



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

CENAD-PD-PP

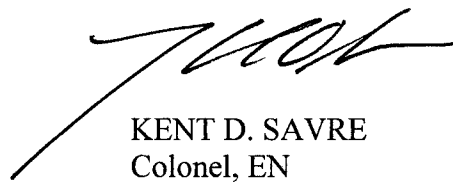
DEC 11 2012

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

SUBJECT: Review Plan Approval for Highlands, Raritan and Sandy Hook Bays, New Jersey, Feasibility Study

1. The attached Review Plan for the subject study has been prepared in accordance with EC 1165-2-209, Civil Works Review Policy.
2. The Review Plan has been coordinated with the 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 includes independent external peer review.
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

**HIGHLANDS
RARITAN AND SANDY HOOK BAYS,
NEW JERSEY
FEASIBILITY REPORT**

CENAN

**MSC Approval Date: 11 January 2008
Last Revision Date: November 2012**



**US Army Corps
of Engineers** ®

REVIEW PLAN

**HIGHLANDS, RARITAN AND SANDY HOOK BAYS, NEW JERSEY
FEASIBILITY STUDY**

TABLE OF CONTENTS

1. PURPOSE AND REQUIREMENTS3

2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION.....3

3. STUDY INFORMATION3

4. DISTRICT QUALITY CONTROL (DQC).....5

5. AGENCY TECHNICAL REVIEW (ATR).....5

6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)8

7. POLICY AND LEGAL COMPLIANCE REVIEW9

8. COST ENGINEERING DIRECTORY OF EXPERTISE (DX) REVIEW AND CERTIFICATION 10

9. MODEL CERTIFICATION AND APPROVAL 10

10. REVIEW SCHEDULES AND COSTS 11

11. PUBLIC PARTICIPATION 11

12. REVIEW PLAN APPROVAL AND UPDATES 12

13. REVIEW PLAN POINTS OF CONTACT 12

ATTACHMENT 1: TEAM ROSTERS Error! Bookmark not defined.

**ATTACHMENT 2: SAMPLE STATEMENT OF TECHNICAL REVIEW FOR DECISION DOCUMENTS Error!
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ATTACHMENT 3: REVIEW PLAN REVISIONS Error! Bookmark not defined.

ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS Error! Bookmark not defined.

1. PURPOSE AND REQUIREMENTS

a. **Purpose.** This Review Plan defines the scope and level of peer review for the Highlands, Raritan and Sandy Hook Bays, New Jersey, 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 2010
- (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) Highlands PMP
- (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).

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 ensure the appropriate expertise is included on the review teams to assess the adequacy of cost estimates, construction schedules and contingencies. There are no other PCX's necessary.

3. STUDY INFORMATION

a. **Decision Document.** The document is the Highlands, Raritan and Sandy Hook Bays, New Jersey, Feasibility Report. The current study is authorized by a resolution of the Committee on Public Works and Transportation, U.S. House of Representatives, adopted August 1, 1990. This is a coastal storm risk management study to address flooding—both tidal and interior—as well as erosion during coastal storms.

The level of approval for the document is the Chief of Engineers and will require Congressional authorization. The National Environmental Policy Act (NEPA) documentation will be an Environmental Assessment (EA) which will be prepared along with the document.

b. Study/Project Description. The Highlands study area, about 0.7 square miles in extent, is located at the eastern limit of the overall Raritan Bay and Sandy Hook Bay study area and is bordered to the north by Sandy Hook Bay, to the west by the corporate limits of Atlantic Highlands, and to the east by the Shrewsbury River and Route 36 bridge. The Borough of Highlands is located in Monmouth County, New Jersey. Highlands is generally about 2,000 feet wide, and its topography is flat for about 1,500 feet onshore from the bay, after which the ground rises rapidly to an elevation of 240 feet NGVD. This is a fully developed community with most year-round residences and commercial establishments located on the low-lying area along the bay. Highlands has a history of devastating flood damages. Approximately 880 residential, trailer home, apartment, and commercial structures are subject to severe flooding with approximately 670 located below 8 feet NGVD. Many low-lying roadways are flooded during severe storm events, cutting off access to large portions of Highlands. There is an existing Federal navigation project that provides access for the Leonardo State Marina to deep water in Raritan Bay. Low-lying residential and commercial structures in the area experience flooding caused by coastal storm inundation. The feasibility study will determine the viability of Federal participation in flood and storm damage reduction.

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.): There are no challenging aspects in this study. The study area is small, and the study is considering basic measures such as bulkheads, levees, and structure raising as well as pumps to reduce the risks of internal flooding. Standard study techniques will be used.

- 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): There are only two anticipated risks: 1) the unpredictability of the number and severity of future storm events impacting Highlands and 2) the economic uncertainty of use of a flood gate and fabricated floodwall versus use of traditional bulkheading, an uncertainty which is relatively small.
- 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.: No. The project will only reduce risks to life safety from future storm events.
- 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: It is anticipated that public issues would not be significant and would not require preparation of an Environmental Impact Statement.
 - If the project is likely to involve significant public dispute as to the economic or environmental cost or benefit of the project: It is anticipated that public issues would not be significant and would not require the preparation of an Environmental Impact Statement.
 - 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 well-documented techniques for evaluating coastal and fluvial 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. The anticipated alternatives are not expected to require redundancy, unusual resiliency and/or robustness, unique construction sequencing or reduced or overlapping design construction schedule.
- b. In-Kind Contributions.** Products and analyses provided by non-Federal sponsors as in-kind services are subject to DQC, ATR, and IEPR.

4. DISTRICT QUALITY CONTROL (DQC)

All decision documents (including supporting data, analyses, environmental compliance documents, etc.) shall undergo DQC. DQC is an internal review process of basic science and engineering work products focused on fulfilling the project quality requirements defined in the Project Management Plan (PMP). The home district shall manage DQC. Documentation of DQC activities is required and should be in accordance with the Quality Manual of the District and the 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 draft feasibility 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, should occur depending on the study needs and the requirements of MSC/District Quality Management Plans. 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 four 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, and coastal engineering. All should be well versed in the conduct of coastal storms risk management studies. 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.
Environmental Resources	The environmental resources reviewer should be a senior NEPA compliance specialist with experience in coastal storms risk management projects, particularly projects in urbanized coastal areas.
Coastal Engineering	The coastal engineering reviewer should be a senior engineer with experience with coastal storms risk management projects, particularly projects in urbanized coastal areas.

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 addressing incomplete or unclear information, comments may seek clarification in order to then assess whether further specific concerns may exist.

The ATR documentation in DrChecks will include the text of each ATR concern, the PDT response, a brief summary of the pertinent points in any discussion, including any vertical team coordination (the vertical team includes the district, RMO, MSC, and HQUSACE), and the agreed upon resolution. If an ATR concern cannot be satisfactorily resolved between the ATR team and the PDT, it will be elevated to the vertical team for further resolution in accordance with the policy issue resolution process described in either ER 1110-1-12 or ER 1105-2-100, Appendix H, as appropriate. Unresolved concerns can be closed in DrChecks with a notation that the concern has been elevated to the vertical team for resolution.

At the conclusion of each ATR effort, the ATR team will prepare a Review Report summarizing the review. Review Reports will be considered an integral part of the ATR documentation and shall:

- Identify the document(s) reviewed and the purpose of the review;
- Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
- Include the charge to the reviewers;
- Describe the nature of their review and their findings and conclusions;
- Identify and summarize each unresolved issue (if any); and
- Include a verbatim copy of each reviewer's comments (either with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

ATR may be certified when all ATR concerns are either resolved or referred to the vertical team for resolution and the ATR documentation is complete. The ATR Lead will prepare a Statement of Technical Review certifying that the issues raised by the ATR team have been resolved (or elevated to the vertical team). A Statement of Technical Review should be completed, based on work reviewed to date, for the 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 Highlands, New Jersey, hurricane and storms risk management feasibility study will require IEPR because the estimated cost of the project, including mitigation costs, exceeds \$45 million. Type II IEPR/SAR is currently planned; however, the need for SAR will be revisited in a follow-on implementation phase review plan.
 - b. **Products to Undergo Type I IEPR.** The product to undergo IEPR will be the draft report.
 - c. **Required Type I IEPR Panel Expertise.** Four technical disciplines were determined to be appropriate for review of the draft feasibility report and EA including: plan formulation, economics, environmental resources, and coastal engineering. All should be well versed in the conduct of coastal storms risk management studies. Reviewers will be a panel from an Outside Eligible Organization (OEO).

IEPR Disciplines	Expertise Required
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.
Environmental Resources	The environmental resources reviewer should be a senior NEPA compliance specialist with experience in coastal storms risk management projects, particularly projects in urbanized coastal areas.
Coastal Engineering	The coastal engineering reviewer should be a senior engineer with experience with coastal storms risk management projects, particularly projects in urbanized coastal areas.

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.d 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.

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 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.

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.

- a. **Planning Models.** The following planning models are anticipated to be used in the development of the decision document:

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Certification / Approval Status
HEC-FDA	Application that calculates inundation and damages to an inventory of structures	Certified
Spreadsheet model	Commonly-used Application that calculates coastal damages to an inventory of structures	Not certified

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

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

10. REVIEW SCHEDULES AND COSTS

- a. **a. ATR Schedule and Cost.** The estimated schedule for ATR has ATR next taking place for the submission of the draft report, in the fall of 2013. The ATR budget of \$30,000 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. **b. Type I IEPR Schedule and Cost.** The estimated schedule for IEPR has IEPR taking place for the submission of the draft report, in the winter of 2014. The IEPR budget, which will not exceed \$500,000, includes participation of the IEPR Lead in the Civil Works Review Board (CWRB) meeting to address the IEPR process and any significant and/or unresolved IEPR concerns.
- c. **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) should be re-approved by the MSC Commander following the process used for initially approving the plan. The latest version of the Review Plan, along with the Commanders' approval memorandum, should be posted on the Home District's webpage. The latest Review Plan should also be provided to the RMO and home MSC.

13. REVIEW PLAN POINTS OF CONTACT

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

- 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	David Gentile	David.t.gentile@usace.army.mil	917-790-8483
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	Christina Rasmussen	<u>Christina.Rasmussen@usace.army.mil</u>	917-790-8264
Technical Manager	Franco DiCroce	Franco.DiCroce@usace.army.mil	917-790-8294
Economist	Johnny Chan	<u>Johnny.C.Chan@usace.army.mil</u>	917-790-8706
Biologist			
Cultural Specialist			
Real Estate Specialist	David Andersen	David.c.andersen@usace.army.mil	917-790-8456

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 DrCheckssm.

SIGNATURE

Name
ATR Team Leader
Office Symbol/Company

Date

SIGNATURE

Name
Project Manager
Office Symbol

Date

SIGNATURE

Name
Architect Engineer Project Manager¹
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

¹ Only needed if some portion of the ATR was contracted

ATTACHMENT 3: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph Number
November 2012	Format update	All

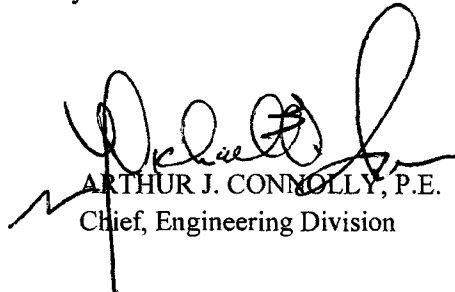
MEMORANDUM FOR RECORD

SUBJECT: Raritan and Sandy Hook Bays, Highlands, New Jersey, Coastal Storms Risk Management-
Risk Informed Assessment of Significant Threat to Human Life

1. Study/Project Information.

The Highlands study area, about 0.7 square miles in extent, is located at the eastern limit of the overall Raritan Bay and Sandy Hook Bay study area and is bordered to the north by Sandy Hook Bay, to the west by the corporate limits of Atlantic Highlands, and to the east by the Shrewsbury River and Route 36 bridge. The Borough of Highlands is located in Monmouth County, New Jersey. Highlands is generally about 2,000 feet wide, and its topography is flat for about 1,500 feet onshore from the bay, after which the ground rises rapidly to an elevation of 240 feet NGVD. This is a fully developed community with most year-round residences and commercial establishments located on the low-lying area along the bay. Highlands has a history of devastating flood damages. Approximately 880 residential, trailer home, apartment, and commercial structures are subject to severe flooding with approximately 670 located below 8 feet NGVD. Many low-lying roadways are flooded during severe storm events, cutting off access to large portions of Highlands. There is an existing Federal navigation project that provides access for the Leonardo State Marina to deep water in Raritan Bay. Low-lying residential and commercial structures in the area experience flooding caused by coastal storm inundation. The feasibility study will determine the viability of Federal participation in flood and storm damage reduction.

- 2. Study/Project Description.** The feasibility study for Highlands will examine structural and non-structural solutions to the flooding problem. Structural measures to be examined include permanent floodwalls, fabricated floodwalls, a mechanical gate across a navigation channel, and beach fill. Non-structural measures include floodproofing and acquisition. The estimated costs are at least \$45 million.
- 3. Risk Informed Assessment.** Since floodwalls and a mechanical gate are included as possible structural solutions, a Safety Assurance Review (SAR) as part of a Type I IEPR is warranted due to the potential for risk to life safety involved in any CSRSM study. However, it is too early in the study process to accurately predict the level of risk involved to human life.
- 4. Determination.** Since a plan has not been selected, the risk informed assessment of significant threat to human life may be revisited once the tentatively selected plan is identified and optimized.



ARTHUR J. CONNOLLY, P.E.
Chief, Engineering Division