



DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
WASHINGTON, D.C. 20314-1000

REPLY TO
ATTENTION OF:

CECW-PM (10-1-7a)

29 DEC 2000

SUBJECT: Delaware Coast from Cape Henlopen to Fenwick Island, Fenwick Island Interim

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on the study of hurricane and storm damage reduction for the Town of Fenwick Island, on the Atlantic Coast of Delaware, located in Sussex County. It is accompanied by the report of the district and division engineers. These reports are in partial response to a resolution by the Committee on Environment and Public Works of the United States Senate dated 23 June 1988. This resolution requested review of reports covering the Delaware Coast from Cape Henlopen to Fenwick Island to determine the advisability of providing improvements in the interest of beach erosion control, hurricane protection, and related purposes.
2. Section 101(b)(11) of the Water Resources Development Act (WRDA) of 2000 authorized construction of a project for shore protection, Delaware Coast from Cape Henlopen to Fenwick Island, subject to completion of a favorable report of the Chief of Engineers not later than December 31, 2000. This report constitutes the final report of the Chief of Engineers required by WRDA 2000.
3. The plan developed by the district engineer consists of a sand dune and beach fill for the Town of Fenwick Island, extending approximately 6,000 feet along the entire length of the town from the Maryland state line to Fenwick Island State Park. A taper of approximately 500 feet extends from the northern project boundary into Fenwick Island State Park. The total length of beach fill is approximately 6,500 feet. From the seaward toe of dune, the berm extends 75 feet toward the foreshore of the project at an elevation of +7.7 feet North Atlantic Vertical Datum (NAVD). The dune has a top width of 25 feet at an elevation of +17.7 feet NAVD, a base width of 125 feet, and side slopes of 1V:5H. The plan includes dune grass, sand fencing, and suitable beach fill with periodic nourishment to ensure the integrity of the design. The sand fencing will also be used to designate pedestrian and vehicle access areas. The project requires approximately 595,400 cubic yards of material for initial construction, and periodic nourishment of approximately 320,000 cubic yards every 4 years for the 50-year period of analysis. The anticipated method of construction would be to place material from a designated offshore borrow site on the beach. No environmental mitigation features are proposed.

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4. Based on October 1999 price levels, the total first cost of the plan is estimated at \$5,633,000. The total cost of periodic nourishment over the 50-year period of economic evaluation is estimated at \$48,619,000. The ultimate project cost, including initial construction and periodic nourishment, is estimated at \$54,252,000. Based on a discount rate of 6.625 percent and a 50-year period of economic analysis, average annual benefits are estimated at \$2,785,000, and average annual costs are estimated at \$1,320,000. The equivalent annual net benefits are \$1,465,000, and the resulting ratio of benefits-to-costs is 2.1 to 1. Based on information available at this time, the plan is the national economic development plan.

5. Based on the cost sharing principles specified by WRDA 1986, as amended, 65 percent of the project first costs would be Federal and 35 percent would be non-Federal, and 50 percent of the periodic nourishment costs would be Federal and 50 percent would be non-Federal. Under cost sharing specified by WRDA 1986, as amended, of the \$5,633,000 first cost, \$3,661,000 would be Federal and \$1,972,000 would be the non-Federal. Of the non-Federal share, the total cash contribution required would be \$1,971,000. The balance of the non-Federal share would consist of \$1,000 for the estimated creditable value for lands, easements, rights-of-way, relocations, and suitable borrow areas (LERR). Under cost sharing specified by WRDA 1986, as amended, of the \$48,619,000 estimated for periodic nourishment, \$24,309,500 would be Federal and \$24,309,500 would be non-Federal. The equivalent annual cost of periodic nourishment would be \$920,000, of which \$460,000 would be Federal and \$460,000 would be non-Federal. The ultimate project cost, which includes initial construction and 50 years of periodic nourishment, is estimated to be \$54,252,000, shared \$27,970,500 Federal and \$26,281,500 non-Federal.

6. I generally concur in the findings, conclusions, and recommendation of the reporting officers. The plan developed is technically sound, economically justified, and socially and environmentally acceptable. The non-Federal sponsor will be required to agree to comply with all applicable Federal laws and policies, and would be responsible for the following items of local cooperation:

a. Provide non-Federal costs assigned to hurricane and storm damage reduction as further specified below:

(1) Enter into an agreement that provides, prior to execution of the project cooperation agreement, 25 percent of the design costs;

(2) Provide during construction any additional amounts needed to cover the non-Federal share of design costs;

(3) Provide all lands, easements, and rights-of-way, including suitable borrow areas, and perform or ensure performance of all relocations determined by the Federal Government to be

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necessary for the initial construction, periodic nourishment, operation, and maintenance of the project;

(4) Provide during construction any additional amounts necessary to make its total contribution equal to 35 percent of initial project costs assigned to hurricane and storm damage reduction plus 100 percent of initial project costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits;

(5) Provide during construction of each periodic nourishment, 50 percent of periodic nourishment costs assigned to hurricane and storm damage reduction and 100 percent of periodic nourishment costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits;

b. For so long as the project remains authorized, operate, maintain, repair, replace, and rehabilitate the completed project, or functional portion of the project, at no cost to the Federal Government, in a manner compatible with the project's authorized purposes and in accordance with applicable Federal and State laws and regulations and any specific directions prescribed by the Federal Government;

c. Give the Federal Government a right to enter, at reasonable times and in a reasonable manner, upon property that the non-Federal sponsor, now or hereafter, owns or controls for access to the project for the purpose of inspection, and, if necessary, after failure to perform by the non-Federal sponsor, for the purpose of completing, operating, maintaining, repairing, replacing, or rehabilitating the project. No completion, operation, maintenance, repair, replacement, or rehabilitation by the Federal Government shall relieve the non-Federal sponsor of responsibility to meet the non-Federal sponsor's obligations, or to preclude the Federal Government from pursuing any other remedy at law or equity to ensure faithful performance;

d. Hold and save the United States free from all damages arising from the initial construction, periodic nourishment, operation, maintenance, repair, replacement, and rehabilitation of the project and any project-related betterments, except for damages due to the fault or negligence of the United States or its contractors;

e. Keep and maintain books, records, documents, and other evidence pertaining to costs and expenses incurred pursuant to the project in accordance with the standards for financial management systems set forth in the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments at 32 Code of Federal Regulations (CFR) Section 33.20;

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f. Perform, or cause to be performed, any investigations for hazardous substances that are determined necessary to identify the existence and extent of any hazardous substances regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Public Law 96-510, as amended, 42 U.S.C. 9601-9675, that may exist in, on, or under lands, easements, or rights-of-way that the Federal Government determines to be required for the initial construction, periodic nourishment, operation, and maintenance of the project. However, for lands that the Federal Government determines to be subject to the navigation servitude, only the Federal Government shall perform such investigations unless the Federal Government provides the non-Federal sponsor with prior specific written direction, in which case the non-Federal sponsor shall perform such investigations in accordance with such written direction;

g. Assume complete financial responsibility, as between the Federal Government and the non-Federal sponsor, for all necessary cleanup and response costs of any CERCLA regulated materials located in, on, or under lands, easements, or rights-of-way that the Federal Government determines to be necessary for the initial construction, periodic nourishment, operation, or maintenance of the project;

h. Agree that the non-Federal sponsor shall be considered the operator of the project for the purpose of CERCLA liability, and to the maximum extent practicable, operate, maintain, repair, replace, and rehabilitate the project in a manner that will not cause liability to arise under CERCLA;

i. Comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended by Title IV of the Surface Transportation and Uniform Relocation Assistance Act of 1987 (Public Law 100-17), and the Uniform Regulations contained in 49 CFR Part 24, in acquiring lands, easements, and rights-of-way, required for the initial construction, periodic nourishment, operation, and maintenance of the project, including those necessary for relocations, borrow materials, and dredged or excavated material disposal, and inform all affected persons of applicable benefits, policies, and procedures in connection with said act;

j. Comply with all applicable Federal and State laws and regulations, including, but not limited to, Section 601 of the Civil Rights Act of 1964, Public Law 88-352 (42 U.S.C. 2000d), and Department of Defense Directive 5500.11 issued pursuant thereto, as well as Army Regulation 600-7, entitled "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army;" and Section 402 of the Water Resources Development Act of 1986, as amended (33 U.S.C. 701b-12), requiring non-Federal preparation and implementation of floodplain management plans;

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k. Provide the non-Federal share of that portion of the costs of mitigation and data recovery activities associated with historic preservation, that are in excess of 1 percent of the total amount authorized to be appropriated for the project, in accordance with the cost sharing provisions of the agreement.”

l. Participate in and comply with applicable Federal floodplain management and flood insurance programs;

m. Prescribe and enforce regulations to prevent obstruction of or encroachment on the project that would reduce the level of protection it affords or that would hinder operation and maintenance of the project;

n. Not less than once each year, inform affected interests of the extent of protection afforded by the project;

o. Publicize floodplain information in the area concerned and provide this information to zoning and other regulatory agencies for their use in preventing unwise future development in the floodplain, and in adopting such regulations as may be necessary to prevent unwise future development and to ensure compatibility with protection levels provided by the project;

p. For so long as the project remains authorized, the non-Federal sponsor shall ensure continued conditions of public ownership and use of the shore upon which the amount of Federal participation is based;

q. Provide and maintain necessary access roads, parking areas, and other public use facilities, open and available to all on equal terms;

r. Recognize and support the requirements of Section 221 of Public Law 91-611, Flood Control Act of 1970, as amended, which provides that the Secretary of the Army shall not commence the construction of any water resources project or separable element thereof, until the non-Federal sponsor has entered into a written agreement to furnish its required cooperation for the project or separable element;

s. At least twice annually and after storm events, perform surveillance of the beach to determine losses of nourishment material from the project design section and advance nourishment section and provide the results of such surveillance to the Federal Government; and,

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t. Do not use Federal funds to meet the non-Federal sponsor's share of total project costs unless the Federal granting agency verifies in writing that the expenditure of such funds is authorized.



ROBERT B. FLOWERS
Lieutenant General, U.S. Army
Chief of Engineers