



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
HUNTINGTON DISTRICT, CORPS OF ENGINEERS
502 EIGHT STREET HUNTINGTON, WEST
VIRGINIA 25701-2035

CELRH-PCXIN-RED

10 November 2016

MEMORANDUM FOR Commander, Galveston District

SUBJECT: Review Plan for the Gulf Intracoastal Water Way, Brazos River Floodgate and Colorado River Lock Feasibility Study, Texas

1. The enclosed Review Plan (RP) has been presented to the Planning Center of Expertise for Inland Navigation and Risk-Informed Economics Division (PCXIN-RED) for its review and endorsement in accordance with PB 2016-02 dated 4 March 2016 and EC1165-2-214 "Civil Works Review" dated 15 December 2012.
2. The Gulf Intracoastal Water Way, Brazos River Floodgate and Colorado River Lock Feasibility Study and Environmental Impact Statement (EIS), Texas, is being conducted to determine if there is Federal interest in recommending structural and navigation modification solutions along the Brazos and Colorado Rivers in Texas.
3. PCXIN-RED staff has reviewed the plan for technical sufficient and policy compliance. A Type I IEPR is triggered by the inclusion of an EIS for the study. All models that are planned for use are approved for use or certified.
4. I concur with the findings of the PCXIN-RED technical staff and endorse the enclosed review plan for the Brazos River Floodgate and Colorado River Lock Feasibility Study and EIS, Texas,. Following approval by Southwest Division, the District is requested to post the RP to its web site and provide the link to the PCXIN-RED for their use. Prior to posting, the names of the individuals in the RP should be removed.
5. If you have any questions or need additional information, please contact Karen Miller at 304.399.5859.

Encl

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Patrick Donovan
Chief, PCXIN-RED

REVIEW PLAN

**Gulf Intracoastal Water Way
Brazos River Floodgate and
Colorado River Lock
Feasibility Study**

Galveston District

MSC Approval Date: August 2016
Last Revision Date: July 2016



**US Army Corps
of Engineers** ®
Galveston District



**Texas
Department
of Transportation**

REVIEW PLAN

**GIWW – Brazos River Floodgate and Colorado River Lock
Feasibility Study**

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1. PURPOSE AND REQUIREMENTS

a. Purpose. This Review Plan defines the scope and level of peer review for the Gulf Intracoastal Water Way (GIWW) Brazos River Floodgates and Colorado River Locks Feasibility Report.

b. References

- (1) Engineering Circular (EC) 1165-2-214, Civil Works Review Policy, 15 December 2012
- (2) EC 1105-2-412, Assuring Quality of Planning Models, 31 Mar 2011
- (3) Engineering Manual (EM) 1110-2-1604, Hydraulic Design of Navigation Locks, 5 May 2006
- (4) EM 1110-2-1605, Hydraulic Design of Navigation of Navigation Dam, 5 May 2006
- (5) EM 1110-2-1611, Layout and Design of Shallow Draft Waterways 31 Dec 1980
- (6) EM 1110-2-1613, Hydraulic Design of Deep-Draft Navigation Locks, 31 May 2006
- (7) Engineering Regulation (ER) 1110-1-12, Quality Management, 30 Sep 2006
- (8) ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007
- (9) GIWW – Brazos River Floodgates & Colorado River Locks, TX Feasibility Study Project Management Plan (PMP), May 2016
- (10) Southwest Division and Galveston District Quality Management Plan(s)

c. Requirements. This review plan was developed in accordance with EC 1165-2-214, which establishes an accountable, comprehensive, life-cycle review strategy for Civil Works products by providing a seamless process for review of all Civil Works projects from initial planning through design, construction, and operation, maintenance, repair, replacement and rehabilitation (OMRR&R). The EC outlines four general levels of review: District Quality Control/Quality Assurance (DQC), Agency Technical Review (ATR), Independent External Peer Review (IEPR), and Policy and Legal Compliance Review. In addition to these levels of review, decision documents are subject to cost engineering review and certification (per EC 1165-2-214) and planning model certification/approval (per EC 1105-2-412).

2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION

The RMO is responsible for managing the overall peer review effort described in this Review Plan. The RMO for decision documents is typically either a Planning Center of Expertise (PCX) or the Risk Management Center (RMC), depending on the primary purpose of the decision document. The RMO for the peer review effort described in this Review Plan is the Planning Center of Expertise for Inland Navigation (PCXIN).

The RMO will coordinate with the Civil Works Cost Engineering and Agency Technical Review Mandatory Center of Expertise (MCX) to ensure the appropriate expertise is included on the review teams to assess the adequacy of cost estimates, construction schedules and contingencies. Due to the life safety risks associated with the project, the RMO will also coordinate with the RMC for this review plan, and potentially for required review efforts to include ATR, IEPR, etc., as it relates to associated levee and structural safety at the floodgates and locks. Because Type II IEPR is anticipated, the RMC will also serve as the RMO for implementation purposes.

3. STUDY INFORMATION

a. Decision Document. Per USACE Planning guidance and National Environmental Policy Act (NEPA) requirements, an integrated Feasibility Report (FR) and Environmental Impact Statement (EIS), is

being prepared for the *GIWW – Brazos River Floodgate and Colorado River Lock Feasibility Study* to determine if there is Federal interest in recommending structural and navigation modification solutions along the Brazos and Colorado Rivers in Texas. The report will document existing and future without project conditions, identify problems and opportunities; define study objectives and avoid study constraints. It will document the effects of the alternatives in accordance with NEPA and other environmental laws and regulations; and recommend a selected plan for consideration. This feasibility study will result in a Report to the Chief of Engineers and will require additional Congressional authorization to implement recommended actions.

- b. Study Authority.** The Authorities for this Feasibility Study will be prepared in response to the provision of funds in the Energy and Water Development Appropriations Act of 1998, under the authority of Section 216 of the 1970 Flood Control Act, which reads:

“The Secretary of the Army, acting through the Chief of Engineers, is authorized to review the operation of projects the construction of which has been completed and which were constructed by the Corps of Engineers in the interest of navigation, flood control, water supply, and related purposes, when found advisable due to significant changed physical or economic conditions, and to report thereon to Congress with recommendations on the advisability of modifying the structures or their operation, and for improving the quality of the environment in the overall public interest.”

This project was authorized for study in the Water Resource Development Act (WRDA) of 2007, and funds were appropriated in the Energy and Water Development Appropriations Act of 2010. Funds for this study effort were received in WRDA 2014.

- c. Study Background and Project Description.** In 2000, the Galveston District initiated a reconnaissance study to assess the feasibility of modifying the configurations of the crossings to reduce traffic accidents and delays where the GIWW intersects the Colorado and Brazos Rivers. The resulting Section 905(b) Analysis produced a finding of Federal interest in continuing to the feasibility phase of the study. Funding for the feasibility phase was approved in Fiscal Year (FY) 2016. Recognizing the hydrologic connectivity of the GIWW system, the decision was made to conduct assessments on the floodgates and locks along both rivers separately and combine the results into one integrated feasibility report. The USACE Galveston District, in partnership with the Non-Federal Sponsor (NFS), the State of Texas, Department of Transportation (TX-DOT) agreed that the NFS would assess the Brazos River Floodgates; while the District would assess the Colorado River Locks. In 2015 the NFS contracted with Hatch Mott MacDonald, LLC to complete the feasibility assessment for the Brazos River Floodgates portion of this study. Information to include navigation data, models, engineering, environmental and economic impacts, will follow Corps standards and undergo required reviews as outlined in this Review Plan and in the Project Management Plan (PMP).

Modifications for the river alignments and floodgates/locks may include moving gates away from the river, widening the gates, reconfiguring the guide wall to lessen the angle to the GIWW, straightening the crossing at the Brazos and Colorado Rivers, lock modifications (construction of new locks), and removal of floodgates or some combination of these and other measures. While sedimentation may be an issue at key locations along both river alignments, the GIWW is dredged annually with its most recent dredging contracts being awarded in October 2015 to dredge approximately 2.75 million cubic yards of material between Freeport Harbor and Matagorda Bay, Texas; and approximately 1.1 million cubic yards of material between High Island and Rollover Pass, Texas. Sand material from each location will be used beneficially to nourish the Gulf shoreline in the respective projects vicinities. Both

are scheduled for completion in the spring of 2016. Consequently, sedimentation removal is not a priority consideration for this effort, however the efforts intent is not to increase sedimentation.

- d. Study Area and Project Location.** The Gulf Intracoastal Waterway (GIWW) is a man-made shallow draft waterway that is 111 years old. It spans a 1,100 mile long and connects ports along the Gulf of Mexico from St. Marks, Florida, to Brownsville, Texas. The portion of the GIWW in Texas is authorized to a 125 foot width with a channel depth of 12 feet running for 406 miles along the coast. Its significance to the Nation is that it is the third busiest inland waterway, with the Texas portion handling 75 percent of its traffic. It continues to rank high in the Nation in total waterborne tonnage moved in the United States, the majority of its cargo comprising of petroleum and chemical based products, which carries approximately 73 million short tons of cargo annually. The Colorado River Locks in Matagorda, TX are operated by the U.S. Army Corps of Engineers and are the only ones on the Texas portion of the GIWW.



Figure 1: Gulf Intracoastal Waterway

The study area encompasses two locations on the GIWW along the Texas Coast. The Brazos River Floodgates are located about 7 miles southwest of Freeport, Texas, at the intersection of the Brazos River and the GIWW in Brazoria County. The Colorado River Locks are located near Matagorda, Texas, at the intersection of the Colorado River and the GIWW in Matagorda County (see Figures 1-3).



Figure 2: Study Area Overview



Figure 3: Brazos River Floodgates



Figure 4: Colorado River Locks

- e. **Study Purpose, Need, and Scope.** The study **purpose** is to reevaluate the proposed alternatives from the 2000 Reconnaissance to determine the feasibility of undertaking modifications to the Brazos and Colorado River GIWW crossings, as well as identify changes to the floodgate and lock structures at each location that are economically and environmentally justified. There is a **need** to reduce navigation impacts and costly waterborne traffic delays that are a result of aging infrastructure and inadequate channel dimensions for modern vessels.

The **scope** of the study is to:

- Update existing and future with/without project conditions from the 2000 study focusing on:
 - Hydrology, Hydraulic (wind, currents, flow and stage frequency impacts to navigation at crossings)
 - Sedimentation, erosion, and dredging requirements
 - Assessment of Storm Surge and Operational Adequacy of the Floodgates/Locks
Dimensions of Brazos are: 750' length by 75' width, and Colorado: 1200' length by 75' width.
 - Economic analysis (structure and shipping/tonnage values) to estimate National Economic Development (NED) benefits
 - Environmental Impacts
- Evaluate and compare previously developed alternatives from the 2000 reconnaissance study, formulate additional alternatives as needed, and select a recommended plan.

A number of **problems** for both the floodgate and locks include:

- Hydrology and channel geometry present navigational hazards crossing the rivers
- Outdated width of floodgates at Brazos River and floodgates and lock chambers at Colorado River do not accommodate modern inland navigation vessels
- Outdated lock construction at Colorado River leads to structural, electrical and mechanical maintenance issues
- Shutdown of operations during high water periods causes significant economic impacts to navigation industry
- Increased hydrology (river flows due to flood events which impact navigation traffic)
- Sedimentation increases at mouth of rivers
- Shoreline erosion

This study will assess the above and more for each of the project areas (Brazos / Colorado) and develop specific measures/alternatives that can be combined or used as standalone actions to address problems at each location. The inventory of navigation, structural, and channel maintenance efforts in the general vicinity of the project represent a ready resource for formulating, amending or adopting designs, estimating costs, as well as projecting impacts and outputs. Application of that body of applicable literature, including those generated by the non-Federal sponsor, will allow the PDT to invoke professional judgment.

Therefore, the PDT will rely on available information, literature and data sources, as well as available professional expertise, especially during the early stages of alternative designs and evaluations. However, more detailed evaluations of features and alternatives, projected performance and benefits will be needed prior to identification of the preferred plan. These evaluations will include additional impact and benefit analyses for the alternatives, and presentation of these results using the documentation and public participation requirements of NEPA. Additionally, existing data for the study area, such as hydrologic and topographic surveys, geotechnical data, and cultural resource data, need to be obtained or updated. Any new applicable research or data that becomes available during the Feasibility Study process would be considered.

Alternative plan development and environmental and engineering studies performed for other similar floodgate and lock projects will be incorporated into the Feasibility Report as appropriate, along with updated information as needed to develop the proposed plan. The no-action alternative and the Tentatively Selected Plan (TSP) would be fully evaluated. Not all alternatives would be fully evaluated by all of the measures used in the planning process. Early in the process it will become apparent that some alternatives will not be feasible or implementable due to lack of compatibility with existing infrastructure or because they are not cost effective. Based on these considerations, alternatives determined not to be feasible or implementable will be documented and excluded from further analysis. The purpose of the economic analysis is to estimate the net National Economic Development (NED) benefits associated with navigation improvements, designed to reduce shipping delays and traffic accidents along the Brazos and Colorado Rivers.

f. Key Assumptions, Constraints and Risk. During development of this RMP the PDT members have considered available information regarding the size of the proposed project, the complexity of the proposed project effort, and what applicable data are currently available. As required, where needed information was not available, the PDT made the following critical assumptions – assumptions that are of decisive importance to the planning process – to develop the scope, level of effort, budget, and schedule elements for inclusion in this RMP.

- This study will follow the SMART Planning process. It is anticipated that there will be minimal changes to applicable USACE policy or guidance while this project is underway.

- While it is anticipated that project activities will remain within identified project boundaries, there is a possibility that real estate may be required to obtain rights-of-entry onto private property. If this is necessary, this could result in a delay to the project schedule.
- As part of this project the Texas Department of Transportation, as the non-Federal sponsor would be the responsible entity for all land, easements, rights of way, relocations, and disposals (LERRDs) costs associated with this project.
- While it is assumed that no significant adverse environmental impacts would occur with modifications of the structures and surrounding channels, the team has determined that an EIS may be required to assess impacts along the GIWW. It is anticipated that a Record of Decision (ROD) will be issued.

The potential constraints for this project include:

- Legal constraints may include those associated with impacting existing federally constructed projects and expanding the study area beyond the scope of the approved authority, including project areas not previously approved by SWD or HQ.

The study risks have been identified in the Risk Register. Items of low and medium risk are included in the register and will be made available to the ATR and IEPR teams. The study team identified approximately 71 items to be included in the Risk Register. Most of these items are common study risk items that were ranked as low to medium risk and could impact implementation or outcome if delayed. A few, however, were identified as high risk and are summarized below:

Scoping Choice	Risk	Consequence
Change in design guidelines	Force redesign/analysis	Cost increase
High water during construction	Damage/cost to project	Cost increase
Data gaps for NEPA	Analytical errors	Wrong TSP
Shipping (tonnage) data unavailable	Wrong economic analysis	Cost increase, wrong TSP
RE, O&M, HTRW in vicinity (?)	PPA execution	No PPA
Unknown utilities (pipeline crossings in channels)	Medium/High chance of encountering unknown utilities	Construction delay

Level of Review for Navigation Studies

The primary navigation review issues for this study have the potential for impacts to the navigation industry. As such the Planning Center of Expertise for Inland Navigation (PCXIN) and the Inland Navigation Design Center (INDC) will help to determine additional review criteria for navigation structures. The level of detail will focus on key areas as they relate to hydrology, economics, engineering, cost estimates and environmental impacts.

- g. Sponsor Contributions.** The sponsor will not receive in-kind credit for any work conducted for this study. This section remains for consistency in tracking submittals from the sponsor. Products and data

analyses provided by the non-Federal sponsor as part of this study are subject to DQC, ATR, and IEPR. The following products are expected on this project:

- (1) Feasibility level analysis, project engineering, and preliminary design and cost estimate for the Brazos River Floodgates (as conducted by TXDOT).

4. DISTRICT QUALITY CONTROL (DQC)

All decision documents (including supporting data, analyses, environmental compliance documents, etc.) shall undergo DQC. DQC is an internal review process of basic science and engineering work products focused on fulfilling the project quality requirements defined in the Project Management Plan (PMP). The home district shall manage DQC. Documentation of DQC activities is required and should be in accordance with the Quality Manual of the District and the home MSC.

- a. Documentation of DQC.** DQC will be performed after the PDT has performed a thorough initial quality review. DQC will be documented in accordance with the SWG Process for District Quality Control either utilizing DrChecks or a Word document and a DQC completion memo will be generated. The completion memo and DrChecks or Word report of all comments and responses will be provided to the ATR team at the start of any ATR. A routing sheet with Branch Chief signatures will accompany all submittal documents ensuring DQC has been complete.
- b. Products to Undergo DQC.** DQC will be completed for all review submittals/packages, the draft report, and final report (including the EIS and all appendices). The PDT will have one week in which to review draft documents before submitting to supervisory chain (Section/Branch Chief's) for one week review. The team will have one week to address supervisor chain comments before routing for supervisory signature. The PM and/or Planner will submit the documents/packages, including routing sheet with Branch Chief's approval, to SWD for two week review prior to any IPR or milestone meetings. The team will have one week or more if needed to address SWD comments. Division will provide written approval (via email) to release the documents to Headquarters for review.
- c. Required DQC Expertise.** All disciplines contributing to the report will have a corresponding DQC reviewer who has not been directly involved in the development of the product being reviewed. The DQC expertise will closely mirror the ATR expertise, which is described in Section 5.b. 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.

5. AGENCY TECHNICAL REVIEW (ATR)

ATR is mandatory for all decision documents (including supporting data, analyses, environmental compliance documents, etc.). The objective of ATR is to ensure consistency with established criteria, guidance, procedures, and policy. The ATR will assess whether the analyses presented are technically correct and comply with published USACE guidance, and that the document explains the analyses and results in a reasonably clear manner for the public and decision makers. ATR is managed within USACE by the designated RMO and is conducted by a qualified team from outside the home district that is not involved in the day-to-day production of the project/product. ATR teams will be comprised of senior USACE personnel and may be supplemented by outside experts as appropriate. The ATR team lead will be from outside the home MSC.

- a. **Products to Undergo ATR.** ATR will be performed for the Draft Report (including NEPA and supporting documentation), and Final Report (including NEPA and supporting documentation).
- b. **Required ATR Team Expertise.** ATR expertise will be comprised of senior USACE personnel (Regional Technical Specialists (RTS), Subject Matter Experts, etc.) and may be supplemented by outside experts as appropriate. The ATR team will be finalized by the PCXIN. The disciplines represented on the ATR team will reflect the significant disciplines involved in the planning, engineering, and design effort. The table below describes the ATR expertise required for the feasibility report.

ATR Team Members/Disciplines	Expertise Required
ATR Lead	The ATR lead should be a senior professional with extensive experience in preparing Civil Works decision documents and conducting ATR. The lead should also have the necessary skills and experience to lead a virtual team through the ATR process. The ATR lead may also serve as a reviewer for a specific discipline (such as planning, economics, environmental resources, etc). The ATR Lead will participate in all milestone reviews and in-progress reviews.
Planning	The Planning reviewer should be a senior water resources planner with demonstrated formulation and review experience with Feasibility Studies and expertise in navigation planning.
Economics	The Economics reviewer should be a senior economist experienced in economics in coastal and inland navigation planning studies.
Environmental Resources	The Environmental reviewer must be experienced with National Environmental Policy Act (NEPA) compliance requirements and mitigation plan preparation.
Cultural Resources	The Cultural reviewer must be experienced in cultural resources coordination and compliance.
Hydrology and Hydraulic Engineering	The hydrology and hydraulics reviewer will be an expert in the field of hydrology and hydraulics and have a thorough understanding of open and inland channel dynamics, channel flows, non-structural solutions and computer modeling techniques using HEC-RAS or HEC-HMS.
Risk Analysis	The risk analysis reviewer will be experienced with performing and presenting risk analyses in accordance with ER 1105-2-101 and other related guidance, including familiarity with how information from the various disciplines involved in the analysis interact and affect the results. This reviewer may also serve as the reviewer for another discipline such as economics or hydraulics.
Geotechnical Engineering	The geotechnical reviewer must be experienced in design requirements for navigation structures, cofferdams, pile foundations and open channels.
Structural Engineering	The structural design reviewer must have experience in the design of navigation structures including locks, flood gates, and cofferdams.
Civil Engineering	The civil design reviewer must have experience in the layout and design of navigation channels.
Cost Engineering	The Cost reviewer must be familiar with cost estimating for similar civil works projects using MCACES. Reviewer will be a Certified Cost Technician, Certified Cost Consultant, or Certified Cost Engineer.

Real Estate	The real estate reviewer must be experienced in civil works real estate laws, policies, and guidance, and experience working with sponsor real estate issues.
Hazardous, Toxic and Radioactive Waste (HTRW)	Team member should have the specific qualifications based on education, training and experience to assess property and meet the definitions of an Environmental Professional as defined under 40 CFR 312.

c. Documentation of ATR. DrChecks review software will be used to document all ATR comments, responses and associated resolutions accomplished throughout the review process. Comments should be limited to those that are required to ensure adequacy of the product. The four key parts of a quality review comment will normally include:

- (1) The review concern – identify the product’s information deficiency or incorrect application of policy, guidance, or procedures;
- (2) The basis for the concern – cite the appropriate law, policy, guidance, or procedure that has not been properly followed;
- (3) The significance of the concern – indicate the importance of the concern with regard to its potential impact on the plan selection, recommended plan components, efficiency (cost), effectiveness (function/outputs), implementation responsibilities, safety, Federal interest, or public acceptability; and
- (4) The probable specific action needed to resolve the concern – identify the action(s) that the reporting officers must take to resolve the concern.

In some situations, especially addressing incomplete or unclear information, comments may seek clarification in order to then assess whether further specific concerns may exist.

The ATR documentation in DrChecks will include the text of each ATR concern, the PDT response, a brief summary of the pertinent points in any discussion, including any vertical team coordination (the vertical team includes the district, RMO, MSC, and 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.

At the conclusion of each ATR effort, the ATR team will prepare a Review Report summarizing the review. Review Reports will be considered an integral part of the ATR documentation and shall:

- Identify the document(s) reviewed and the purpose of the review;
- Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
- Include the charge to the reviewers;
- Describe the nature of their review and their findings and conclusions;
- Identify and summarize each unresolved issue (if any); and
- Include a verbatim copy of each reviewer's comments (either with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

ATR may be certified when all ATR concerns are either resolved or referred to the vertical team for resolution and the ATR documentation is complete. The ATR Lead will prepare a Statement of Completion of Agency Technical Review after each ATR event documenting that the issues raised by

the ATR team have been resolved (or elevated to the vertical team). For each review, a Statement of Completion of Agency Technical Review will be prepared by the ATR Lead and District Leadership will provide Certification of Agency Technical Review in accordance with EC 1165-2-214. A sample Statement of Agency Technical Review and District Certification of Agency Technical Review is included in Attachment 2.

6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

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

- **Type I IEPR.** Type I IEPR reviews are managed outside the USACE and are conducted on project studies. Type I IEPR panels assess the adequacy and acceptability of the economic and environmental assumptions and projections, project evaluation data, economic analysis, environmental analyses, engineering analyses, formulation of alternative plans, methods for integrating risk and uncertainty, models used in the evaluation of environmental impacts of proposed projects, and biological opinions of the project study. Type I IEPR will cover the entire decision document or action and will address all underlying engineering, economics, and environmental work, not just one aspect of the study. For decision documents where a Type II IEPR (Safety Assurance Review) is anticipated during project implementation, safety assurance shall also be addressed during the Type I IEPR per EC 1165-2-214.
- **Type II IEPR.** Type II IEPR, or Safety Assurance Review (SAR), are managed outside the USACE and are conducted on design and construction activities for hurricane, storm, and flood risk management projects or other projects where existing and potential hazards pose a significant threat to human life. Type II IEPR panels will conduct reviews of the design and construction activities prior to initiation of physical construction and, until construction activities are completed, periodically thereafter on a regular schedule. The reviews shall consider the adequacy, appropriateness, and acceptability of the design and construction activities in assuring public health safety and welfare.

a) Decision on IEPR. A Type I IEPR, including SAR, will be performed as part of the feasibility study process due to the life safety risks described in Section 3. A Type II IEPR will be conducted during PED should a recommended plan be authorized.

b) Products to Undergo Type I IEPR. The Draft Feasibility Report and technical appendices will be reviewed. The WIK products used in the study that is provided by the Texas Department of Transportation and will be provided to the panel as background information.

c) Required Type I IEPR Panel Expertise

IEPR Panel Members/Disciplines	Expertise Required
Economics	The economics panel member should have extensive experience/credentials in evaluating navigation project benefits.

Environmental	The environmental panel member should have environmental expertise in NEPA, CWA, FWCA, and ESA. The reviewer should also have extensive experience in developing environmental compliance documents in support of navigation projects.
Hydrology and Hydraulic Engineering	The hydrology and hydraulics reviewer will be an expert in the field of hydrology and hydraulics and have a thorough understanding of open and inland channel dynamics, channel flows, non-structural solutions and computer modeling techniques using HEC-RAS or HEC-HMS.
Risk Analysis	The risk analysis reviewer will be experienced with performing and presenting risk analyses in accordance with ER 1105-2-101 and other related guidance, including familiarity with how information from the various disciplines involved in the analysis interact and affect the results. This reviewer may also serve as the reviewer for another discipline such as economics or hydraulics.
Geotechnical Engineering	The geotechnical reviewer must be experienced in design requirements for navigation structures, cofferdams, pile foundations and open channels.
Structural Engineering	The structural design reviewer must have experience in the design of navigation structures including locks, flood gates, and cofferdams.
Civil Engineering	The civil design reviewer must have experience in the layout and design of navigation channels.
Cost Engineering	The Cost reviewer must be familiar with cost estimating for similar civil works projects using MCACES. Reviewer will be a Certified Cost Technician, Certified Cost Consultant, or Certified Cost Engineer.

d) Documentation of Type I IEPR. The IEPR panel will be selected and managed by an Outside Eligible Organization (OEO) per EC 1165-2-214, Appendix D. Panel comments will be compiled by the OEO and should address the adequacy and acceptability of the economic, engineering and environmental methods, models, and analyses used. IEPR comments should generally include the same four key parts as described for ATR comments in Section 4.d above. The OEO will prepare a final Review Report that will accompany the publication of the final decision document and shall:

- Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;

- Include the charge to the reviewers;
- Describe the nature of their review and their findings and conclusions; and
- Include a verbatim copy of each reviewer's comments (either with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

The final Review Report will be submitted by the OEO no later than 60 days following the close of the public comment period for the draft decision document. USACE shall consider all recommendations contained in the Review Report and prepare a written response for all recommendations adopted or not adopted. The final decision document will summarize the Review Report and USACE response. The Review Report and USACE response will be made available to the public, including through electronic means on the internet.

7. POLICY AND LEGAL COMPLIANCE REVIEW

All decision documents will be reviewed throughout the study process for their compliance with law and policy. Guidance for policy and legal compliance reviews is addressed in Appendix H, ER 1105-2-100. These reviews culminate in determinations that the recommendations in the reports and the supporting analyses and coordination comply with law and policy, and warrant approval or further recommendation to higher authority by the home MSC Commander. DQC and ATR augment and complement the policy review processes by addressing compliance with pertinent published Army policies, particularly policies on analytical methods and the presentation of findings in decision documents.

8. COST ENGINEERING AND ATR MANDATORY CENTER OF EXPERTISE (MCX) REVIEW AND CERTIFICATION

All decision documents shall be coordinated with the Cost Engineering and ATR MCX, located in the Walla Walla District. The MCX will assist in determining the expertise needed on the ATR team and Type I IEPR team (if required) in the development of the review charge(s). The MCX will also provide the Cost Engineering certification. The RMO is responsible for coordination with the Cost Engineering MCX.

9. MODEL CERTIFICATION AND APPROVAL

EC 1105-2-412 mandates the use of certified or approved models for all planning activities to ensure the models are technically and theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions. Planning models, for the purposes of the EC, are defined as any models and analytical tools that planners use to define water resources management problems and opportunities, to formulate potential alternatives to address the problems and take advantage of the opportunities, to evaluate potential effects of alternatives and to support decision making. The use of a certified/approved planning model does not constitute technical review of the planning product. The selection and application of the model and the input and output data is still the responsibility of the users and is subject to DQC, and ATR.

EC 1105-2-412 does not cover engineering models used in planning. The responsible use of well-known and proven USACE developed and commercial engineering software will continue and the professional practice of documenting the application of the software and modeling results will be followed. As part of the USACE Scientific and Engineering Technology (SET) Initiative, many engineering models have been identified as preferred or acceptable for use on Corps studies and these models should be used whenever appropriate. The selection and application of the model and the input and output data is still the responsibility of the users and is subject to DQC, ATR and IEPR (if required).

- a. Environmental Planning Models.** The following environmental planning models (and as necessary habitat evaluation models) are anticipated to be used in the development of the decision document:

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Certification / Approval Status
HEC-FDA 1.4 (Flood Damage Analysis)	The Hydrologic Engineering Center's Flood Damage Reduction Analysis (HEC-FDA) program provides the capability for integrated hydrologic engineering and economic analysis for formulating and evaluating flood risk management plans using risk-based analysis methods. The program will be used to evaluate and compare the future without- and with-project plans to aid in the selection of a recommended plan to manage flood risk.	Certified
HEP/ HSI Models fish/wildlife species (Habitat Evaluation Procedure / Habitat Suitability Indices)	USFWS HEP evaluates the quality and quantity of available habitat for selected wildlife species. The HEP delivers Habitat Suitability Indices (HSI), which measure habitat suitability of a sample plot relative to optimum habitat suitability for a species in a defined region.	Approved for Use

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

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Approval Status
HEC-RAS 4.1 (River Analysis System)	The Hydrologic Engineering Center's River Analysis System (HEC-RAS) program provides the capability to perform one-dimensional steady and unsteady flow river hydraulics calculations. The program will be used for steady flow analysis to evaluate the future without- and with-project conditions along the Brazos and Colorado Rivers.	HH&C CoP Preferred Model
HEC-RAS, River Analysis System, 2D Modeling Version 5 with Sediment Transport Feature	The Hydrologic Engineering Center's (HEC) River Analysis System (HEC-RAS) software allow the user to perform one-dimensional (1-D) steady and 1D and two-dimensional (2D) unsteady flow river hydraulics flow river hydraulic calculations. The HEC-RAS System contains four hydraulic analysis components: for: (1) steady flow water surface profile; (2) 1D and 2D unsteady flow simulations; (3) movable boundary sediment transport computations (cohesive and non-cohesive sediments); and (4) water temperature and constituent transport modeling. The program will be used to model flow and sediment from Colorado River near Bay City, Matagorda County, Texas where measurements are available to Colorado River near the	HH&C CoP Preferred Model

	locks to evaluate the future without- and with-project conditions.	
TRACES MII 4.1 (Tri-Service Automated Cost Engineering Systems)	TRACES is an integrated suite of cost engineering tools designed to support the cost engineers throughout the USACE, Air Force, and Navy. MCACES (Micro-Computer Aided Cost Estimating System) MII is a second generation module of TRACES used by the USACE for the preparation of detailed construction cost estimates. MCACES MII will be used to evaluate capital costs for the Recommended Plan.	CoP Preferred Model
CMS (Coastal Modeling System)	The Coastal Modeling System (CMS) is an integrated 2D numerical modeling system for simulating waves, current, water level, sediment transport, and morphology change at waterway inlets and entrances. Emphasis of the CMS is on navigation channels, sediment transport and sedimentation, and changes to salinity within system. CMS will help understand the hydrodynamics at the gates and navigation channels and the variations of the hydrodynamics with the variation in alternatives. CMS will also allow for evaluation of changes to salinity, sediment transport and sedimentation in the system.	USACE Approved
ADCIRC	The ADvanced CIRCulation model (ADCIRC), is a two-dimensional hydrodynamic circulation model. ADCIRC can be applied to computational domains encompassing coastal seas. In a single simulation, ADCIRC can provide tide and storm surge elevations and velocities corresponding to each node over a very large domain. ADCIRC will be used to evaluate changes to storm surge due to alternatives and will also assist in computing design conditions (water level head differences; wave) at the various alternative structures.	USACE Approved

- c. **Economic Models.** Economic models used during the project are not determined at this time, but appropriate models will be selected/approved through coordination with the PCXIN. Once the specific model(s) are identified, this review plan will be updated to reflect model description, application, and approval status.

10. REVIEW SCHEDULES AND COSTS

a. ATR Schedule and Cost.

Product	Start Date	Duration	Cost Estimate
Draft Report	August 2018	4 weeks	\$50,000
Final Report	January 2019	4 weeks	\$15,000

- b. **Type I IEPR Schedule and Cost.** The IEPR is expected to commence in August 2016 and cost approximately \$150,000.
- c. **Model Certification/Approval Schedule and Cost.** All of the models anticipated to be used are already certified or approved for use.

11. PUBLIC PARTICIPATION

As required by EC 1165-2-214, the approved Review Plan will be posted on the District public website (<http://www.swg.usace.army.mil/pm/pmPeerReview.html>). Information will be conveyed to the public through the use of press releases and media interviews, as necessary, and through the use of posting information to the Galveston District's website. The feasibility report and EIS will undergo a 30-day public review period. Comments received during the public review will be provided to the ATR team during their reviews.

12. REVIEW PLAN APPROVAL AND UPDATES

The Southwest 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 for the decision document. Like the PMP, the Review Plan is a living document and may change as the study progresses. The home district is responsible for keeping the Review Plan up to date. Minor changes to the review plan since the last MSC Commander approval are documented in Attachment 3. Significant changes to the Review Plan (such as changes to the scope and/or level of review) should be re-approved by the MSC Commander following the process used for initially approving the plan. The latest version of the Review Plan, along with the Commanders' approval memorandum, should be posted on the Home District's webpage. The latest Review Plan should also be provided to the RMO and home MSC.

13. REVIEW PLAN POINTS OF CONTACT

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

- Project Manager, Galveston District: 409-766-3187
- District Support Team, Southwest Division: 469-487-7065
- Chief, Planning Center of Expertise for Inland Navigation: 304-399-5038

ATTACHMENT 1: TEAM ROSTERS (Removed Prior to Posting on Webpage)

ATTACHMENT 2: STATEMENT OF TECHNICAL REVIEW FOR DECISION DOCUMENTS

COMPLETION OF AGENCY TECHNICAL REVIEW

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

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

ATTACHMENT 3: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph Number

ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS

<u>Term</u>	<u>Definition</u>	<u>Term</u>	<u>Definition</u>
AFB	Alternative Formulation Briefing	NED	National Economic Development
ASA(CW)	Assistant Secretary of the Army for Civil Works	NER	National Ecosystem Restoration
ATR	Agency Technical Review	NEPA	National Environmental Policy Act
CSDR	Coastal Storm Damage Reduction	O&M	Operation and maintenance
DPR	Detailed Project Report	OMB	Office and Management and Budget
DQC	District Quality Control/Quality Assurance	OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
EA	Environmental Assessment	OEO	Outside Eligible Organization
EC	Engineer Circular	OSE	Other Social Effects
EIS	Environmental Impact Statement	PCX	Planning Center of Expertise
EO	Executive Order	PDT	Project Delivery Team
ER	Ecosystem Restoration	PAC	Post Authorization Change
FDR	Flood Damage Reduction	PMP	Project Management Plan
FEMA	Federal Emergency Management Agency	PL	Public Law
FRM	Flood Risk Management	QMP	Quality Management Plan
FSM	Feasibility Scoping Meeting	QA	Quality Assurance
GRR	General Reevaluation Report	QC	Quality Control
Home District/MS	The District or MSC responsible for the preparation of the decision document	RED	Regional Economic Development
HQUSACE	Headquarters, U.S. Army Corps of Engineers	RMC	Risk Management Center
IEPR	Independent External Peer Review	RMO	Review Management Organization
ITR	Independent Technical Review	RTS	Regional Technical Specialist
IN	Inland Navigation	SAR	Safety Assurance Review
LRR	Limited Reevaluation Report	USACE	U.S. Army Corps of Engineers
MCX	Mandatory Center of Expertise	WRDA	Water Resources Development Act
MSC	Major Subordinate Command		
INDC	Inland Navigation Design Center		

Review Plan Checklist

Date:	June 2016
Originating District:	SWG
Project/Study Title:	GIWW – Brazos River Floodgate and Colorado River Lock Feasibility Study
P2# and AMSCO#:	
District POC:	Franchelle Craft
PCX Reviewer:	

Please fill out this checklist and submit with the draft Review Plan when coordinating with the MSC. Any evaluation boxes checked “No” may indicate the project may not be able to use the SWD Model Review Plan. Further explanation may be needed or a project specific review plan may be required. Additional coordination and issue resolution may be required prior to MSC approval of the Review Plan. Checklist may be limited to Section I or Section II or Both, depending on content of review plan (or subsequent amendments).

Section I - Decision Documents

REQUIREMENT	EVALUATION
1. Is the Review Plan (RP) for an Flood Risk Reduction?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
a. Does it include a cover page and list the project/study title, originating district or office, and date of the plan?	a. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
b. Does it include a table of contents?	b. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
c. Is the purpose of the RP clearly stated?	c. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
d. Does it reference the Project Management Plan (PMP) of which the RP is a component?	d. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
e. Does it succinctly describe the levels of review: District Quality Control (DQC), and Agency Technical Review (ATR)?	e. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
f. Does it include a paragraph stating the title, subject, and purpose of the decision document to be reviewed?	f. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
g. Does it list the names and disciplines of the Project Delivery Team (PDT)?*	g. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

<p><i>*Note: It is highly recommended to put all team member names and contact information in an appendix for easy updating as team members change or the RP is updated.</i></p> <p>Comments: Additional names will be added as the PDT team develops</p>	
<p>2. Is the RP detailed enough to assess the necessary level and focus of the reviews?</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p>3. Does the RP define the appropriate level of review for the project/study?</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p>a. Does it state that DQC will be managed by the home district in accordance with the SWD and district Quality Management Plans?</p> <p>b. Does it state that ATR will be managed by SWD?</p> <p>Comments:</p>	<p>a. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>b. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p>4. Does the RP explain how ATR will be accomplished?</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p>a. Does it identify the anticipated number of reviewers?</p> <p>b. Does it provide a succinct description of the primary disciplines or expertise needed for the review (not simply a list of disciplines)?</p> <p>c. Does it indicate that ATR team members will be from outside the home district?</p> <p>d. Does it indicate where the ATR team leader will be from?</p> <p>e. If the reviewers are listed by name, does the RP describe the qualifications and years of relevant experience of the ATR team members?*</p> <p><i>*Note: It is highly recommended to put all team member names and contact information in an appendix for easy updating as team members change or the RP is updated.</i></p> <p>Comments: ATR team members, once identified, will be from outside the home district and the ATR lead, once identified, will be from outside SWD. Names and qualifications will be added once ATR team members have been identified.</p>	<p>a. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>b. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>c. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>d. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>e. Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
<p>5. Does the RP address review of sponsor in-kind contributions?</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>

<p>6. Does the RP address how the review will be documented?</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p>a. Does the RP address the requirement to document ATR comments using Dr Checks?</p> <p>Comments:</p>	<p>a. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p>7. Does the RP address Policy Compliance and Legal Review?</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p>8. Does the RP present the tasks, timing and sequence (including deferrals), and costs of reviews?</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p>a. Does it provide a schedule for ATR including review of the Tentatively Selected Plan (TSP) draft report materials and final report?</p> <p>b. Does it include cost estimates for the reviews?</p>	<p>a. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>b. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p>9. Does the RP indicate the study will address Safety Assurance factors? Factors to be considered include:</p> <ul style="list-style-type: none"> ● Where failure leads to significant threat to human life ● Novel methods\complexity\ precedent-setting models\policy changing conclusions ● Innovative materials or techniques ● Design lacks redundancy, resiliency of robustness ● Unique construction sequence or acquisition plans ● Reduced\overlapping design construction schedule 	<p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>n/a <input checked="" type="checkbox"/></p> <p>Comments:</p>
<p>10. Does the RP address opportunities for public participation?</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p>11. Does the RP indicate ATR of cost estimates will be conducted by pre-certified district cost personnel who will coordinate with the Walla Walla Cost DX?</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p>12. Has the approval memorandum been prepared and does it accompany the RP?</p>	<p>Yes <input type="checkbox"/> No <input type="checkbox"/></p>

Section II - Implementation Documents

Please fill out this checklist and submit with the draft Review Plan or subsequent Review Plan amendments when coordinating with the MSC. For DQC, the District is the RMO; for ATR and Type II IEPR, SWD is the RMO. Any evaluation boxes checked “No” indicate the RP possibly may not comply with SWD Model Review Plan and should be explained. Additional coordination and issue resolution may be required prior to SWD approval of the Review Plan.

REQUIREMENT	EVALUATION
1. Are the implementation documents/products described in the review or subsequent amendments?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. Does the RP contain documentation of risk-informed decisions on which levels of review are appropriate?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
3. Does the RP present the tasks, timing, and sequence of the reviews (including deferrals)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
a. Does it provide an overall review schedule that shows timing and sequence of all reviews? b. Does the review plan establish a milestone schedule aligned with the critical features of the project design and construction?	a. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> b. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
4. Does the RP address engineering model review requirements?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
a. Does it list the models and data anticipated to be used in developing recommendations? b. Does the RP identify any areas of risk and uncertainty associated with the use of the proposed models? c. Does it indicate the certification/approval status of those models and if review of any model(s) will be needed? d. If needed, does the RP propose the appropriate level of review for the model(s) and how it will be accomplished?	a. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> b. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> c. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> d. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
5. Does the RP explain how and when there will be opportunities for the public to comment on the study or project to be reviewed?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

6. Does the RP address expected in-kind contributions to be provided by the sponsor?

If expected in-kind contributions are to be provided by the sponsor, does the RP list the expected in-kind contributions to be provided by the sponsor?

Yes No

Yes No
 n/a

7. Does the RP explain how the reviews will be documented?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
a. Does the RP address the requirement to document ATR comments using Dr Checks published comments and responses pertaining to the design and construction activities summarized in a report reviewed and approved by the MSC and posted on the home district website?	a. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
8. Has the approval memorandum been prepared and does it accompany the RP?	Yes <input type="checkbox"/> No <input type="checkbox"/>



DEPARTMENT OF THE ARMY

GALVESTON DISTRICT CORPS OF ENGINEERS

2000 FORT POINT ROAD
GALVESTON, TX 77550

July 1, 2016

REPLY TO
ATTENTION OF

CESWG-PM-F

MEMORANDUM FOR Commander, Southwest Division (SWD-PD-SP-P)

SUBJECT: GIWW – Brazos River Floodgate and Colorado River Lock Feasibility Study - Peer Review Plan

1. The subject Review Plan (RP) (enclosure 1) and RP Checklist (enclosure 2) are hereby submitted for review and approval.
2. The RP and RP Checklist follow the implementation documents in accordance with EC 1165-2-214. An electronic copy of these documents has been sent to Mr. Saji Varghese, and Mrs. Rebecca Moyer at SWD.
3. I recommend that this RP be approved as it has been endorsed and reviewed in accordance with EC 1165-2-214. The POC for this study is Ms. Franchelle Craft, Project Manager. She can be reached at (309) 794-5802.

NAME
Colonel, EN
Commanding

Encls.

1. Project Review Plan
2. Review Plan Checklist
3. Plan Endorsement