



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

REPLY TO
ATTENTION OF:

21 APR 1998

CECW-PE

SUBJECT: Delaware Coast from Cape Henlopen to Fenwick Island, Delaware, Bethany Beach/South Bethany 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 towns of Bethany Beach and South Bethany, Sussex County, Delaware. 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 requests a review of reports on the Delaware Coast from Kitts Hummock to Fenwick Island, Delaware, to determine if additional improvements for beach erosion control, hurricane protection, and related purposes are advisable. Preconstruction engineering and design activities, if funded, would be continued under the study authority cited above.
2. The plan developed by the district and division engineers consists of a sand fill dune and beach project, in two independent discontinuous segments, to reduce storm damages at the towns of Bethany Beach and South Bethany. The selected plan at each location consist of a 150 foot wide berm at an elevation of +7.0 feet North American Vertical Datum (NAVD), and a dune with a top elevation of +16.0 feet NAVD and crest width of 25 feet. At each location, the plan includes dune grass, dune fencing, dune walkovers and suitable beachfill with periodic nourishment to ensure the integrity of the design. The dune and beachfill would extend along the entire corporate limits of both communities. The length of the dune and beachfill for the project at Bethany Beach is about 7,770 feet. This length includes about 5,250 feet of the full design section within the corporate limits of Bethany Beach and 1,260-foot long sand fill tapers at each end of the full design section. The project length at South Bethany is about 7,180 feet. This length includes about 4,100 feet of the full design section within the corporate limits of South Bethany and 1,540-foot long sand fill tapers at each end of the full design section. The total length for both segments is 14,950 feet. Approximately 3,453,000 cubic yards (cy) of sand would be placed for the initial construction. This amount includes 1,457,000 cy for the Bethany Beach project and 1,996,000 cy for South Bethany. About 480,000 cy of beachfill (270,000 cy at Bethany Beach and 210,000 cy at South Bethany) would be required to nourish the beach profile, on average, at 3-year intervals over the 50-year economic evaluation period. The plan

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entails use of offshore sand borrow areas for the initial construction and subsequent renourishments. No environmental mitigation features are proposed.

3. Based on October 1998 price levels, the first cost of the plan for Bethany Beach is estimated at \$8,710,000. The estimated first cost of the plan for South Bethany is \$13,495,000. The estimated total first cost of the overall plan is \$22,205,000. Over the 50-year period of economic evaluation, the total cost for periodic nourishment of the Bethany Beach project is estimated as \$45,316,000, and the estimated total cost for periodic nourishment of the South Bethany project is \$37,076,000. For the overall project, the estimated total cost of periodic nourishment is \$82,392,000, and the estimated ultimate project cost, including initial construction and periodic nourishment, is \$104,597,000. Based on a discount rate of 6.875 percent and a 50-year period of economic analysis, the estimates of average annual benefits and costs for the Bethany Beach project are \$3,381,000 and \$1,537,000, respectively. Equivalent annual net benefits are \$1,844,000. The resulting ratio of benefits-to-costs is 2.2 to 1. Equivalent average annual benefits for the South Bethany project are estimated as \$2,223,000 and average annual costs are estimated as \$1,705,000. Equivalent annual net benefits are \$518,000, and resulting ratio of benefits-to-costs is 1.3 to 1. Overall, average annual benefits and costs are estimated as \$5,604,000 and \$3,242,000, respectively. Equivalent annual net benefits are \$2,362,000. The resulting overall ratio of benefits-to-costs is 1.7 to 1. The plan developed by the district engineer is the national economic development (NED) plan.

4. Under cost sharing principles specified by the Water Resources Development Act of 1986 (WRDA 86), \$14,433,000 of the total first cost of the plan would be Federal and \$7,772,000 would be non-Federal. Of the non-Federal share, the total cash contribution required would be \$7,446,000. The balance of the non-Federal share would consist of \$326,000 for the estimated creditable value for lands, easements, rights-of-way, relocations, and suitable borrow and dredged material disposal areas. Under current cost sharing requirements, periodic nourishment costs would be shared in the same proportion as initial construction costs. The \$82,392,000 in nourishment costs would be apportioned \$53,555,000 Federal and \$28,837,000 non-Federal. The equivalent annual costs of periodic nourishment would be \$3,819,000 Federal and \$2,057,000 non-Federal. The ultimate project cost, including initial construction and periodic nourishment costs, estimated at \$104,597,000 would be \$67,988,000 Federal and \$36,609,000 non-Federal.

5. The Administration has proposed a new cost sharing policy for the periodic nourishment of shore protection projects. Cost sharing of the initial construction would remain unchanged from that specified in Section 103 of WRDA 86. Under the proposed cost sharing policy, periodic nourishment would generally be 35 percent Federal and 65 percent non-Federal. The cumulative costs over 50 years of periodic nourishment, based on the Administration proposal, would be

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allocated \$28,837,000 Federal and \$53,555,000 non-Federal. The equivalent annual costs of periodic nourishment would be \$3,819,000 Federal and \$2,057,000 non-Federal. The ultimate project cost, including initial construction and periodic nourishment, estimated at \$104,597,000 would be allocated \$43,270,00 Federal and \$61,327,000 non-Federal.

6. I generally concur in the findings, conclusions, and recommendation of the reporting officers. Accordingly, I recommend the improvements for hurricane and storm damage reduction for the towns of Bethany Beach and South Bethany, Delaware, be authorized in accordance with the reporting officers recommended plan, and in accordance with Administration policy, and with such modifications as in the discretion of the Chief of Engineers may be advisable. The authorized period would be 50 years. My recommendation is subject to non-Federal sponsor agreeing to comply with all applicable Federal laws and policies and other requirements and being 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.

(5) Provide during construction of each periodic nourishment, 65 percent of periodic nourishment costs assigned to hurricane and storm damage reduction;

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

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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;

k. Provide 35 percent of that portion of total historic preservation mitigation and data recovery costs attributable to hurricane and storm damage reduction that are in excess of 1 percent of the total amount authorized to be appropriated for hurricane and storm damage reduction;

l. Participate in and comply with applicable Federal floodplain management and flood insurance programs in accordance with Section 402 of Public Law 99-662, as amended;

m. Within 1 year after the date of signing a project cooperation agreement, prepare a floodplain management plan designed to reduce the impact of future flood events in the project area. The plan shall be prepared in accordance with guidelines developed by the Federal Government and must be implemented not later than 1 year after completion of construction of the project;

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n. 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;

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

p. 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;

q. 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;

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

s. 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;

t. 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,

u. 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.

7. The recommendation contained herein reflects the information available at this time and current departmental policies governing formulation of individual projects. It does not reflect program and budgeting priorities inherent in the formulation of a national civil works construction program nor the perspective of higher review levels within the executive branch. Consequently, the recommendation may be modified before it is transmitted to the Congress as a proposal for authorization and implementation funding. However, prior to transmittal to the

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Congress, the sponsor, the State of Delaware; interested Federal agencies; and other parties will be advised of any modifications and will be afforded an opportunity to comment further.



JOE N. BALLARD

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