



REPLY TO  
ATTENTION OF

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

DEC 14 2012

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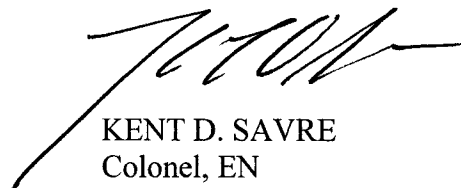
CENAD-PD-PP

MEMORANDUM FOR Commander, New York District, ATTN: CENAN-PL

SUBJECT: Review Plan Approval for Hashamomuck Cove, New York, Feasibility Report

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 Coastal Storm Damage Reduction Planning Center of Expertise of the North Atlantic Division, which is the lead office to execute this plan. For further information, contact Mr. Larry Cocchieri at 347-370-4571. 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

  
KENT D. SAVRE  
Colonel, EN  
Commanding

# **REVIEW PLAN**

**Hashamomuck Cove, New York  
Feasibility Study**

**New York District**

**MSC Approval Date: Pending  
Last Revision Date: November 2012**



**US Army Corps  
of Engineers ®**

**REVIEW PLAN**

**Hashamomuck Cove, New York  
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 Hashamomuck Cove, New York, Feasibility Report.

### b. References

- (1) Engineering Circular (EC) 1165-2-209, Civil Works Review Policy, 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
- (5) Hashamomuck Cove, New York, Project Management Plan
- (6) New York District Quality Management Plan

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).

- (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 and should be in accordance with the Quality Manual of the District and the home Major Subordinate Command (MSC).
- (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 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 is generally for decision documents and Type II is generally for implementation products.

- (a) 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 the 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.
  - (b) 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.
- (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 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 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. 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 PCX-CSDR (the "Coastal PCX").

The RMO will coordinate with the Cost Engineering Directory of Expertise (DX) to conduct ATR of cost estimates, construction schedules, and contingencies.

## **3. STUDY INFORMATION**

- a. Decision Document.** The Hashamomuck Cove, New York Feasibility Study is a General Investigations funded study which will require Chief of Engineers approval for the decision document and Congressional authorization. The National Environmental Policy Act will likely require an Environmental Assessment be prepared along with the document.
- b. Study/Project Description.** The study will identify and evaluate coastal Storms Risk Management (CSRM) options along the general Hashamomuck Cove shoreline, in Suffolk County, New York. The decision document will present planning, engineering, and implementation details of the recommended plan to assess existing conditions along the shoreline and to allow final design and construction to proceed subsequent to approval of the plan.

The private bulkheads along the motel, restaurant, and several houses along the general Hashamomuck Cove shoreline, which extends approximately 1.5 miles along County Road 48, are vulnerable to storm damage, and the beach fronting them has been subject to substantial erosion over the past four decades. County Road 48 is additionally threatened by undermining along two undeveloped parcels with no bulkhead. County Road 48 is the primary of two access routes on the north fork of Long Island to the ferry at Orient Point, making it an integral part of the interstate highway system.

Solutions that will be considered in the feasibility study are the implementation of structural measures at either or both of the undeveloped parcels, repair or reconstruction of the existing bulkheads, construction of a dune, and placement of beachfill as well as non-structural measures such as road relocation and buyouts of homes—ultimately to protect County Road 48. Ecosystem restoration in conjunction with these solutions will be considered. Estimated costs of a recommended plan vary widely at this point in the planning process: it likely will range from \$10 million to \$40 million.

c. **Factors Affecting the Scope and Level of Review.** This section addresses the factors affecting the risk informed decisions on the appropriate scope and level of review. The discussion is intended to be detailed enough to assess the level and focus of review and support the PDT, the PCX, and vertical team decisions on the appropriate level of review and types of expertise represented on the various review teams. Bulleted issues are addressed as follows:

- If parts of the study will likely be challenging (with some discussion as to why and why not and, if so, in what ways – consider technical, institutional, and social challenges, etc.):

The most challenging part of the study will be the evaluation of both without- and with-project conditions given the dynamic nature of a coastal focus. Current conditions are most significantly influenced by hydrologic conditions. The analysis will include three-dimensional, finite-difference, physics-based numerical codes used for modeling coastal conditions. These models, EDUNE and BEACH-FX, are being used in other coastal studies along both shores of Long Island. Therefore, The Hashamomuck Cove project can benefit from and adapt in response to lessons learned elsewhere.

- A preliminary risk assessment of where the project risks are likely to occur and what the magnitude of those risks might be ( e.g. what are the uncertainties and how might they affect the success of the project):

Any proposed project is considered low risk overall. The potential for failure is low because it would involve straight forward concepts with numerous successful national applications. The alternatives presented in the Reconnaissance report include: 1) acquisition, relocation (in locations where the structures are impacted by erosion or wave attack and where real estate is readily available for relocation), or building retrofits and (2) seawalls, revetments, bulkheads, road raising, beach and dune fill, and groins.

- If the project will be justified by life safety or if the project likely involves significant threat to human life/safety assurance, consider at minimum the safety assurance measures described in EC 1165-2-209 including, but not necessarily limited to, the consequences of non-performance of project economics, the environmental and social well-being (public safety and social justice); residual risk; uncertainty due to climate variability, etc.:

Any proposed project likely involves a minimal threat to human life/safety assurance since the consequences of non-performance could be significant. The scale of a recommended project is yet to be determined.

- If there is a request by the Governor of an affected state for a peer review by independent experts:

There has not been such a request.

- If the project is likely to involve significant public dispute as to the size, nature, or effects of the project:

The potential for dispute regarding project implementation is low because the recommended plan will take into account public concerns. The uncertainty of success of the project is low because the methods used for evaluating the project are standard.

- If the project is likely to involve significant public dispute as to the economic or environmental cost or benefit of the project:

Any Proposed project may have significant economic, environmental, and social impacts to the nation in that its failure will leave vulnerable the more major of the two transportation routes connecting the eastern end of Interstate 495 and the Interstate highway system in Connecticut (via the ferry at Orient Point). Any Proposed project is not likely to have significant environmental or social impacts to the nation in that it will have neither adverse impacts on scarce or unique cultural, historic, or tribal resources nor adverse impacts on fish and wildlife species, or their habitat, or any endangered species. Additionally, a socio-economic analysis will be prepared and at least one public meeting will be held.

- If information in the decision document or anticipated project design is likely to be based on novel methods, involve the use of innovative materials or techniques, present complex challenges for interpretation, contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices:

Standard methods of analysis will be employed including traffic surveys along County Road 48 and well-documented techniques for evaluating coastal processes.

- If the project design is anticipated to require redundancy, resiliency, and/or robustness, unique construction sequencing, or reduced or overlapping design construction schedule:

The project is likely to utilize standard equipment and techniques that have been used many times in the past. For example, the placement of dredged or upland material has been employed historically, and the construction of groins is common to many beach fill designs. The measures to be considered are not expected to require redundancy, unusual resiliency and/or robustness, unique construction sequencing or reduced or overlapping design construction schedule.

- d. In-Kind Contributions.** Products and analyses provided by non-Federal sponsors as in-kind services are subject to DQC, ATR, and IEPR, if applicable. The in-kind products and analyses to be provided by the non-Federal sponsor include: topographic mapping, aerial photography, utility surveys, transportation analyses, real estate surveys, and preliminary alternatives development.

#### **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.** District Quality Control will be documented through the use of a Quality Control Report, which is managed in the New York District and signed by



those members performing the DQC as well as the Division Chiefs of the major technical offices responsible for producing this report.

- b. Products to Undergo DQC.** Interim and final products and ultimately the Feasibility report and appendices and the EA
- c. Required DQC Expertise.** The expertise of the DQC review team will consist of Section Chiefs and subject matter experts or regional technical specialists in the fields of Plan Formulation, NEPA compliance, and Engineering Design and Analysis as well as Real Estate.

**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.** ATR will be conducted on the report synopsis and supporting material for the Agency Decision Milestone (ADM), Draft Report (including NEPA and supporting documentation), and Final Report (including NEPA and supporting documentation). Additional ATR of key technical and interim products, MSC-specific milestone documentation, and In-Progress Review (IPR) documentation, if such documentation becomes necessary. Where practicable, technical products that support subsequent analyses will be reviewed prior to being used in the study and may include: surveys & mapping; hydrology & hydraulics; coastal engineering; geotechnical investigations; economic, environmental, cultural, and social inventories; annual damage and benefit estimates; cost estimates; real estate requirements; etc.

**b. Required ATR Team Expertise.**

An ATR Team Leader and eight technical disciplines were determined to be appropriate for review of the products leading to the feasibility report and EA including: plan formulation, economics, environmental resources, coastal engineering, geotechnical engineering, civil engineering, cost engineering, and real estate. All should be well versed in the conduct of coastal storms risk management studies. In particular, experience in use of traffic surveys and computation of delay/disruption data will be advantageous. Reviewers should be from outside the project district, and the review lead should be from outside the project MSC.

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.

	Typically, the ATR lead will also serve as a reviewer for a specific discipline (such as planning, economics, environmental resources, etc).
Plan Formulation	The Planning reviewer should be a senior water resources planner with experience in the plan formulation process. The reviewer should be familiar with evaluation of alternative plans for coastal storms risk management projects.
Economics	The economics reviewer should be a senior water resource economist with experience in coastal storms risk management projects; experience with use of traffic surveys and delay/disruption analysis will be advantageous.
Environmental Resources	The environmental resources reviewer should be a senior NEPA compliance specialist with experience in coastal storms risk management projects.
Coastal Engineering	The coastal engineering reviewer should be a senior engineer with experience with coastal storms risk management projects.
Geotechnical Engineering	The geotechnical reviewer should be a senior engineer experienced in geotechnical analyses for storms risk management projects.
Civil Engineering	The civil engineering reviewer should be a senior engineer with experience in coastal storms risk management projects.
Cost Engineering	The cost engineering reviewer should be a senior engineer with experience in coastal storms risk management projects. A separate process and coordination is also required through the Walla Walla District DX for cost engineering.
Real Estate	The real estate reviewer should be a senior real estate specialist with experience in coastal storms risk management projects.

**b. 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 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 for the report synopsis for the ADM, 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 Hashamomuck Cove, New York, coastal storms risk management feasibility study is limited in scope in terms of size, cost, impacts, and complexity. This project has little risk and would most likely not benefit from IEPR.

An exclusion of this feasibility study from IEPR, both Type I and Type II, will be prepared and undergo the approval process.

**Risk Informed Decision:**

- The project does not meet the mandatory triggers for Type I IEPR described in Paragraph 11.d.(1) and Appendix D of EC 1165-2-209. Additionally:
- What are the consequences of non-performance on project economics, the environmental and social well-being (public safety and social justice)?

Based on the potential alternatives discussed in the reconnaissance report, there are minimal consequences. This project will reduce the present and future risk of coastal storm damages. If in the future such potential benefits are no longer considered viable, the project could be re-examined to modify the future investment of the nation's resources.

- Are the products likely to contain influential scientific information or be highly influential scientific assessment?

No. No innovative information is expected to result from the study or the potential project.

- Does the decision document meet any of the possible exclusions described in Paragraph 11.d.(3) and Appendix D of EC 1165-2-209, and if so, how?

No. See below.

- Is there a significant threat to human life?

No. The project would only reduce the risk of damage from coastal storms. Design storm exceedence would not **increase such risks**.

- Does the estimated cost of the project, including mitigation costs, exceed \$45 million?

No, this is not expected at this point.

- Has the Governor of the affected State (New York) requested a peer review by independent experts?

No.

- Has the head of a Federal or state agency charged with reviewing the project study determined that the project is likely to have a significant adverse impact on environmental, cultural, or other resources under the jurisdiction of the agency after implementation of proposed mitigation plans and has he/she requested IEPR?

No. An EIS is not required for this project. Although the project might affect certain species as identified in the Environmental Assessment, the appropriate coordination will be completed under the Endangered Species Act.

- Is there significant public dispute as to size, nature or effects of the project?

No. The potential for significant public dispute has not been identified.

- Is there significant public dispute as to economic or environmental cost or benefit of the project?

No. Significant public dispute is not anticipated.

- Is information based on novel methods, or does the study present complex challenges for interpretation, contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices?

No. This project is not complex and the study is not expected to present challenges for interpretation, set precedents, etc.

- Has the Chief of Engineers identified any other circumstances to determine that Type I IEPR is warranted?

No.

In summary a Type I IEPR is not consider to be warranted. A Type II IEPR/SAR is not currently planned, because at this time it is not anticipated that the project would produce potential hazards which pose a significant threat to human life. However, the need for SAR will be revisited in a follow-on, implementation phase review plan.

- b. Products to Undergo Type I IEPR. Not-Applicable
- c. Required Type I IEPR Panel Expertise. Not-Applicable
- 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 following planning models are anticipated to be used in the development of the decision document:

<b>Model Name and Version</b>	<b>Brief Description of the Model and How It Will Be Applied in the Study</b>	<b>Certification / Approval Status</b>
Spreadsheet model	Commonly-used Application that calculates coastal damages to an inventory of structures (including use of AtRisk)	Not certified

The Planning spreadsheet model will undergo an approval as per EC 1105-2-412.

**b. Engineering Models.** The following engineering models are anticipated to be used in the development of the decision document:

<b>Model Name and Version</b>	<b>Brief Description of the Model and How It Will Be Applied in the Study</b>	<b>Approval Status</b>
M2D: a hydrodynamics model	This is a widely-used model. This is a software model that models hydrodynamics, including tides, currents, and sedimentation, within navigation channels.	not certified and not CoP-listed; developed after the Shore Protection Manual
STWave: model of wave climate	This is a widely-used model. This is a software model that takes historic wind, fetch, and wave data to simulate the wave climate along a shoreline and probabilistically predict wave action and surge elevations into the future.	not certified; CoP-preferred
spreadsheet model for storm damages on bulkheads and structures behind them	This is widely used by New York District. This model uses wave equations and assumptions of wave scour from the USACE Shore Protection Model, and wave overtopping equations recommended in USACE EM-1110-2-1614 "Design of Coastal Revetments, Seawalls, and Bulkheads" to simulate failure conditions for bulkheads and wave undermining of roads.	not certified and not CoP-listed, referenced in Shore Protection Manual
EDUNE	This is widely used by New York District. This model calculates erosion and wave climate prediction, and is based on the equilibrium profile theory, as is the Corps model, SBEACH. The erosion prediction is utilized in simulating structure undermining.	not certified and not CoP-listed; developed after the Shore Protection Manual
BEACH-FX	BEACH-FX is a computer simulation that combines EDUNE results with economic valuations of building in the coastal environment	Certified

## 10. REVIEW SCHEDULES AND COSTS

- a. **ATR Schedule and Cost.** *The estimated schedule for ATR has ATR taking place in October 2014 for the submission of the report synopsis and supporting materials for the ADM; the ADM is scheduled for March 2015. The ATR budget of \$25,000 includes participation of the ATR Lead in milestone conferences and the Civil Works Review Board (CWRB) meeting to address the ATR process and any significant and/or unresolved ATR concerns.*
- b. **Type I IEPR Schedule and Cost.** Not-Applicable
- c. **Model Certification/Approval Schedule and Cost.** Not-Applicable

## 11. PUBLIC PARTICIPATION

There have been and will be opportunities for public comment. Public comments and questions will be made available in the final EA. The EA will be scoped in accordance with regulation.

## 12. REVIEW PLAN APPROVAL AND UPDATES

The CENAD 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) will be re-approved by the MSC Commander following the process used for initially approving the plan. The latest version of the Review Plan, along with the Commanders' approval memorandum, will be posted on the Home District's webpage. The latest Review Plan will also be provided to the RMO 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:

- *Nathanael Wales, Plan Formulator, 917-790-8731*
- *Christopher Ricciardi, MSC, 347-370-4534*
- *Lawrence Cocchieri, RMO, 347-370-4571*



**ATTACHMENT 1: TEAM ROSTERS**

Project Manager	John Beldin-Quinones	John.A.Beldin-Quinones@usace.army.mil	917-790-8242
Chief, Coastal Section	Steve Couch	Stephen.Couch@usace.army.mil	917-790-8707
Project Planner	Nathanael Wales	Nathanael.T.Wales@usace.army.mil	917-790-8731
Coastal Engineer	Diane Rahoy	Diane.S.Rahoy@usace.army.mil	917-790-8263
Technical Manager	Elena Manno	Elena.Manno@usace.army.mil	917-790-8371
Economist	Caroline McCabe	Caroline.m.mccabe@usace.army.mil	917-790-8316
Biologist	Howard Ruben	Howard.Ruben@usace.army.mil	917-790-8723
Chief, Environmental Section	Pete Wepler	Peter.M.Wepler@usace.army.mil	917-790-8634
Cultural Specialist	Heather Morgan	Heather.M.Morgan@usace.army.mil	917 790-8730
Real Estate Specialist	Stanley Nuremburg	Stanley.Nuremburg@usace.army.mil	917-790-8436

ATR Team Members to be designated by the PCX - CSDR

**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>