



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

REPLY TO
ATTENTION OF:

29 DEC 2000

CECW-PM (10-1-7a)

SUBJECT: Raritan Bay and Sandy Hook Bay, Port Monmouth, New Jersey

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on the study to reduce storm and tide-induced flooding at the community of Port Monmouth, New Jersey. 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 Public Works and Transportation of the House of Representatives adopted 1 August 1990. The resolution requested a review of existing reports on Raritan Bay and Sandy Hook Bay, New Jersey, to determine whether any modifications of the recommendations contained in the previous reports are advisable at this time.

2. Section 101(b)(23) of the Water Resources Development Act (WRDA) of 2000, authorized construction of a project for shore protection, Raritan Bay to Sandy Hook Bay, Port Monmouth, New Jersey, subject to completion of a favorable report of the Chief of Engineers not later than 31 December 2000. The authorizing language for the Port Monmouth project reflects a total first cost of \$32,064,000, with an estimated Federal cost of \$20,842,000 and an estimated non-Federal cost of \$11,222,000. The average annual cost of periodic nourishment over the 50-year life of the project is estimated at \$110,000, with an estimated annual Federal cost of \$55,000 and an estimated annual non-Federal cost of \$55,000. The cost estimate for the project has been refined to reflect current information on the project conditionally authorized by Section 101(b)(23) of WRDA 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 levees, floodwalls, closure structures, interior drainage structures, and a dune and beach fill with periodic nourishment to form a continuous line of protection on the north, east, and west boundaries of the project area. The continuous line of protection would provide protection to Port Monmouth from coastal and tidal flooding. About 7,100 feet of levees and 3,600 feet of floodwalls would prevent tidal overflow from Compton Creek and Pews Creek at the east and west boundaries of the project area. The levees and floodwalls would have a maximum elevation of +14 feet National Geodetic Vertical Datum (NGVD). Along the Sandy Hook Bay shoreline the plan of protection contains a dune and beach berm to protect against storm surge and wave attack. The dune has a top width of 25 feet at elevation +16 feet NGVD, and would be fronted by a 50 foot wide berm at elevation +9 feet NGVD. The total length of the beach fill, including taper sections, would be about 4,600

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feet. The dune line would be about 2,600 feet long. The plan provides for dune walkovers and vegetation planting. About 378,500 cubic yards (cy) of initial fill would be obtained from the Sea Bright offshore borrow area to construct the dune and beach berm system. The beach would require re-nourishment with 127,300 cy of fill, to be obtained from offshore or hauled from an upland site, on average, at about 10-year intervals. In addition, a storm gate closure would be required across Pews Creek to tie into the existing East Keansburg levee. Three local road closure gates would be required, and a 550 foot segment of Port Monmouth Road would be raised. The plan provides for interior drainage facilities, including pump stations located on Pews Creek and Compton Creek. The plan also includes modification of about 13 acres of lower value wetlands to higher value wetlands to fully mitigate project impacts to about a similar number of wetland acres.

4. Based on October 1999 price levels, the total first cost of the plan is estimated at \$32,914,000. The project first cost includes \$1,706,000 to mitigate unavoidable environmental impacts. The cost for each periodic nourishment is estimated as \$2,384,000. Four periodic nourishments are anticipated during the 50-year period of Federal participation in project cost sharing. Total nourishment costs are estimated as \$13,463,700. The ultimate project cost, including initial construction and cumulative periodic nourishment, is estimated as \$46,378,000. Based on a discount rate of 6.625 percent and a 50-year period of economic analysis, average annual benefits are estimated at \$3,310,100 and average annual costs are estimated at \$3,000,100. The equivalent annual net benefits are \$300,000, and the resulting benefit to cost ratio is 1.1 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 \$32,914,000 first cost, \$21,394,100 would be Federal and \$11,519,900 would be non-Federal. Of the non-Federal share, the total cash contribution required would be \$10,091,600. The balance of the non-Federal share would consist of \$1,428,300 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, the estimated periodic nourishment of \$13,463,700, \$6,731,850 would be Federal and \$6,731,850 would be non-Federal. The equivalent annual cost of periodic nourishment would be \$254,800, of which \$127,400 would be Federal and \$127,400 would be non-Federal. The ultimate project cost, which includes initial construction and 50 years of periodic nourishment, is estimated to be \$46,378,000, shared \$28,126,000 Federal and \$18,252,000 non-Federal.

6. Port Monmouth, New Jersey, is a greater New York City area suburban community that receives significant storm and tide induced flooding from Raritan Bay and Sandy Hook Bay. The project is comprised of levees, floodwalls, closure structures, interior drainage features, and a dune and beach fill element with periodic nourishment along the Sandy Hook Bay shoreline. The project is essentially a structural solution to the area's coastal storm induced flooding

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problems, with relatively infrequent periodic nourishment (once every 10 years). This project provides much needed flood protection to a community not directly located on the shoreline, but in a coastal environment directly affected by coastal inundation. Continuation of the structural solution (levee and/or floodwall) was considered along the Sandy Hook Bay shoreline. However, the structural solution was determined to be more costly than the beach fill and dune system with periodic nourishment. Thus the more cost effective dune system plan was identified as a feature of the plan that maximizes national economic development (NED) benefits, and is therefore included in the recommended plan.

7. I generally concur with the reporting officer's recommendations. The plan developed is technically sound, economically justified, and socially and environmentally acceptable. The non-Federal sponsor would 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 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; and,

(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

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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;

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;

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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;

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;

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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,

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