MEMORANDUM FOR Commander, Wilmington District (CESAW-TS-P/Elden Gatwood)

SUBJECT: Review Plan Approval for Wilmington Harbor Navigation Improvements Feasibility Study, Wilmington, North Carolina

1. References:
   b. Memorandum, CESAM-PD-D, 4 June 2012.

2. The enclosed Review Plan for Wilmington Harbor Navigation Improvements Feasibility Study, Wilmington, NC (enclosure), has been prepared in accordance with EC 1165-2-209.

3. The Review Plan has been coordinated with the National Deep Draft Navigation Planning Center of Expertise (DDNPCX) of the South Atlantic Division (SAD), which is the lead office to execute this plan. For further information, please contact the DDNPCX at (251) 694-3884. The Review Plan includes independent external peer review.

4. I hereby approve this Review Plan, which 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.

5. The District should take steps to post the approved Review Plan and a copy of this approval memorandum to the SAW District public internet website and provide a link to the DDNPCX for their use. Before posting to the website, the names of Corps/Army employees should be removed.
CESAD-PDP
SUBJECT: Review Plan Approval for Wilmington Harbor Navigation Improvements Feasibility Study, Wilmington, North Carolina

6. The SAD point of contact for this action is Ms. Karen Dove-Jackson, CESAD-PDP, (404) 562-5225.

Encl

DONALD E. JACKSON, JR.
COL, EN
Commanding
REVIEW PLAN

Wilmington Harbor Navigation Improvements Integrated Feasibility Report and NEPA Document

Wilmington District

MSC Approval Date: September 2012
Last Revision Date: September 2012
# TABLE OF CONTENTS

1. PURPOSE AND REQUIREMENTS ............................................................................................................ 1
2. STUDY INFORMATION ........................................................................................................................... 4
3. DISTRICT QUALITY CONTROL (DQC) ................................................................................................. 5
4. AGENCY TECHNICAL REVIEW (ATR) ................................................................................................. 4
5. INDEPENDENT EXTERNAL PEER REVIEW (IEPR) ........................................................................... 6
6. MODEL CERTIFICATION AND APPROVAL .................................................................................... 7
7. REVIEW SCHEDULES AND COSTS ....................................................................................................... 8
8. PUBLIC PARTICIPATION ......................................................................................................................... 8
9. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION .............................................. 9
10. REVIEW PLAN APPROVAL AND UPDATES .................................................................................... 9
11. REVIEW PLAN POINTS OF CONTACT ............................................................................................ 9
ATTACHMENT 1: TEAM ROSTERS ........................................................................................................... 11
1. PURPOSE AND REQUIREMENTS

a. Purpose. This Review Plan defines the scope and level of peer review for the Wilmington Harbor Navigation Improvements Feasibility Study.

b. References

(1) Engineering Circular (EC) 1165-2-209, Civil Works Review Policy, 31 Jan 2010
(2) EC 1105-2-412, Assuring Quality of Planning Models, 31 Mar 2011
(3) Engineering Regulation (ER) 1110-1-12, Quality Management, 21 Jul 2006
(4) ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007
(5) Wilmington Harbor Navigation Improvements Project Management Plan
(6) SMART Planning Guide

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 models are subject to certification/approval (per EC 1105-2-412).

   (1) District Quality Control/Quality Assurance (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.

   (2) 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 US Army Corps of Engineers (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 a designated Risk Management Organization (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. To assure independence, the leader of the ATR team shall be from outside the home MSC.

   (3) Independent External Peer Review (IEPR). IEPR is the most independent level of review, and is applied when the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside of USACE is warranted. 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 is generally for decision documents and Type II is generally for implementation products. Only Type I IEPR is relevant for the current effort being described in this RP.

(a) Type I IEPR. Decision documents must undergo Type I IEPR unless HQUSACE grants an exclusion. Type I IEPR reviews are managed outside the USACE. Type I IEPR panels may 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 an biological opinions of the project study. Although the Type I IEPR panel will review the entire decision document, the expertise and focus of the panel may be geared to only specific aspects of the study that are deemed most critical to project performance and evaluation. This risk based scoping of the IEPR is both in-line with the USACE’s “3x3x3” goal to complete studies in under 3 years and for less than 3 million dollars.

(b) Type II IEPR. Type II IEPR Reviews, or Safety Assurance Reviews (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.

(4) 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 determine whether the recommendations in the reports, supporting analyses, and coordination comply with law and policy, and warrant approval or further recommendation to higher authority by the Chief of Engineers. 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.

(5) Cost Engineering Review and Certification. All decision documents shall be coordinated with the Cost Engineering Directory of Expertise (DX), located in the Walla Walla District. The DX, or in some circumstances regional cost personnel that are pre-certified by the DX, will conduct the cost ATR. The DX will provide certification of the final total project cost.

(6) Model Certification/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. 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. Use of engineering models is also subject to DQC, ATR, and IEPR.
2. STUDY INFORMATION

a. Decision Document. The decision document is the *Wilmington Harbor Navigation Improvements Integrated Feasibility Report and NEPA Document*. The decision as to whether the NEPA document will be an Environmental Impact Statement (EIS) or Environmental Assessment (EA) is still to be determined. The Feasibility Study was authorized by a Resolution of the Committee on Transportation and Infrastructure of the United States House of Representatives, dated June 28, 2006.

b. Study/Project Description. The study will evaluate the feasibility of modifying the existing Wilmington Harbor Project (located in Brunswick and New Hanover Counties, NC) to address current navigation inefficiencies and safety issues in three separate areas – a) the entrance channel near Bald Head Island, b) the Battery Island Turn, and c) the Anchorage/Turning basin. The project area is shown in figure 1 below.

![Figure 1. Project location.](image-url)
c. **Factors Affecting the Scope and Level of Review.** The project would require Congressional Authorization, and the level of proposed review is reflective of that. The project is currently estimated to cost more than $45 million, but will not pose a significant threat to human life, is not considered controversial, and will not include novel or precedent setting approaches.

d. **In-Kind Contributions.** Products and analyses provided by non-Federal sponsors as in-kind services are subject to DQC and may be subject to ATR, and IEPR. The State of North Carolina, as the non-federal sponsor, has proposed in-kind services which include providing background economic data, port financial and shipping information, groundwater and soil data, and an essential fish habitat analysis. The information provided will potentially be included in the integrated feasibility report, as appropriate, and will be reviewed as part of the report.

3. **DISTRICT QUALITY CONTROL (DQC)**

a. **Documentation of DQC.** Documentation of the technical and policy review of a specific product will be sufficient to allow both planning management and QC reviewers to determine that a comprehensive review was conducted in accordance with principles and guidelines established. It is expected that all in-progress review actions, review team meetings, and other significant technical review related actions will be documented in the form of a written memorandum prepared by the review leader.

b. **Products to Undergo DQC.** All documents will be submitted for DQC prior to Agency Technical Review.

4. **AGENCY TECHNICAL REVIEW (ATR)**

a. **Products to Undergo ATR.** In-line with the new Corps planning modernization initiative (SMART Planning), the ATR will be conducted on a “continuous” basis, rather than only at specific milestone points (Alternatives, Tentatively Selected Plan, Agency Decision, Final). This means that interim products (for instance, an existing economics condition write-up) may be provided to ATR teams for review and comment as they are completed, rather than waiting for a complete milestone report. This approach will allow for issues to be identified and resolved earlier in the study process. The complete package will still be reviewed by the ATR team at each milestone, but this should be a more cursory review since many of the elements will have already been reviewed and comments already addressed. Table 2 indicates a preliminary set of interim items to be reviewed along with a tentative schedule. The table is subject to change as the study progresses, both in terms of the schedule as well as the products to be reviewed.
b. Required ATR Team Expertise. The ATR will be conducted by skilled and experienced personnel in another USACE District, who have not had any prior involvement with the study. The ATR team membership will, when possible, also be entirely from outside of the USACE South Atlantic Division (SAD), which is the home division of the USACE Wilmington District. At a minimum though, the ATR team lead will be outside of SAD. It is anticipated that expertise in the following disciplines will be required from the ATR team:

<table>
<thead>
<tr>
<th>ATR Team Members/Disciplines</th>
<th>Expertise Required</th>
</tr>
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<tbody>
<tr>
<td>ATR Lead</td>
<td>The ATR lead should be a senior professional with extensive experience in preparing Civil Works decision documents and conducting ATR. The lead must also have the necessary skills and experience to lead a virtual team through the ATR process. Typically, the ATR lead will also serve as a reviewer for a specific discipline (such as planning, economics, environmental resources, etc). The ATR lead will be from outside the MSC.</td>
</tr>
<tr>
<td>Planning</td>
<td>The Planning reviewer must be a senior water resources planner with experience in reviewing Plan Formulation processes for deep draft navigation studies and be able to draw on “lessons learned” in advising the PDT of best practices. The reviewer must also be up to date on current USACE policy relating to deep draft</td>
</tr>
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Table 2. ATR products and preliminary schedule.
<table>
<thead>
<tr>
<th>ATR Disciplines</th>
<th>Required Expertise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economics</td>
<td>The reviewer must have knowledge of procedures for deep draft navigation and containership analysis. The reviewer must also have experience with tools employed for economic analysis, including HarborSym, risk analysis and multiport analysis.</td>
</tr>
<tr>
<td>Environmental Resources/NEPA Compliance</td>
<td>The reviewer must have knowledge of all applicable environmental laws and regulations. The reviewer should be particularly familiar with environmental issues related to coastal, estuarine, and riverine habitats, as well as dredged material disposal sites and Offshore Dredge Material Disposal sites. Must be able to review for NEPA compliance.</td>
</tr>
<tr>
<td>Cultural Resources</td>
<td>The reviewer must have experience with underwater archaeology and various surveying techniques.</td>
</tr>
<tr>
<td>Hydraulic or Coastal Engineering</td>
<td>The reviewer must have knowledge of USACE guidance related to engineering requirements for the deep draft navigation studies. Must have knowledge of hydrodynamic riverine processes and navigational modifications to evaluate impact of widening a navigation channel on hydrodynamics, salinity and sedimentation of the river and harbor, shoreline erosion, and channel design. Reviewer should also have experience with evaluations of ship simulations.</td>
</tr>
<tr>
<td>Geotechnical Engineering</td>
<td>The reviewer will have an understanding of the behavior of aquifers, soils. The reviewer must also have knowledge of conducting stability analyses as well as the analysis and disposal of dredged material.</td>
</tr>
<tr>
<td>Cost Engineering</td>
<td>The reviewer will be associated the Cost Estimating Center(DX) in Walla Walla, Washington. They must be familiar with USACE requirements for cost engineering including the development of economic and financial costs, risk and uncertainty, and preparation of the MII Cost Estimate. They should be an expert on estimating costs for dredging operations.</td>
</tr>
<tr>
<td>Real Estate</td>
<td>The reviewer must have expertise in the real estate planning process for civil works projects. The reviewer must have a full working knowledge of EC 405-2-12, Real Estate Planning and Acquisition Responsibilities for Civil Works Projects and Public Law 91-646. The reviewer should be familiar with real estate issues and processes as it relates to acquiring lands required for environmental mitigation.</td>
</tr>
</tbody>
</table>

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 where there appears to be incomplete or unclear information, the comment may specify that additional clarification is first needed 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 each study decision point or milestone, the ATR team will prepare a Review Report summarizing the review to that point. 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.

5. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

a. Decision on IEPR. A Type I IEPR would be required on this study unless an exclusion is granted. Per EC 1165-2-209, a Type I (for project studies) IEPR is mandatory if any of the following criteria are true: the project poses a significant threat to human life, the estimated total cost of the project is greater than $45 million, the Governor of an affected State requests a peer review by independent
experts, 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. Other considerations include whether the project will generate significant interagency interest, or the study will include novel or precedent setting approaches. The current estimate of study cost is near $45 million, but it is not expected that any of the other above criteria will be true for the Wilmington Harbor Navigation Improvements study. Additionally, an exclusion from the Chief of Engineers for conducting an IEPR would require that the study also does not include an EIS. At this time, it is expected that the magnitude of any recommended actions would require an EIS (versus an EA), and thus a Type I IEPR would also be needed for the study.

None of the alternatives being considered at this time for the study are expected to pose any significant risk to human life and safety. Therefore, based on the project as currently envisioned, the District Chief of Engineering, as the Engineer-In-Responsible-Charge, does not recommend a Type II IEPR Safety Assurance Review of this project at this time. If any alternatives are added which do pose any significant risk to human life, this review plan will be revised to reflect that and a new recommendation concerning the need for a Type II IEPR made at that time. A risk-informed decision concerning the timing and the appropriate level of reviews for the project implementation phase will be prepared and submitted for approval in an updated Review Plan prior to initiation of the design/implementation phase of this project.

b. **Products to Undergo Type I IEPR.** An IEPR would be conducted on the entire draft feasibility report and NEPA Document, including all appendices.

c. **Required Type I IEPR Panel Expertise.** Based on the limited actions that will would most likely be proposed (channel re-alignment and widening), at this point it is recommended that the IEPR panel composition and expertise be related only to economics, environmental, and coastal engineering, and there be no more than 3 reviewers on the panel.

d. **Documentation of Type I IEPR.** The IEPR panel will be selected and managed by an Outside Eligible Organization (OEO) per EC 1165-2-209, Appendix D. Panel comments will be compiled by the OEO and should address the adequacy and acceptability of the economic, engineering and environmental methods, models, and analyses used. IEPR comments should generally include the same four key parts as described for ATR comments in Section 4.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.

6. MODEL CERTIFICATION AND APPROVAL

The Wilmington Harbor Navigation Improvements Feasibility study will utilize multiple models in the analysis of alternative plans. According to EC 1005-2-412 – Model Certification, models can be divided into two general categories – “planning models” and “engineering models used in planning studies”. Currently, only the first category – “planning models” need to go through the planning model certification process.

a. Planning Models. Planning models that are currently being considered for use in the study are HarborSym for the economics analysis of the without project condition and alternatives, and potentially US Fish and Wildlife Service Habitat Suitability Index (HSI) models, for the evaluation of any mitigation requirements. HarborSym is already certified for use by HQUSACE. HSI models have also already been approved for use; therefore, it is not anticipated that any further planning model certification or approval activities will be necessary during the course of the study.

b. Engineering Models. No engineering models are currently being considered for use on the study.

7. REVIEW SCHEDULES AND COSTS

a. ATR Schedule and Anticipated Cost. A total of $150,000 has been budgeted for ATR activities throughout the course of the study. A preliminary schedule is contained in Table 2 earlier in this report.

b. Type I IEPR Schedule and Cost. A Type I IEPR is currently being scheduled for July 2014. The estimated cost of the IEPR is $100,000.

8. PUBLIC PARTICIPATION

Once completed, the Draft Integrated Feasibility Report will be disseminated to resource agencies, interest groups, and the public as part of the National Environmental Policy Act (NEPA) environmental compliance review. Additionally, a public scoping meeting was held on August 7, 2012. All significant and relevant public comments will be provided as part of the review package to Peer Reviewers as they are available and may include but not be limited to: scoping letters, meeting minutes, other received letters, and emails.

9. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION

The RMO is responsible for managing the overall peer review effort described in this Review Plan. The RMO for decision documents is typically either a Planning Center of Expertise (PCX) or the Risk Management Center (RMC), depending on the primary purpose of the decision document. The RMO for the peer review effort described in this Review Plan is the Deep Draft Navigation Center Planning Center of Expertise.
The RMO will coordinate with the Cost Engineering Directory of Expertise (DX) to conduct ATR of cost estimates, construction schedules and contingencies.

10. REVIEW PLAN APPROVAL AND UPDATES

The South Atlantic Division Commander is responsible for approving this Review Plan. The Commander’s approval reflects vertical team input (involving district, MSC, RMO, and HQUSACE members) as to the appropriate scope and level of review 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 will be documented in an attachment. Significant changes to the Review Plan (such as changes to the scope and/or level of review) must 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.

11. REVIEW PLAN POINTS OF CONTACT

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

District Contact:

Project Manager
US Army Corps of Engineers – Wilmington District
69 Darlington Avenue
Wilmington, North Carolina 28403
Phone: (910) 251-4689

DDN-PCX Contact:

109 St. Joseph St.
Mobile, AL 36602
Phone: (309) 794-5448