provide comments on the documents; after all comments have been submitted, the comments will be provided to the technical reviewers. This is not a formal comment period and there is no set timeframe for the opportunity for public comment. If and when comments are received, the PDT will consider them and decide if revisions to the review plan are necessary. This engagement will ensure that the peer review approach is responsive to the wide array of stakeholders and customers, both within and outside the federal government.

10. Review Plan Approval and Updates

The MSC for this Review Plan is SAD. The MSC Commander is responsible for approving this Review Plan. The Commander's approval reflects vertical team input (involving the SAJ District, MSC, and RMC) as to the appropriate scope and level of review for the study and endorsement by the RMC. Like the PMP, the Review Plan is a living document and may change as the study progresses, the District is responsible for keeping the Review Plan up to date. Minor changes to the review plan since the last MSC Commander approval will be documented in Attachment 4 to this plan. Significant changes to the Review Plan (such as changes to the scope and/or level of review) should be re-endorsed by the RMC and 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 District's webpage and linked to the HQUSACE webpage. The latest Review Plan should also be provided to the RMO and home MSC.

11. Engineering Model Certification and Approval

The use of certified or approved engineering models is required for all activities to ensure the models are technically and theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions. The responsible use of well-known and proven USACE developed and commercial engineering software will continue and the professional practice of documenting the application of the software and modeling results will be followed. 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). The following engineering models are anticipated to be used:

- Bentley Microstation V8i, Bentley Systems Inc.

- Bentley lnRoads Microstation V8i, Bentley Systems, Inc.
- Bentley glNT V8i Professional Plus
- HEC-RAS, v5.1
- SEEP/W, GeoStudio 2012 Version 8.0.2.5675
- SLOPE/W, GeoStudio 2012 Version 8.0.2.5675
- CWALSHT, Version 09NOV2007
- FB-Deep v2.02, Bridge Software Institute
- PLAXIS, Version 8.3
- Ram Element Version 10.7
- CUFRBC, Investigation and Design of U-frame Structures
- LPILE Plus 5.0, ENSOFT, Inc
- COM624G, ERDC
- Group 8 Ensoft, Inc.
- MCACES

12. Review Plan Points of Contact

NAME/TITLE	ORGANIZATION	PHONE
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

ATTACHMENT 1: COMPLETION OF AGENCY TECHNICAL REVIEW

The Agency Technical Review (ATR) has been completed for the plans, specifications, and Design Documentation Report for the Rio de la Plata Flood Control Project. 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 (home district)
Office Symbol

SIGNATURE _____ _____

Name Date
Architect Engineer Project Manager[1]
Company, location

SIGNATURE _____ _____

[redacted] 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 Date
Chief, Engineering Division (home district)
Office Symbol

SIGNATURE _____ _____

Name Date
Dam or Levee Safety Officer[2] (home district)

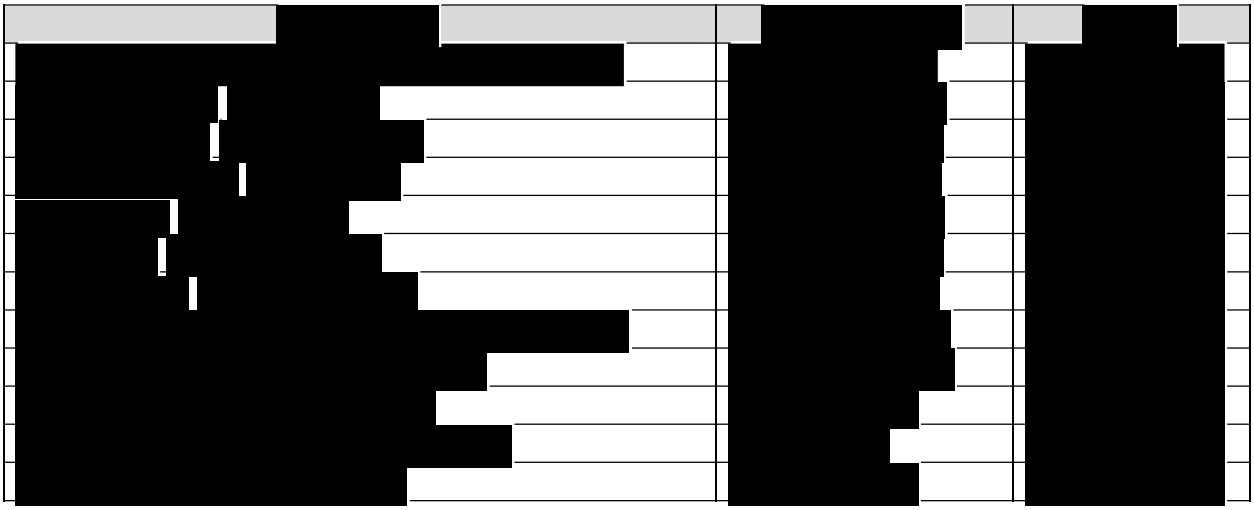
Office Symbol

[1] Only needed if some portion of the ATR was contracted
[2] Only needed if different from the Chief, Engineering Division.

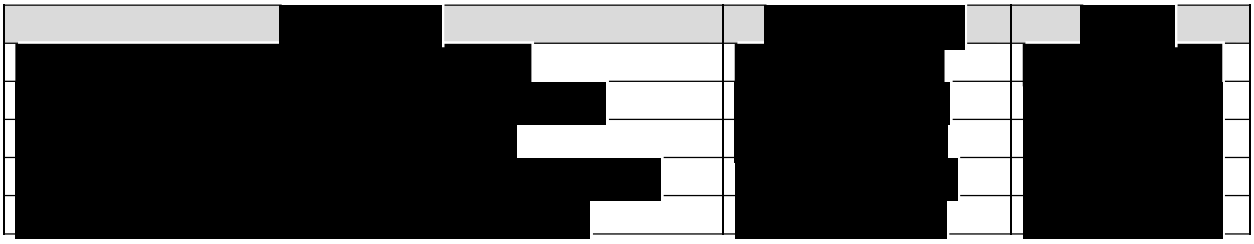
[redacted]

[redacted]

[redacted]



[redacted]

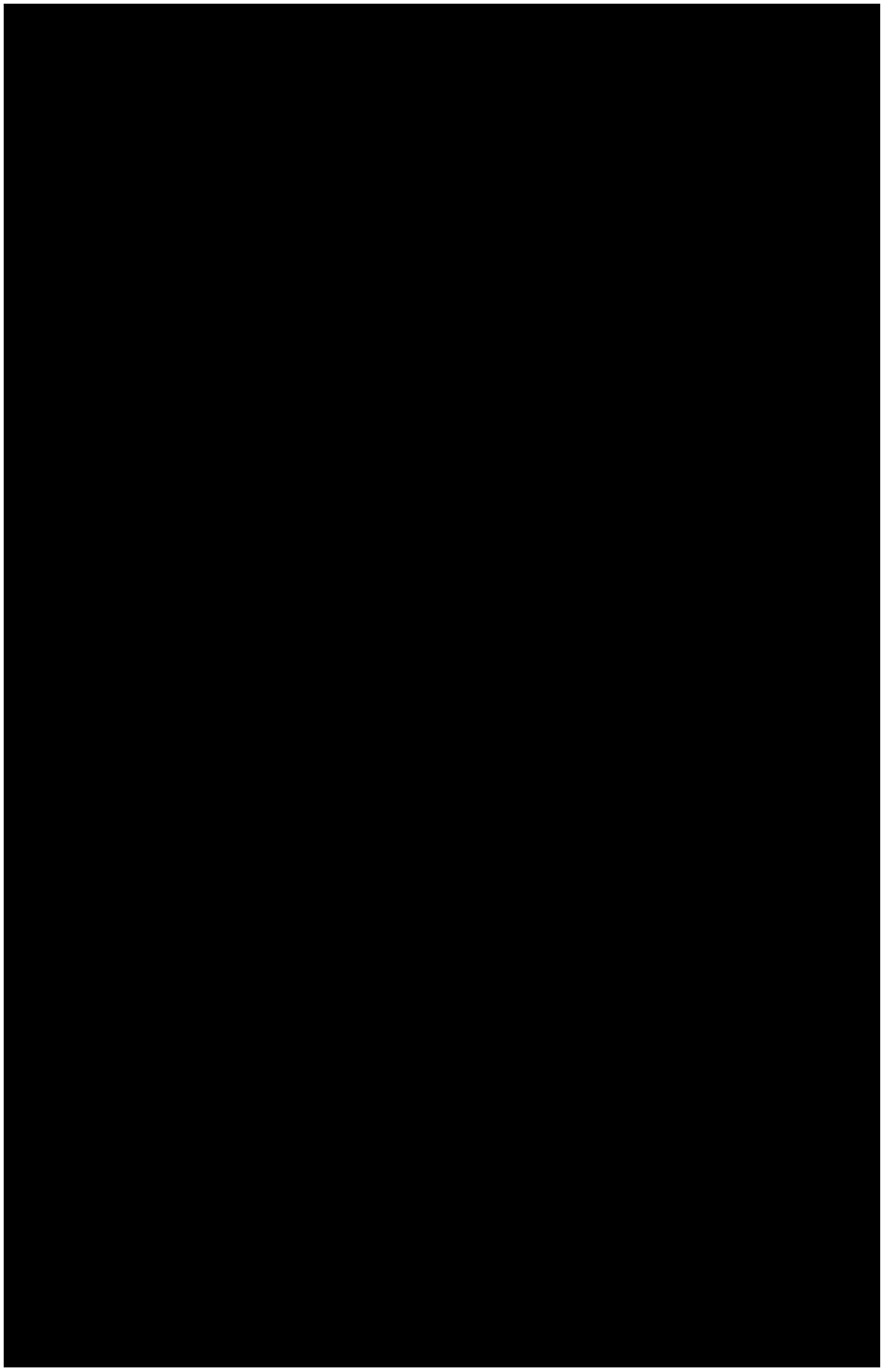


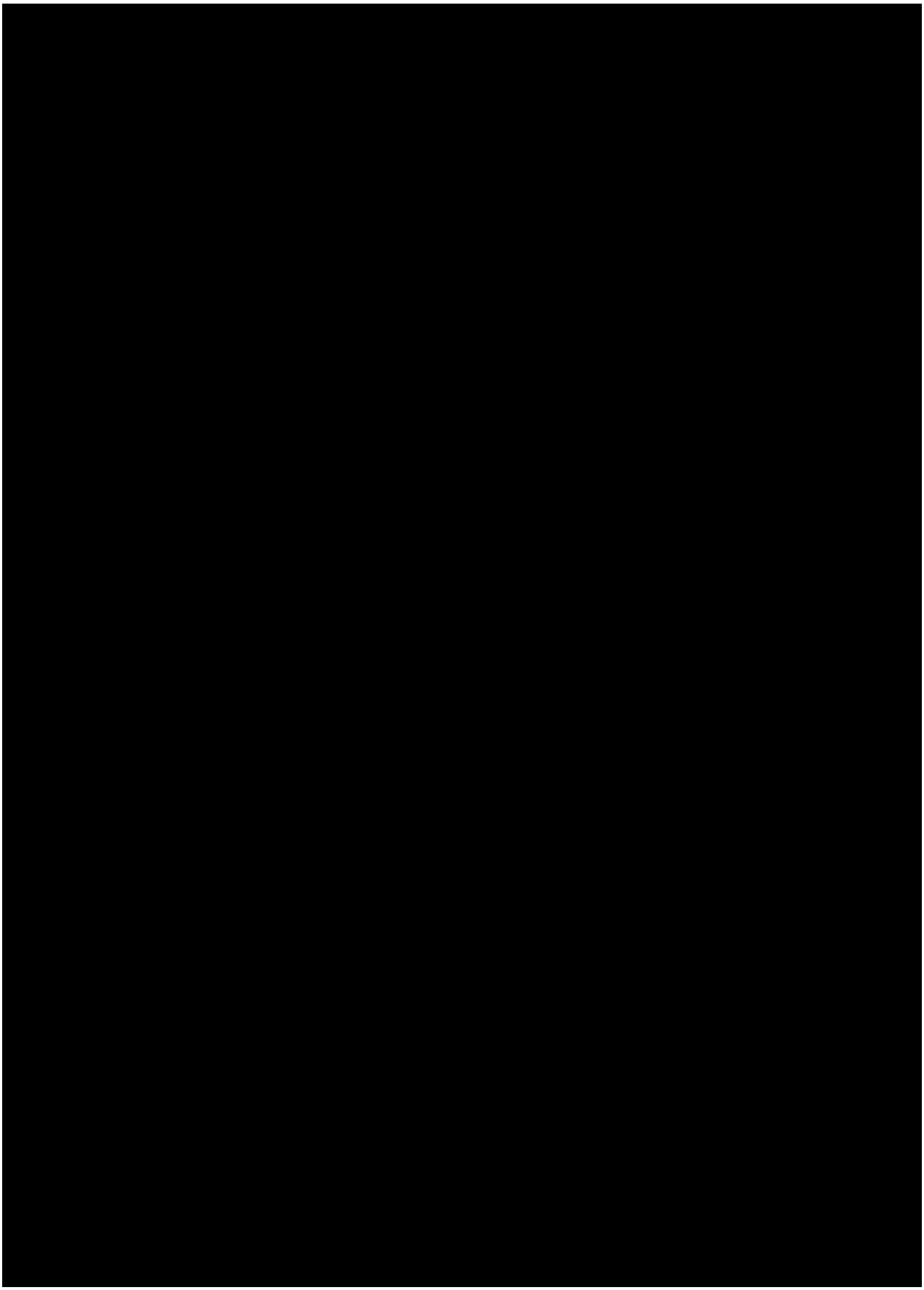
[redacted]

[redacted]

[redacted]

[redacted]





H

ATTACHMENT 4: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph Number
January 2017	Updated Review Plan to cover work for Dorado Bridge Contract and designated the Risk Management Center as the Review Management Organization	Throughout