



REPLY TO  
ATTENTION OF

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

CESAD-CG

10 NOV 2015

MEMORANDUM FOR Commander, Savannah District (CESAS-PD/Bill Bailey)

SUBJECT: Macon, Georgia Section 205 – Review Plan Approval

1. References:

a. Memorandum, CESAS-PD, 30 September 2015, subject: Macon, Georgia Section 205 Continuing Authority Program (CAP) Study.

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 and is approved. The Review Plan has been coordinated with the South Atlantic Division, which is the Review Management Organization for this Section 205 of the Continuing Authorities Program Feasibility Report. This review plan includes Type 1 Independent External Peer Review (IEPR). The timing and the appropriate expertise requirements for a Type II IEPR Panel for the Design and Construction phases of the proposed project must be assessed and submitted for my approval in an updated Review Plan prior to initiation of the design and implementation phase of this project.

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.

C. DAVID TURNER  
Brigadier General, USA  
Commanding

Encl  
as



DEPARTMENT OF THE ARMY  
SAVANNAH DISTRICT, CORPS OF ENGINEERS  
100 W. OGLETHORPE AVENUE  
SAVANNAH, GEORGIA 31401-3604

RECEIVED  
02 OCT 2015

REPLY TO  
ATTENTION OF:

CESAS-PD

SEP 30 2015

MEMORANDUM FOR Commander, South Atlantic Division (ATTN: Wilbert Paynes, CESAD-PDP), 60 Forsyth Street, RM 10M15, Atlanta, Georgia 30303

SUBJECT: Macon, Georgia Section 205 Continuing Authority Program (CAP) Study

1. Enclosed for your review and approval are the revised Review Plan (RP), Flood Risk Management Center of Expertise (FRM-PCX) endorsement letter, South Atlantic Division (CESAD) comments dated 13 August 2015, and Savannah District responses to those comments for the subject study. The RP defines the scope and level of the peer review for the Feasibility Report. Savannah District is requesting review and approval by CESAD.
2. Please direct any questions or comments related to this work effort to Jeff Morris, Team Leader, Economics and Plan Formulation Branch, at (912) 652-5008.

*William G Bailey*

WILLIAM G. BAILEY  
Chief, Planning Division

Encl

# **REVIEW PLAN**

**Macon GA Section 205 Study**  
**Macon, GA**  
**Continuing Authorities Program (CAP)**  
**Savannah District**

**P2 #145643**

**MSC Approval Date: Pending**  
**Last Revision Date: N/A**  
**Version Date: 29 September 2015**



**US Army Corps  
of Engineers ®**

## REVIEW PLAN

### *Macon GA Section 205 Study* *Continuing Authorities Program (CAP)*

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## REVIEW PLAN

### Macon, GA Section 205 Study Continuing Authorities Program (CAP)

#### 1. PURPOSE AND REQUIREMENTS

a. **Purpose.** This Review Plan defines the scope and level of peer review for the Macon GA Section 205 Continuing Authorities Program (CAP) 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 Mar 2011
- (3) Engineer Regulation (ER) 1110-1-12, Quality Management, Change #2, 31 March 2011
- (4) ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007
- (5) *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, 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 models are subject to certification/approval (per EC 1105-2-412).

#### 2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION

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. However, for CAP decision documents the RMO can be the Major Subordinate Command (MSC), which in this case is the South Atlantic Division. In accordance with EC 1165-2-214, SAD and the Flood Risk Management Planning Center of Expertise (FRM-PCX) have agreed that the FRM-PCX will serve as RMO for the decision document.

The RMO will coordinate with the Cost Engineering Mandatory Center of Expertise / Technical Center of Expertise (MCX/TCX) at Walla Walla District 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 has life safety concerns, the RMO will also coordinate with the Risk Management Center for this RP and potentially for required review efforts.

### **3. STUDY INFORMATION**

#### **a. Decision Document.**

The Macon, Georgia Flood Risk Management (FRM), Continuing Authorities Program (CAP) Section 205 Feasibility Study 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 Macon area. The approval level of the Corps' decision document is the South Atlantic Division (CESAD). An integrated Environmental Assessment (EA) will be prepared as part of the decision document.

#### **b. Study Authorization**

Section 205 of the Flood Control Act of 1948, as amended, authorizes the U.S. Army Corps of Engineers (USACE) to study, design and construct flood risk management projects. This Continuing Authorities Program (CAP) focuses on water resource related projects of relatively small scope, cost and complexity. Unlike the traditional Corps' civil works projects that are of wider scope and complexity, CAP is a delegated authority to plan, design, and construct certain types of water resource and ecosystem restoration projects without additional specific Congressional authorization. The non-federal sponsor for this project is the City of Macon.

Additional information on this program can be found in Engineering Regulation 1105-2-100, Planning Guidance Notebook, Appendix F, Amendment #2.

#### **c. Study / Project Area.**

The study area is in the Ocmulgee River Basin and begins just upstream of the I-16/I-75 interchange and extends downstream through the City of Macon, Bibb County, Georgia, to include the Macon Levee (shown in pink on image in Figure 1). The study area also includes Walnut Creek and Boggy Branch, which are tributaries to Ocmulgee River. See Figure 1.

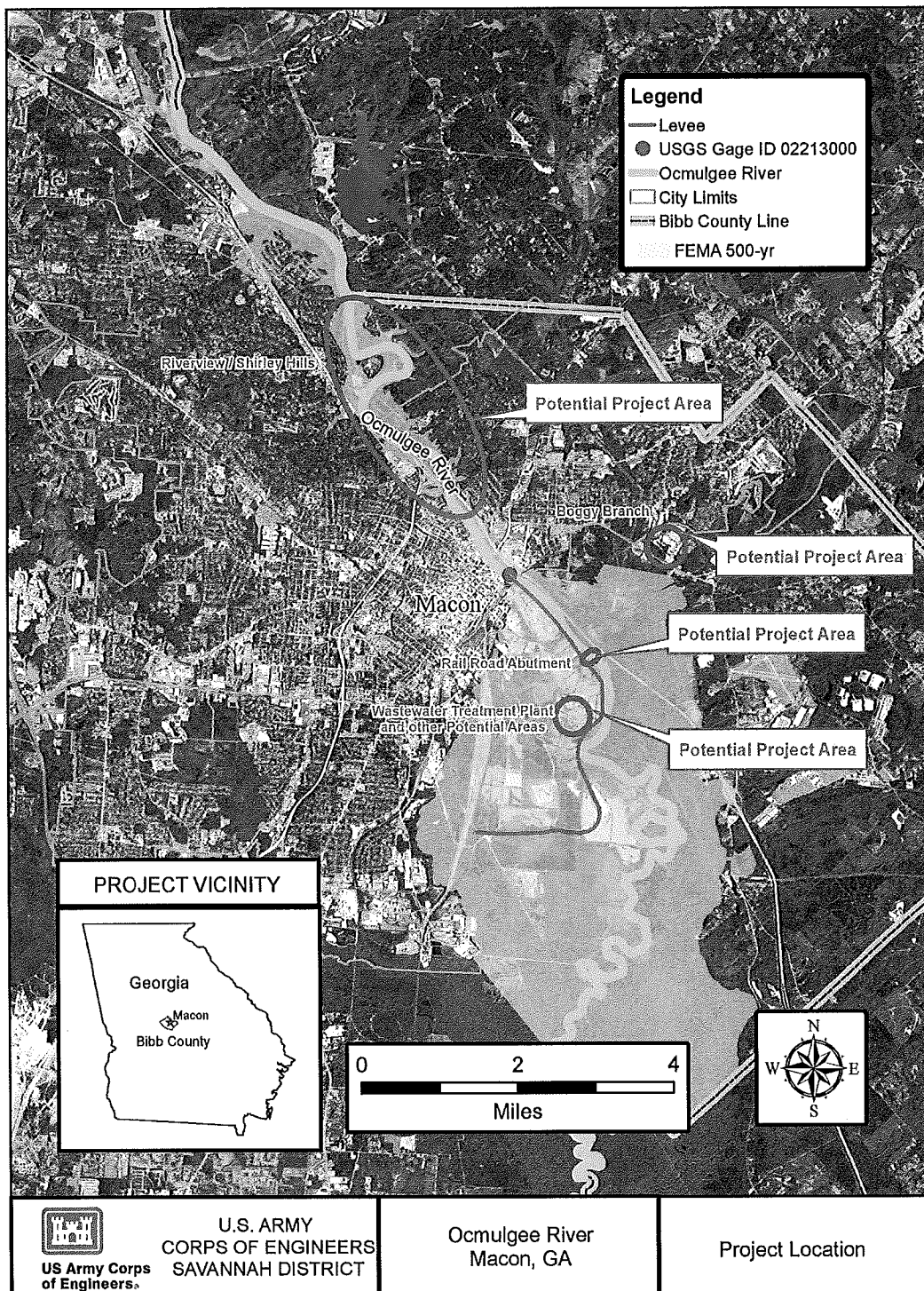


Figure 1: Project Location Map

The Macon Levee Flood Protection Project consists of 1,462 linear feet of concrete flood wall and 26,270 linear feet of earth dike extending from high ground at the Otis Redding Bridge at Macon. The upstream end of the levee begins at the Otis Redding/Martin Luther King, Jr. Bridge, formerly 5th Street Bridge, then proceeds in a southeasterly direction paralleling the Ocmulgee River for approximately 3.6 miles before turning west for 1.9 miles and intersecting the Norfolk-Southern Railway line. The upstream end of the project begins with the first 115 feet of concrete flood wall, which is a retaining wall with a maximum height of 14 feet, including the subsurface footing key. The retaining wall ties into an earthen levee for the remaining 1,347 feet that includes an approximately five-foot tall gravity floodwall imbedded approximately two vertical feet into the earthen section of the levee. This portion of the wall was not part of the original construction. The earthen portion of the levee has a 10-foot wide crest with 2H:1V side slopes.

Some known areas of concern for flooding are Delano and Huntington Drive, which are located within the Riverview subdivision. The southeast portion of this subdivision is located upstream of the levee in a relatively narrow area between I-75 and the Ocmulgee River. The nearby portion of I-75 was recently reconstructed at a higher elevation due to flood concerns. There are approximately 1 to 2 dozen homes within the current 100-year floodplain in this subdivision. According to the Advanced Hydrologic Prediction Service (AHPS) study, these homes may be at risk when the river stage reaches ~31 feet. Another area of concern is the Shirley Hills subdivision. The Shirley Hills subdivision is located just north of the I-16/I-75 interchange, on the east side of the Ocmulgee River. It appears that there are 6 to 8 homes on Glen Ridge Drive, Twin Pines Drive, Nottingham Drive, and Jacques Road that are at risk from flooding. These homes are within the 100-year floodplain. According to the AHPS study, these homes may be at risk when the river stage reaches ~27 feet.

Additionally, there is an area on Boggy Branch, located north east of the north portion of the levee, which is within the 100-year floodplain that is primarily commercially zoned. It appears that there are few houses in this area that are affected by flooding. This area was outside the study limits for the AHPS project. The infrastructure on Commerce Drive, Trade Drive, and Industrial Way may be at risk from flooding on Boggy Branch.

Macon's Wastewater Treatment Plant (WWTP) is a critical piece of infrastructure that will be evaluated in this study to determine if there is a federal interest in reducing flooding risks to it. That facility is located interior to the levee. During the flood of 1994 and the breach of the levee, portions of the WWTP were inundated causing uncontrolled releases of untreated wastewater. During this feasibility study, the PDT will evaluate the flood risks to the WWTP and potential measures to reduce that risk, as well as other facilities that are at risk.

#### **d. Flooding Problems.**

Due to changes in land use upstream of the levee and construction of I-16, the capacity of the Federal levee is no longer sufficient to contain a 0.4 percent annual chance (250 year) or greater flood. The most recent hydrologic analysis (completed



in 2013) estimates that the levee would be overtopped by a 75-year storm.

Structures protected by the levee include, but are not limited to, the City's Wastewater Treatment Plant, railroad structures, a recreational ball field, the Department of Motor Vehicles, Animal Control, the City landfill, and a metal recycling facility. In addition, the levee protects 1 residential, 46 commercial, and 12 industrial properties valued at a total of \$109 million.

**e. Possible Management Measures/Alternatives.**

This Section 205 study would identify problems with the reduced level of protection presently provided by the levee, and opportunities to alleviate these problems and reduce the risk of loss of life. Alternatives that could be expected to reduce the flood risks include: removing the SCL Railroad bridge piers and approach embankments (this would likely reduce the risk of flooding of the Lamar Mounds and Village Unit of the Ocmulgee National Monument); raising the levee crest upstream of the SCL Railroad; placing a ring dike around the City's wastewater treatment facility; lowering the most southern end of the levee to ensure that the levee overtops in this area first, limiting flood losses; rerouting flows into Walnut Creek and Boggy Branch; early warning systems; and non-structural solutions. Other possible alternatives that could be studied include a ring dike around other areas interior to the levee in addition to the Wastewater Treatment Plant.

**f. 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 the 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 Cost:* This CAP study will not exceed \$1 million and the construction is anticipated to be less than \$6 million, which is under the Federal project limit of \$10 million.
- *Project Challenges:* There is the potential risk that the Railroad that controls the bridge crossing in the study area may not act on study findings, which could affect the ease of implementation. This is in a highly urbanized area so it environmental challenges are anticipated to be minimal if at all.
- *Project Risks:* The level of detail that will be provided for first floor elevation data is unknown for the residential portions of the study area, which could affect the accuracy of the cost and benefit calculations for this project. This will be addressed as the study moves forward into feasibility phase.
- *Life Safety:* Because it is a Flood Risk Management study, there exists the possibility that Type I and Type II IEPRs will be required dependent upon the Tentatively selected Plan (TSP). The PDT will consider a full array of structural and non-structural alternatives. The PDT will include a non-performance scenario and all inherent risks for the TSP. If alternatives developed could pose a threat to human life, a Standard Estimate for the consequence assessment

will be conducted. The risk to life safety will continue to be re-assessed as the study progresses and more information is available. If alternatives developed do not pose a life safety risk, an exclusion to the IEPR will be requested.

- *Request by Governor:* There has not been a request to study this project by a State Governor or an affected state.
- *Public dispute regarding size, nature, or effects of the project:* At this point, there are no known public entities who would dispute the possible findings of this study. However, if the TSP includes design of a new levee, it is possible that the public located outside of the existing Macon levee may have some concerns. These concerns will be addressed during the feasibility phase. It is anticipated that there will be no modification to the floodplain.
- *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, as this study will only examine ways to reduce damages caused by flooding in a highly urbanized location with little likelihood of environmental impacts. A challenge with the feasibility of one alternative will be the economics of moving a railroad abutment. Further in the area around the water treatment plant there may be some HTRW issues, however, this possibility is remote.
- *Novel methods, innovative materials or techniques, 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, resiliency, and/or robustness, unique construction sequencing or a reduced or overlapping design construction schedule.* This study will not 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.

**g. In-Kind Contributions.** The City of Macon will be the non-Federal sponsor for this feasibility study. Products and analyses provided by non-Federal sponsor as in-kind services are subject to DQC, ATR, and IEPR to the same level as Corps products and analyses for the applicable decision document. At this point, the study includes no in-kind products from the non-Federal sponsor. Once the scope is fully developed and the PMP has been reviewed by non-Federal Sponsor, we will jointly determine if the sponsor has 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 South Atlantic Division. When policy and/or legal concerns arise during DQC efforts that are not readily and mutually resolved by the PDT and the reviewers, the district will seek immediate issue resolution support from the MSC and HQUSACE in accordance with the procedures outlined in Appendix H, Amendment #1, ER 1105-2-100 or other appropriate guidance.

**Documentation of DQC.** A DQC review is a standard requirement for all studies. All DQC comments will be formally answered in a normal comment/response format. The DQC comments and responses and the back-check will be provided to the ATR team prior to initiation of the ATR. 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 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 but will not have been involved in the study.

### **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 (this will be an integrated report) and the final EA and feasibility report. Additionally, the cost estimate will require certification by the Cost Engineering MCX..

**b. Required ATR Team Expertise.**

<b>ATR Team Members/Disciplines</b>	<b>Expertise Required</b>
ATR Lead	The ATR lead will be a senior professional with extensive experience in preparing Civil Works decision documents and conducting ATR. The lead will 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 plan formulation, economics, environmental resources, etc). For this study, it is anticipated that the Plan Formulation or Economic ATR team member will also act as the ATR team lead.
Plan Formulation	The Plan Formulation reviewer will be approved to perform ATR for this CAP Section 205 study, and will be a senior water resources planner with experience in Flood Risk management.
Economics	The ATR team member must be an Economist and be approved to perform ATR for this CAP Section 205 study, 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 an experienced biologist. The Environmental reviewer will be approved to perform ATR this CAP Section 205 study 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.).
Cultural Resources	The archaeologist/cultural resources reviewer must minimally be on the list of certified reviewers that was released by HQ. This team member must have recent experience with Flood Risk Management projects of similar scope and scale. The reviewer should have experience with projects that entail multiple party consultations, including tribes.
Hydrology/Hydraulics	This ATR member must have 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 model HEC-RAS.

Structural Engineering	This ATR member must have experience in Flood Risk Management projects, be a registered professional engineer, and have experience with non-structural flood proofing. Typical non-structural solutions are elevating structures and flood proofing structures. This person should be familiar with these options.
HTRW	This ATR member must have experience in Flood Risk Management projects, and if the Geotechnical ATR member is qualified in HTRW and has experience in HTRW, then that person may do both ATR reviews.
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 under seepage 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.
Cost Engineering	The Cost Engineering reviewer must be from the Civil Works Cost Engineering and Agency Technical Review Mandatory Center of Expertise (Cost MCX) in Walla Walla District, or must be on the Cost MCX approved list of delegated Cost ATR reviewers. The MCX may assist in the identification of the team member.
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. For this study, it is anticipated that the Risk Analysis review role will be combined with another discipline, such as Economics or Hydrology/Hydraulics.

Real Estate	The Real Estate reviewer must 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. The reviewer should have a full working knowledge of EC 405-2-12, Real Estate Planning and Acquisition Responsibilities for Civil Works Projects, the portions of ER 405-2-12 that are currently applicable, and Public Law 91-646 "Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970". The reviewer should be able to identify areas of the Real Estate Plan that are not in compliance with the guidance set forth in EC405-2-12 and should make recommendation for bringing the report into compliance. All estates suggested for use should be termed sufficient to allow project construction, and the real estate cost estimate should be validated as being adequate to allow for real estate acquisition.
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### 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 when 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, 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 Technical Review certifying that the issues raised by the ATR team have been resolved (or elevated to the vertical team). A Statement of Technical Review should be completed, based on work reviewed to date, for the AFB (if applicable), draft report, and final report. A sample Statement of Technical Review is included in Attachment 2.

## **6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)**

Type I IEPR is required for all decision documents except where no mandatory triggers apply, criteria for exclusion are met, and a risk-informed recommendation justifies exclusion. 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. Decision documents must undergo a Type I IEPR unless HQUSACE grants exclusion. 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.**

Significant threat to human life. At this time the potential for a low risk to human life has been identified, therefore a Type I IEPR is warranted. Safety assurance will also be addressed during the Type I IEPR. This conclusion will be reevaluated and confirmed throughout the study and if the life safety risk lessens, then an exemption may be requested. According to section 11d.(3)(c) of EC 1165-2-214, which is the most current Civil Works Review guidance, a project can receive a Type I IEPR exclusion if it does not include an EIS and is pursued under the CAP Program if no mandatory triggers are met. Therefore, if the risk to life safety trigger no longer applies through alternative selection and analysis then this study might be eligible for the exclusion if approved by SAD.

Total Project Cost > \$200 M. The total project cost is anticipated to be < \$10 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 concerning the size, nature, or effects of the project, and is not likely to involve significant public disputes about 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 unusual redundancy, resiliency, and/or robustness, unique construction sequencing, or a



reduced or overlapping design construction schedule.

It is anticipated that a Type II may be needed due to the current assessment of the life safety risk. .

**b. Products to Undergo Type I IEPR.**

A type I IEPR is planned to be conducted on the draft report.

**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 Organization (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**

<b>Plan Formulation</b>	This panel member should have experience with plan formulation of flood management projects and familiarity with the Water Resources Council's Principals and Guidelines.
<b>Environmental Resources</b>	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.
<b>Hydrology and Hydraulics</b>	Hydrologist or hydraulic engineer proficient with river hydraulics, GEO-RAS, HEC-RAS, HEC-HMS, and associated one dimensional models, floodplain mapping, hydrologic statistics, sediment transport analysis, levees and floodwalls, channel stability analysis, risk and uncertainty analysis, non-structural solutions, and a number of other closely associated technical subjects.
<b>Economics</b>	This panel member should have experience with analysis of demographics, land use, recreation analysis, flood damage assessments using HEC-FDA, and economic justification of projects.

**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 5.c. 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.

**e. Documentation of Type II IEPR.** Based on the project as currently envisioned, and the possible life safety risk inherent in flood risk management project, a Type II IEPR and Safety Assurance Review may be required. However, this will be reassessed by the District Chief of Engineering, as the Engineer-In-Responsible-Charge, as the study proceeds. The Type II IEPR will be conducted in a similar manner to the Type I IEPR. 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.

## **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 document cost reviews will 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) 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 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 resource 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).

EC 1105-2-412 does not cover engineering models used in planning. The process the Hydrology, Hydraulics and Coastal Community of Practice (HH&C CoP) of USACE follows to validate engineering software for use in planning studies and to satisfy the requirements of the Corps' Scientific and Engineering Technology (SET) initiative is provided in Enterprise Standard (ES)-08101 Software Validation for the Hydrology, Hydraulics and Coastal Community of Practice. 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. Planning Models.** The following planning 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 along the Ocmulgee River near Macon to aid in the selection of a recommended plan to manage flood risk.	Certified

There are no anticipated environmental models because there are no anticipated mitigation needs. If mitigation is required than the suitable environmental models will be used and added to this review plan.

- b. Engineering Models.** The following engineering model is 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 5.0 (if released) or 5.0 Beta* (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 Ocmulgee River and its tributaries.	HH&C CoP Preferred (pending removal of beta label)

\*Note: if HEC-RAS 5.0 Beta is used, a more rigorous review may be required during ATR.

## 10. REVIEW SCHEDULES AND COSTS

- a. ATR Schedule and Cost.** The cost for the ATRs is estimated to be \$60,000. The documents to be reviewed and scheduled dates for review are as follows:
- ATR Lead Participation IPRs and milestone meetings - \$5,000
  - Draft Integrated Feasibility Report and EA – ATR 3<sup>rd</sup> quarter 2017 - \$40,000
  - Cost Certification – 1<sup>st</sup> quarter 2018 - \$5,000
  - Final Integrated Feasibility Report and EA – 1<sup>st</sup> quarter 2018 - \$10,000
- b. Type I IEPR Schedule and Cost.** The Type I IEPR will be performed after the first ATR and during the public comment period. The estimated contract cost is \$100,000 and \$15,000 is expected for RMO management of the IEPR effort.
- c. Model Certification/Approval Schedule and Cost.** All models expected to be used in this feasibility study are certified for use or HH&C CoP preferred models.

## 11. PUBLIC PARTICIPATION

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 of the draft report documents, which will be made available to the public through the Savannah District website.

## 12. REVIEW PLAN APPROVAL AND UPDATES

The South Atlantic Division Commander is responsible for approving this Review Plan.

The Commander's approval reflects vertical team input (involving District, MSC, RMO, and HQUSACE members, as applicable) 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. Significant changes to the Review Plan (such as changes to the scope and/or level of review) will be 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 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:

CESAS Project Manager, 912-652-5804  
CESAD Point of Contact, 404-562-5226  
FRM-PCX, Deputy Director, 415-503-6852

## ATTACHMENT 1: TEAM ROSTERS

Table 1 – Project Delivery Team

Discipline	Office/Agency	PDT Members
Project manager	CESAS-PM-C	Robert Sirard
Plan formulator	CESAD-PD	Monica Simon-Dodd
Environmental	CESAS-PD	Nathan Dayan
Economics	CESAS-PD	Jeff Morris
Cultural Resources	CESAS-PD	Julie Morgan
Real Estate	CESAS-RE-AP	John Hinely
Hydraulics	CESAS-EN-H	Tracy Hendren/Bryan Robinson
Geotechnical	CESAS-EN-GS	Steven Bath
Structural Engineer	CESAS-EN	TBD
Cost Estimating	CESAS-EN-ET	TBD
SAD	CESAD-PDP	Patrick O'Donnell

Table 2 – Agency Technical Review Team Members

TBD	ATR Lead		
TBD	Planning		
TBD	Economics		
TBD	Environmental		
TBD	Cultural Resources		
TBD	Hydrology and Hydraulics		
TBD	Structural Engineering		
TBD	Geotechnical Engineering		
TBD	Cost Estimating		
TBD	Risk Analysis		
TBD	Real Estate		

### INDEPENDENT EXTERNAL PEER REVIEW POINTS OF CONTACT

Nam	Discipline	Phone	Email
TBD	PCX IEPR Lead		
TBD	Outside Eligible Organization (OEO)-IEPR Eligible OEO IEPR		
TBD			
TBD			

### VERTICAL TEAM

Name	Discipline	Phone	Email
	District Support Team		
	Regional Integration Team		

## ATTACHMENT 2: SAMPLE 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 DrChecks<sup>sm</sup>.

#### SIGNATURE

\_\_\_\_\_  
Name

ATR Team Leader

\_\_\_\_\_  
Office Symbol/Company

\_\_\_\_\_  
Date

#### SIGNATURE

\_\_\_\_\_  
Name

Project Manager

\_\_\_\_\_  
Office Symbol

\_\_\_\_\_  
Date

#### SIGNATURE

\_\_\_\_\_  
Name

Architect Engineer Project Manager<sup>1</sup>

\_\_\_\_\_  
Company, location

\_\_\_\_\_  
Date

#### SIGNATURE

\_\_\_\_\_  
Name

Review Management Office Representative

\_\_\_\_\_  
Office Symbol

\_\_\_\_\_  
Date

### CERTIFICATION OF AGENCY TECHNICAL REVIEW

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

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

#### SIGNATURE

\_\_\_\_\_  
Name

Chief, Engineering Division

\_\_\_\_\_  
Office Symbol

\_\_\_\_\_  
Date

#### SIGNATURE

\_\_\_\_\_  
Name

Chief, Planning Division

\_\_\_\_\_  
Office Symbol

\_\_\_\_\_  
Date

<sup>1</sup> Only needed if some portion of the ATR was contracted

ATTACHMENT 3:  
South Atlantic Division  
CAP Regional Programmatic Review Plan for Decision Documents  
Enclosure B  
Risk Based IEPR Decision Analysis/Regional CAP Review Plan Applicability  
Determination

**NOTE: A signed copy of this completed Decision Analysis/Applicability  
Determination will be placed in the Project File**

**Document Name: Macon GA Section 205 Review Plan**

The Project Development Team has reviewed Section 5.2.1. of the SAD CAP Regional Programmatic Review Plan for Decision Documents.

*If applicable, mark with an x, sign, and date. If not applicable, complete the analysis.*

**OPTION 1**

\_\_\_ This is not a Section 103 or 205 CAP Decision Document and none of the Type I IEPR triggers in Section 5.2.1 apply. Type II IEPR Safety Assurance Review has been determined by the District Chief of Engineering, as the Engineer-In-Responsible-Charge, not to be needed.

\_\_\_\_\_  
[Insert Name]  
Chief, Planning Division

Date: \_\_\_\_\_

\_\_\_\_\_  
[Insert Name]  
Chief, Engineering Division

Date: \_\_\_\_\_

Based on the above determination, the Regional CAP Decision Document Review Plan is applicable to this decision document.



## OPTION 2

\_\_\_\_ This is a Section 103/205 CAP Decision Document/Section \_\_\_\_ CAP authority with Type I IEPR triggers in Section 5.2.1 that apply. *(circle applicable description)*

The risk-informed decision analysis is as follows:

- Does the project involve a significant threat to human life/safety assurance?

Response: At this time, the PDT has insufficient information to characterize the potential threats to life in the study area. However, because this is an FRM study and there is a potential risk of life safety, the PDT agrees that a Type I IEPR should be included.

- Is the total project cost less than \$200 million?

Response: Yes, it is anticipated to be less than the \$10M

- Is there a request by the Governor of an affected state for a peer review by independent experts?

Response: No

- Does the project require an Environmental Impact Statement (EIS)?

Response: No, the project is currently scoped as an Environmental Assessment (EA)

- Is the project/study likely to involve significant public dispute as to the size, nature, or effects of the project?

Response: No

- Is the project/study likely to involve significant public dispute as to the economic or environmental cost or benefit of the project?

Response: No

- Is the information in the decision document or anticipated project design likely to be based on (a) novel methods, (b) involve the use of innovative materials or techniques, present complex challenges for interpretation, (c) contain precedent-setting methods or models, or (d) present conclusions that are likely to change prevailing practices? *(answer each criterion separately)*

Response: No

- Is the project design anticipated to require redundancy, resiliency, and/or robustness, unique construction sequencing, or a reduced or overlapping design construction schedule?

Response: No

- Are there other circumstances where the Chief of Engineers or Director of Civil Works has determined Type I IEPR is warranted? *(if unsure, validate with SAD Engineering prior to responding)*

Response: None not already mentioned.



Based on upon the information provided above, the decision document is so limited in scope or impact that it would not significantly benefit from a Type I IEPR. This document will be sent to SAD for its concurrence with this determination. Upon SAD concurrence, the CAP Regional Programmatic Decision Document Review Plan is applicable to this decision document.

  x   Based upon the information provided above, the decision document should undergo a Type I IEPR. An individual review plan will be created for this decision document.

\_\_\_\_\_  
William G. Bailey  
Chief, Planning Division

Date: \_\_\_\_\_

\_\_\_\_\_  
Gordon L. Simmons P.E.  
Chief, Engineering Division

Date: \_\_\_\_\_