DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, NORTH ATLANTIC DIVISION
FORT HAMILTON MILITARY COMMUNITY
302 GENERAL LEE AVENUE
BROOKLYN NY 11252-6700

MAR 2 4 2015

CENAD-PD-P

MEMORANDUM FOR Commander, Philadelphia District, (CENAP-P/Erik Rourke) Wanamaker Building, Room 600, 100 Penn Square East Philadelphia, PA 19107-3390

SUBJECT: Review Plan Approval for Pennsylvania Beneficial Use of Dredged Material for the Delaware River Feasibility Study

1. Reference Pennsylvania Beneficial Use of Dredged Material for the Delaware River Feasibility Study prepared by Philadelphia District, 16 January 2015.

2. The Ecosystem Restoration Planning Center of Expertise of the Mississippi Valley Division is the lead office to execute the referenced Review Plan. The Review Plan includes Independent External Peer Review.

3. The enclosed Review Plan is approved for execution and 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 require new written approval from the NAD Commander.

4. The point of contact is Mr. Larry Cocchieri, NAD Planning Program Manager, 347-370-4571, Lawrence.J.Cocchieri@usace.army.mil.

Encl
as

KENT D. SAVRE
Brigadier General, USA
Commanding

# REVIEW PLAN

**Pennsylvania**
**Beneficial Use of Dredged Material**
**for the Delaware River**
**Feasibility Study**

**Philadelphia District**

**MSC Approval Date:** Pending
**Last Revision Date:** 13 March 2015

**US Army Corps**
**of Engineers ®**

# REVIEW PLAN

## Pennsylvania Beneficial Use of Dredged Material for the Delaware River Feasibility Study

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## 1. PURPOSE AND REQUIREMENTS

a. **Purpose.** This Review Plan (RP) defines the scope and level of peer review for the single purpose Pennsylvania Beneficial Use of Dredged Material for the Delaware River Feasibility Study.

b. **References.**

(1) Engineering Circular (EC) 1165-2-214, Civil Works Review Policy, 15 Dec 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

(5) Project Management Plan for study (Under Development)

(6) MSC and/or District Quality Management Plan(s)

c. **Requirements.** This RP 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 to review all Civil Works projects from initial planning through design, construction, operations and 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. Additionally, decision documents are subject to Cost Engineering Review and certification (per EC 1165-2-214) and Planning Model Certification/approval (per EC 1105-2-412).

## 2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION

**a.** The RMO is responsible for managing the overall peer review effort described in this RP. 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 RP is the Ecosystem Restoration Center of Expertise (ECO-PCX).

**b.** The RMO will coordinate with the Civil Works Cost Engineering and Agency Technical Review Mandatory Center of Expertise (MCX) to ensure the

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

## 3. STUDY INFORMATION

a. **Decision Document.** The decision document for this project is a feasibility level analysis for the Pennsylvania Beneficial Use of Dredged Material for the Delaware River Feasibility Study. The analysis will contain the plan formulation, Environmental Assessment, and the project's economic justification. This document will be approved at the HQUSACE level.

b. **Study/Project Description.** Beneficial use of dredged material opportunities using Delaware River and tributary maintenance dredged material are presented for Pennsylvania. A feasibility study is recommended relevant to the study authority for beneficial use of dredged material in the Delaware Estuary. There is Federal interest in ecosystem restoration, navigation, and flood risk management that can be developed within existing policy.

(1) These beneficial use opportunities are best facilitated using maintenance dredged material from Federal and non-Federal navigation projects including: the Delaware River, Philadelphia to the Sea NJ, PA and DE project; the Delaware River, Philadelphia to Trenton, NJ and PA project; and the Delaware River Main Channel Deepening, NJ, PA and DE project; and several other active Federal navigation projects at major tributaries of the Delaware River.

(2) Benefits will be realized for ecosystem restoration, flood risk management, navigation and recreation and could ultimately reduce the amount of dredged material being placed in confined disposal sites (CDFs). Currently, approximately 3.0 million cubic yards of dredged sediment is annually placed in upland disposal areas and large areas of habitat are lost every year.

(3) Specific ecosystem restoration opportunities include: revegetation of riparian and wetland resources; enhanced habitat value and the restoration of the ecosystem/habitat units through restoration of scarce and important habitat types; increased nesting and foraging habitat for listed species; improved connectivity throughout the study areas and adjacent uplands; bank stabilization and a reduction in shoreline retreat, and; overall restoration of ecological, cultural and aesthetic resources through improvements in ecosystem functionality, vegetation and wildlife. Listed below are locations where beneficial use opportunities were identified in the reconnaissance study or after the approval of the study in January 2013. This feasibility study will examine these sites in greater detail.

(4) <u>Ecosystem Restoration</u>

a. Pennsylvania abandoned mine ecosystem restoration. Many formerly used mining sites exist in the mountainous terrain of northeastern Pennsylvania, which are left exposed and pose safety and environmental risks to local communities. The optimum plan to address these risks is to fill and re-grade these areas with beneficially reused dredged material to restore the ecosystem to conditions prior to mine construction. Using existing rail access, dredged materials from the Delaware River could be processed and beneficially reused at these former mining sites.

b. Pennsylvania island and watershed ecosystem restoration (including Tinicum Island and the Christina Watershed).

- Tinicum Island experienced loss of intertidal marsh and upland/island habitat. Tinicum Island serves as an essential habitat for bird nesting and foraging, and as fish habitat and nursery areas. The continued loss of this habitat could result in species population and diversity loss, and loss of recreational amenities. Restoration of these habitats and the development of recreational boating activities is a beneficial use opportunity.

- The Christina River is located in southeastern Pennsylvania and northern Delaware and meets the Delaware River near Wilmington, DE. This opportunity includes identifying, implementing and managing streambank erosion and channel dredging/snagging measures within the Christina Basin.

(5) Federal Navigation Channels/Sediment Sources

- Navigation channels: Delaware River: Philadelphia to the Sea; Delaware River: Philadelphia to Trenton;
- Federal CDFs: Pedricktown/Oldmans, Killcohook, Artificial Island, Ft. Mifflin, Penns Neck, National Park
- State CDFs: Burlington Island, Palmyra Cove, Cinnaminson
- Other: Pennsville Dike/Sedimentation Basin

a) Based on the preliminary screening of alternatives, the beneficial use opportunities are consistent with Army policies regarding costs, benefits, and environmental impacts, and are recommended for feasibility phase analyses. This screening enhances the ability of potential sponsors and the U.S. Army Corps of Engineers (USACE) to manage the study efforts through the determination of specific study areas to suit unique agency goals.

b) A more detailed analysis considering project implementation timeframe and scope, contributions to RSM opportunities, constraints, potential benefits, and potential sponsor support was conducted as part of this study to identify

prioritized beneficial use opportunities and projects. Studies with the best chance of proceeding to the feasibility phase are presented herein.

c) The USACE was authorized to conduct the Delaware River, PA, NJ and DE Dredged Material Utilization Reconnaissance Study and any ensuing feasibility investigations by a resolution of the Senate Committee on Environment and Public Works on 26 October 2005. The resolution directs USACE to conduct an investigation of the numerous beneficial uses of dredged material within the Delaware River and Estuary area.

c. **Factors Affecting the Scope and Level of Review.** The Pennsylvania Beneficial Use of Dredged Material for the Delaware River Feasibility Study was determined to be of low to moderate risk for the factors listed below. The ATR team should focus on the technical analysis, hydrology/hydraulic analysis, and development of alternatives to assure quality control in the projects forwarded for Major Subordinate Command (MSC) consideration.

(1) Most aspects of the study will not be technically challenging; similar repair measures have been successfully engineered and implemented on similar projects in the area and at other locations around the country.

(2) There is a moderate level of uncertainty associated with this study. The hydraulic/hydrologic and economic analyses performed during the feasibility study will be put through a rigorous peer review Risk and Uncertainty Analysis.

(3) Implementation of a flood risk management project could potentially reduce flood related risks to human life and safety. The reconnaissance study evaluated structural and non-structural flood risk management measures including, relocation, beach nourishment and hardened structures. Non-performance or design exceedance of these measures could result in risks to life safety. If a flood barrier was overtopped, the benefited area, including critical infrastructure and the population would be at risk; however, there would likely be adequate warning time to allow preparation or evacuation before flooding occured. The District Chief of Engineering has not determined that there is a potential for significant life safety risk associated with some of the measures being considered in the event of non-performance or design exceedance.

(4) A peer review by independent experts has not been initiated.

(5) The study is not likely to involve significant public dispute as to the economic or environmental cost or benefit of the project.

(6) The information in the decision document will not likely 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.

(7) At this early stage, it is unknown as to what degree the project design will require redundancy, resiliency, or robustness. However, these qualities will be built into the range of alternatives considered as part of the study.

d. **In-Kind Contributions.** Products and analyses provided by non-Federal sponsors as in-kind services are subject to DQC, ATR, and IEPR. Anticipate the non-Federal sponsor's cost share is to include a combination of cash contributions and in-kind services.

## 4. DISTRICT QUALITY CONTROL (DQC)

a. 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 will manage the DQC. Documentation of DQC activities is required and will be in accordance with the Quality Manual of the District and the home MSC.

b. **Documentation of DQC.** A District Quality Control Review (DQCR) will be conducted on all completed study documents prior to ATR. The ATR team have access to the DQC comments and responses. District quality control documents that review contractor work and were created in Microsoft Word will be provided to the ATR team through attachments in DrChecks. All future contractor work will be documented and posted in DrChecks. Work conducted in-house is reviewed by technical supervisors who assure that experienced personnel, who have been involved with similar work, are checking team members' technical work for completeness, accuracy and clarity. DQC of all in-house work will be documented in DrChecks. A comment citing all DQC reviews will be placed in DrChecks that states the review was performed and all comments were adequately addressed. Any major comment regarding the documents will also be placed in DrChecks. Minor comments minor will be provided to the PDT and addressed outside of DrChecks.

## 5. AGENCY TECHNICAL REVIEW (ATR)

a. 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 and not involved in the day-to-day production of the project and product. ATR teams will be comprised of senior USACE personnel and may be supplemented by outside experts. The ATR team lead will be from outside the home MSC.

b. **Products to Undergo ATR.** The feasibility study will be conducted in phases. Consistent with the SMART Planning process and increased vertical team involvement throughout the study process, ATR will be performed on various technical products as they are completed. Examples of products to undergo ATR, using this approach, are NEPA Compliance and environmental model outputs. Conducting ATR on technical products, as they become available, will ensure that the analyses and assumptions developed during the study have been reviewed and accepted before major milestones are reached. ATR will be performed on documentation prepared for the Agency Decision Milestone and Final Report Milestone. Additional ATR of key technical and interim products, MSC-specific milestone documentation, and In Progress Review (IPR) documentation will occur depending on the study needs and the requirements of the MSC and District Quality Management Plans.

c. **Required ATR Team Expertise.** The expertise represented on the ATR team reflects the significant expertise involved in the work effort and generally mirrors the expertise on the PDT. The ATR Team Leader will follow the requirements outlined in the "ATR Lead Checklist" developed by the National Planning Centers of Expertise. The following table provides a list of disciplines included on the ATR team and descriptions of the expertise required.

| ATR Team Members/Disciplines | Expertise Required |
|---|---|
| ATR Lead: TBD | The ATR lead should be a senior professional with extensive experience in preparing Civil Works decision documents and conducting ATR. The lead should have the necessary skills and experience to lead a virtual team through the ATR process, and may also serve as a reviewer for a specific discipline (such as planning, economics, environmental resources, etc). |
| Planning: TBD | The Planning reviewer should be a senior Water Resources Planner with experience in the formulation aspect of flood risk management studies. |
| Economics : TBD | The Economics reviewer should be a senior level Economist with experience in evaluating the benefits and costs associated with a flood risk management |

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| | study and the use of HEC-FDA. |
| Environmental Resources: TBD | The Environmental reviewer should be a senior Biologist with experience in ecosystem restoration, and have expertise in NEPA compliance. |
| Cultural Resources: TBD | The Cultural Resources reviewer should be a senior Archaeologist. |
| Hydrology | The Hydrology reviewer should be a senior level Hydrologic Engineer with experience in ecosystem restoration and flood risk management studies and the development of flow and stage frequency curves. |
| Hydraulic Engineering: TBD | The Hydraulic Engineering reviewer should be an expert in the field of hydraulics and have a thorough understanding and knowledge of open channel dynamics, enclosed channel systems, application of detention and retention basins, application of levees and flood walls, interior drainage, non-structural solutions involving flood warning systems and flood proofing, and computer modeling techniques such as HEC-RAS and HEC-HMS. |
| Risk Analysis: TBD | 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. |
| Geotechnical Engineering: TBD | The Geotechnical reviewer should be a senior Geotechnical Engineer familiar with the geotechnical requirements of ecosystem restoration and flood risk management measures. |
| Civil Engineering: TBD | The Civil Engineering reviewer should be a senior civil engineer familiar with ecosystem restoration/flood risk management measures. |
| Cost Engineering: TBD | The Cost Engineering reviewer should be a senior Cost Engineer. |
| Real Estate: TBD | The Real Estate representative should be an expert in real estate acquisition and appraisals. |
| GeoEnvironmental: TBD | The GeoEnvironmental expert, if needed as a team member, should be familiar with RCRA and CERCLA. |

d. **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 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 information deficiency or incorrect application of policy, guidance, or procedures;

(2) The basis for the concern – cite the appropriate law, policy, guidance, or procedure to be properly followed;

(3) The significance of the concern – indicate the importance of the concern with regard to 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 that the reporting officers must take to resolve the concern.

e. When addressing incomplete or unclear information, comments may seek clarification to assess whether further specific concerns may exist.

(1) 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 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 ER 1110-1-12 or ER 1105-2-100, Appendix H. Unresolved concerns can be closed in DrChecks with a notation that the concern was elevated to the vertical team for resolution.

(2) At the conclusion of each ATR review, the ATR Team Leader will prepare a Review Report summarizing the review. Review Reports are considered an integral part of the ATR documentation and shall:

a. Identify the document and the purpose of the review;

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

c. Include the charge to the reviewers;

d. Describe the nature of their review, their findings and conclusions;

e. Identify and summarize each unresolved issue; and

f. Include a verbatim copy of each reviewer's comments (with or without specific attributions), or represent the views of the group as a whole, including disparate and dissenting views.

(3) ATR may be certified when all ATR concerns are resolved or referred to the vertical team for resolution and the ATR documentation is complete. The RMO will prepare a Statement of Technical Review certifying 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)

a. 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 criteria where the risk and magnitude of the proposed project require a critical examination by a qualified team outside USACE. A risk-informed decision, as described in EC 1165-2-214, determines whether IEPR is appropriate. IEPR panels typically consist of independent, recognized experts outside USACE in the appropriate disciplines, representing a balance of areas of expertise suitable for the review being conducted. There are two types of IEPR:

(1) Type I IEPR reviews are managed outside USACE and conducted on project studies and decision documents. 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 cover the entire decision document or action and address underlying engineering, economics, and environmental work, not just one aspect of the study. For decision documents when a Type II IEPR (Safety Assurance Review) is anticipated during project implementation, safety assurance will be addressed during the Type I IEPR per EC 1165-2-214.

(2) Type II IEPR or Safety Assurance Review (SAR), are managed outside USACE and 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.

b. **Decision on IEPR.** Application of an IEPR requires a risk informed decision considering the following factors (Appendix D of EC 1165-2-214):

(1) The consequences of nonperformance on project economics, the environment, and social well-being (public safety and social justice).

(2) Whether the product is likely to contain influential scientific information or be a highly influential scientific assessment.

(3) If and how the study meets any IEPR exclusions described in Paragraph 11.d. (3) and Appendix D of EC 1165-2-214.

c. This study does not meet the all of the IEPR exclusion criteria. Because the study may present findings based on novel and precedent-setting methods or may present complex challenges for interpretation, or potentially present solutions that are likely to change prevailing practices, recommend Type I IEPR for this project. Type II IEPR is not anticipated, as the focus of this study is predominantly ecosystem restoration with potential ancillary flood risk management benefits.

d. **Products to Undergo Type I IEPR** should be performed for the entire decision document (including supporting documentation) at the draft report stage. The IEPR should be coordinated prior to the Alternatives Milestone.

e. **Required Type I IEPR Panel Expertise** will be conducted for this study. The expertise represented on the IEPR panel should be similar to those on the ATR team. The panel will include the necessary expertise to assess the engineering, environmental, and economic adequacy of the decision document required by EC 1165-2-214, Appendix D.

| IEPR Panel Members/Disciplines | Expertise Required |
|---|---|
| Economics | The Economics Panel Member reviewer is responsible for reviewing the required economic analyses, project benefits, anticipated future costs, and residual damages for the project alternatives and ensuring that the proper economic information was included in the Environmental Assessment. |
| Environmental | The Environmental reviewer is responsible for assessing environmental impacts, coordinating ecosystem restoration studies and ensuring the proper NEPA and cultural resource compliance activities were |

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|---|---|
| | completed. This includes verifying any NER calculations and completion of the Fish and Wildlife Service Coordination Act requirements. |
| Engineering | The Hydraulic engineering and Hydrology reviewers will ensure that the hydrologic and hydraulic analysis was properly completed and that the alternatives will achieve the desired results.<br><br>The cost engineering reviewer will ensure that the estimated project costs are accurate and that the assumptions made to develop the costs were reasonable.<br><br>The civil engineering reviewer will ensure that the designed project meets Corps standards and that the quantities estimated and assumptions are reasonable.<br><br>The geotechnical engineering reviewer will have extensive experience in geotechnical requirements of ecosystem restoration and flood risk management measures. |

f. **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 address the adequacy and acceptability of the economic, engineering and environmental methods, models, and analyses used. IEPR comments will include the same four key parts described for ATR comments in Section 4.d. The OEO will prepare a final Review Report to accompany the publication of the final decision document and shall:

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

(2) Include the charge to the reviewers;

(3) Describe the nature of their review, their findings, and conclusions; and

(4) Include a verbatim copy of each reviewer's comments (with or without specific attributions), or represent the views of the group as a whole, including disparate and dissenting views.

g. 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 will 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 available to the public, and included on the internet.

## 7. POLICY AND LEGAL COMPLIANCE REVIEW

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

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

All decision documents shall be coordinated with the Cost Engineering MCX, located in the Walla Walla District. The MCX will assist in determining the expertise needed on the ATR team, the development of the review charges, and provide the Cost Engineering certification. The RMO is responsible for coordination with the Cost Engineering MCX.

## 9. MODEL CERTIFICATION AND APPROVAL

a. 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 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 and 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 subject to DQC, ATR, and IEPR.

b. 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 should be used whenever appropriate. The selection and application of the model and the input and output data is the responsibility of the users and subject to DQC, ATR, and IEPR.

c. **Planning Models.** Use the following planning models 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 1.2.5 (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 Delaware River to aid in the selection of a recommended plan to manage flood risk. | Certified |

## 10. REVIEW SCHEDULES AND COSTS

A preliminary project schedule is shown in the table below.

| Date | Activity/Milestone |
|---|---|
| June 2015 | PMP Approval |
| August 2015 | Execute FCSA |
| December 2015 | Alternatives Milestone |
| December 2016 | Complete Analyses and Cost Estimates |
| March 2017 | Tentatively Selected Plan Milestone |
| October 2017 | Agency Decision Milestone |
| July 2018 | Signed Chief's Report |

a. **ATR Schedule and Cost.** A detailed schedule has not been developed at this early stage of the study, but expect that the draft feasibility report will be available for ATR in March of 2017. The PCX advised that 45 days be allotted for ATR of the decision document and the estimated cost is approximately $60,000. ATR will be continual during the SMART planning for this study, the costs and schedule will be refined at a later date.

b. **Type I IEPR Scope and Cost.** IEPR will be performed for the entire decision document prior to the Alternatives Milestone and through the Draft Report stage. It is anticipated that the review will not exceed 12 weeks. Total estimated costs (including IEPR contract, PDT comment response labor, IWR contracting office processing, and PCX management) for the IEPR is $200,000.

c. **Model Certification/Approval Schedule and Cost.** The models are already certified or approved for use. Coordination with the appropriate PCX or the RMC for the models in question will be conducted during the study and costs will be deferred at that time.

## 11. PUBLIC PARTICIPATION

a. A public scoping meeting will be held early in the process to be consistent with the National Environmental Policy Act (NEPA). 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. 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 final decision document, and associated review reports. A State and agency review will be performed at the final report milestone.

b. The nomination of peer reviewers will not be considered by recommendations from the public, including scientific or professional societies. Peer reviewers will be selected by the RMO.

## 12. REVIEW PLAN APPROVAL AND UPDATES

The North 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 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, the RMO, and home MSC respective websites.

## 13. REVIEW PLAN POINTS OF CONTACT

Public questions or comments on this Review Plan can be directed to the following points of contact:

- Philadelphia District, Project Manager, 215-656-6579
- MSC: North Atlantic Division, 347-370-4566
- Review Management Organization: Ecosystem Restoration Planning Center of Expertise, 309-794-5448.

## ATTACHMENT 1: TEAM ROSTERS

| PDT | | | |
|---|---|---|---|
| **Discipline** | **Name** | **Phone** | **Email** |
| NAD POC | Hank Gruber | 347-370-4566 | henry.w.gruber@usace.army.mil |
| Project Manager | JB Smith | 215-656-6579 | j.b.smith@usace.army.mil |
| Pennsylvania Department of Environmental Protection | TBD | TBD | TBD |
| Economics | Sharon Grayson | 215-656-6563 | sharon.t.grayson@usace.army.mil |
| Hydrology & Hydraulics | Rob Lowinski | 215-656-6690 | robert.a.lowinski@usace.army.mil |
| Geotechnical | Chuck Sutphen | 215-656-6697 | charles.f.sutphen@usace.army.mil |
| Civil | Alyssa Dunlap | 215-656-6651 | alysssa.d.dunlap@usace.army.mil |
| Environmental | Beth Brandreth | 215-656-6558 | mary.e.brandreth@usace.army.mil |
| Operations | Tim Rooney | 215-656-6592 | timothy.j.rooney@usace.army.mil |
| Cost Engineer | Bill Welk | 215-656-6636 | william.w.welk@usace.army.mil |
| Cultural Resources | Nikki Minnichbach | 215-656-6556 | nichole.c.minnichbach@usace.army.mil |
| Real Estate | Heather Sachs | 410-962-4648 | heather.sachs@usace.army.mil |
| GIS | Beth Adams | 215-656-6719 | beth.b.adams@usace.army.mil |

| ATR Team (The ATR Team will be selected prior to the scheduled start of the ATR) | | | |
|---|---|---|---|
| **Discipline** | **Name** | **Phone** | **Email** |
| ATR Lead | TBD | | |
| Planner | TBD | | |
| Economics | TBD | | |
| Environmental | TBD | | |
| Hydrology & Hydraulics | TBD | | |
| Risk Analysis | TBD | | |
| Geotechnical | TBD | | |
| Civil Engineering | TBD | | |
| Real Estate | TBD | | |
| Cost Engineering | TBD | | |

| | | | |
|---|---|---|---|
| Geo-Environmental | TBD | | |
| Cultural Resources | TBD | | |

| **IEPR Team** | | | |
|---|---|---|---|
| **Discipline** | **Name** | **Phone** | **Email** |
| IEPR Lead | pending | pending | pending |
| IEPR Lead | pending | pending | pending |
| Planner | pending | pending | pending |
| Economics | pending | pending | pending |
| Coastal Engineering | pending | pending | pending |
| Biologist | pending | pending | pending |
| Geotechnical/Civil | pending | pending | pending |
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## 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 Pennsylvania Beneficial Use of Dredged Material for the Delaware River Feasibility Study. 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[sm].

*SIGNATURE* _____ _____

*Name* Date
ATR Team Leader
*Office Symbol/Company*

*SIGNATURE* _____ _____

*Name* Date
Project Manager
*Office Symbol*

*SIGNATURE* _____ _____

*Name* Date
Architect Engineer Project Manager[1]
*Company, location*

*SIGNATURE* _____ _____

*Name* Date
Review Management Office
Representative
*Office Symbol*

## 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* Date
Chief, Engineering Division
*Office Symbol*

*SIGNATURE* _____ _____

*Name* Date
Chief, Planning Division
*Office Symbol*

[1] Only needed if some portion of the ATR was contracted

## ATTACHMENT 3: REVIEW PLAN REVISIONS

| Revision Date | Description of Change | Page / Paragraph Number |
|---|---|---|
| 16 January | Initial Draft | |
| 13 March | Revised Initial Draft | |

## ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS

| Term | Definition | Term | Definition |
|---|---|---|---|
| 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 |
| CSRM | Coastal Storm Risk Management | O&M | Operation and maintenance |
| DMU | Dredged Material Utilization | OMB | Office and Management and Budget |
| DPR | Detailed Project Report | OMRR&R | Operation, Maintenance, Repair, Replacement and Rehabilitation |
| DQC | District Quality Control/Quality Assurance | 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/MSC | 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 |
| MCX | Mandatory Center of Expertise | WRDA | Water Resources Development Act |

| Term | Definition | Term | Definition |
|---|---|---|---|
| MSC | Major Subordinate Command | | |