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

REPLY TO
ATTENTION OF

CESAD-CG

26 MAY 2015

MEMORANDUM FOR Commander, Jacksonville District (CESAS-PD/W. Bailey)

SUBJECT: Satilla Watershed, Georgia, Flood Risk Management Feasibility Study

1. References:

a. Memorandum, CESAS-PD, 30 March 2015, subject as above.

b. Memorandum, CESPD-PDP (FRM-PCX), 4 May 2015, subject Satilla Watershed, GA, Review Plan.

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

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

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

4. The point of contact for this action is Mr. Patrick O'Donnell at (404) 562-5226.

Encl
as

C. DAVID TURNER
Brigadier General, USA
Commanding

REVIEW PLAN

Satilla Watershed, Georgia
Flood Risk Management
Feasibility Study

Savannah District

Project Number:
402837

MSC Approval Date: 26 May 2015
Last Revision Date:

US Army Corps
of Engineers ®

REVIEW PLAN

Satilla Watershed, Flood Risk Management, Feasibility Study

TABLE OF CONTENTS

1. PURPOSE AND REQUIREMENTS

a. Purpose. This Review Plan includes the general scope and level of peer review for the Satilla Watershed, Georgia, Flood Risk Management, Feasibility Study.

b. References.

(1) Engineering Circular (EC) 1165-2-214,Civil Works Review, 15 December 2012
(2) EC 1105-2-412, Assuring Quality of Planning Models, 31 March 2011
(3) Engineering Regulation (ER) 1110-1-12,Change 1, Quality Management, 30 September 2006
(4) ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007
(5) Project Management Plan (PMP) for study (in progress)
(6) Savannah District Quality Control Plan

c. Requirements. This review plan was developed in accordance with EC 1165-2-214, Change 1, 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, Change 1) and planning models are subject to certification/approval.

d. Attachments. Attachment 1 includes the Project Delivery Team (PDT) members and the Agency Technical Review (ATR) team members. Attachment 2 includes samples of the Completion of Agency Review and also the Certification of the Agency Technical Review. Attachment 3 includes a table of the review plan revisions.

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 Flood Risk Management Planning Center of Expertise (FRM-PCX) will be the RMO.

The FRM-PCX will coordinate with the Civil Works Cost Engineering and Agency Technical Review Mandatory Center of Expertise (Cost Engineering MCX) to ensure the

appropriate expertise is included on the review teams to assess the adequacy of cost estimates, construction schedules and contingencies.

If it is determined that the project may have life safety concerns, the RMO will also coordinate with the Risk Management Center (RMC) for this Review Plan (RP) and potentially for required review efforts.

3. STUDY INFORMATION

a. Decision Document

The Satilla Watershed, Georgia, decision document will be prepared in accordance with ER 1105-2-100. The purpose of this study is to evaluate and manage flood risk problems in the Satilla Watershed. The Savannah District has determined that there is a Federal interest and both Glynn and Camden Counties have expressed interest in being Non-Federal sponsors for portions of this study. The approval level of the decision document (if policy compliant) is the Headquarters, USACE, and Congressional authorization is required for implementation. An Environmental Assessment (EA) will be prepared along with the decision document.

b. Study/Project Description

The focus of the study is on flood risk management. The authorizing language is found in Section 205 of the Rivers and Harbors Act of 1950:

> *SEC. 205. The Secretary of the Army is hereby authorized and directed to cause preliminary examinations and surveys for flood control and allied purposes, including channel and major drainage improvements, and floods aggravated by or due to wind or tidal effects to be made under the direction of the Chief of Engineers, in drainage areas of the United States and its Territorial possessions, which include the following-named localities, and the Secretary of Agriculture is authorized and directed to cause preliminary examinations and surveys for run-off and water-flow retardation and soil-erosion prevention on such drainage areas, the cost thereof to be paid from appropriations heretofore or hereafter made for such purposes: Provided, That after the regular or formal reports made on any examination, survey, project, or work under way or proposed are submitted to Congress, no supplemental or additional report or estimate shall be made unless authorized by law except that the Secretary of the Army may cause a review of any examination or survey to be made and a report thereon submitted to Congress if such review is required by the national defense or by changed physical or economic conditions: And provided further, That the Government shall not be deemed to have entered upon any project for the improvement of any waterway or harbor mentioned in this title until the project for the proposed work shall have been adopted by law:…*

Satilla River, Georgia; Saint Marys River, Georgia and Florida; Suwannee River, Georgia and Florida; for flood control, navigation, and other beneficial uses.

The scope of water resource needs includes both coastal and inland flood risk management.

Problems: Glynn County has flooding problems in two locations: St. Simon's Island (coastal) and Belle Point. Belle Point is on the mainland near the marsh and is an older residential community. The two areas are not adjacent to each other, so they may require different technical analyses that may lead to different solutions to their flooding problems. This separation also increases the level of effort during the feasibility phase. Glynn County, the non-Federal sponsor, has specifically asked that we study elevating the structures to reduce their susceptibility to floods. See Figure 1 below for a view of the area on St Simon's with localized flooding.

Camden County has experienced flooding in two residential areas along the Satilla: Bullhead Bluff and 3R Fish Camp. Camden County has specifically asked that we evaluate a flood warning system. The PDT will only study non-structural solutions to these problems in the feasibility study.

Both Glynn County and Camden County are the non-Federal sponsors for this study.

Figure 1 -Area of localized flooding on St Simon's Island

Opportunities: Although this study is for flood risk management, project features identified during the study that provide ancillary benefit to other purposes (such as ecosystem restoration) may be considered as long as they do not substantially increase project costs.

Constraints: Cultural resources, threatened and endangered species, and wetlands could constrain the measures that could be implemented to reduce flood risks.

At this point, the feasibility study cost estimate for the non-structural alternatives ranges from $500,000 to $3,000,000. Currently, the PDT does not have a cost estimate for the project cost.

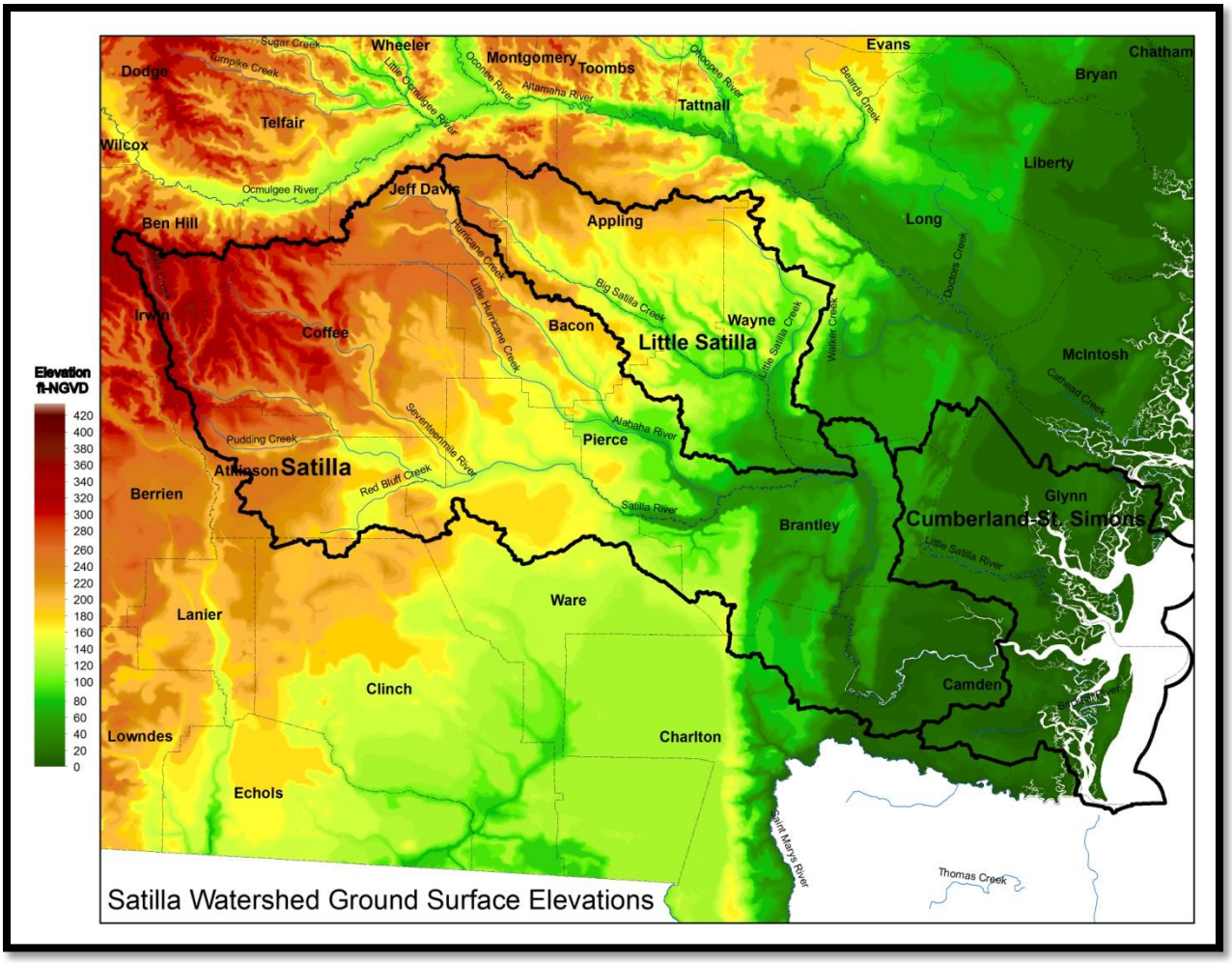

Figure 2 - Ground Surface Elevations

c. Factors Affecting the Scope and Level of Review.

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

- *Project Challenges:* The PDT anticipates that this study will be straightforward, involve alternatives and analyses that are common to Corps studies, and does not anticipate that any parts of the study will likely be challenging.
- *Project Risks:* The PDT does not anticipate any unusual risks with this project. Because the study is only looking at non-structural alternatives, there will be no

modifications of the flood plain. This study is not changing or altering the nature of the flooding in this area. This study is only reducing the damages caused by the flooding.

- *Life Safety:* At this time, it is not anticipated that there will be any life safety risks from this non-structural study, as there will be no modifications of the flood plain. However, this determination will be re-assessed as the study progresses and more information is available.
- *Request by Governor:* There has not been a request to study this project by a State Governor or an affected state.
- *Public disput regarding the size, nature, or effects of the project.* It is not anticipated that there will be any public disputes concerning this project because there will be no modification of the flood plain, this study will only reduce the damages caused by flooding.
- *Public dispute regarding the economic or environmental cost or benefit of the project*. It is not anticipated that there will be any public disputes concerning economic and environmental costs and benefits because there will be no modification of the flood plain, this study will only reduce the damages caused by flooding.
- *Novel methods, innovative materials or technicques, complex challenges for interpretation, precedent-setting methods or models, or conclusions that are likely to change prevailing practices*. This study will not involve novel methods, innovative materials or techniques, contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices. The formulation, evaluation, and design of all study measures and alternatives will be performed using standard practices and methods.
- *Redundancy, resiliencey, and/or robustness, unique construction sequencing or a reduced or overlapping design construction schedule*. It is not anticipated that this study will require unusual redundancy, resiliency, and/or robustness, unique construction sequencing, or a reduced or overlapping design construction schedule. The design and construction of all measures and alternatives will be performed using standard practices and methods, which include provisions for redundancy, resiliency and robustness, where necessary.

d. In-Kind Contributions.

Products and analyses provided by the non-Federal Sponsors as in-kind services are subject to DQC, ATR, and IEPR. At this point, the study includes no in-kind products from the non-Federal sponsor(s). Once the scope is fully developed and the PMP has been reviewed by the sponsors, we will jointly determine if the sponsors have the capability to perform any work elements through in-kind services. If any work elements will be provided by the non-Federal sponsor as in-kind services, they will be subject to DQC, ATR, and, if applicable IEPR.

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 DQC review is a standard requirement for all studies. All DQC comments will be formally answered in a normal comment/response format and compiled together in Dr. Checks. The DQC comments and responses and the back-check will be provided to the ATR team and will become a permanent part of the study documentation. The DQC will be conducted by senior CESAS personnel.

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 (Savannah 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. Per EC 1165-2-214, the ATR Lead must be from outside the home MSC. The ATR Lead should participate in all In Progress Reviews (IPRs) and milestone meetings.

Per the Planning SMART Guide, Review of Civil works Projects, 31 May 2012, in addition to leading the ATR team and managing the ATR of specific products, the ATR Lead will also participate in all in progress review (IPR) meetings and milestone meetings.

a. Products to Undergo ATR.

Certification of the ATRs will be provided prior to the District Commander signing the final report. Products to undergo ATR are the Draft EA and feasibility report and the Final EA and feasibility report. Additionally, the cost estimate will undergo an ATR.

b. Required ATR Expertise

ATR Team Members/Disciplines	Expertise Required
ATR Lead	The ATR lead will 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). For this study, it is anticipated that the planning or economic ATR team member will also act as the ATR team lead.
Planning	The Planner will be a senior planner, preferably one who has had experience in Flood Risk Management. Additionally, the Planner must have experience in

	formulating, evaluating, and comparing non-structural alternatives.
Economics	The ATR team member must be an Economist and have recent experience in Flood Risk Management and risk analysis and the HEC-FDA model, and will be certified to review FRM projects. This team member may also work on the risk analysis, as required for FRM studies to ensure compliance with ER 1105-2-101.
Environmental Resources	The ATR team member must be a senior biologist and have recent experience in Flood Risk Management studies. This person must have recent experience in compliance with environmental laws (NEPA, Clean Water Act, Endangered Species Act, National Historic Preservation Act, etc.) and must have a minimum of 5 years of experience.
Cultural Resources	The archaeologist/cultural resources reviewer must minimally be on the list of certified reviewers that was released by HQ. Team member must have recent experience with Flood Risk Management projects of similar scope and scale. The reviewer should have experience with historic structures
Hydrology and Hydraulics	This ATR member must have a minimum of 10 years relevant experience in Flood Risk Management projects, be a registered professional engineer, and have a good understanding of applications of the Corps of Engineers Hydrologic Engineering Center models HEC-HMS and HEC-RAS. This team member will also review the risk analysis, as required for FRM studies to ensure compliance with ER 1105-2-101.
Structural Engineer *	This ATR member must have a minimum of 10 years relevant experience in Flood Risk Management projects, be a registered professional engineer, and have experience with non-structural flood proofing. The reason for structural and geotechnical engineers is because some of the alternatives to be studied will require both of these engineers. Examples are: some of the non-structural alternatives, including elevating structures and berm closures.
Geotechnical Engineering	The reviewer should have extensive experience in the field of geotechnical engineering, analysis, design, and construction of water containment/diversion type

	structures. Experience shall include the following: subsurface investigations, earthwork construction, slope stability evaluation, evaluation of seepage through earthen embankments and underseepage through the foundation of structures, water control / outfall structures, settlement evaluation, and slope protection design. Earthwork construction experience shall include diversion and control of water, borrow operations, and compaction and moisture conditioning methods. The ATR team member must be a registered professional engineer with at least 5 years of experience."
Cost Estimating	The ATR Team member should be familiar with the most recent version of MII software and total project cost summary. This ATR member must be able to review the cost estimates and have recent experience with cost estimating for Flood Risk Management projects. The cost engineer will review Rough Order Magnitudes (ROM) of the alternatives and also the final costs for the selected plan. A Civil Works Cost Engineering and Agency Technical Review Mandatory Center of Expertise (Cost Engineering MCX) located in the USACE Walla Walla District (NWW). The Cost MCX is responsible for certifying the feasibility level cost estimate,
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.
Real Estate	The Real Estate reviewer is to have expertise in the real estate planning process for cost shared and full federal civil works projects, relocations, report preparation and acquisition of real estate interests including Flood Risk Management projects. The reviewer must have a full working knowledge of EC 405-2-12, Real Estate Planning and Acquisition Responsibilities for Civil Works Projects and Public Law 91-646. The reviewer must be able to identify areas of the Real Estate Plan that are not in compliance with the guidance set forth in EC 405-2-12 and will make recommendations for bringing the report into compliance. All estates suggested for use will be

	reviewed to assure they are sufficient to allow project construction and the real estate cost estimate will be validated as being adequate to allow for real estate acquisition.

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 be properly followed;
(3) The significance of the concern – indicate the importance of the concern with regard to its potential impact on the plan selection, recommended plan components, efficiency (cost), effectiveness (function/outputs), implementation responsibilities, safety, Federal interest, or public acceptability; and
(4) The probable specific action needed to resolve the concern – identify the action(s) that the reporting officers must take to resolve the concern.

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

The ATR documentation in DrChecks will include the text of each ATR concern, the PDT response, a brief summary of the pertinent points in any discussion, including any vertical team coordination (the vertical team includes the district, RMO, and MSC), 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 Technical Review documenting the issues raised by the ATR team have been resolved (or elevated to the vertical team). However, it is the responsibility of the District Chiefs of Planning and Engineering to certify the ATR for the decision documents. The Completion statement will be signed by the ATR lead, the Project Manager, and the RMO representative. The Certification statement will be signed by the Chiefs of Planning and Engineering. EC 1165-2-214 requires a Statement of Technical Review (which will be a certification of the ATR) for the draft and final products.

6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

An 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. A Type I IEPR is required for all decision documents unless one of the criteria for five mandatory triggers is met, and a risk-informed recommendation justifies exclusion. For this study, the triggers requiring a Type I IEPR were not met. Thus, a type I IEPR is not needed, nor recommended. 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. The 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 Exclusion.

At this time, Type I IEPR is planned to be conducted on this feasibility study. However, the District will reconsider this decision upon initiation of the feasibility study, and may seek an exclusion from performing a Type I IEPR. This decision document may be so limited in scope or impact that it would not significantly benefit from an independent peer review. The criteria consist of five mandatory triggers that warrant a Type I IEPR were reviewed and the following conclusions were reached:

Significant threat to human life. Very low risk to human life has been determined at this time but this conclusion will be reevaluated and confirmed as the study progresses.
Total Project Cost> $200 M. The total project cost is anticipated to be < $5 M.
A request by a State Governor of an affected state. There is no request by the Governor of an affected state for a peer review by independent experts;
Where the Department of Civil Works (DCW) or the Chief of Engineers determines that the project study is controversial due to significant public dispute over either the size, nature, or effects of the project or the economic or environmental costs or benefits of the project. This project is not likely to involve significant public disputes as to size, nature, or effects of the project and is not likely to involve significant public disputes as to the economic or environmental costs and benefits of this project;
Cases where information is based on novel methods, presents complex challenges for interpretation, contains precedent-setting methods, or presents conclusions that are likely to change prevailing practices. The information in the decision document or anticipated project design is not likely to be based on novel methods, involve the use of innovative materials or techniques, present complex challenges for interpretation, contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices. The project design is not anticipated to require redundancy, resiliency, and/or robustness, unique construction sequencing, or a reduced or overlapping design construction schedule:

b. Products to Undergo Type I IEPR. A type I IEPR is planned to be conducted on the draft report. However, the District will reconsider this decision upon initiation of the feasibility study, and may seek an exclusion to the type I IEPR.

c. Required Type I IEPR Panel Expertise. The Type I IEPR Panel will be comprised of individuals external to the Corps of Engineers and will be chosen based on expertise, experience, and/or skills. The expertise/disciplines represented on the type I IEPR panel may be similar to those on the ATR team, but may be more specifically focused and generally won't involve as many disciplines/individuals except for very large and/or complex studies. The Outside Eligible Organizatin (OEO) will determine the final participants on the Type I IEPR panel. The required disciplines are outlined in the table below.

Independent External Peer Review

Plan formulation	This panel member should have experience with plan formulation of flood management projects; familiarity with the Water Resources Council's Principals and Guidelines.
Environmental Resources	This panel member should have experience with integration of environmental evaluation and compliance requirements pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements, into the planning of Civil Works projects. Experience and familiarity with the application of habitat evaluation models to assist with assessment of environmental impacts(s) is also required.
Hydrology and Hydraulics	Hydrologist or hydraulic engineer proficient with river hydraulics, GEO-RAS, HEC-RAS, HEC-HMS, and associated one dimentional models, floodplain mapping, hydrologic statistics, sediment transport analysis, levees and floodwalss, channel stability analysis, risk and uncertainty analysis, non-structural solutions, and a number of other closely associated technical subjects.
Economics	This panel member should have experience with analysis of demographics, land use, recreation analysis, and flood damage assessments using HEC-FDA and economic justification of projects.

d. Documentation of Type I IEPR. Type I IEPR panel comments will be compiled by the OEO and should address the adequacy and acceptability of the economic, engineering and environmental methods, model and analyses used. Type I IEPR comments should generally include the same four key parts as described 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.

Documentation of Type II IEPR. Not Applicable

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

In conclusion, at this point a Type I IEPR is planned to be conducted on this feasibility study. However, the District will reconsider this decision upon initiation of the feasibility study, and may seek an exclusion at that time.

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 MANDATORY CENTER OF EXPERTISE (MCX) REVIEW AND CERTIFICATION

All decision documents shall be coordinated with the Civil Works Cost Engineering and Agency Technical Review Mandatory Center of Expertise (Cost Engineering MCX), located in the Walla Walla District. The MCX will assist in determining the expertise needed on the ATR team and in the development of the review 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 Corps models and software to ensure models are technically and theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions. .

a. Planning Models.

Planning models, for the purpose of this EC, are defined as any models and analytical tools that planners use to define water resources management problems and

opportunities, to formulate potential alternatives to address the problems and take advantage of the opportunities, to evaluate potential effects of alternatives and to support decision making. The use of a certified/approved planning model does not constitute technical review of the planning product. The selection and application of the model and the input and output data is still the responsibility of the users and is subject to DQC, ATR, and IEPR (if required).

It is anticipated that the most recent version of the Hydrologic Engineering Center's Flood Damage Analysis (HEC-FDA version 1.2.5) model will be used to derive reduced damages. The 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 conditions to aid in identifying the recommended plan to manage flood risk. The HEC-FDA is a Corps certified model.

b. Engineering Models.

The Hydrology and Hydraulics Branch plans to provide the Planning Division (PD) the water surface profile output from HEC-RAS(version 4.1 unless version 5.0 is available) in the appropriate format for input to the HEC-FDA economics model. The HEC-RAS model takes input of cross-section topography; bridge, culvert and roughness data; and steady flow discharge and uses that information to compute a water surface elevation at each cross-section and for each flow rate specified. The input requested by PD for economic analysis is: (1) existing conditions, (2) future land use conditions without project, and (3) future land use conditions with the proposed project. This model is the HH&C CoP Preferred model.

Water surface profiles will be developed for 8 (2-, 5-, 10-, 25-, 50-, 100-, 200-, and 500-year) hypothetical events. The HEC-HMS model will be run for the with-project simulation in order to develop regulated outflows to be input to the HEC-RAS model. The HEC-HMS model is a HH&C CoP preferred model (version 4.1).

10. REVIEW SCHEDULES AND COSTS

a. ATR Schedule and Cost. The cost for the ATRs is estimated to be $65,000. The documents to be reviewed and scheduled dates for review are as follows:

ATR Lead participation IPRs and milestone meetings - $5,000
Draft Feasibility Report and EA **–** ATR –1st quarter 2016 - $40,000
Cost Estimate – ATR – 1st quarter 2016 - $10,000
Final Report and EA – ATR- 4th quarter 2016 - $10,000

b. Type I IEPR Schedule and Cost. If required, the Type I IEPR will be concurrently reviewed with the ATR for the Draft Feasibility Report and EA, at an estimated contract cost of $100,000 and $15,000 for RMO management of the IEPR effort. However, the District is likely to seek an exclusion from Type I IEPR.

c. **Model Certification/Approval Schedule and Cost. NA-** All models used as part of this feasibility study are certified for use.

11. PUBLIC PARTICIPATION

State and Federal natural resource agencies may be invited to participate in the study as partner agencies or as technical members of the PDT, as appropriate. Agencies with regulatory review responsibilities will be contacted for coordination as required by applicable laws and procedures. The ATR team will be provided copies of public and agency comments. There will be a public review period and the documents will be available to the public for review through the Savannah district website.

12. REVIEW PLAN APPROVAL AND UPDATES

The CESAD Commander is responsible for approving this Review Plan. The Commander's approval reflects vertical team input as to the appropriate scope and level of review for the decision document. 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) 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 Home District's webpage. The latest Review Plan will also be provided to the RMO, which in this case is the 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: CESAS Project Manager, 912-652-5195, CESAD point of contact 404-562-5226 and the RMO point of contact is 415-503-6852.