



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

CENAD-PD-P


MAY 8 2017

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 New York and New Jersey Harbor and
Tributaries Coastal Storm Risk Management Feasibility Study Review Plan

1. Reference Memorandum, CENAN-EX, dated 7 April 2017, subject as above.
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 Management Business Process. Subsequent revisions to this Review Plan or its execution require new written approval from the NAD Commander.
4. The point of contact is Mr. Larry Cocchieri, NAD Planning Program Manager at 347-370-4571 or Lawrence.J.Cocchieri@usace.army.mil.

Encl


LEON F. PARROTT
Colonel, EN
Deputy Commander



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

APR 07 2017

CENAN-EX

MEMORANDUM FOR: BG Graham, Commander, North Atlantic Division, 301 General Lee Avenue, Fort Hamilton Community, Brooklyn, New York 11252 (Attn: Cocchieri)

SUBJECT: Request for Approval of the New York and New Jersey Harbor and Tributaries Coastal Storm Risk Management Feasibility Study Review Plan

1. References

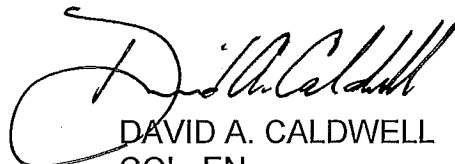
- a. Engineer Circular (EC) 1165-2-214, Civil Works Review, 15 DEC 12
- b. EC 1105-2-412, Planning, Assuring Quality of Planning Models, 31 MAR 11
- c. Engineer Regulation (ER) 1110-2-12, Quality Management, 30 SEP 06

2. The subject draft Review Plan is enclosed for your approval in accordance with Appendix B of Reference 1 (Enclosure 1). The Review Plan complies with all applicable policy and provides an adequate approach to District Quality Control and Agency Technical Review of the plan formulation, engineering and environmental analyses, and other required planning considerations (References 1 – 3).

3. The Review Plan was prepared in coordination with CENAD Planning Division Programs Directorate, and the Planning Center of Expertise for Coastal Storm Risk Management (PCX-CSRМ).

4. If you should require more information, my points of contact are Mr. Bryce Wisemiller, Project Manager at bryce.w.wisemiller@usace.army.mil or 917-790-8307; and Ms. Olivia Cackler, Project Planner, at olivia.n.cackler@usace.army.mil or 917-790-8705.

Encl


DAVID A. CALDWELL
COL, EN
Commanding

CF:

Chief, CENAD Planning Division Programs Directorate (Vietri)
Deputy Chief, CENAD Planning Division Programs Directorate (Gruber)

REVIEW PLAN

NEW YORK – NEW JERSEY HARBOR AND TRIBUTARIES COASTAL STORM RISK MANAGEMENT FEASIBILITY STUDY

New York District

MSC Approval Date: Pending
Last Revision Date: 07 April 2017



**US Army Corps
of Engineers®**

REVIEW PLAN

NEW YORK – NEW JERSEY HARBOR AND TRIBUTARIES COASTAL STORM RISK MANAGEMENT FEASIBILITY STUDY

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a. PURPOSE AND REQUIREMENTS

- a. Purpose.** This Review Plan defines the scope and level of peer review for the New York-New Jersey Harbor and Tributaries (NYNJHATS) Coastal Storm Risk Management (CSRM) Focus Area Feasibility Study.

b. References

- (1) Engineering Circular (EC) 1165-2-214, Civil Works Review Policy, 15 Dec 12
- (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) New York and New Jersey Harbor and Tributaries Coastal Storm Risk Management Feasibility Phase Project Management Plan (approval pending)
- (6) New York District Quality Management Plan

- c. Requirements.** This review plan was developed in accordance with EC 1165-2-214, which establishes an accountable, comprehensive, life-cycle review strategy for Civil Works products by providing a seamless process 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 1165-2-214) and planning model certification/approval (per EC 1105-2-412).

b. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION

- a.** 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 Planning Center of Expertise for Coastal Storm Risk Management (PCX-CSRM).
- b.** The RMO will coordinate with the Civil Works Cost Engineering and Agency Technical Review Mandatory Center of Expertise (MCX) to ensure the appropriate expertise is included on the review teams to assess the adequacy of cost estimates, construction schedules and contingencies.

c. STUDY INFORMATION

- a. Decision Document.** The NYNJHATS study will include tasks and decision criteria to identify the best coastal storm risk management alternative to support community resilience in the study area. It will result in a Chief's Report to be accompanied by an Environmental Impact Statement. Study authorization is provided by PL 84-71, approved 15 June 1955. USACE executed the Feasibility Cost Sharing Agreement with the New Jersey Department

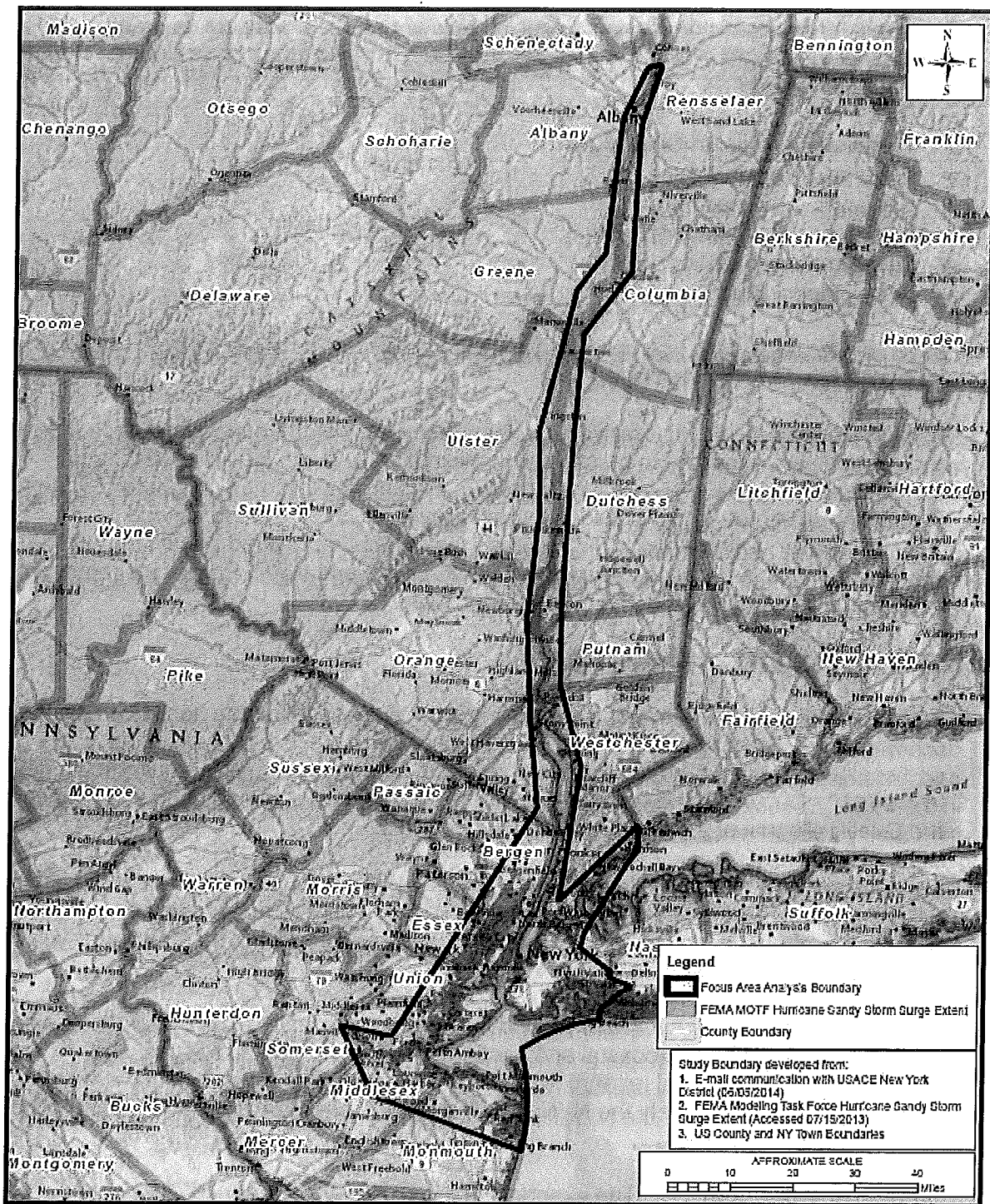


Figure 1 – NYNJHATS Study Area

- c. **Factors Affecting the Scope and Level of Review.** The peer reviews described in this plan will include a review of the economic and environmental assumptions and projections, project evaluation data, economic analyses, environmental analyses, engineering analyses, formulation of alternative plans, methods for integrating risk and uncertainty, models used in

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, which will be the CSRM-PCX. The ATR will be 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 certified 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 and final New York-New Jersey Harbor and Tributaries CSRM Feasibility Report (including 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.**

The appropriate RMO, in cooperation with the PDT, vertical team, and other appropriate centers of expertise, will determine the final make-up of the ATR team. The following table provides the types of disciplines that should be included on the ATR team and the expertise required. The ATR lead will follow the requirements outlined in the "ATR Lead Checklist" developed by the RMO. In addition to the ATR team, the USACE Climate Preparedness and Resilience Community of Practice would be consulted and participate in review of the tentatively selected plan. Further, external peer review from an international subject matter expert would also be consulted and participate in the review of the tentatively selected plan. The names, organizations, contact information, credentials, and years of experience of the ATR members will be included in Attachment 1 once the ATR team is established.

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.

Cost Engineering	Team member should have expertise in the field of cost engineering with experience in Coastal Storms Risk Management projects. Review includes MII, ARA/CSRA, Project First Cost, TPCS, annualized cost, construction schedules and cost appendix. The team member will be a Certified Cost Technician, a Certified Cost Consultant, or a Certified Cost Engineer. As the MCX, Walla Walla District will assign this team member as part of a separate effort coordinated by the ATR team lead.
International Coastal Reviewer	All focus area feasibility study investigations will include an international coastal engineer participating as an external peer reviewer.

In summary, all members should be well versed in the conduct of coastal storms risk management studies, particularly in estuaries. Reviewers should be from outside the project district and the review lead should be from outside the project MSC.

- 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.

- d. In some situations, especially addressing incomplete or unclear information, comments may seek clarification in order to then assess whether further specific concerns may exist.
- e. 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.
- f. 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;

- b. Products to Undergo Type I IEPR.** At minimum, Type I IEPR will be performed, if necessary, for the entire decision document (including supporting documentation), which is typically available at the draft report stage; however, it is anticipated to initiate IEPR early in the study process to reduce the chances of significant changes to the decision document occurring at the end of the study due to IEPR panel findings and recommendations. Because of likely complexity and magnitude of the study, IEPR may be performed for key interim technical products and major milestone documents.
- c. Required Type I IEPR Panel Expertise.** The expertise represented on the Type I IEPR panel will be similar to those on the ATR team. At minimum, the panel should include the necessary expertise to assess the engineering, environmental, and economic adequacy of the decision document as required by EC 1165-2-214, Appendix D. All members should be well versed in the conduct of coastal storms risk management studies. Reviewers will be a panel from an Outside Eligible Organization (OEO). The following table provides the types of disciplines that might be included on the IEPR team and a description of the expertise required.

IEPR Discipline	Expertise 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 hurricane and coastal storm risk management projects.
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. Five years' experience related to the use of HEC-FDA 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 hurricane and coastal storm risk management projects.
Environmental Resources	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

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, rubblemound 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.
Geotechnical Engineering	The panel member should be a registered professional engineer with a minimum of 10 years' experience in geotechnical 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 geotechnical engineering, with a minimum of MS degree or higher in engineering. The panel member should have expertise in the geotechnical engineering and foundations associated with levees and floodwalls. A registered professional engineer is required.

d. Documentation of Type I IEPR. The IEPR panel will be selected and managed by an Outside Eligible Organization (OEO) per EC 1165-2-214, Appendix D. Panel comments will be compiled by the OEO and 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.

	capability for integrated hydrologic engineering and economic analysis for formulating and evaluating flood risk management plans using risk-based analysis methods. The program will be used to evaluate and compare the future without- and with-project plans along the Passaic River and major tributaries to aid in the selection of a recommended plan to manage flood risk.	
<u>Beach-FX, version 1.1.6</u>	Beach-fx is a new analytical framework for evaluating the physical performance and economic benefits and costs of shore stabilization 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.	Certified
<u>Eutrophication and Water Quality Modeling</u>	If storm surge barriers are considered in the array of alternatives, potential impacts to water quality will need to be modeled. For the Rockaway Inlet to Jamaica Bay study, a Jamaica Bay Eutrophication Modeling system (JEM) was developed. JEM may be able to be modified to analyze storm surge barriers elsewhere in the NY and NJ study area. The JEM model is designed to assess impacts to tidal regimes as a result of the presence of the barrier in the open and in the closed condition. Model runs consider extreme storms, during hot, dry seasons, with long duration closures, typical meteorological conditions and more typical operational practices with the barrier. The modeling will identify broader physical changes and will reflect the dynamics of an integrated coastal system by considering rainfall-runoff, wind and surge for more likely various storm surge and rainfall scenarios and for each alignment to characterize. Approval for use of this model would be led by the Planning Center of Expertise for Ecosystem Restoration (ECO-PCX).	Not certified
<u>Environmental Functional Habitat Assessment</u>	It is likely that an appropriate certified model already exists to assess wetland functional habitat (for instance EPW). The availability of models to assess bay or ocean bottom habitat function will need to be further evaluated once proposed alignments are identified. Coordination with ECO-PCX as necessary.	TBD

(2) Engineering Models. The following engineering models are anticipated to be used in the development of NYNJHATS Report:

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

	ADCIRC (the primary forcing of water levels to the system).	
Ship Simulator	Engineer Research and Design Center Simulator used to simulate channel alternatives, can be used to assess effects of proposed CSRM in-water structures upon navigation operations.	Certified

f. REVIEW SCHEDULES AND COSTS

1. **ATR Schedule and Cost.** The estimated schedule for ATR is at release of the draft report, date TBD. The ATR budget of \$382,700 includes participation of the ATR Lead in milestone conferences to address the ATR process and any significant and/or unresolved ATR concerns.

Milestone	Duration
FCSA Execution	15 JUL 2016 (act.)
Alternatives Milestone	15 months
In Progress Review	22 months
In Progress Review (pre-TSP)	26 months
Tentatively Selected Plan	30 months
Agency Decision	44 months
Chief of Engineer's Report	66 months

2. **Type I IEPR Schedule and Cost.** The estimated schedule of IEPR is at release of the draft report, date TBD. The IEPR budget of \$250,000 includes participation of the IEPR team in milestone conferences to address the IEPR process and any significant and/or unresolved IEPR concerns.
3. **Model Certification/Approval Schedule and Cost.** To be determined upon coordination with the Coastal PCX.

g. PUBLIC PARTICIPATION

There will be opportunities for public comment. Public comments and questions will be made available in the Final Report.

h. 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

ATTACHMENT 1: TEAM ROSTERS

Project Manager	Bryce Wisemiller	Byrce.W.Wisemiller@usace.army.mil	917-790-8307
Project Planner	Olivia Cackler	Olivia.N.Cackler@usace.army.mil	917-790-8705
Technical Manager	Jamal Sulayman	Jamal.A.Sulayman@usace.army.mil	917-790-8299
Biologist	Daria Mazey	Daria.S.Mazey@usace.army.mil	917-790-8726

ATR Team Members to be designated by the PCX - CSRM

ATTACHMENT 3: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph Number