



DEPARTMENT OF THE ARMY  
NORTH ATLANTIC DIVISION, US ARMY CORPS OF ENGINEERS  
FORT HAMILTON MILITARY COMMUNITY  
BROOKLYN, NEW YORK 11252-6700

REPLY TO  
ATTENTION OF

CENAD-PD-PP

DEC 14 2012

MEMORANDUM FOR Commander, Norfolk District, ATTN: CENAO-WR-P

SUBJECT: Review Plan Approval for the Rappahannock River Basin, Virginia, Comprehensive Feasibility Study

1. The attached Review Plan for the subject study has been prepared in accordance with EC 1165-2-209, Civil Works Review Policy.
2. The Review Plan has been coordinated with the Ecosystem Planning Center of Expertise of the Mississippi Valley Division, which is the lead office to execute this plan. For further information, contact Ms. Jodi Creswell at 309-794-5448. The Review Plan currently does not include independent external peer review and will be revised after a risk-informed decision analysis has been made.
3. I hereby approve this Review Plan, which is subject to change as study 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.

Encl

A handwritten signature in black ink, appearing to read "K. Savre".

KENT D. SAVRE  
Colonel, EN  
Commanding

# **DRAFT REVIEW PLAN**

## **RAPPAHANNOCK RIVER BASIN, VIRGINIA, COMPREHENSIVE FEASIBILITY STUDY**

### **NORFOLK DISTRICT**

**MSC Approval Date: Pending**  
**Last Revision Date: None**



**US Army Corps  
of Engineers ®**

**NORFOLK DISTRICT  
803 FRONT STREET  
NORFOLK, VIRGINIA  
November 2012**

**REVIEW PLAN**

**RAPPAHANNOCK RIVER BASIN, VIRGINIA, COMPREHENSIVE  
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 Rappahannock River Basin, Virginia, Comprehensive Feasibility Study

### b. References

- (1) Engineering Circular (EC) 1165-2-209, Civil Works Review Policy, 31 Jan 2010, revised 31 Jan 2012
- (2) EC 1105-2-412, Assuring Quality of Planning Models, 31 Mar 2011
- (3) Engineering Regulation (ER) 1110-1-12, Quality Management, 30 Sep 2006
- (4) ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007

c. **Requirements.** This review plan was developed in accordance with EC 1165-2-209, 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 1165-2-209) 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 Ecosystem Restoration Planning Center of Expertise (ECO-PCX).

The RMO will coordinate with the Cost Engineering Directory of Expertise (DX) to ensure the appropriate expertise is included on the review teams to assess the adequacy of cost estimates, construction schedules and contingencies. Coordination with other PCX's may be required and will be identified upon the acquisition of further study detail. .

## 3. STUDY INFORMATION

a. **Decision Document.** The purpose of the decision document entitled Rappahannock River Basin, Virginia, Comprehensive Feasibility Study is to present the results of a feasibility study undertaken to investigate of water resource improvements that encompass the Rappahannock River and vicinity. The study was authorized by resolution dated 5 June 1997 of the Senate Committee on Environment and Public Works.

b. **Study/Project Description.** The Rappahannock River, Virginia (Embrey Dam) Environmental Restoration original 905(b) report was authorized by a resolution of the Senate committee on

Environment and Public works on 5 June 1997. Accordingly, a Section 905(b) Reconnaissance report was prepared in June 1998 which recommended provisions for fish passage at Embrey Dam, as well as a study of the environmental restoration opportunities within the Upper Rappahannock River Basin. Before the feasibility phase began, Section of 590 of WRDA 1999 legislatively mandated removal of Embrey Dam. Upon removal of the dam, Norfolk District initiated the planning process to investigate other restoration alternatives on the Rappahannock River as described in the original 1997 authorization. The "Recommendations" Section of the original 905(b) report does not specifically list the opportunities and scope the feasibility phase of the Rappahannock River Basin Comprehensive Study, but states that "there are sufficient indications that an engineering solution to the problems and needs in the Rappahannock River in the vicinity of Fredericksburg, Virginia", and throughout the watershed can be formulated which will accrue environmental and NED benefits sufficient to exceed costs and that environmental impacts will be favorable. However, a number of potential study opportunities, other than removal of the dam, are described in the body of the report. The resultant Rappahannock River Basin, Virginia, Comprehensive Feasibility Study will investigate a broad spectrum of water resources opportunities such as the preparation of comprehensive plans for the development, utilization, and conservation of water and related land resources. Specific opportunities that could be investigated include creating or restoring riverine wetlands, riparian habitat, spawning habitat (i.e. substrate and flow conditions); identifying and implementing nonpoint source pollution controls, greenway corridors or implementing a livestock fencing program; development of water quality standards and discharge limits that protect fisheries; management of reservoir releases and water withdrawal practices; and enhancing instream structures to provide diversity of channel morphology. These types of plans could include water supply/demand, water conservation, water quality, environmental/conservation, wetlands evaluation/restoration, dam safety/failure, flood damage reduction, coastal zone protection, and harbor planning. Water resource and environmental enhancement opportunities would extend the full length of the basin area from the headwaters to its confluence with the Chesapeake Bay. Recreational opportunities that exist along the river include river born activities such as canoeing, fishing and white water rafting. The decision document will be prepared for the Chief of Engineer's signature. It is expected that an Environmental Assessment will be prepared in support of the NEPA documentation that is required and will be included along with the report.

- c. **Factors Affecting the Scope and Level of Review.** The study itself has no challenging portions. There should be no significant technical or policy issues that could require anything other than ATR during the Feasibility phase. , As previously mentioned, a Section 905(b) Analysis (The Rappahannock River, Virginia (Embrey Dam) Environmental Restoration) was prepared during Fiscal Year (FY) 1998 at full Federal expense, to evaluate the need for and Federal interest in water resources and environmental restoration opportunities in the watershed. In this connection, this effort will be in concert with recognizing and preserving adjacent water related facilities and needs, including historical canals, wetlands and ponds, historical locks, ponds and other sites, downstream parks and flood control provisions along the river. A follow-on Addendum to the 905(b) report was prepared in FY12 that clarified the potential study opportunities for the Rappahannock River Environmental Restoration.
- If parts of the study will likely be challenging: The study itself should have no challenging portions. The "Recommendations" Section of the original 905(b) report does not specifically list the opportunities and scope of the feasibility phase of this comprehensive water resources study. The section states "there are sufficient indications that an engineering solution to the problems and needs in the Rappahannock River in the vicinity of Fredericksburg, Virginia can be

formulated which will accrue environmental benefits sufficient to exceed costs and that environmental impacts will be favorable". Over-fishing, pollution, and loss of historic spawning grounds have all contributed to the decline of anadromous fish stocks. These problems were partially rectified with the removal of Embrey Dam in 2004, however, fish passage alone will not restore anadromous fish populations to their historic numbers. Other fishery restoration opportunities exist by enhancing suitable habitat and the fish population that are coupled with restoration of Rappahannock River riparian habitat, wetland habitat and enhancement of specialized recreation. The 905(b) report included a discussion of the impacts to the Rappahannock Canal resulting from the removal of Embrey Dam, e.g. "any ecosystem dependent on the canal water would experience adverse environmental impacts if the flow were ceased, along with adverse impacts to the cultural, historical, and aesthetic resources of the canal." At this time it is not known if the complete removal of the dam has affected the canal and a thorough investigation "to determine the environmental impacts on canal-water dependent ecosystems" was supported by the original 905(b) report. While ecosystem restoration and aquatic habit restoration initiatives are called for in the above referenced section, we will not neglect the need to investigate the ground water and water quality concerns, the possibility of riparian buffer creation and the need for effective and integrated flood warning systems, etc. This study will investigate comprehensive solution sets across environmental, flood risk management, navigation, and water supply business lines.

- Preliminary assessment of where the project risks could occur: The PDT has assessed the potential risks associated with accomplishing the project activities, schedule and fiscal resources, project background information, customer/stakeholder expectations and their tolerance for risk. As a result of this assessment, the PDT has determined that the proposed study does not present a high risk of developing decisions or recommendations for implementation that may lead to non-performance of the existing project, particularly in the areas of economics, environment, public safety, and social justice. Further, this project does not meet the mandatory triggers, does not warrant an IEPR based on a risk-informed analysis, and is so limited in impact that it would not significantly benefit from IEPR. However, preliminary findings also suggest that: a decision on IEPR should be postponed until the study is better defined thru the PMP/FCSA process.
- Significant threat to human life: Implementation of this comprehensive study is not going to be a significant threat to human life and public safety. This comprehensive river basin study is expected to provide a tool for public policy decision makers to implement comprehensive and integrated water resources initiatives, each of which would be facilitated by planning, design and construction, cost shared with the US Army Corps of Engineers. Project nonperformance is not expected to affect human safety because of the agricultural and rural nature of the river basin. Local municipalities have installed measures to protect life safety during storm events
- Request by the State Governor: The Governor of Virginia is not expected to request peer review of this study. There has been no request by the Governor for a peer review by independent experts.
- Significant public dispute as to size, nature, or effects of the project: The project is not controversial and is widely supported in the local communities surrounding the basin. Recently, non-Federal entities contacted USACE to express their interest in pursuing restoration opportunities on the Rappahannock River. Although the original 905(b) report for the

Rappahannock River Environmental Restoration Study was written 14 years ago, some of the problems and opportunities described in the original report are still relevant to the Rappahannock River Basin today. We do not anticipate that the Rappahannock River Basin Comprehensive Feasibility Study would meet the factors of controversy (public dispute as to size, nature, or effects of project) for the Chief of Engineers to determine the project is controversial in nature.

- Significant public dispute as to the economic or environmental cost or benefit of the project: Since the alternatives will address measures that are described in the four accounts that are established to facilitate evaluation and display on the effects of alternative plans. The project is not likely to include an Environmental Impact Statement, nor have adverse impacts on scarce or unique cultural, historic, or tribal resources; we do not anticipate that the Rappahannock River Basin Comprehensive Feasibility Study would meet the factors of controversy (public dispute as to the NED or environmental costs or benefits of the project). Based on the low risk involved with implementation of this project and the screening of alternatives with model data (models still to be determined) prior to benefit analysis, we do not anticipate that the study would meet the factors of controversy (public dispute as to the economic costs or benefits of the project) for the Chief of Engineers to determine the project controversial in nature.
  - Methods are novel or complex: The methods that will be used are not novel or complex. Wetlands have been restored in various ways by the USACE and others in the region for several decades. Traditional and proven techniques and methods will be utilized to compile comprehensive plans for the development, utilization, and conservation of water and land related resources.
  - Redundancy, resiliency, resiliency, and or robustness required: The proposed project design will not require redundancy, resiliency, and/or robustness. The project could have some interagency interest: The Rappahannock River basin extends for approximately 195 miles and encompasses 2,848 square mile of watershed and as such, its water resources and restoration objectives would contribute to meeting the goals and objectives of Chesapeake Bay Protection and Restoration Executive Order (Executive Order 13508)..
  - The Chief of Engineers determines that IEPR is necessary: To date, the Chief of Engineers has not determined that IEPR is necessary.
- d. **In-Kind Contributions.** Products and analyses provided by non-Federal sponsors as in-kind services are subject to DQC, ATR, and IEPR. The in-kind products and analyses to be provided by the non-Federal sponsor are not yet determined as a FCSA has not been executed.

The non-Federal sponsor may contract with an independent engineering firm for the development of a watershed model to provide both freshwater flows and nutrient and sediment loadings from the Rappahannock River Basin. Consideration for the use of in-kind services will be made before the execution of the Feasibility Cost Sharing Agreement.

#### 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.**

To comply with guidance regarding Planning decision documents, when the Technical Review documents are submitted to higher authority, we will ensure that a checklist per the published guidelines and procedures is developed and provided along with a certification summary which will include signatures of the appropriate Branch and Division Chiefs. The Chief of Planning and Policy Branch will be designated the Technical Reviewer. This summary will include how the quality control process was performed, summary of issues, how they were resolved, project delivery team and technical review members, etc. This certification summary will serve as the Quality Control Report that results from the Quality Control Plan.

**b. Products to Undergo DQC.**

The Feasibility Report, appendices, and Environmental Assessment will undergo DQC. Technical work for this feasibility study will be organized into eight work elements listed below. Due to the overlap of issues, work on the separate elements will have to be well coordinated and integrated.

Work Element A – Methods for determining a Water Resources Plan

Work Element B – Water Resources Concerns

Work Element C – Hydraulics and Hydrology, Modeling

Work Element D – Geotechnical, HTRW

Work Element E - Geospatial

Work Element F - Public Involvement

Work Element G – Report Production and Quality Control

**c. Required DQC Expertise.**

Quality Control Implementation: The technical review process for the Rappahannock River Basin Comprehensive Feasibility Study will be Technical Team Leader driven in accordance with our published guidelines and procedures. It has been reiterated to us several times that it is important to insure that technical review is ongoing and that as issues are identified, meetings are scheduled to resolve those issues, and that MFR documentation of the resolution of the issues will be kept in the files. Any issues meetings will be documented for the technical review files. Special milestone meetings that will include our higher authority (hopefully NAD and headquarters personnel), the locals, and our district personnel, are currently planned and will be scheduled where discussion of the study progress, scope of the study, study direction, and any issues involving the study will be addressed. Those meetings will be documented by the follow-up memorandums and distributed accordingly.

**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.** The Feasibility Report, appendices, and Environmental Assessment will undergo ATR before submission for the Feasibility Scoping Meeting and Alternatives Formulation Briefing. A list of specific products that will undergo ATR will be developed from the PMP.

**b. Required ATR Team Expertise.**

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). See Plan Formulation Expertise Required, below.
Plan Formulation	<u>Plan Formulator/ATR Team Lead (1)</u> : The Plan Formulation reviewer should be a senior water resources planner with experience in river basin restoration. The ATR Plan Formulator and Team Lead should be a Planning Technical Expert able to consider and evaluate structural and non-structural alternatives. They must be a leader and a mentor to the ATR team as well as the district PDT, willing and able to provide timely guidance and direction to both teams. They will need to be familiar with the ecosystem functions that the district demonstrates to be necessary for success of the effort. The plan formulation process for this river basin comprehensive study will involve the development of solutions for ecosystem restoration and aquatic habit restoration initiatives, ground water and water quality concerns, riparian buffer creation and the need for effective and integrated flood warning systems, etc. They should be prepared to address comprehensive solution sets across environmental, flood risk management, navigation, and water supply business lines. Additionally, the formulated plan will minimize negative impacts to existing recreational features within the river basin, and will be in accordance with NEPA requirements. The goal is also to produce effective solutions to the water resources problems in the Rappahannock River Basin. The alternative project plans will be evaluated using results from proposed models and studies where appropriate (models still to be identified).
Economics	<u>Economist (1)</u> : The ATR Team Economist should possess the KSA's at the Technical Expert Level and be able to analyze existing and future Corps' economic capabilities while operating under delegated authority when making decisions.
Environmental Resources	<u>Biologist/NEPA (1)</u> : The ATR Biologist will be a technical expert with the habitat evaluation methods that the district performed

	<p>in support of the habitat evaluation. They will be familiar with the biological indices or other accepted methodologies utilized for evaluating aquatic resources. The environmental impacts unique to various alternatives will also be assessed. A thorough evaluation of the alternatives as they may affect fisheries and other biological resources will be required. A review of the PDT developed monitoring plan may be required, and success criteria will be established. Suggest for consideration that the document reviewer and the model reviewer be qualified to provide reviews on both.</p>
Cultural Resources	<p><u>Cultural Resources Specialist (1)</u>  The Cultural Resources reviewer should be a senior cultural resources professional with experience in basin wide water resources and ecosystem restoration and preparing decision documents for the same. They should also be experienced in the cultural resource coordination necessary for this type of study.</p>
Hydraulic Engineering	<p><u>Hydraulics and Hydrology (H&amp;H) Engineer (1)</u>: The ATR Team member will be an expert in the field of hydrology &amp; hydraulics and have a thorough understanding of hydrology &amp; hydraulics modeling (if utilized) for the accomplishment of informed decisions by the district PDT, various sponsors, and environmental agencies. The ATR H&amp;H Engineer will be familiar with how to produce the environmental/water resources enhancement measurable parameters required for plan formulation from water containment structures. They should be prepared to address comprehensive solution sets across environmental, flood risk management, navigation, and water supply business lines. The ATR H&amp;H Engineer will become familiar with the historic record and synthetic events to demonstrate effect on water containment structures pool elevations, water supply and demand, water conservation, dam safety/failure, flood damage reduction and coastal zone planning.</p>
Cost Engineering	<p><u>Cost Engineering Specialist (1)</u>: The Cost Engineering reviewer should be a senior cost engineer certified by the Cost Engineering Directory of Expertise (DX), located in the Walla Walla District..</p>
Real Estate	<p><u>The Real Estate reviewer (1)</u>: The Real Estate reviewer should be a senior real estate professional with experience in preparing Real Estate Plans involving property acquisition and potential temporary construction easements.</p>

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, 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 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, draft report, and final report. A sample Statement of 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 1165-2-209, 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 1165-2-209.
  - **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.** The decision on IEPR will be deferred until the study has been initiated and is better defined. This recommendation will be made depending on whether the study will impact human life or safety or meet any of the other mandatory triggers for IEPR.
  - b. **Products to Undergo Type I IEPR.** Not Applicable
  - c. **Required Type I IEPR Panel Expertise.** Not Applicable.

IEPR Panel Members/Disciplines	Expertise Required

d. **Documentation of Type I IEPR.** Not Applicable.

**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 DIRECTORY OF EXPERTISE (DX) REVIEW AND CERTIFICATION**

All decision documents shall be coordinated with the Cost Engineering DX, located in the Walla Walla District. The DX 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 DX will also provide the Cost Engineering DX certification. The RMO is responsible for coordination with the Cost Engineering DX.

**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, ATR, and IEPR (if required).

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. **Planning Models.** The use of planning models that are anticipated to be used in the development of the decision document will be determined later in the study process.

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Certification / Approval Status

- b. **Engineering Models.** Not Applicable at this time. The use of Engineering models that are anticipated to be used in the development of the decision document will be determined later in the study process.

Model Name and	Brief Description of the Model and How It Will Be Applied in	Approval
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Version	the Study	Status

**10. REVIEW SCHEDULES AND COSTS**

**a. ATR Schedule and Cost.**

EVENT	COST (\$ in thousands)
Feasibility Scoping Meeting (CW050, Month 20)	12.0
Alternative Formulation Briefing (CW190, Month 28)	25.0
Draft Report Review	10.0
Final Report Review	5.0

**b. Type I IEPR Schedule and Cost.** Not Applicable at this time.

**c. Model Certification/Approval Schedule and Cost.** N/A at this time.

**11. PUBLIC PARTICIPATION**

This study will include a public involvement program designed to meet NEPA requirements; solicit public and government agency input about the Rappahannock River Basin and its problems; ensure that public and agency concerns are addressed; and keep the public and agencies involved in the development of the study goals, study progress, and proposed projects. Initial background presentations will be made to civic and advisory groups active in the region. Community input will be solicited when establishing study goals and objectives and when developing project alternatives. Briefings will be conducted to discuss the scope and scheduling of the Feasibility Study. Civic, advisory, and neighborhood groups will be encouraged to actively participate in the development of alternatives and will be consulted throughout the study process. The public's commitment to a comprehensive plan will be sought. Agencies will be notified of public meetings, provided with copies of newsletters, and solicited for report review comments. Federal agencies to be solicited for comments include the FWS, U.S. Forest Service, National Marine Fisheries Service, and the Environmental Protection Agency. State and local agencies and organizations to be included in the coordination are the Virginia Department of Environmental Quality, Virginia Department of Conservation and Recreation, Virginia Department of Forestry, Virginia Marine Resources Commission, Virginia Department of Game and Inland Fisheries, Virginia Institute of Marine Science, Virginia Department of Historic Resources, and The Nature Conservancy. Others entities will also be coordinated with that will include the city of Fredericksburg, as well as the Virginia counties and towns who border on or are included in the river basin. This list will be adjusted during the study process, e.g. flood risk management would call for coordination with VDEM.

**12. REVIEW PLAN APPROVAL AND UPDATES**

The Commander, North Atlantic Division 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:

Doug Martin, PMP, Project Manager  
Chief, Civil Works Projects  
Norfolk District, U.S. Army Corps of Engineers  
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- Sue Ferguson, NAD Account Manager, Eco PCX Nashville District 615-736-7192

**ATTACHMENT 1: TEAM ROSTERS**

Name	Discipline	Organization
Doug Martin	Project Manager	CENAO-PM-J
Janet Cote	Planning Technical Team Leader/Environmental Analysis	CENAO-WR-PE
Jennifer Spencer	Economic Analysis	CENAO-WR-PR
John Hayes	Social/Cultural Resources	CENAO-WR-PE
Paul Moye	Floodplain Management	CENAO-WR-PF
David Parson	Real Estate	CENAO-RE
Mike Hall	Cost Engineering	CENAO-EC-EE
Mark Hudgins	Design Team Lead	CENAO-EC-EH
Robin Williams	Hydraulics and Hydrology Engineer	CENAO-EC-EH
Jeff Zoekler	Geo Environmental	
Jason O'Neal	Geospatial Services	CENAO-WR-OG
Eric Legaspi	Navigational Support and Survey	CENAO-WR-ON
Todd Waldman	Office of Counsel	CENAO-OC
Harold Wiggin	Regulatory	CENAO-REG
Patrick Bloodgood	Public Affairs	CENAO-AA-D
Richard Klein	Programs Execution, Budgeting and PM Support	CENAO-PM-R

(1) Other PDT members may be added as warranted
<b><u>Sponsors</u></b>

<b><u>Key Stakeholders</u></b>
Friends of the Rappahannock
Virginia Department of Game & Inland Fisheries
The Nature Conservancy
Rappahannock River Basin Commission



**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 1165-2-209. 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: REVIEW PLAN REVISIONS**

<b>Revision Date</b>	<b>Description of Change</b>	<b>Page / Paragraph Number</b>

#### 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
DX	Directory of Expertise	OEO	Outside Eligible Organization
EA	Environmental Assessment	OSE	Other Social Effects
EC	Engineer Circular	PCX	Planning Center of Expertise
EIS	Environmental Impact Statement	PDT	Project Delivery Team
EO	Executive Order	PAC	Post Authorization Change
ER	Ecosystem Restoration	PMP	Project Management Plan
FDR	Flood Damage Reduction	PL	Public Law
FEMA	Federal Emergency Management Agency	QMP	Quality Management Plan
FRM	Flood Risk Management	QA	Quality Assurance
FSM	Feasibility Scoping Meeting	QC	Quality Control
GRR	General Reevaluation Report	RED	Regional Economic Development
Home District/MSD	The District or MSC responsible for the preparation of the decision document	RMC	Risk Management Center
HQUSACE	Headquarters, U.S. Army Corps of Engineers	RMO	Review Management Organization
IEPR	Independent External Peer Review	RTS	Regional Technical Specialist
ITR	Independent Technical Review	SAR	Safety Assurance Review
LRR	Limited Reevaluation Report	USACE	U.S. Army Corps of Engineers
MSC	Major Subordinate Command	WRDA	Water Resources Development Act