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

CENAD-PD-P (1105-2-10c) 8 May 2023

MEMORANDUM FOR Commander, U.S. Army Corps of Engineers, New York District, 26 Federal Plaza New York, NY 10278-0090

SUBJECT: Request for Approval of the Sea Bright to Manasquan, NJ Section I and II Coastal Storm Risk Management Feasibility Study Review Plan

1. Reference Memorandum, CENAN-DE dated 24 April 2023, Subject: Transmittal of the Review Plan for the Sea Bright to Manasquan, NJ Section I and II Coastal Storm Risk Management Feasibility Study.

2. The Coastal Storm Risk Management Planning Center of Expertise of the North Atlantic Division (NAD) 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 Delivery Business Process. Subsequent revisions to this Review Plan or its execution require new written approval from NAD.

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

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Encl

REINHARD W. KOENIG, PE, SES
Programs Director
North Atlantic Division

DEPARTMENT OF THE ARMY
NEW YORK DISTRICT, CORPS OF ENGINEERS
JACOB K. JAVITS FEDERAL BUILDING
26 FEDERAL PLAZA
NEW YORK NEW YORK 10278-0090

APR 2 4 2023

CENAN-DE

MEMORANDUM FOR Programs Director (Mr. Rhino Koenig), U.S. Army Corps of Engineers, 301 Warren Avenue, Fort Hamilton Community, Brooklyn, NY 11252

SUBJECT: Transmittal of the Review Plan for the Sea Bright to Manasquan, NJ, Section I and II, Coastal Storm Risk Management Feasibility Study

1. References:

a. Engineer Regulation (ER) 1165-2-217, Civil Works Review Policy, 1 MAY 2021.

2. The New York District (NAN) is requesting review and approval of the enclosed Review Plan (enclosure 1) for the Sea Bright to Manasquan, NJ, Section I and II, Coastal Storm Risk Management Feasibility Study, prepared in accordance with ER 1165-2-217 (reference 1a).

3. The NAN Chief of Engineering has made a risk-informed determination that this study warrants an Independent External Peer Review (IEPR), which will be conducted after the draft report package is released for concurrent review. This decision is detailed in the Review Plan (enclosure 1).

4. The Review Plan has been coordinated with the National Planning Center of Expertise for Coastal Storm Risk Management (PCX-CSRM) as the review management organization and it was endorsed by the PCX-CSRM in the enclosed memorandum (enclosure 2).

5. Please direct any questions or requests for information to Karen Baumert, Project Planner, at (917) 790-8608.

Encls

MATTHEW W. LUZZATTO
COL, EN
Commanding

Enclosure 1

PLANNING DECISION DOCUMENT REVIEW PLAN

April 3, 2023

OVERVIEW

1. Project Summary

Project Name: Sandy Hook to Barnegat Inlet, NJ, Section I and II: Sea Bright to Manasquan, NJ, Coastal Storm Risk Management Feasibility Study
Location: Monmouth County, New Jersey
P2 Number: 494595

Decision and Environmental Compliance Document Type: Integrated Feasibility Report and National Environmental Protection Act Document
Congressional Authorization Required: YES
Project Purpose(s): Coastal Storm Risk Management
Non-Federal Sponsor: New Jersey Department of Environmental Protection (NJDEP)

Points of Public Contact for Questions / Comments on Review Plan:

District: New York District (NAN)
District Contact: Jason Shea (917) 790 - 8727

Major Subordinate Command (MSC): North Atlantic Division
MSC Contact: Preston Oakley, (215) 713 - 4312

Review Management Organization (RMO): National Planning Center of Expertise for Coastal Storm Risk Management (PCX-CSRM).
RMO Contact: Larry Cocchieri, (347) 370 - 4571

Key Review Plan Dates

Date of RMO Endorsement of Review Plan	**Pending**
Date of MSC Approval of Review Plan	**Pending**
Date of IEPR Exclusion Approval	**N/A**
Has the Review Plan changed since RMO Endorsement?	**Pending Endorsement**
Date of Last Review Plan Revision	**N/A**
Date of Review Plan Web Posting	**Pending**

Milestone Schedule and Other Dates

	Scheduled	Actual
FCSA Execution	31 Oct 2022	18 Oct 2022
Alternatives Milestone	24 Feb 2023	24 Feb 2023
Tentatively Selected Plan	April 2024	*TBD*
Release Draft Report to Public	June 2024	*TBD*
Agency Decision Milestone	October 2024	*TBD*

Final Report Transmittal	July 2025	*TBD*
State & Agency Briefing (if applicable)	September – October 2025	*TBD*
Chief's Report or Director's Report	October 2025	*TBD*

2. References

Engineer Regulation 1165-2-217 – Water Resources Policies and Authorities – Civil Works Review Policy, 1 May 2021.

Engineer Circular 1105-2-412 – Planning – Assuring Quality of Planning Models, 31 March 2011.

Planning Bulletin 2013-02, Subject: Assuring Quality of Planning Models (EC 1105-2-412), 31 March 2013.

Office of Management and Budget, Final Information Quality Bulletin for Peer Review, Federal Register Vol. 70, No. 10, January 14, 2005, pp 2664-267

The online USACE Planning Community Toolbox provides more review reference information at: https://planning.erdc.dren.mil/toolbox/current.cfm?Title=Peer%20Review&ThisPage=Peer&Side=No.

3. Review Execution Plan

The general plan for executing all required independent reviews is outlined in the following two tables.

Table 1 lists each study product to be reviewed. The table provides the schedules and costs for the anticipated reviews. Teams also determine whether a site visit will be needed to support each review. The decisions about site visits are documented in the table. As the review plan is updated the team will note each review that has been completed.

Table 2 identifies the specific expertise and role required for the members of each review team. The table identifies the technical disciplines and expertise required for members of review teams. In most cases the team members will be senior professionals in their respective fields. In general, the technical disciplines identified for a District Quality Control (DQC) team will be needed for an Agency Technical Review (ATR) team. Each ATR team member will be certified to conduct ATR by their community of practice. If Independent External Peer Review (IEPR) is warranted, panel membership will reflect disciplines representing the areas of expertise applicable to the review being conducted. The table is set up to concisely identify common types of expertise that may be applicable to one or more of the reviews needed for a study.

Table 1: Schedule and Costs of Reviews

Product(s) to undergo Review	Review Level	Site Visit	Start Date	End Date	Cost	Complete
Draft Feasibility Report / EA or EIS	District Quality Control	No	December 2023	January 2024	$35,000	No
Draft Feasibility Report / EA or EIS	Agency Technical Review	No	January 2024	February 2024	$50,000	No
Draft Feasibility Report / EA or EIS	IEPR, Scoping (Corps costs)	N/A	November 2023	January 2024	$30,000	No
Draft Feasibility Report / EA or EIS	IEPR, Contractor Review	N/A	January 2024	March 2024	$150,000	No
Draft Feasibility Report / EA or EIS	Policy and Legal Review	No	January 2024	February 2024	n/a	No
Final Feasibility Report / EA or EIS	District Quality Control	N/A	January 2025	February 2025	$25,000	No
Final Feasibility Report / EA or EIS	Agency Technical Review	N/A	February 2025	March 2025	$40,000	No
Final Feasibility Report / EA or EIS	Policy and Legal Review	N/A	March 2025	April 2025	n/a	No

Table 2: Review Teams - Disciplines and Expertise

Discipline / Role	Expertise	DQC	ATR	IEPR
DQC Team Lead	Extensive experience preparing Civil Works decision documents and leading DQC. The lead may serve as a DQC reviewer for a specific discipline (planning, economics, environmental, etc.).	Yes	No	No
Planning	Skilled water resources planner knowledgeable in complex planning investigations and the application of SMART principle to problem solving.	Yes	Yes	Yes
Economics	Experience with applying theory, methods and tools used in the economic evaluation of water resources projects.	Yes	Yes	Yes
Environmental Resources	Experience with environmental evaluation and compliance requirements, national environmental laws and statutes, applicable Executive Orders, and other planning requirements.	Yes	Yes	Yes
Cultural Resources	Experience with cultural resource survey methods, area of potential effects, Section 106 of the National Historic Preservation Act, and state and federal laws pertaining to American Indian Tribes.	Yes	Yes	Yes
Hydrology	Engineer with experience applying hydrologic principles and technical tools to project planning, design, construction and operation.	Yes	Yes	No
Hydraulic Engineering	Engineer with experience applying hydraulic engineering principles and analytic tools to project planning, design, construction and operation.	Yes	Yes	No
Cost Engineering	Experience using cost estimation software; working knowledge of water resource project construction; capable of making professional determinations using experience.	Yes	Yes	No
Coastal Engineering	Engineer with experience applying coastal engineering principles and analytic tools to project planning, design, construction, and operation.	Yes	Yes	Yes
Construction/ Operations	Extensive construction management experience and operations work. *Role may be filled by two people in Districts with separate construction/operations divisions.*	Yes	No	No
Real Estate	Experience developing Real Estate Plans and experience in real estate fee/easement acquisition and residential/business relocations for Federal and/or Federally Assisted Programs for implementation of Civil Works projects.	Yes	Yes	No
Climate Preparedness and Resilience	A member of the Climate Preparedness and Resiliency Community of Practice knowledgeable of *coastal* hydrology climate change assessment policy and practice.	No	Yes	No
ATR Team Lead	Professional with extensive experience preparing Civil Works decision documents and conducting ATR. Skills to manage a virtual team through an ATR. The lead may serve on the ATR team for a specific discipline.	No	Yes	No
Risk and Uncertainty	For decision documents involving hydrologic, hydraulic, and/or coastal related risk management measures, include on the ATR team an expert on multi-discipline flood risk analysis to ensure consistent and appropriate identification, analysis, and written communication of risk and uncertainty.	No	Yes	No
IEPR Manager	Planner with extensive knowledge of IEPR policy and procedures as well as contract management and oversight skills.	No	No	Yes

4. Documentation of Reviews

Documentation of DQC. Quality Control will be performed continuously. A specific certification of DQC completion will be prepared at the draft and final report stages. Documentation of DQC will follow the District Quality Manual and the MSC Quality Management Plan. DrChecks will be used for documentation of DQC comments. An example DQC Certification statement is provided in ER 1165-2-217, Appendix D. Documentation of completed DQC will be provided to the MSC, RMO and the ATR Team leader. The ATR team will examine DQC records and comment in the ATR report on the adequacy of the DQC effort.

Documentation of ATR. DrChecks will be used to document all ATR comments, responses, and resolutions. Comments should be limited to those needed to ensure product adequacy. All members of the ATR team will use the four-part comment structure (see ER 1165-2-217, Section 5). If a concern cannot be resolved by the ATR team and PDT, it will be elevated to the vertical team to resolve using the issue resolution process in ER 1165-2-217, Section 5.9. Unresolved concerns will be closed in DrChecks by noting the concern has been elevated. The ATR Lead will prepare a Statement of Technical Review (see ER 1165-2-217, Section 5.11, and Appendix D), for the draft and final reports, certifying that review issues have been resolved or elevated. ATR will be certified when all concerns are resolved or referred to the vertical team and the ATR documentation is complete.

Documentation of IEPR. The Outside Eligible Organization will submit a final Review Report no later than 60 days after the end of the draft report public comment period. USACE shall consider all recommendations in the final Review Report and prepare a written response for all recommendations. The final decision document will summarize the Review Report and USACE response and will be posted on the internet.

5. Supporting Information

Study or Project Background

Study Authority

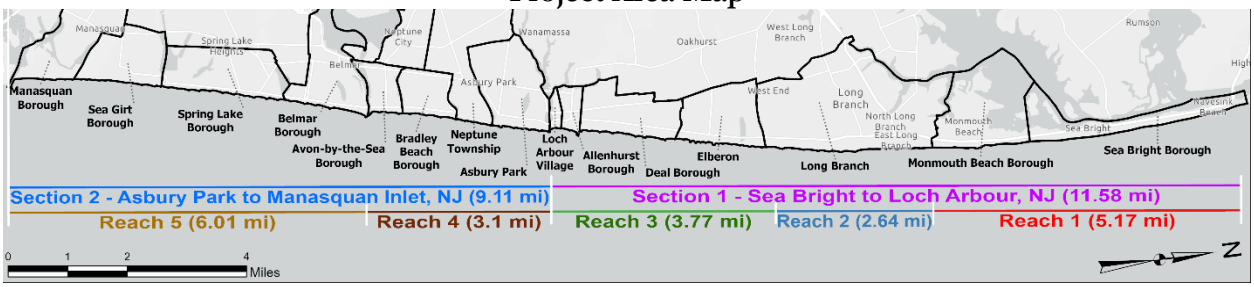
This study is authorized under 33 U.S.C. § 549a (Section 216 of the Rivers and Harbors Act of 1970). The original report recommending Federal action in constructing the existing Sandy Hook to Barnegat Inlet Beach Erosion Control Project was submitted it to Congress in 1956 and authorized by the River and Harbor Act of July 3, 1958, in accordance with House Document No. 332, 85th Congress, second session. Further modifications associated with the non-Federal sponsor cost share and public access requirements were made by Section 854 of the Water Resources Development Act (WRDA) of 1986, (P.L. 99-662).

Project Area

The existing project consists of 21 miles of shoreline from the Borough of Sea Bright to the Manasquan Inlet in Monmouth County, New Jersey. The existing project provides coastal storm risk management (with a focus on erosion only) to the shoreline of the highly populated communities and infrastructure located along the Atlantic coast of Monmouth County, New Jersey. Coastal storm risk management is provided by a 100-foot-wide beach berm at a total elevation of +12 ft mean low water (MLW), +9.3 ft North Atlantic Vertical Datum of 1988 (NAVD88). The project includes periodic nourishment on a 6-year cycle for a period of 50 years from the start of

initial construction. The project area is divided into two sections: Section I - which extends for 12 miles from Sea Bright to Loch Arbour (formally Ocean Township), and Section II - which includes the 9 miles from Asbury Park to the Manasquan Inlet.

Project Area Map



Problem Statement:

The 21-mile-long study area experiences damages from storm surge from the Atlantic Ocean, effects of tidal flooding, wave effects, and erosion. The existing project performs as designed and adequately manages the risk of erosion. However, there are two locations (Elberon and Monmouth Beach) that experience increased rates of erosion, demanding more than anticipated renourishment to continue to allow the project to perform as designed. This redirects renourishment funds and sand to these locations, as opposed to other sections of the project that could benefit from sand placement.

In 2012, Hurricane Sandy showcased how much damage and inundation can occur from an intense storm event. During Hurricane Sandy, the existing project performed well given the extreme storm conditions and was successful in reducing magnitude storm damages (Hurricane Sandy Coastal Projects Performance Evaluation Study, USACE, 2013). However, the project was overtopped, revealing the opportunity to modify the project to better manage the risk of inundation.

While the constructed reaches of the current project have mostly performed as originally designed, this feasibility report will investigate whether new technology, CSRM design guidance, regulations, and the existing conditions of the project area warrant a reevaluation of the current project scope. Erosion at the hotspots is anticipated to continue at an increasing rate with increasing sea levels. Overall, inundation risk is anticipated to increase throughout the project area with increasing sea levels which necessitates the need for a study.

Goals and Objectives

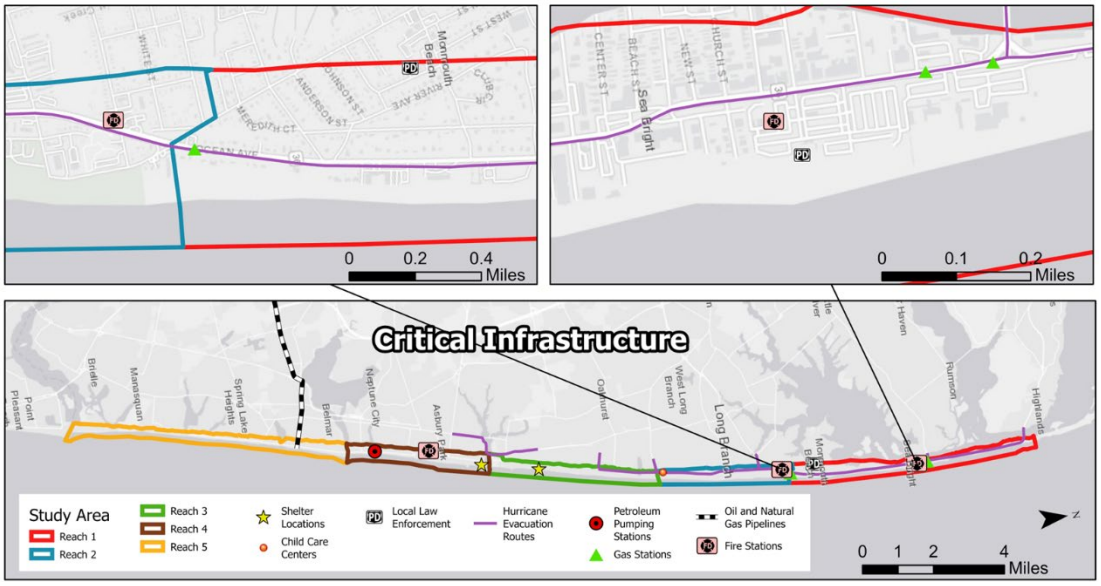
Goal: To manage the risk from inundation, waves, and erosion due to coastal storms to vulnerable populations, current and proposed development, structures, and critical infrastructure to manage economic and social impacts within the study area over the 50-year period of analysis.

Objective: The objectives in the study area through the period of analysis are:

- Manage the direct and indirect risks to human life, health, and safety caused by coastal storms
- Manage structure damage and other national economic development impacts caused by coastal storms, including flooding and erosion

Future Without Project Conditions (FWOP)

In the future without project condition, it is anticipated that the placement project area will continue to be subject to the same erosive forces and other storm effects which have been experienced in the past, especially in the two hotspot areas. Renourishment is expected to occur until 2047 for Section I and 2049 for Section II under the current authorization. These conditions include long-shore sediment transport and shoaling concerns. Coastal storms of various frequencies will continue to occur, and inundation, wave attack, and erosion will continue to put strains on the current infrastructure. Erosion would further diminish the coastal storm risk management capability of the beach and bluffs where infrastructure exists, therefore making the landforms and any structures increasingly more vulnerable to storm damage from inundation, wave attack and erosion. Increased water levels due to sea level rise will cause a greater extent and depth of flooding and will contribute to greater damages in the future. Critical infrastructure, including evacuation routes NJ-36 and NJ-71 as well as fire stations, shelter locations, petroleum pumping stations, gas stations and local law enforcement buildings are at risk. There are approximately 6,200 total structures in the study area.



Measures and Alternatives: Sandy Hook to Barnegat Inlet, Sea Bright to Manasquan, NJ will consider multiple CSRM measures.

The following measures will be considered for the erosion hotspots in Section I.

- Natural and Nature Based (NNBFs)
  - Submerged artificial reefs
- Structural (soft) (can also be considered NNBFs)
  - Berm modifications
  - Sand backpassing
- Structural (hard)
  - Groins (new)
  - Groins (mods)
  - Breakwaters
- Nonstructural
  - Acquisition

- Relocation

The following measures will be considered for Section II.

- Structural (soft) (can also be considered NNBFs)
  - Berm modifications
  - Dunes
- Structural (hard)
  - Floodwalls / seawalls
  - Reinforced dunes
- Nonstructural
  - Acquisition
  - Relocation
  - Elevation
  - Floodproofing

An initial array of alternatives has been developed for discussion by combining compatible CSRM measures and will be revised as the PDT works through the formulation process. An alternative will be developed to be in compliance with the Assistant Secretary of the Army (Civil Works) January 5, 2021 "Comprehensive Documentation of Benefits in Decision Documents policy directive.

1. No Action
2. $Hotspot_{Monmouth}$ +
   1. No Action
   2. Nonstructural
   3. Nonstructural + berm modifications
   4. Berm modifications
   5. Berm modification + Groins
   6. Berm modification + Breakwater
   7. Sand backpassing
   + $Hotspot_{Elberon}$ +
      1. No Action
      2. Nonstructural
      3. Nonstructural + berm modifications
      4. Berm modifications
      5. Berm modification + Groins
      6. Berm modification + Breakwater
      + Reach 4 +
         1. No Action
         2. Nonstructural
         3. Berm modifications
         4. Berm modifications + dunes
         5. Berm modifications + reinforced dunes
         6. Berm modifications + floodwall/seawall
         + Reach 5
            1. No Action
            2. Nonstructural
            3. Berm modifications
            4. Berm modifications + dunes
            5. Berm modifications + reinforced dunes
            6. Berm modifications + floodwall/seawall

Estimated Cost/Range of Costs

Costs of alternatives are unknown at this time but given the size of the area and problem complexity, costs are expected to be over $200 million for a comprehensive plan.

6. Models to be Used in the Study

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 are any models and analytical tools used 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 following planning models may be used to develop the decision document.

Table 3: Planning Models. The following models may be used to develop the decision document:

Model Name and Version	Brief Model Description and How It Will Be Used in the Study	Certification / Approval
Beach-fx Version 1.1.12 with SBEACH CEDAS Version 4.03	Beach-fx is an analytical framework for evaluating the physical performance and economic benefits and costs of coastal storm risk management projects, particularly, beach nourishment along sandy shores. Beach-fx has been implemented as an event-based Monte Carlo life cycle simulation tool that is run on desktop computers.	Certification expired around 2018. This model is undergoing recertification to be completed in FY23.
Generation II Coastal Risk Model (G2CRM) Version 0.4.564	G2CRM is a modeling software, which runs on desktop computers, employs an event-based Monte Carlo life cycle simulation. Past approaches to storm damage estimation and shore protection benefits have typically relied on a frequency-based evaluation framework. G2CRM uses an event-driven approach Geographic Information System (GIS) framework and a database of plausible storms to evaluate, categorize and track damages.	Approved for use, undergoing certification to be completed in FY23.
Regional Economic System (RECONS)	It is designed to provide accurate and defensible estimates of regional economic impacts and contributions associated with Corps projects, programs, and infrastructure across all Civil Works business lines.	Certified.

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. The professional practice of documenting the application of the software and modeling results will be followed. The USACE Scientific and Engineering Technology Initiative has identified many engineering models as preferred or acceptable for use in studies. These models should be used when appropriate.

Table 4: Engineering Models. These models may be used to develop the decision document:

Model Name and Version	Brief Model Description and How It Will Be Used in the Study	Approval Status
SBEACH CEDAS Version 4.03	A cross-shore beach morphology program within the Coastal Engineering Design & Analysis System (CEDAS) package.	Coastal Engineering
MII	MII is the second generation of the Micro-Computer Aided Cost Estimating System. It is a detailed cost estimating software application.	Cost Engineering Approved
Crystal Ball	Per ECB No. 2007-17, cost risk analysis methods will be used for the development of contingency for the total project cost estimate. Crystal Ball software is	Cost Engineering Approved

Model Name and Version	Brief Model Description and How It Will Be Used in the Study	Approval Status
	approved for use to conduct the total project cost and schedule risk analysis	
ADCIRC	System of computer programs used for prediction of storm surge and flooding.	EN CoP Approved
STWAVE	Steady state spectral WAVE, half-plane model for nearshore wind-wave growth and propagation	EN CoP Approved
Delft3D	Delft3d is a modeling suite to investigate water quality for estuarine and coastal environments. The software will be used to assess impacts to water quality from plan alternatives.	EN Cop Approved
Gencade	calculates shoreline change, wave-induced long-shore sand transport, and morphology change at inlets on a local to regional scale and can be applied as a planning or engineering tool.	HH&C Cop Approved
HEC-HMS	designed to simulate hydrologic processes in dendritic watershed systems based on event infiltration, unit hydrographs, and hydrologic routing techniques.	HH&C Cop Approved
HEC-RAS	one-dimensional and two-dimensional, steady and unsteady hydraulic calculations for a full network of natural and constructed channels, overbank/floodplain areas, levee protected areas.	HH&C Cop Approved

7. Factors Affecting Level and Scope of Review

All planning products are subject to the conduct and completion of District Quality Control. Most planning products are subject to Agency Technical Review and a smaller sub-set of products may be subject to Independent External Peer Review and/or Safety Assurance Review. Information in this section helps in the scoping of reviews through the considerations of various potential risks.

Objectives of the Reviews

DISTRICT QUALITY CONTROL (DQC)
The home district will manage DQC and will appoint a DQC Lead to manage the local review (see ER 1165-2-217, Chapter 4). The DQC Team members should not be involved in the production of any of the products reviewed.

Documentation of DQC. Quality Control will be performed continuously. A specific certification of DQC completion will be prepared at the draft and final report stages. Documentation of DQC will follow the District Quality Manual and the MSC Quality Management Plan. Dr. Checks will be used for documentation of DQC comments. An example DQC Certification statement is provided in ER 1165-2-217, Appendix D.

Documentation of completed DQC will be provided to the MSC, RMO and ATR Team leader. Documentation available at the time of ATR will be made available to the ATR Team. The team will examine DQC records and comment in the ATR report on the adequacy of the DQC effort.

AGENCY TECHNICAL REVIEW (ATR)

The ATR will assess whether the analyses are technically correct and comply with guidance, and that documents explain the analyses and results in a clear manner. The RMO will manage the ATR. The review will be conducted by an ATR Team whose members are certified to perform reviews. Lists of certified reviewers are maintained by the various technical Communities of Practice (see ER 1165-2-217, Chapter 5.5.3).

Documentation of ATR. DrChecks will be used to document all ATR comments, responses, and resolutions. Comments should be limited to those needed to ensure product adequacy. All members of the ATR team will use the four part comment structure (see ER 1165-2-217, Chapter 5). If a concern cannot be resolved by the ATR team and PDT, it will be elevated to the vertical team to resolve using the issue resolution process in ER 1165-2-217, chapter 5.9. Concerns will be closed in DrChecks by noting the concern has been elevated. The ATR Lead will prepare a Statement of Technical Review (see ER 1165-2-217, chapter 5.11 and Appendix D), for the draft and final reports, certifying that review issues have been resolved or elevated. ATR will be certified when all concerns are resolved or referred to the vertical team and the ATR documentation is complete.

Assessing the Need for IEPR

Mandatory IEPR Triggers

- Has the Chief of Engineers determined the project is controversial? **No, the Chief of Engineers has not determined that the study is controversial due to significant public dispute over the size, nature, or effects of the project or the economic or environmental costs or benefits of the project.**
- Has the Governor of an affected state requested an IEPR? **No, the Governor of New Jersey has not requested a peer review by independent experts.**
- Is the cost of the project more than $200 million? **Yes. Alternatives and their cost estimates are yet to be determined, but it is plausible that modifications to the existing project to achieve the study purpose would cost more than $200 million.**

Discretionary IEPR

Has the head of another Federal agency requested an IEPR? ***No***.

Potential IEPR Exclusion

- Is the project cost greater than $200 million? ***Yes.***
- Does the project have an Environmental Impact Statement (EIS)? ***Pending.***

Decision on IEPR. It is anticipated IEPR will be performed.

Required IEPR Panel Expertise. Panels will consist of independent, recognized experts from outside of the USACE in disciplines representing a balance of areas of expertise suitable for the review being conducted. Table 5 lists the required panel expertise.

Table 5: Required IEPR Panel Expertise

IEPR Panel Member Disciplines	Expertise Required
Economics	The panel member should be from academia, a public agency, a non-governmental entity, or an Architect-Engineer or Consulting Firm with a minimum of 10 years' demonstrated experience in public works planning, with a minimum MS degree or higher in economics. Three years' experience related to the use of G2CRM software is required. Familiarity with BeachFX software is desired. Two years' experience in reviewing federal water resource economic documents justifying construction efforts is required. In addition, the panel member should have experience related to regional economic development, and be capable of evaluating traditional National Economic Development plan benefits associated with coastal storm risk management projects. Prior experience in using a Corps model may be desired but is not a requirement.
Environmental	The panel member should be a scientist from academia, a public agency, a non-governmental entity, or an Architect-Engineer or Consulting Firm with a minimum 10 years' demonstrated experience in evaluation and conducting National Environmental Policy Act (NEPA) impact assessments, including cumulative effects analyses. The panel member should also be familiar with all NEPA Environmental Assessment requirements as well as have experience with the Endangered Species Act, essential fish habitat, and the Marine Mammals Protection Act. The panel member should have particular knowledge of construction impacts on marine and terrestrial ecology of coastal regions of the mid-Atlantic coast of North America. The panel member should have a minimum of a Master's Degree or higher in an appropriate field of study. Active participation in related professional societies is encouraged.
Coastal Engineering	The panel member should be a registered professional engineer with a minimum of 10 years' experience in coastal and hydraulic engineering, or a professor from academia with extensive background in coastal processes and hydraulic theory and practice, with a minimum Master's Degree or higher in engineering. Active participation in related professional societies is encouraged. The panel member should be familiar with USACE application of risk and uncertainty analyses in coastal storm risk management projects. The panel member should also be familiar with standard USACE coastal, hydrologic, hydraulic and sediment transport computer models. In addition, familiarity with ADCIRC and AdH computer models is desired. The panel member should be capable of addressing the USACE Safety Assurance Review (SAR) requirements.
Hydrologic and Hydraulic Engineering	The panel member should be an expert in the field of urban hydrology and hydraulics, have a thorough understanding of open

	channel systems, interior drainage, the effects of management practices and low impact development on hydrology, the use of non-structural systems as they apply to flood proofing, warning systems, and evacuation, and the use of HEC computer modeling systems.
Civil Engineering	The panel member should be a registered professional engineer with a minimum of 10 years' experience in civil engineering with an emphasis on design of large civil works projects as well as non-structural flood risk management measures, or a professor from academia with extensive background in coastal processes, with a minimum of MS degree or higher in engineering. The reviewer should have familiarity and application of wave forces and water levels over the likely range of storm return periods, beach fill design including renourishment, appurtenant structures for beach fill design, design of flood barriers, rubble mound, and other coastal structures in consideration of USACE standards that the quantities estimated and assumptions are reasonable to derive accurate cost estimates. Active participation in related professional societies is encouraged.
Structural Engineering	The panel member should be a registered professional engineer with a minimum of 10 years' experience in civil engineering with an emphasis on design of large civil works projects as well as non-structural flood risk management measures, or a professor from academia with extensive background in coastal processes, with a minimum of MS degree or higher in engineering. The panel member should have expertise in the field of structural engineering, especially in design and review of floodwalls and closure gates. A registered professional engineer is required.
Plan Formulation	The Panel Member should be from academia, a public agency, a non-governmental entity, or an Architect-Engineer or Consulting Firm with a minimum of 10 years' demonstrated experience in public works planning with a Master's Degree in a relevant field. Direct experience working for or with USACE is highly preferred but not required. The panel member shall have a minimum of five years' experience directly dealing with the USACE six-step planning process, which is governed by ER 1105-2-100, Planning Guidance Notebook. Panel Member must be very familiar with USACE plan formulation process, procedures, and standards as it relates to coastal storm risk management projects.

Documentation of IEPR. The Outside Eligible Organization (OEO) will submit a final Review Report no later than 60 days after the end of the draft report public comment period. USACE shall consider all recommendations in the Review Report and prepare a written response for all recommendations. The final decision document will summarize the Review Report and USACE response and will be posted on the internet.

Assessing Other Risk Considerations

- Will the study likely be challenging? No. It is not likely that the study will be challenging, as it is looking at improvements to a previously authorized and constructed project. There is an abundance of existing information and prior reports available for use in this study effort. The improvement measures are not expected to be technically challenging. The non-federal sponsor, the NJDEP, has requested and fully supports the study.
- Provide a preliminary assessment of where the project risks are likely to occur and assess the magnitude of those risks. The study will take a risk-informed planning approach. This project has a range of risks. The study is considering the enhancement of existing elements of a Federal CSRM project to meet changing conditions. All project and design risks not fully evaluated in the study will be further managed in Preconstruction Engineering and Design. This Review Plan will be updated, as appropriate, should any of these assessments change during the study.
    - Existing bathymetric, geotechnical, and ecological data will be used. No new sampling nor surveys will be conducted. Use of existing data may impact the accuracy of design and cost estimates, specifically estimates beyond the footprint of the existing channel. This risk is low/moderate due to the amount of existing information for the study area. Appropriate contingencies will be included in the cost estimate. This level of information may affect the resolution of potential impacted habitat.
    - The recommended plan may require acquisition of additional easements if dunes are included. There is a moderate risk that acquisition of the required real estate may be time consuming and costly, and may face opposition. Appropriate contingencies will be applied to real estate costs.
    - It is assumed the borrow area study will provide enough sand to meet recommended project's needs. If sand is not available, sand would need to be brought in from other sources. This would impact project cost. Delays in permitting a new borrow source may lead to delays in project implementation. This could potentially affect economic justification and may result in exceeding the Section 902 limit (Water Resources Development Act of 1986, as amended). Appropriate cost contingencies will be added.
    - If nonstructural measures are included in the NED Plan, the NJDEP may pursue a Locally Preferred Plan or a second non-federal sponsor may be required for implementation. Investigating a Locally Preferred Plan may require a waiver for time and/or money. If a second non-federal sponsor is required for implementation, two Project Partnership Agreements may have to be executed which may take more time to coordinate.

- Is the project likely to be justified by life safety or is the study or project likely to involve significant life safety issues? No. Coastal storms pose a threat to human life safety in the study area, as observed during Hurricane Sandy. The State of New Jersey has the resources to monitor the existing project and any proposed project if there is degradation to the project profile width and height. The USACE and the State have capabilities to maintain the project features over the life of the project.
- Is the information in the decision document or anticipated project design likely to be based on novel methods, involve 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? No; the evaluation of CSRM measures and alternatives is not 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. The project will involve traditional methods of beach improvements. Standard engineering, economic, and environmental information and analyses will be used.

- Does the project design require redundancy, resiliency, and/or robustness, unique construction sequencing, or a reduced or overlapping design/construction schedule? The project design is not anticipated to require redundancy, resiliency and/or robustness, unique construction sequencing, or a reduced or overlapping design construction schedule as project design will follow standard engineering techniques used throughout USACE and the industry. The project design will follow standard methodologies typically conducted by the District for CSRM projects. As such the project design is not anticipated to require unique construction sequencing or a reduced or overlapping design construction schedule.
- Is the project expected to have more than negligible adverse impacts on scarce or unique tribal, cultural, or historic resources? Yet to be determined, but unlikely as the recommendations are modifications to an existing project, primarily within the existing, authorized project footprint. This will be updated when more information about the alternatives is known.
- Is the project expected to have substantial adverse impacts on fish and wildlife species and their habitat prior to the implementation of mitigation measures? Yet to be determined, but unlikely as the recommendations are modifications to an existing project, primarily within the existing, authorized project footprint. This will be updated when more information about the alternatives is known.
- Is the project expected to have, before mitigation measures, more than a negligible adverse impact on an endangered or threatened species or their designated critical habitat? Yet to be determined, but unlikely as the recommendations are modifications to an existing project, primarily within the existing, authorized project footprint. This will be updated when more information about the alternatives is known.

8. Risk Informed Decisions on Level and Scope of Review

Targeted ATR. A targeted ATR will not be conducted for the study.

IEPR Decision. IEPR is currently anticipated to be required for this decision document. This is the most independent level of review and is applied in cases that meet criteria where the risk and magnitude of the project are such that a critical examination by a qualified team outside of USACE is warranted. Certain criteria dictate mandatory performance of IEPR and other considerations may lead to a discretionary decision to perform IEPR. For this study, a risk-informed decision has been made that IEPR is appropriate. The information in Section 1 – Factors Affecting the Scope of Review – informed the decision to conduct IEPR.

Safety Assurance Review. Safety Assurance Reviews are managed outside of the USACE and are conducted on design and construction products for flood and coastal storm risk management projects, or other projects where existing and potential hazards pose a significant threat to human life. In some cases, significant life safety considerations may be relevant to planning decisions. These cases may warrant the development of relevant charge questions for consideration during reviews such as ATR

or IEPR. In addition, if the characteristics of the recommended plan warrant a Safety Assurance Review, a panel will be convened to review the design and construction activities before construction begins, and until construction activities are completed, on a regular schedule.

Decision on Safety Assurance Review. A risk-informed decision on conducting a Safety Assurance Review for design and construction of the project will be made later in the study once the PDT has identified the Tentatively Selected Plan that will move forward for feasibility-level design.

9. Policy and Legal Compliance Review

Policy and legal compliance reviews for draft and final planning decision documents have been delegated to the MSC (see Director's Policy Memorandum 2019-01). However, the Policy and Legal Compliance Review team for this study includes members from both the MSC and HQUSACE. If the request for additional study time and funds is granted by the Office of the Assistant Secretary of the Army for Civil Works (OASA(CW)), then HQUSACE may revoke the approval delegation.

(i) Policy Review.

The policy review team is identified through the collaboration of the MSC Chief of Planning and Policy and the HQUSACE Chief of the Office of Water Project Review. The makeup of the Policy Review team will be drawn from Headquarters (HQUSACE), the MSC, the Planning Centers of Expertise, and other review resources as needed.

- The Policy Review Team will be invited to participate in key meetings during the development of decision documents as well as SMART Planning Milestone meetings. These engagements may include In-Progress Reviews, Issue Resolution Conferences or other vertical team meetings plus the milestone events.

- The input from the Policy Review team should be documented in a Memorandum for the Record (MFR) produced for each engagement with the team. The MFR should be distributed to all meeting participants.

- In addition, teams may choose to capture some of the policy review input in a risk register if appropriate. These items should be highlighted at future meetings until the issues are resolved. Any key decisions on how to address risk or other considerations should be documented in an MFR.

(ii) Legal Review.

Representatives from the Office of Counsel will be assigned to participate in reviews. Members may participate from the District, MSC and HQUSACE. The MSC Chief of Planning and Policy will coordinate membership and participation with the office chiefs.

- In some cases, legal review input may be captured in the MFR for the particular meeting or milestone. In other cases, a separate legal memorandum may be used to document the input from the Office of Counsel.

Each participating Office of Counsel will determine how to document legal review input.

10. Public Comment

This Review Plan will be posted on the District's website. Public comments on the scope of reviews, technical disciplines involved, schedules and other considerations may be submitted to the District for consideration. If the comments result in a change to the Review Plan, an updated plan will be posted on the District's website.

11. Documents Distributed Outside the Government

For information distributed for review to non-governmental organizations, the following disclaimer shall be placed on documents:

"This information is distributed solely for the purpose of pre-dissemination review under applicable information quality guidelines. It has not been formally disseminated by USACE. It does not represent and should not be construed to represent any agency determination or policy."

Appendix A - Brief Description of Each Type of Review

This section describes each level of review to be conducted. Based upon the factors discussed in Section 1, this study will undergo the following types of reviews:

District Quality Control. All decision documents and accompanying components will undergo DQC. This internal review process covers basic science and engineering work products. It fulfils the project quality requirements of the Project Management Plan.

Agency Technical Review. ATR will be performed by a qualified team from outside the home district that is not involved in the day-to-day production of the project/product. These teams will be comprised of certified USACE personnel. The ATR team lead will be from outside the home MSC.

Independent External Peer Review. IEPR is currently anticipated to be required for this decision document. This is the most independent level of review and is applied in cases that meet criteria where the risk and magnitude of the project are such that a critical examination by a qualified team outside of USACE is warranted. Certain criteria dictate mandatory performance of IEPR, and other considerations may lead to a discretionary decision to perform IEPR. For this study, a risk-informed decision has been made that IEPR is appropriate. The information in Section 1 – Factors Affecting the Scope of Review – informed the decision to conduct IEPR.

Cost Engineering Review. All decision documents will be coordinated with the Cost Engineering Mandatory Center of Expertise (MCX). The MCX assisted in determining the expertise needed on the ATR and IEPR teams. The MCX will provide the Cost Engineering certification. The RMO is responsible for coordinating with the MCX for the reviews. These reviews occur as part of ATR.

Policy and Legal Compliance Review. These reviews culminate in determinations that report recommendations 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.

Public Review. The District will post the Review Plan and approval memo on the District's internet site. Public comment on the adequacy of the Review Plans will be accepted and considered. Additional public review will occur when the report and environmental compliance document(s) are released for public and agency comment.

Appendix B – Team Rosters

PROJECT DELIVERY TEAM		
Name	Office	Position
Jason Shea	CENAN – PP	Project Manager
Karen Baumert	CENAN – PL	Plan Formulation Lead
Jennifer Shunfenthal	CENAO-WR-PR	Plan Formulation
Katie Pijanowski	CENAN-PL-EC	Environmental
Jenine Gallo	CENAN-PL-EC	Environmental
Marko Nedzbala	CENAN-PL-F	Economics
Idris Dobbs	CENAN-PD-D	Economics
Ryan Clark	CENAN-PL-E	Cultural Resources
Matt Davis	CENAN-PL-S	GIS
Tammy Younkins	CENAO-WRO-G	GIS Support
Kevin O'Connell	CENAN-EN-MC	Engineering (ETL)
Holly Berckenhoff	CENAO-ECE-H	Coastal Engineering Lead
Suzie Rice	CENAN-EN-DE	Coastal Engineering Mentor
Deanna Dariano	CENAP-EC-EG	Geotechnical Engineering
Travis Fatzinger	CENAP-EC-EG	Geotechnical Engineering
Benjamin Fedor	CENAB-ENC	Civil Engineer
Ruvini Perera	CENAN-EN	Hydrologic & Hydraulic Engineering
Carl Leunig	CENAP-EC-EBI	Structural Engineering
Benjamin Fedor	CENAB-ENC	Mechanical Engineering (As Needed)
Benjamin Fedor	CENAB-ENC	Electrical Engineering (As Needed)
Tyra Lalor	CENAN-EN	Cost Engineering
Bree Jefferds	CENAN-RE-M	Real Estate
John Everett	CENAO-OC	Office of Counsel
Paul Moye	CENAO-WRP-F	Flood Plain Manager

DISTRICT QUALITY CONTROL		
Name	Position	Experience
Olivia Cackler	DQC Lead and Plan Formulation	
TBD	Economics	
TBD	Environmental Resources	
TBD	Cultural Resources	
TBD	Coastal Engineering	
TBD	Hydrologic and Hydraulic Engineering	
TBD	Civil Engineering	
TBD	Structural Engineering	
TBD	Geotechnical Engineering	
TBD	Cost Engineering	
TBD	Construction/Operations	
TBD	Real Estate	

AGENCY TECHNICAL REVIEW		
Name	Position	Experience
Corrine Stretzel	ATR Team Lead	
TBD	Planning	
TBD	Economics	
TBD	Environmental Resources	
TBD	Cultural Resources	
TBD	Coastal Engineering	
TBD	Hydrologic and Hydraulic Engineering	
TBD	Civil Engineering	
TBD	Structural Engineering	
TBD	Geotechnical Engineering	
TBD	Cost Engineering	
TBD	Operations	
TBD	Real Estate	
TBD	Climate Preparedness and Resilience Community of Practice (CPR CoP) Reviewer	
TBD	Risk and Uncertainty	
TBD	CPR CoP Reviewer	

INDEPENDENT EXTERNAL PEER REVIEW TEAM		
Name	**Office**	**Position**
TBD		IEPR Manager
		RMO Representative

POLICY AND LEGAL COMPLIANCE REVIEW TEAM		
Name	Office	Position
Preston Oakley	CENAD-PD-X	Review Manager
Preston Oakley	CENAD-PD-X	Plan Form
Rena Weichenberg	CENAD-PD-P	Environmental
Nicholas Applegate	CECW-PC	Economics
Ernest Burford	CENAD	Office of Counsel
Carlos Gonzalez	CENAD-PD-RE	Real Estate
Javier Jimenez-Vargas	CENAD-RB-E	Engineering & Construction
Naomi Handell/Doug Stamper	CENAD-PD-OR	Operations / Regulatory
Patricia Bolton	CENAD-PD-OR	Cost Engineering
Hank Jarboe	CELRD-PDP	CPR CoP

Appendix C – Cost of Reviews – Backup Information

(Delete this appendix before posting the Review Plan on the District web page.)

Appendix D – Sensitive Information

(Delete this appendix before posting the Review Plan on the District web page.)

Appendix E – Review Plan Change Log

(Delete this appendix before posting the Review Plan on the District web page.)

Revision Date	Description of Change	Page / Paragraph Number

Enclosure 2

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

CENAD-PD-P (1105-2-10c) 3 Apr 2023

MEMORANDUM FOR Commander, U.S. Army Corps of Engineers, New York District, 26 Federal Plaza New York, NY 10278-0090

SUBJECT: Sandy Hook to Barnegat Inlet, NJ, Section I and II: Sea Bright to Manasquan, NJ, Coastal Storm Risk Management Feasibility Study Review Plan

1. The National Planning Center of Expertise for Coastal Storm Risk Management (PCX-CSRM) has reviewed the Review Plan (RP) for the subject study and concurs that the RP complies with current peer review policy requirements contained in ER 1165-2-217, entitled "Civil Works Review Policy".

2. The review was performed by Mr. Donald Cresitello, Mr. Preston Oakley and me.

3. PCX-CSRM has no objection to RP approval by the Director, Programs Directorate, North Atlantic Division.

4. Thank you for the opportunity to assist in the preparation of the RP. PCX-CSRM is prepared to lead the Agency Technical Review for the subject study and will continue to coordinate with the PDT. For further information, please contact me at 347-370-4571.

LARRY COCCHIERI
Deputy, National Planning Center of Expertise for Coastal Storm Risk Management