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

AUG 5 2013

CENAD-RBT

MEMORANDUM FOR Commander, Philadelphia District, (CENAP-EC/Mr. Tranchik), Wanamaker Building, 100 Penn Square East, Philadelphia, PA 19107-3390

SUBJECT: Review Plan Approval for Coastal Storm Damage Reduction Project, Beachfill – Delaware Coast from Cape Henlopen to Fenwick Island, Rehoboth Beach to Dewey Beach, DE

1. References:

a. E-Mail, CENAP-DP-CW, Mr. F. Master, 1 Aug 2013, subject: Projects without Review Plans – Construction

b. EC 1165-2-214, Water Resources Policies and Authorities – Civil Works Review Policy, 15 Dec 2012

2. The enclosed Review Plan for the Cape Henlopen to Fenwick Island Coastal Storm Damage Reduction (CSDR) Project from Rehoboth Beach to Dewey Beach, DE has been prepared in accordance with Reference 1.b. The project is in the project monitoring phase and the Review Plan covers implementation documents that consist of survey drawings, an annual Inspection Report, and beachfill plans and specifications.

3. NAD Business Technical Division is the Review Management Organization (RMO) for the Agency Technical Review (ATR). The Review Plan does not include Type II Independent External Peer Review since the project does not include design or construction activities that involve potential hazards which pose a significant threat to human life.

4. The Review Plan for the Cape Henlopen to Fenwick Island CSDR Project from Rehoboth Beach to Dewey Beach, DE is approved. The Review Plan is subject to change as 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.

5. In accordance with Reference 1.b, Appendix B, Paragraph 6, this approved Review Plan shall be posted on your district website for public review and comment. The plan will also be posted on NAD's website.

6. The Point of Contact for this action is Alan Huntley, Business Technical Division, 347-370-4664 or Alan.Huntley@usace.army.mil.

Encl
as

KENT D. SAVRE
Brigadier General, USA
Commanding

CF (w/ encl):
CENAD-PDX (L. Cocchieri)
CENAP-EC-EM (C. Chasten)

# REVIEW PLAN

## Implementation Documents

## Beachfill
## Delaware Coast from Cape Henlopen to Fenwick Island, Rehoboth Beach/Dewey Beach Project

## Project Monitoring 2013

Philadelphia District

**28 June 2013**

THE INFORMATION CONTAINED IN THIS REVIEW PLAN IS DISTRIBUTED SOLELY FOR THE PURPOSE OF PREDISSEMINATION PEER REVIEW UNDER APPLICABLE INFORMATION QUALITY GUIDELINES. IT HAS NOT BEEN FORMALLY DISSEMINATED BY THE U.S. ARMY CORPS OF ENGINEERS, PHILADELPHIA DISTRICT. IT DOES NOT REPRESENT AND SHOULD NOT BE CONSTRUED TO REPRESENT ANY AGENCY DETERMINATION OR POLICY.

US Army Corps
of Engineers ®

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## 1. PURPOSE AND REQUIREMENTS

**a. Purpose.** This Review Plan defines the scope and level of review activities for the Delaware Coast from Cape Henlopen to Fenwick Island, Rehoboth Beach/Dewey Beach Project, Delaware. The review activities consist of District Quality Control (DQC) and Agency Technical Review (ATR). The project is in the Project Monitoring Phase and the related documents are Implementation Documents that consist of Survey Drawings an Annual Inspection Report. Upon approval, this review plan will be included into the Project Management Plan as an appendix to the Quality Management Plan.

**b. References.**

(1) ER 1110-2-1150, Engineering and Design for Civil Works Projects, 31 Aug 1999
(2) ER 1110-1-12, Engineering and Design Quality Management, 21 Jul 2006
(3) FCA 1968, WRDA 1974, and WRDA of 1986 (Project Authorization)
(4) EC 1165-2-214, Water Resources Policies and Authorities – Civil Works Review Policy, 15 Dec 2012

**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 provides the procedures for ensuring the quality and credibility of U.S. Army Corps of Engineers (USACE) decision, implementation, and operations and maintenance documents and other work products. The EC outlines three levels of review: District Quality Control, Agency Technical Review, and Independent External Peer Review. Refer to the EC for the definitions and procedures for the three levels of review.

**d. Review Management Organization (RMO).** The North Atlantic Division is designated as the RMO.

## 2. PROJECT INFORMATION AND BACKGROUND

The Delaware Coast from Cape Henlopen to Fenwick Island, Rehoboth Beach/Dewey Beach, DE project was authorized by the Senate Committee Resolution, 23 June 1988. Project authorized by Section 101 (b)(6) of WRDA 1996 and modified by Section 307 of WRDA 2000.

The Rehoboth Beach/Dewey Beach project consists of one continuous project, from the northern end of Rehoboth Beach to the southern border of Dewey Beach, a distance of 13,500 linear feet. Along Rehoboth Beach, the plan provides for a 125-foot wide berm at elevation +7.2 feet NAVD and a dune at elevation +13.2 feet NAVD. At Dewey Beach, the project would transition to a 150-foot wide berm at elevation +7.2 feet NAVD and a dune at elevation +13.2 feet NAVD. The plan includes dune grass, dune fencing, and suitable advance beachfill and periodic nourishment every three years to ensure the integrity of the

design. The PED phase consisted of the completion of detailed plans and specifications for those features recommended in the feasibility report.

The beachfill portion of initial construction was completed in July 2005 with the other project features, including dune grass, dune fencing and crossovers completed in January 2006. FY 08 funds were used to award a contract to initiate the 2nd periodic nourishment cycle. Due to limited funds, only Dewey Beach received renourishment. FY 11 funds were used to modify the FCCE contract to complete the 2nd periodic nourishment cycle (originally scheduled for FY09). FY 12 funds are being used to permanently extend three outfalls that have remained covered after the completion of the re-nourishment. Work on these outfall extension began in early April 2013.

Between October 27 & 30, 2012, Hurricane Sandy caused damage to the Delaware coast from Lewes Beach to Fenwick Island and up the Delaware Bay. FCCE - Flood Control and Coastal Emergencies funds under Public Law 84-99 were used to complete a Project Information Report (PIR). The results of the PIR determined that the project was eligible for FCCE funding to repair the project to pre-storm conditions. Additionally, in response to P.L. 113-2 Disaster Relief Appropriations Act, a PIR Addendum was completed to determine whether the project was eligible for FCCE funding under P.L. 113-2 to restore the project to design template. Both the PIR and Addendum were approved. A contract to complete the repairs and restoration was awarded on 18 June 2013. This contract will be a consolidated contract with Bethany/S. Bethany and Fenwick Island projects.

**Current Project**

The scheduled CG work for FY 13 is annual project monitoring and the preparation of the annual inspection report. The primary purpose of this annual inspection report is to document the condition of the Rehoboth Beach/Dewey Beach, DE federal beachfill project. This report provides information for project management and design purposes. In addition, the information can be used by local municipalities to guide project maintenance activities and by the federal government to more efficiently execute the Flood Control and Coastal Emergencies (FCCE) mission in response to a major storm.

This report evaluates the condition of the project relative to the design template. The design template is the minimum beach cross-section required to provide the authorized level of storm damage reduction and economic benefits. If the beach cross-section drops below the design template, the project is vulnerable and in need of renourishment. This report identifies where and to what extent the existing condition is in deficit or exceeds the design template. Template deficit quantities are determined for the entire active beach profile. Template excess quantities are determined only above MHW where sand could potentially be reworked mechanically as part of project construction and maintenance operations.

In addition to design template quantities, this report provides advance nourishment quantities required for the next renourishment cycle. Advance nourishment is fill placed in excess of the design template (at and below the elevation of the berm crest) to account for long-term shoreline erosion, project end losses, and localized erosion hotspots. Advance nourishment is required in eroding areas to ensure that the design template is maintained

throughout the renourishment cycle. Areas of the beach that are stable or accreting require no advance nourishment.

This report also tracks volumetric change since initial construction to determine fill volume remaining within project bounds both for the entire active profile and above MHW. Additional data collection efforts and analyses pertinent to assessing condition of the project are included. Recommendations are presented based on the project condition assessment.

## 3. DISTRICT QUALITY CONTROL

District Quality Control and Quality Assurance activities for implementation documents (P&S) are stipulated in ER 1110-1-12, Engineering & Design Quality Management. The subject project P&S will prepared by the Philadelphia District using the NAP procedures and will undergo DQC. DQC Certification will be verified by the Agency Technical Review Team.

## 4. AGENCY TECHNICAL REVIEW

**a. Scope.** Agency Technical Review (ATR) is undertaken to "ensure the quality and credibility of the government's scientific information" in accordance with EC 1165-2-214 and ER 1110-1-12. An ATR will be performed on the P&S pre-final submittals.

ATR will be conducted by individuals and organizations that are external to the Philadelphia District. The ATR Team Leader is a Corps of Engineers employee outside the North Atlantic Division. The required disciplines and experience are described below.

ATR comments are documented in the DrChecks$^{sm}$ model review documentation database. DrChecks$^{sm}$ is a module in the ProjNet$^{sm}$ suite of tools developed and operated at ERDC-CERL (www.projnet.org).

At the conclusion of ATR, the ATR Team Leader will prepare a Review Report that summarizes the review. The report will consist of the ATR Certification Form from EC 1165-2-214 and the DrChecks$^{sm}$ printout of the closed comments.

**b. ATR Disciplines.** As stipulated ER 1110-1-12, ATR members will be sought from the following sources: regional technical specialists (RTS); appointed subject matter experts (SME) from other districts; senior level experts from other districts; Center of Expertise staff; experts from other USACE commands; contractors; academic or other technical experts; or a combination of the above. The ATR Team will be comprised of the following disciplines; knowledge, skills and abilities; and experience levels.

Geotechnical Engineering and Engineering Geology. The team member should be a registered professional. Experience needs to encompass geologic and geotechnical analyses that are used to support the development of Plans and Specifications for navigation and shore protection projects.

Civil Engineering/Dredging Operations. The team member should be a registered professional engineer with dredging operations and/or civil/site work project experience that includes dredging and disposal operations, embankments, channels, revetments and shore protection project features.

NEPA Compliance. The team member should have experience in NEPA compliance activities and preparation of Environmental Assessments and Environmental Impact Statements for navigation or shore protection projects.

ATR Team Leader. The ATR Team Leader will be from outside NAD and should have experience with Navigation and/or Shore Protection Projects. ATR Team Leader may be a co-duty to one of the review disciplines.

## 5. INDEPENDENT EXTERNAL PEER REVIEW

**a. General.** EC 1165-2-214 provides implementation guidance for both Sections 2034 and 2035 of the Water Resources Development Act (WRDA) of 2007 (Public Law (P.L.) 110-114). The EC addresses review procedures for both the Planning and the Design and Construction Phases (also referred to in USACE guidance as the Feasibility and the Pre-construction, Engineering and Design Phases). The EC defines Section 2035 Safety Assurance Review (SAR), Type II Independent External Peer Review (IEPR). The EC also requires Type II IEPR be managed and conducted outside the Corps of Engineers.

**b. Type I Independent External Peer Review (IEPR) Determination.** A Type I IEPR is associated with decision documents. No decision documents are addressed/covered by this Review Plan. A Type I IEPR is not applicable to the implementation documents covered by this Review Plan.

**c. Type II Independent External Peer Review (IEPR) Determination (Section 2035).** This shore protection project does not trigger WRDA 2007 Section 2035 factors for Safety Assurance Review (termed Type II IEPR in EC 1165-2-214) and therefore, a Type II IEPR review under Section 2035 and/or EC 1165-2-214 is not required. The factors in determining whether a review of design and construction activities of a project is necessary as stated under Section 2035 and EC 1165-2-214 along with this review plans applicability statement follow.

(1) The failure of the project would pose a significant threat to human life.

*This project will perform a periodic nourishment that will re-establish a beach. The beach is designed to protect structures through its sacrificial nature and is continually monitored and renourished in accordance with program requirements and constraints. Failure or loss of the beach fill will not pose a significant threat to human life.*

*In addition, the prevention of loss of life within the project area from hurricanes and severe storms is via public education about the risks, warning of potential threats and evacuations before hurricane landfall.*

(2) The project involves the use of innovative materials or techniques.

*This project will utilize methods and procedures used by the Corps of Engineers on other similar works.*

(3) The project design lacks redundancy.

*The beach fill design is in accordance with the USACE Coastal Engineering Manual. The manual does not employee the concept of redundancy for beach fill design.*

(4) The project has a unique construction sequencing or a reduced or overlapping design construction schedule.

*This project's construction does not have unique sequencing or a reduced or overlapping design. The installation sequence and schedule has been used successfully by the Corps of Engineers on other similar works.*

## 6. MODEL CERTIFICATION AND APPROVAL

This Beach Erosion Control Project does not use any engineering models that have not been approved for use by USACE.

## 7. BUDGET

ATR Estimated Cost. The ATR will be conducted as noted above. It is envisioned that each reviewer will be afforded 24 hours review plus 4 hours for coordination. It is envisioned that the ATR Leader will be 16 hours. The estimated ATR cost range is $5,000-10,000.

## 8. POINTS OF CONTACT

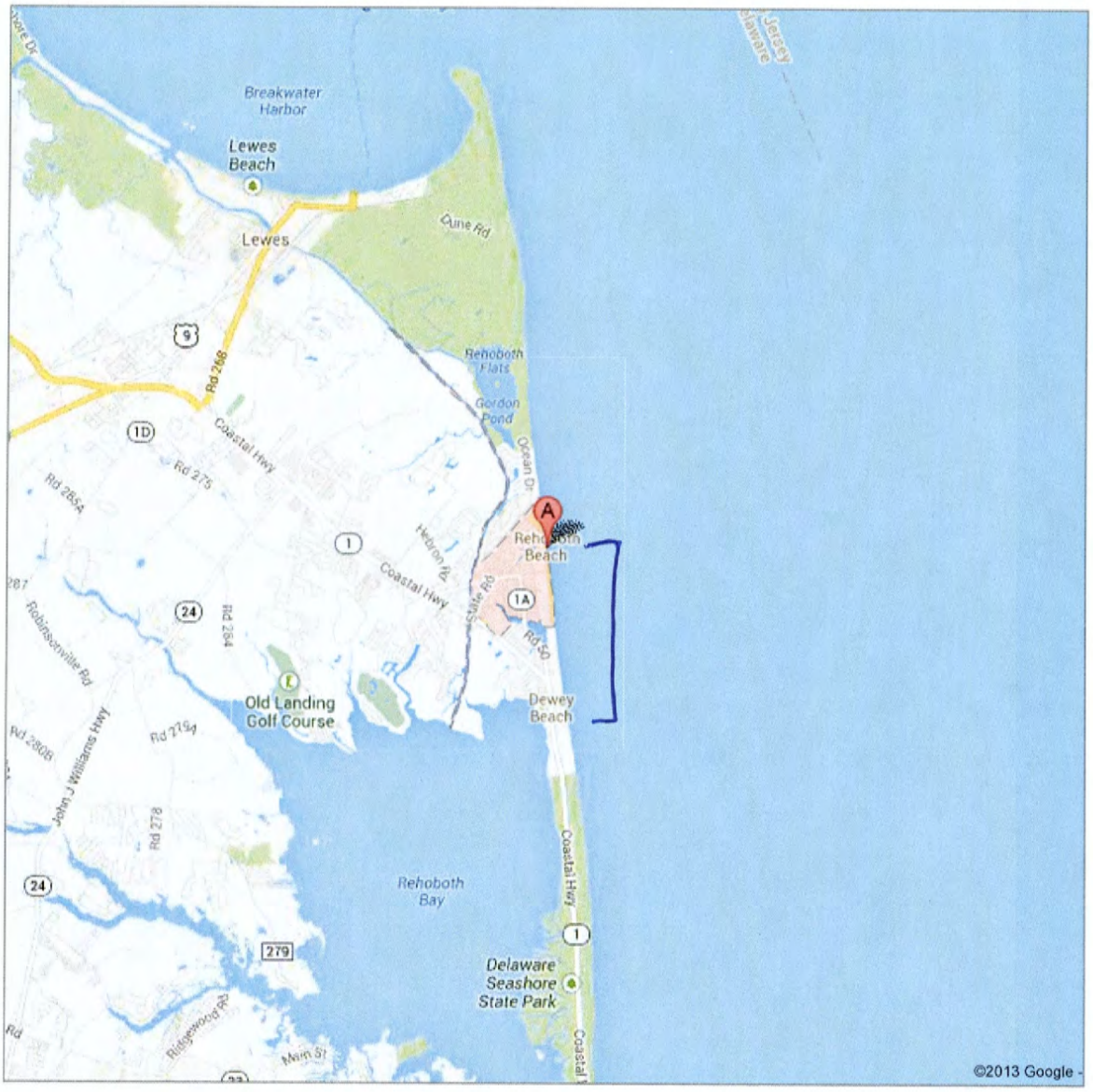
Per guidance, the names of the following individual will not be posted on the Internet with the Review Plan. Their titles and responsibilities are listed below.

Philadelphia District POCs:

| | |
|---|---|
| Review Plan, ATR and QM Process, | Cameron Chasten<br>215-656-6920<br>Cameron.P.Chasten@usace.army.mil |
| Project Information (PM) & (ETL), | Paula Retzler<br>215-656-6787<br>Paula.L.Retzler@usace.army.mil |
| | Jose Alvarez<br>215-656-6634<br>Jose.R.Alvarez@usace.army.mil |
| North Atlantic Division, | Alan Huntley<br>347-370-4664<br>Alan.Huntley@usace.army.mil |

Google

Address **Rehoboth Beach, DE**



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