



DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
WASHINGTON, D.C. 20310-2600

REPLY TO
ATTENTION OF

CECW-PM (1105-2-10a)

DEC 30 2003

SUBJECT: New Jersey Shore Protection Study, Manasquan Inlet to Barnegat Inlet

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on the study of hurricane and storm damage reduction for Manasquan Inlet to Barnegat Inlet, New Jersey. It is accompanied by the report of the district and division engineers. These reports are in partial response to resolutions of the Committee on Public Works and Transportation of the House of Representatives dated 10 December 1987 and the Committee on Environment and Public Works of the United States Senate dated 15 December 1987. These resolutions requested review of existing reports of the Chief of Engineers for the entire New Jersey coast with a view to study, in cooperation with the State of New Jersey, its political subdivisions and agencies and instruments thereof, the changing coastal processes along the coast of New Jersey. Preconstruction engineering and design activities, if funded, would be continued under the study authorities cited above.

2. The reporting officers recommend constructing a dune and berm using sand obtained from offshore borrow sources. The sand fill dune and berm would extend approximately 14 miles from Berkeley Township at the boundary of Island Beach State Park northward to Point Pleasant Beach at the Manasquan Inlet south jetty.

a. The design dune would have a crest width of 25 feet and side slopes of 1V:5H. The dune crest elevation would be +22 feet North Atlantic Vertical Datum (NAVD) along the entire reach except at Seaside Heights and northern Point Pleasant Beach. At these two locations the dune design crest elevation would be +18 feet NAVD. The plan includes planting 175 acres of dune grass on the newly constructed dune. Dune crossovers for pedestrian use would be provided at 247 existing access locations, including handicap access at regular intervals. Eleven dune crossovers would be provided to accommodate service vehicles. Sand fencing would be included along the perimeter of the dune base and at each crossover to protect the dune. Approximately 206,000 linear feet of fencing would be required.

b. The design berm would be constructed to elevation +8.5 feet NAVD at all locations, except at northern Point Pleasant Beach, where berm elevation would be +11.5 feet NAVD. The berm would extend 75 feet seaward from the toe of the dune along the entire reach except at

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Seaside Heights and northern Point Pleasant Beach. At these two locations, the berm width would be 100 feet extending seaward from the toe of the dune. At all locations, the design beach foreshore would slope 1V:10H from the berm crest down to mean high water (MHW). Below MHW, the design beach slope would parallel the existing beach slope down to the depth of closure at -26 feet NAVD.

c. The initial sand fill requirement is estimated as 10,689,000 cubic yards. This amount includes an initial fill quantity of 9,728,000 cubic yards and advance nourishment of 961,000 cubic yards. Periodic nourishment would be required at about 4-year intervals after completing the initial construction in order to maintain the integrity of the design beach template over the project life. Twelve nourishment cycles, totaling about 12,358,000 cubic yards over the 50-year period of Federal participation, are anticipated.

d. No compensatory environmental mitigation is proposed. However, monitoring during initial construction and subsequent beach nourishment cycles would be undertaken to avoid significant impacts to benthic habitats, surf clam populations, and Federally threatened species including the piping plover (*Charadrius melodus*) and seabeach amaranth (*Amaranthus pumilus*).

3. Based on October 2003 price levels, the initial construction cost of the plan is estimated at \$62,377,000. Under cost sharing specified by the Water Resources Development Act (WRDA) of 1986, Public Law 99-662, the initial construction would be cost shared 65 percent by the Federal Government and 35 percent by the non-Federal sponsor. The Federal share of this first-cost is \$40,546,000 and the non-Federal share is \$21,831,000. Cost of lands, easements, rights-of-way, relocations, and dredged material disposal areas is estimated at \$3,913,000 and will be credited toward the non-Federal sponsor's cash contribution.

4. Over the 50-year period of Federal participation, the total periodic nourishment costs are estimated to be \$103,837,000 (October 2003 price level). Based on the amendments to the WRDA of 1986 cost sharing requirements implemented in response to the WRDA of 1999, Public Law 106-53, cost sharing for the periodic nourishment would be 50 percent Federal (\$49,082,500) and 50 percent non-Federal (\$49,082,500) for sand placement costs and 100 percent non-Federal (\$5,672,000) for dune grass, sand fence, and crossover replacement costs.

5. The ultimate cost of construction which includes initial construction, project monitoring, and periodic nourishment during the 50 years of Federal participation is estimated to be \$166,214,000 (October 2003 price level). The Federal costs are estimated at \$89,628,500 and the non-Federal costs at \$76,585,500. All costs also include pre-construction engineering and design. Cost of operation, maintenance, repair, replacement, and rehabilitation is not included in this cost and is a non-Federal responsibility. The recommended cost sharing percentages presented in this report are contingent upon the District Engineer, Philadelphia, certifying that the non-Federal sponsor has provided appropriate real estate instruments ensuring public use and access as stated in law and regulation prior to initiating project construction.

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6. The analysis of the selected plan is based on an October 2003 price level and the Federal discount rate of 5.625 percent. The selected plan, which is the national economic development (NED) plan, has primary outputs based on hurricane and storm damage reduction. The plan provides equivalent annual net benefits of approximately \$6,174,000 and has a benefit-to-cost ratio of 2.1 to 1.

7. Washington level review indicates that the plan developed is technically sound, economically justified, and socially and environmentally acceptable. The plan conforms to the essential elements of U.S. Water Resources Council's Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies and complies with other administration and legislative policies and guidelines. The views of interested parties, including Federal, State, and local agencies have been considered. Currently, a portion of the project shoreline length has been identified as being owned and operated by private, for profit entities, with some additional shoreline segments that are owned by private, non-profit entities. The Philadelphia District will undertake further coordination with the non-Federal project sponsor during the preconstruction engineering and design phase to ensure that public access to all segments of the 14 mile long project is consistent with law and regulations.

8. I concur with the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend construction of this project for hurricane and storm damage reduction in accordance with the reporting officers' recommended NED plan with such modifications as in the discretion of the Chief of Engineers may be advisable. Also, this recommendation is subject to the non-Federal sponsor agreeing to comply with all applicable Federal laws and policies and other requirements including, but not limited to:

a. Provide 35 percent of initial project costs assigned to hurricane and storm damage reduction, plus 50 percent of the initial project costs assigned to protecting undeveloped public lands, plus 50 percent of initial project costs assigned to recreation, plus 100 percent of initial project costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits, and 50 percent of periodic nourishment costs assigned to hurricane and storm damage reduction plus 100 percent of periodic nourishment costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits and as further specified below:

(1) Enter into an agreement which provides, prior to construction, 25 percent of design costs;

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

(3) Provide all lands, easements, and rights-of-way, and perform or ensure the performance of any relocations determined by the Federal Government to be necessary for the initial construction, periodic nourishment, operation, and maintenance of the project;

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- (4) Provide, during construction, any additional amounts as are 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 50 percent of periodic nourishment costs assigned to hurricane and storm damage reduction plus 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 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 inspecting, operating, maintaining, repairing, replacing, rehabilitating, or completing 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, maintenance, repair, and rehabilitation 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

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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 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, and repair the project in a manner that will not cause liability to arise under CERCLA;
- i. If applicable, 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. 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;

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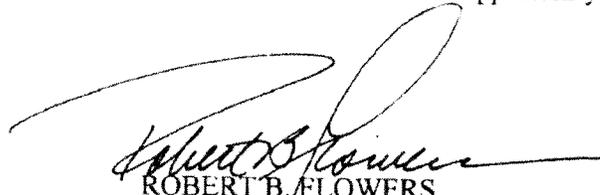
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- n. Prescribe and enforce regulations to prevent obstruction of or encroachment on the project that would reduce the level of protection it affords or that would hinder future periodic nourishment and/or the operation and maintenance of the project;
- 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, and Section 103 of the Water Resources Development Act of 1986, Public Law 99-662, 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; and
- 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 provide the results of such surveillance to the Federal Government.

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9. 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 Congress as a proposal for authorization and implementation funding. However, prior to transmittal to Congress, the non-Federal sponsor, the State of New Jersey; interested Federal agencies; and other parties will be advised of any modifications and will be afforded an opportunity to comment further.



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

Barnegat Inlet to Little Egg Inlet, Long Beach Island Hurricane and Storm Damage Reduction Project: Questions from the LBI Joint Tax Payer Association

The following Long Beach Island Hurricane and Storm Damage Reduction Project Questions were presented to the Corps by Mr. Peter Trainor :

1. PROTECTION and SAFETY

Feasibility Report Topic 4.2 Planning Constraints

Economic Constraints states that

(a) Analysis of project benefits and cost should be conducted in accordance with Corps of Engineers' guidelines and must assure that any plan is complete within itself, efficient and *safe*, and economically feasible in terms of current price.

Environmental Constraints

(a) Consideration should be given to public health, *safety*, and social well being, including *possible loss of life*.

Concerns

1.1 Will the project design protect Long Beach Island from storms similar in intensity and duration as the: March 1962 "Five High" storm, the 1944 hurricane and the 1992 storm?

Response: The Long Beach Island Hurricane and Storm Damage Reduction project will reduce damages from low frequency/high intensity storm events over the life of the project.

1.2 What is the difference in the level of storm protection between 18 foot high dunes and 22 foot high dunes?

Response: The LBI Project is a Hurricane and Storm Damage Reduction project; it is based on an analysis of reduced damages versus costs. An 18 foot high dune is at or below the average dune height existing across Long Beach Island, and therefore represents a level of damage reduction at or below the without project condition. The without project condition is analyzed and used as the baseline from which the damage reduction benefits of all analyzed alternatives are computed against.

1.3 Will the flat beach extension create a hazardous drop off?

Response: No, a drop off is not anticipated at the flat beach extension. Scarping of the dry beach at the flat beach berm of all beaches, natural or nourished, typically occurs after large storms and increased wave energy at times of extreme high tides.

1.4 Will the drop off correct itself to a safer level?

Response: A drop off is not anticipated. If a scarp occurs due to storm activity, typically the beach will correct itself over a number of tidal cycles through wind and wave action. In the case of an extreme scarp in response to a large storm event, the township may have to use mechanical means to smooth it out. The overall project template is expected to replicate the shape of the existing beach in the nearshore.

1.5 If the drop off corrects itself, what is the projected time line when the drop off will be at safe level for bathers?

Response: A drop off is not anticipated. If one occurs due to storm activity, typically the beach will correct itself over a number of tidal cycles through wind and wave action. In the case of an extreme scarp in response to a large storm event, the township may have to use mechanical means to smooth it out.

The mention of bathers in your question implies that you are inquiring about the portion of the beach under water, the sub-aqueous portion of the beach profile. The overall project template is expected to replicate the shape of the existing beach in the nearshore. Adjustment is expected to occur over the first winter season.

1.6 Please confirm the slope of the drop off in any case.

Response: A drop off is not anticipated. Construction slopes extending into the water are not expected to be steeper than 1:~~10~~. In the sub-aqueous portion of the profile, the slope after initial construction will be gentler than the existing beach slope.

1:10 *WJ*

1.7 Are the swimmers and surf riders at risk if the berm is carved away creating cliffs that reflected incoming waves and surges sending a rush of water back to the sea?

Response: Any scarping that may occur immediately after construction or during profile adjustment would be temporary. Scarping would be limited to the upper beach profile (above the Mean High Water line) and would not cause hazardous swimming conditions nor cause any increase in wave reflection.

1.8 How long will it be before the new beach profile causes the shoreline recedes and gradually expose buried jetties creating a safety hazard? Greatest danger is when the jetties are not visible to the naked eye.

Response: We anticipate that a majority of the groins covered during initial construction will become exposed within the first year as the project adjusts to the design shape. The

presence of the project does not present a greater risk than occurs naturally.

1.9 Will the perpendicular public access provide a dangerous channel of water from a storm surge?

Response: The perpendicular public access is from the Street to the landward edge of the project, and will have no impact on the damage reduction provided by the project dune. The project design includes Dune crossovers that are constructed from the landward edge of the project template up the back slope then across the crest of the dune and then down the seaward face of the dune and will not create low areas for channels of water.

1.10 Is the slope to and from the crest of the dune greater than 03% and if so would this slope create a danger particularly for the handicapped?

Response: The slope of the design from the crest of the dune will be at a 1 V (vertical) to 5 H (horizontal), the existing dunes across LBI are currently at a steeper slope of 1V to ~ 2.5H. Furthermore, in accordance with Uniform Federal Accessibility Standards, The handicap crossovers included in the project are designed with a maximum slope of 1:12 (8.3%), with a maximum length between landings of 30 feet.

2. FLAT BEACH

Feasibility Report Topic 4.2 Planning Constraints

Technical Constraints states that

(a) Federal participation in the cost of restoration of beaches should be limited so that the proposed beach will not extend seaward of the historical shoreline of record.

Concerns

2.1 Why does the predicted post construction shoreline go seaward beyond the 40 year historic shoreline?

Response: The technical constraint relates to the historical record, which for Long Beach Island dates back to 1836, not just the last 40 years. The average position of the shoreline over the historical record is well seaward of the design shoreline.

2.2 Why did the design depart from the Technical Constraint?

Response: The design does not depart from the technical constraint

3. ECONOMICS

Feasibility Report Topic 4.2 Planning Constraints Economic Constraints

Economic constraints limit the range of alternatives considered in the Feasibility Report. One of the constraints required that the economic benefit of the project must be equal to or greater than the project cost (benefit to cost ratio).

Concerns

3.1 Was the benefit to cost ratio the deciding factor on determining the project design?

Response: Maximizing net benefits is the metric used to determine the selected plan for Hurricane and Storm Damage Reduction Projects.

3.2 Does the benefit to cost ratio developed in 1999 reflect the 2006 condition?

Response: The BCR is updated periodically for inflation and price level increases. A limited reevaluation of costs and potential benefits are made to check for projects that have a delay in expected construction start. The LBI project was re-evaluated during fiscal year 2004, at the May 2004 price level. During this economic update it was found that the current conditions in the study area do not significantly differ from the conditions prevailing at the completion of the feasibility report analysis; the amount of affected infrastructure and structures has not significantly increased as the majority of lots had been developed. If anything, we are being conservative in that many of the smaller older homes have been replaced with larger newer homes that would have higher replacement costs and presumably content losses, and some of the municipal infrastructure has been upgraded, streets, utilities etc. In 1999, the Average Annual Benefits were \$10,615,000 and Average Annual Costs were \$5,771,000 resulting in a BCR of 1.8. In the 2004 analysis, the Average Annual Benefits were \$13,283,000 and Average Annual Costs were \$6,948,000 resulting in a BCR of 1.9. The selected plan BCR increased slightly from 1999 to 2004.

3.3 Specifically what factors escalated the projected initial project cost from \$52 million in 1999 to \$71 million in 2006?

Response: General Price level increases from 1999 to 2004, continued recession of the existing shoreline, and the fact the original cost estimate for initial construction did not include a cost for advanced nourishment that is required to offset predicted average shoreline recession over the first 7 year periodic nourishment interval. All of these increased costs were included in the 2004 economic update.

3.4 How will costs in excess of \$71 million be addressed?

Response: Currently the best working estimate of initial project costs is approximately \$71 million dollars based on the current price levels and a conservative discount rate of 7%. The PCA agreement dictates a limit to funding for initial construction and periodic nourishment that is adjusted for price level increases and inflation. Once that threshold is passed the Corps must notify the non federal sponsor and further construction must halt until a new PCA is approved by USACE-HQ and the additional funds authorized by Congress. The new PCA must then be accepted and signed by the non-federal sponsor and the Corps before construction can be completed.

3.5 Will you provide cost escalation accounted for on an annual basis from September 1999 to July 2006?

Response:

LBI BCR @ 7% Discount Rate, July 2006 Price Level:
Average Annual Benefits: \$13,637,000
Average Annual Costs: \$ 7,560,000
BCR: 1.8
Avg. Ann. Net Benefits: \$6,077,000

3.6 What options will be considered if the current benefit to cost ratio is less than 1?

Response: N/A, Corps projects must exceed 1.0 in order for it to be recommended for construction.

3.7 Was the final 22 foot dune construction elevation predicated upon the level of protection or upon achieving a better economic justification of the project?

Response: The LBI Project is a Hurricane and Storm Damage Reduction project; it is based on an analysis of reduced damages versus costs. Corps regulations require us to recommend the plan to Congress for authorization that has the highest annual net benefits in the form of reduced damages over the 50 year period of economic analysis, which is shown to possess a positive benefit to cost ratio. This is considered the National Economic Development, (NED), plan. The 22-foot high dune with the 125-foot berm width alternative was found to be the NED plan for the Long Beach Island project. This was the plan ultimately supported by the local municipalities, the non-federal cost sharing partner, (the NJDEP), and authorized by Congress for construction by Section 101 (a) (1) of the Water Resources Development Act of 2000, Public Law 106-541.

3.8 What role does “cheapest” play in the determination of the quality of sand to be placed on the beaches?

Response: None. When discussing sand “cheapest” or “costliest” usually refers to the cost of transporting the sand from the borrow site to the location while quality is connected to “suitability” or the comparative analysis between the native material on the beach to the borrow area and its quality for construction purposes in the project area. In a beachfill dredging project the costs per cubic yard of sand increases as the distance between a borrow location and a placement location increases. Sand dredged from an offshore dredging location does not cost more based on an assessment of its quality, but it does cost more when you pump it greater distances, which impacts the BCR and maximizing net benefits.

3.9 To what degree will the Americans with Disability Act requirements for public access increase project costs?

Response: Any changes in ADA act will increase project costs because they may require additional walkways or access ramps to be constructed, but the project is currently ADA compliant so no changes should be necessary.

4. SANDBARS

Sandbars reduce the strength of the waves and their impact on beach erosion as well as provide recreational enjoyment.

Concerns

4.1 Will expanding the flat beach to 125 feet eliminate the sandbar?

Response: Sand Bars will not be eliminated; some of the troughs in front of the bars on the foreshore slope will be filled initially by the construction template. After a brief period of equilibration, the sand bars will persist on the design profile. The equilibrium profile is simply a translation of the existing profile. Historical monitoring data has shown the seafloor and offshore bars return to pre-project conditions, only translated offshore due to the additional berm gained from the Federal project. Adjustment is expected to occur over the first winter season.

4.2 What impact will the loss of the sandbar have on beach erosion from incoming waves?

Response: There will not be a loss of the sand bars, after a brief period of equilibration, the sand bars will persist on the design profile. The equilibrium profile is simply a translation of the existing profile. Historical monitoring data has shown the seafloor and offshore bars return to pre-project conditions, only translated offshore due to the additional berm gained from the Federal project. Adjustment is expected to occur over the first winter season. Profile adjustment will occur more rapidly when subjected to severe surge and wave energies.

4.3 What is the predicted velocity of the waves at the slope line in absence of the sandbar combined with the new slope?

Response: We are not sure what the author means by the slope line, however, in general any change in the profile would not have a significant effect on the incoming wave velocities. Wave velocity for shallow water waves is equal to the $\sqrt{g*d}$, (the square root of (gravity multiplied by the water depth)), so regardless whether there is a bar or a gentle slope at a certain depth, the velocity of the wave would remain consistent.

4.4 Will eliminating the sandbar increase the dangers of riptides?

Response: As we have noted previously after a brief period of equilibration the sand bars will persist on the design profile. The overall project template will equilibrate to the shape of the existing beach in the near shore, unless there are significant changes in normal wave energies and directions from the historical record. Profile adjustment is expected to occur over the first winter season.

It should be noted, it is widely accepted that the existence of nearshore bars are a principle contributor to the formation of rip currents. Rip currents most typically form at low spots or breaks in sandbars, and also near structures such as groins, jetties and piers. A good source for further information on Rip Currents is at the following web site:
<http://www.ripcurrents.noaa.gov/overview.shtml>.

5. RECREATION Concerns

5.1 Will the marine life covered with the replenishment sand die?

Response: The Final Feasibility Report and Environmental Impact Statement, (FEIS), describes how impacts to species utilizing the replenishment zone will be minimized through use of seasonal restrictions and further consultation with environmental regulatory agencies prior to initial nourishment. Beach and intertidal areas utilized by threatened and endangered species will be identified and protective zones established. Measures taken to reduce impacts to marine species are also summarized, such as the use of National Marine Fisheries Service approved turtle monitors and drag arm deflectors on hopper dredges, and the timing of dredging to minimize potential adverse impacts to these species. The COE through the non federal sponsor coordinates with NJ Endangered and Nongame Species Program prior to construction to develop and implement a comprehensive beach nesting bird management plan. Further discussion can be found in several sections throughout the FEIS.

The majority of the diverse assemblage of infaunal species will initially be covered. Depending on the depth of sand placed, some more mobile species can migrate to the surface and survive the temporary burial. Many intertidal infaunal species have evolved to withstand their natural dynamic environments and can reduce respiration/feeding during periods of temporary environmental stress. Other infaunal species do not survive the initial placement of a foot or more of sand. The key point to keep in mind is that intertidal infaunal species, such as amphipods and polychaetes are opportunistic species: are short-lived with large reproductive output, thus enabling them to recolonize areas rather quickly from adjacent areas (larvae are free-floating in the water column). Numerous studies support this occurrence in coastal environments and typically cite several months, depending on local conditions, for infaunal composition to reestablish. A study recently done on NJ beaches (Asbury Park to Manasquan-by Mark Burlas), encompassing a 7 year period, demonstrated that beach nourishment resulted in short-term declines in intertidal and nearshore benthic organisms abundance, biomass, and taxa richness. Recovery of these assemblages was complete within 2 to 6.5 months following the conclusion of beach filling. Differences in the recovery rates were likely attributed to what period in the year beachfill occurred. Recovery rates seen in this 7 year study were similar to those reported from other biological monitoring studies of beachfill jobs. This study looked at Ichthyoplankton (baby fish-no obvious differences between reference and nourished beaches in abundance, size, and species composition), potential fish food items in both ichthyoplankton and rock groin epifaunal, and surf zone finfish (no long-term impacts to their distribution or abundance patterns). There are numerous studies in the literature to support these findings in all kinds of coastal beach environments.

5.2 What impact will covering the jetties have on marine life and recreational fishing?

Response: All coastal ecosystems are dynamic environments, subject to often unpredictable and large environmental changes. Initially, the majority of groins will be covered entirely by sand. The majority of the epifaunal (attaching invertebrates) and infaunal (in the sand invertebrates) inhabiting these rocky habitats will be smothered, as indicated above. Within months, the groin rock will begin to become exposed again, thus providing the same rocky substrate that previously existed. The populations of opportunistic species that typically move in to colonize these habitats will undergo a successional colonization whereby species diversity and composition will change over time. Early colonizers are those that thrive better under minimal competition, whereas the more mature steady-state epibenthic colonizers will eventually establish, thus once again providing the habitat and food source to finfish typically present around rocky substrate. The burial and subsequent reemergence of the groins provides an opportunity for the successional recolonization of epibenthic, infaunal and finfish assemblages.

5.3 Will extending the flat beach have a negative impact on surf riding activities?

Response: Initial construction may have an effect on surf riding activities in some areas. Surfing conditions in any affected areas would be expected to improve as the project adjusts to the design shape. While the project may temporarily impact some surfing locations, the influx of sand to the system will create additional opportunities for new sand bars and surfing breaks that did not exist before the Federal project. Over time, the groins will become more exposed and approach pre-project surfing conditions. In both the Ocean City and Absecon Island projects, surfing on those beaches was documented just a few days following placement of the construction template.

5.4 What is the recreational impact to swimmers if the sandbars are eliminated?

Response: No significant impacts to swimming are expected following initial construction and adjustment of the project. Sand bars are expected to persist on the design profile after a period of initial equilibration. Under most tide and wave conditions swimming will remain the same after construction as before; with the exception that immediately after initial construction the groins will be covered and the steepness of the nearshore sand bars will be reduced. Both of these factors potentially will temporarily reduce the chance of rip tides forming as discussed above. As on any beach, natural or nourished, during times of high surf conditions as the wave heights and periods increase swimming will remain dangerous and the chance of rip tides forming is increased.

6. QUALITY of the RENOURISHMENT SAND

Concerns

6.1 How is "suitable material" determined?'

Response: "Suitable material" is determined by comparing grain size (sieve) analyses of samples from along the existing beach to those of the vibracores taken in the borrow area to ensure size compatibility as defined by analyses in the Corps' Coastal Engineering Manual. The samples showed the sand to be fine to medium grain sand of similar grain size as the existing beach.

6.2 When will the replenishment sand be tested for contaminated material and will it be tested prior to placement on the beach?

Response: Based on the boring logs and sampling results from the borrow area, the sand in the borrow area has less than 1% fine grained material (silts and clays) as can be seen in the core logs shown on the drawings and the sieve curves in the specification. Per NJDEP guidance, "The Management and Regulation of Dredging Activities and Dredged Material in New Jersey's Tidal Waters", dated October 1997, which states that for beach placement, sand with a 10% or less fine -grained (silt and clay) component does not

require analytical testing as contaminants do not generally adhere to soil particles of sand size (.075mm and larger).

6.3 How often will the replacement sand be tested for contaminated material?

Response: Per NJDEP guidance, “The Management and Regulation of Dredging Activities and Dredged Material in New Jersey’s Tidal Waters”, dated October of 1997 which states that for beach placement, sand with a 10% or less fine -grained (silt and clay) component does not require analytical testing as contaminants do not generally adhere to soil particles of sand size (.075mm and larger).

6.4 Will samples of the sand be made available to the public prior to the initial construction?

Response: We are afforded minimal space at our storage facility and cannot keep the cores after completing logging and sieving. The logs and sieve results are the technical record of what the material is in terms of size, gradation, and color. To our collective knowledge, interest in seeing the actual samples has not come up as a request prior to construction in previous District beachfill projects. The upcoming beachfill in Surf City will afford everyone to see an example of the fill material from the borrow area.



State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Natural and Historic Resources
Office of Engineering and Construction

JON S. CORZINE
Governor

LISA P. JACKSON
Commissioner

June 12, 2006

Frank Little, PE
Owen, Little & Associates
443 Atlantic City Boulevard
Beachwood, New Jersey 08722

Re: Long Beach Island Storm Damage Reduction Project
Harvey Cedars Borough

Dear Mr. Little:

I am providing you with a response to the items outlined in your May 30th, 2006 letter and subsequent phone conversations regarding the Long Beach Island Beach Replenishment Project in Harvey Cedars.

1) Dune Maintenance

Subchapter 3A of the Coastal Zone Management Rules addresses the standards for beach and dune activities. The following is a summary of rules 7:7E-3A.2. 7 and 7:7E-3A.4.

Allowed without a State Permit

Maintenance includes debris removal and cleanup, maintenance of existing accessways, the removal of accumulated sand from a patio, deck, dune walkover structure or similar structure as described at N.J.A.C. 7:7-2.1(c) 5 and the repair of dune walkover structures. While the rule is not specific, the intent is for the removed sand to be distributed onto the adjacent beach. Coordinate with the municipality for sand placement.

Dune maintenance includes the placement and/or repair of sand fencing (including wooden support posts), the planting and fertilization of appropriate dune vegetation and the construction or repair of approved dune walkover structures. Please refer to the Dune Crossover section of this letter for specific construction guidelines. While not specifically outlined in the rule, removing garbage by hand from the dune system is allowed as long as all attempts to avoid/damage to the vegetation are made.

501 E. State Street – P. O. Box 419
Trenton, NJ 08625
Tel. 609-292-9236 – Fax 609-984-1908

Bulldozing, excavation, grading, vegetation removal or clearing, and relocation of existing dunes are not authorized pursuant to the above referenced rules and require a CAFRA permit.

Dune Planting:

American beachgrass is the preferred species for the stabilization of newly established dunes, and for stabilization of the primary frontal dune. Woody plant species are suitable for back dune and secondary dune environments. Herbaceous plant species are preferred as supplemental plantings for all dune areas.

Dune vegetation should be diversified as much as possible, in an effort to provide continuous stabilization in the event that pathogens reduce or eliminate the effectiveness of one species. A complex of associated grasses, herbaceous species and woody species is preferred to the planting of one species.

Please contact LURP for assistance with a dune vegetation plan if so desired.

Acceptable dune vegetation:

- American Beachgrass (*Ammophila breviligulata*)
- Coastal Panicgrass (*Panicum amarulum*)
- Bayberry (*Myrica pennsylvanica*)
- Beach Plum (*Prunus maritima*)
- Shore Juniper (*Juniperus conferta*)

Although they may not be currently available from commercial nurseries at this time, the following plant species are also well suited to the dune environment:

- Seaside Goldenrod (*Solidago sempervirens*)
- Beach Pea (*Lathyrus japonicus*)
- Sea Oats (*Uniola paniculata*)
- Bitter Panicgrass (*Panicum amarum*)
- Saltmeadow Cordgrass (*Spartina patens*).

All rules and regulations addressed in this document can be obtained by contacting LURP at 501 East State Street 2nd Floor P.O. Box 439 Trenton, NJ 08625, (609) 633-2289, or can be downloaded from LURP's website at: http://www.nj.gov/dep/landuse/njsa_njac.html.

2) Dune Walkovers

Coastal Permit Program Rule, N.J.A.C. 7:7-2.1(c) 5, states that a CAFRA permit is not required for the construction of a patio, deck or similar structure at a residential development, provided such construction does not result in the grading, excavation, or filling of a beach or dune. Rule N.J.A.C. 7:7-2.1(c) 5.iv states that the construction of timber dune walkover structures constructed in accordance with Department specifications found at N.J.A.C. 7:7E, Coastal Zone Management rules, shall be considered a "similar structure" at a residential development.

According to the Coastal Zone Management Rules at N.J.A.C. 7:7E -3.16 (b) 3, acceptable activity on a dune is, "Limited stairs, walkways, pathways, and boardwalks to permit access across dunes to beaches, in accordance with N.J.A.C. 7:7E-3A, provided they cause minimum feasible interference with the beach and dune system."

N.J.A.C. 7:7E-3A allows for two types of dune crossovers.

The first allows for the construction of an elevated timber dune walkover structure built in accordance with the standards and specifications (or similar specifications) described in Beach Dune Walkover Structures (Florida Sea Grant, 1981). A copy of the Florida Sea Grant is attached.

The second allows for the construction of an at-grade dune walkover at single family and duplex residential dwellings, subject to the following conditions:

1. Only one walkover per residential building is allowed;
2. The width of the walkover must not exceed four feet;
3. The walkover shall be fenced on both sides through the use of sand fencing;
4. The use of unrolled sand fencing, as a base for the walkover, is preferred to the use of planks and boards. Sand fence based walkovers allow for easier seasonal removal and placement, and allow for greater growth of beachgrass, while still providing an adequate base for pedestrian traffic; and
5. Solid boardwalk type walkovers shall be elevated at least one foot above the dune, to allow for movement of sand and vegetative growth under the boardwalk structure.

Any dune crossover structure that does not comply with the above rules, must receive a CAFRA permit from LURP prior to construction.

This document is a general summary and does not address all activities in detail. It must be understood that the property owner is responsible for ensuring that all activities will be conducted in accordance with the rules and regulations. Please contact our department for any activities that are not mentioned or if there are additional questions prior to performing any work.

It is the responsibility of the property owner to contact the municipality to determine if any municipal zoning permits or construction permits are necessary.

3) Easement Acquisition

As stated above, the Department has determined that it can provide additional funding up to five percent of the beach construction costs (to be detailed in the state aid agreement) for land acquisition and the construction of permanent restroom facilities in each municipality. These funds must be equally matched with municipal funding. This additional funding is only to meet Department requirements and its expenditure will require Department approval. The funding will not be approved for legal or engineering fees, surveying, other professional services, or sewer line extensions.

Additionally, the Department will provide equal shares of the USACE funding available as credits for land acquisition, currently valued at \$635,000, to each of the five participating municipalities.

4) Replenishment

As per project cooperation agreement (PCA) between the USACE and the State of New Jersey, the authorized project includes periodic nourishment at six year intervals for the 50-year economic life of the project. This is predicated on the available funds being appropriated by Congress and the State of New Jersey.

5) Assignability

The assignability of this project is exclusive to the items outlined in the storm damage reduction easement, the August 17th 2005 project cooperation agreement (PCA) with the USACE, and the State Aid Agreement between State of New Jersey and Borough of Harvey Cedars.

6) Perpetuity

The easement is a perpetual easement even though the project plan calls for a 50-year replenishment. The federal requirement for a perpetual land interest for this and all federally funded projects is standard to protect the project as a public investment.

In the approval process for federal funding, the USACE first determines whether or not there is federal interest in the project. One of the criteria for this determination is economic based. In order to complete an economic analysis for a project, a reasonable, finite time period is selected. In this case, due to the nature of the project, the time period selected was 50 years. However, once Congressionally authorized, a project is in motion until it is de-authorized. That period may last well beyond the 50-year economic analysis and project cycle length used to determine federal interest. There is no proposed actual end to the project itself, as the project requires Operation and Maintenance attention for as long as it remains authorized.

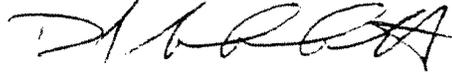
Once a project is determined to have a federal, state, and therefore public interest, the government requires that a suitable public interest in the project property be maintained to safeguard the project work and funds expended. Since the public at large is providing funding for a particular project, items constructed and covered by the project must contain a perpetual public interest. For cost-shared projects, that interest is obtained and is vested in the non-federal sponsor.

7) Temporary Construction

The easement language states that equipment and supplies may be temporarily stored, but does not define what can be stored. This construction typically includes staging and storing heavy construction equipment, construction materials, and dredge pipeline. It is not practical to list in the easement all types of equipment and supplies. Also, construction methods and materials may change over the life of the project.

Please call me at (609) 292-9236 if I can be of further assistance to you.

Sincerely,

A handwritten signature in black ink, appearing to read 'D. Rosenblatt', with a stylized flourish at the end.

David Rosenblatt
Administrator

C: Honorable Mayor Jonathan Oldham, Harvey Cedars
John Garofalo, Manager, BCE
Keith Watson, USACE Project Manager
Ben Keiser, Supervising Engineer, BCE
Bill Dixon, Supervising Environmental Specialist, BCE

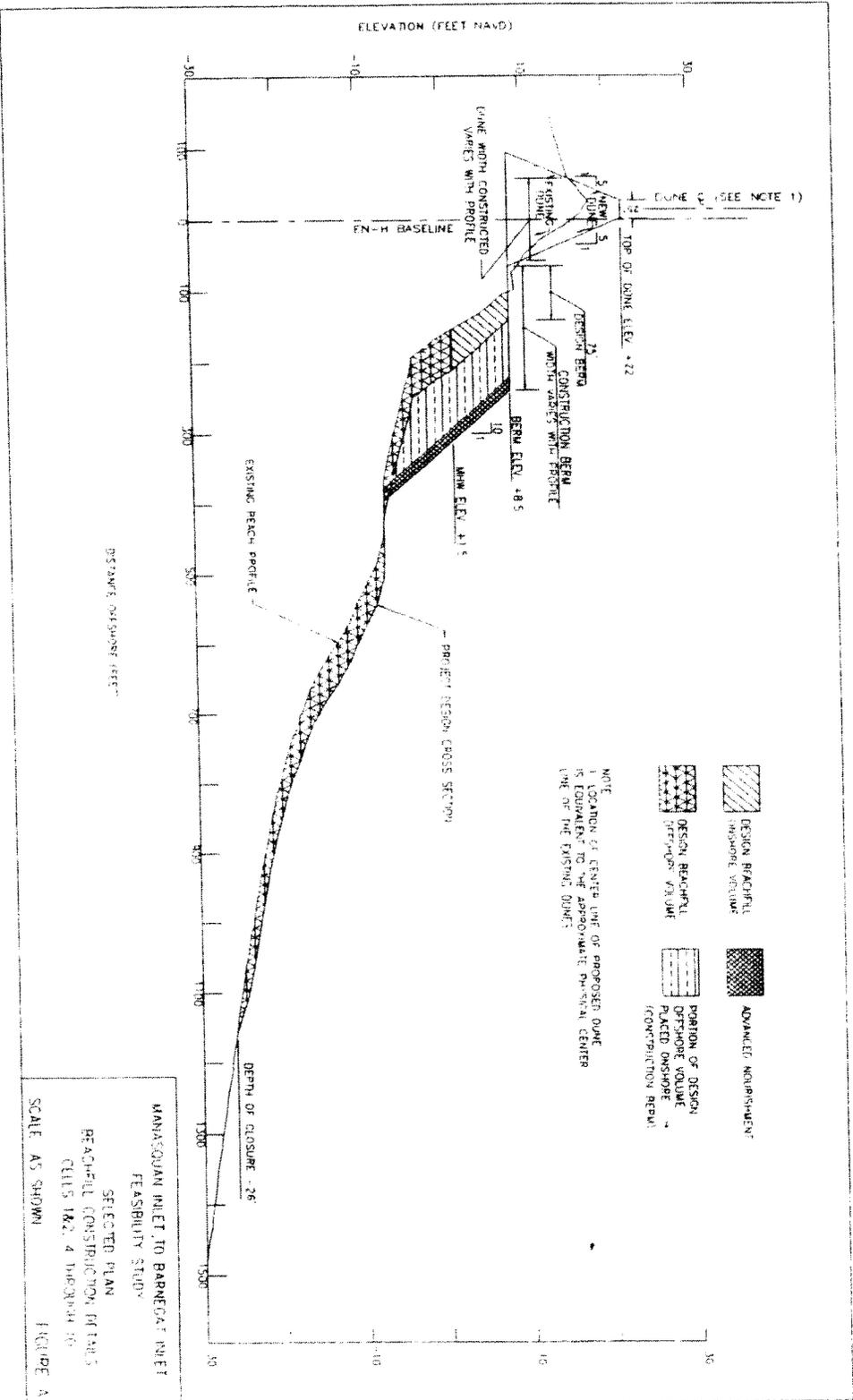
**New Jersey Shore Protection Study
Manasquan Inlet to Barnegat Inlet**

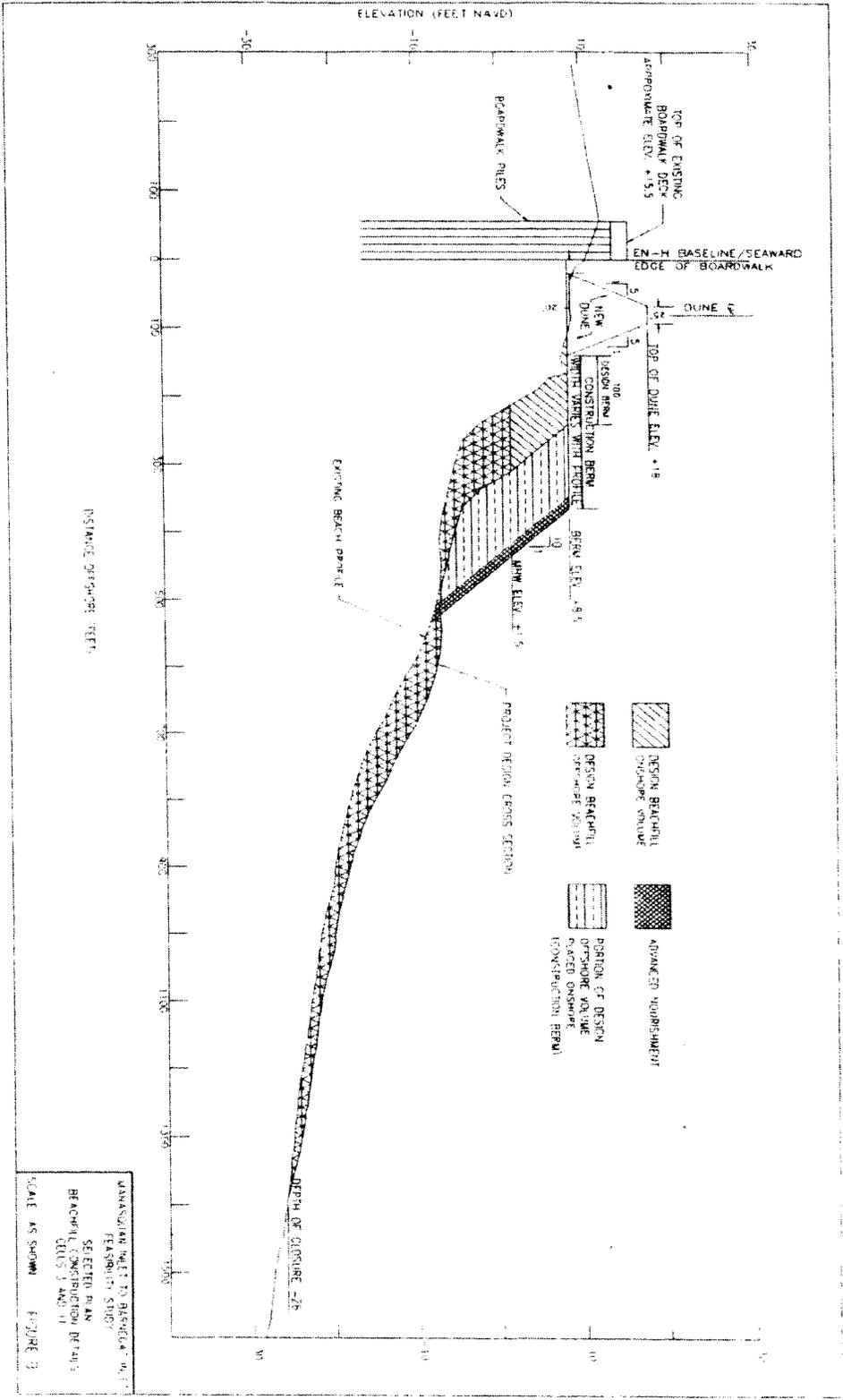
Final Feasibility Report and Integrated Environmental Impact Statement (EIS)

Description of the Selected Plan

Design Component ,	Dimension/Quantity	Remarks
Berm Elevation	+8.5 ft NAVD; +11.5 ft NAVD at northern Point Pleasant Beach	Same as average existing condition
Berm Width	75 ft; 100 ft at Seaside Heights and northern Point Pleasant Beach	Berm width measured from seaward base of dune to berm crest
Seaward Berm Slope	1:10	Same as average existing condition
Dune Elevation	+22 ft NAVD; +18 ft NAVD at Seaside Heights and northern Point Pleasant Beach	
Dune Width at Crest	25 ft	Standard Caldwell section
Dune Side Slopes	1:5	Standard Caldwell section
Dune Offset for Maintenance of Existing Structures	20 ft (as required)	Required dune offsets are reflected in selected plan layout
Length of Fill	13.7 miles	
Initial Sand Quantity	10,689,000 cu yds	Includes advanced nourishment with overfill
Periodic Nourishment Quantity	961,000 cu yds / 4 year cycle	Includes overfill
Major Replacement Quantity	1,788,000 cu yds	Includes periodic nourishment with overfill; same dune grass and sand fence quantities as initial fill
Taper Section	Tapers to existing within project reach at southern end; no taper at northern end	Manasquan Inlet south jetty functions as terminal structure at northern end
Borrow Source Location	Area A – approximately 2 miles offshore of Island Beach State Park; Area B – approximately 2 miles offshore of Mantoloking	Overfill factor of 1.5 for borrow material
Dune Grass	175 acres	18" spacing
Sand Fence	206,000 feet	Along base of dune and at crossovers
Outfall Extensions	None	
Pedestrian Dune Crossovers	247	Includes handicap access ramps
Vehicle Dune Crossovers	11	

Selected Plan – Typical Design Cross-Section with 22-ft NAVD Dune (All Communities except Seaside Heights and northern Point Pleasant Beach)





Selected Plan – Typical Design Cross-Section with 18-ft NAVD Dune (Seaside Heights and northern Point Pleasant Beach)



State of New Jersey

Department of Environmental Protection

Natural & Historic Resources
Office of Engineering & Construction

JON S. CORZINE
Governor

LISA P. JACKSON
Commissioner

May 5, 2006

Leonard T. Connors, Jr., Mayor
Borough of Surf City
813 Long Beach Boulevard
Surf City, NJ 08008

Re: Long Beach Island Storm Damage Reduction Project
Revised Easement

Honorable Mayor Connors:

I am providing you with the revised easement (enclosed) required for the Long Beach Island Beach Replenishment Project. We revised the easement based on information received from the US Army Corps of Engineers (USACE), the municipalities through municipal engineer Frank Little, and the public.

The signed easements must be returned to this office by June 15, 2006 for your municipality to be considered for phase one construction anticipated to begin September 2006. The state can not authorize the USACE to bid this project without all required easements from your municipality.

The major revisions and clarifications are summarized below.

- Clarified: The easement is specific to the Long Beach Island Storm Damage Reduction Project as defined in the August 17, 2005 Project Cooperation Agreement, enclosed. No other construction can be performed.
- Clarified: After initial construction the beach and dune are subject to the forces of nature and will continue to erode and accrete.
- Revised: Removed the one dollar consideration in favor of the benefits received from the project.
- Clarified: The easement language states that equipment and supplies may be temporarily stored, but does not define what can be stored. This construction typically includes staging

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Trenton, NJ 08625
Tel. 609-292-9236 - Fax 609-984-1908

and storing heavy construction equipment, construction materials, and dredge pipeline. It is not practical to list in the easement all types of equipment and supplies. Also, construction methods and materials may change over the life of the project.

- Clarified: The easement reserves the right to construct a private dune walkover in accordance with any applicable laws or regulations.
- Revised: The easement can be released if the project is not constructed. The time frame referenced was provided by the USACE and represents the worst case scenario for when all initial construction can be done for the entire island due to budget constraints.
- Revised: The easement does not impact or reduce land area for local zoning square footage calculations.
- Revised: The wording indicating that the Grantor participated in the drafting of the easement has been removed.

Unchanged: The easement remains a perpetual easement even though the project plan calls for a 50-year replenishment. There is more than one issue involved in the requirement for a perpetual land interest for this and any other federally funded project. Before any project is approved for federal funding, the USACE must determine whether or not there is a federal interest in the project.

Part of the criteria for the determination of federal interest is economic. In order to complete an economic analysis for a project, a reasonable, finite time period is selected. In this case, due to the nature of the project, the time period selected was 50 years. However, once Congressionally authorized, a project is in motion until it is de-authorized. That period may last well beyond the 50-year economic analysis and project cycle length used to determine federal interest. There is no proposed actual end to the project itself, as the project requires Operation and Maintenance attention for as long as it remains authorized.

Once a project is determined to have a federal, state, and therefore public, interest, the government requires that a suitable public interest in the project property be maintained to safeguard the project work and funds expended. Since the public at large is providing funding for a particular project, items constructed and covered by the project must contain a perpetual public interest. For cost-shared projects, that interest is obtained and is vested in the non-federal sponsor.

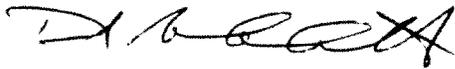
The municipality's cost incurred to implement this new easement will be credited toward the municipality's share of the project's initial construction cost. The municipality's share of the project is 8.75 percent of the total project cost. When the project is bid, this office will advise the municipality of its share based on the bid results.

As we agreed in our conference call on May 5, 2006, you will provide a cover letter to the property owners to accompany this easement. The letters will provide language informing the property owners that under the federal 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 C.F.R. Part 24, the Grantor (property owner) of the

easement has various rights, including a right to receive just compensation for the property. However, the Grantor by signing the easement is donating the property in accordance with the terms of the Deed of Easement. Also, a statement in the letter of your support for the project and its benefits to the property owners and municipality would be appropriate and may facilitate the process of obtaining signed easements.

This office is willing to meet with property owners as a group or individually to assist your efforts. Please call me at (609) 292-9236 if there is anything more I can do to assist you. Thank you for your patience.

Sincerely,



David Rosenblatt
Administrator

Enclosures

C: Rep. James Saxton, US Congress
Keith Watson, USACE Project Manager
Frank Little, Municipal Engineer
John Garofalo, Manager, BCE



**US Army Corps
of Engineers.**
Philadelphia District

PROJECT FACTSHEET

**New Jersey Shore Protection,
Manasquan Inlet to Barnegat Inlet, NJ**

February 2012

CONGRESSIONAL DISTRICTS: Reps. Runyan (NJ-3), Smith (NJ-4)

APPROPRIATION / PHASE:
Construction, General

BUSINESS PROGRAM:
Flood and Coastal Storm Damage Reduction

AUTHORITY: Section 1001 (32) of the Water Resources Development Act of 2007.

LOCATION: The study area is located on the Atlantic coast of Ocean County, New Jersey, extending approximately 14 miles from Point Pleasant Beach to Island Beach State Park, a barrier island wildlife area.

DESCRIPTION: The study investigated flood and coastal storm damage effects with a view toward reducing impacts from coastal erosion and storms. The recommended plan calls for construction of a beachfill with a berm and dune along the study area oceanfront utilizing sand from an offshore borrow source and periodic nourishment for a period of 50 years. Initial fill requirements would be about 10 million cubic yards, with periodic nourishment at 4-year intervals with about 1 million cubic yards placed.

STATUS: The Chief of Engineers Report was completed in December 2003. This project was authorized in the 2007 Water Resources Development Act. No funding was received in FY 11 to initiate initial construction. The initiation of initial construction is dependent on the establishment of an adequate funding stream. The next steps toward initial construction once adequate funding is received is to initiate and complete the Limited Reevaluation Report; develop, approve and execute the Project Partnership Agreement; acquire the necessary real estate; complete plans and specifications; and advertise and award the construction contract.

TIMELINE	Start	Complete	Comments
Initial Construction	TBD	TBD	Dependent on Adequate funding.

FINANCIAL DATA (\$000)	Fed	Non-Fed	Total
PED	750	250	1,000
Construction	52,945	28,508	81,453

BUDGET DATA (\$000)	Comments
FY 08	0
FY 09	0
FY 10	0
FY 11	0
FY 12	0

SPONSOR: New Jersey Department of Environmental Protection

PROJECT MANAGER: Keith Watson
(215) 656-6287
keith.d.watson@usace.army.mil

Prepared by:

**DEED OF DEDICATION AND PERPETUAL STORM
DAMAGE REDUCTION EASEMENT**

THIS DEED OF DEDICATION AND PERPETUAL STORM DAMAGE REDUCTION EASEMENT is made this _____ day of _____ 2013 BY AND

BETWEEN

THE BOROUGH OF LAVALLETTE, a Municipal Corporation of the State of New Jersey whose address is Municipal Clerk, 1306 Grand Central Avenue, Lavallette, NJ 08735, referred to herein as **Grantor**,

AND

THE BOROUGH OF LAVALLETTE, a Municipal Corporation of the State of New Jersey whose address is Municipal Clerk, 1306 Grand Central Avenue, Lavallette, NJ 08735 AND **THE STATE OF NEW JERSEY** referred to herein collectively as the **Grantees**,

WITNESSETH

WHEREAS, Grantor is the owner of that certain tract of land, located in the Borough of Lavallette, County of Ocean, State of New Jersey, and identified as **Block 72, Lot 1 and Block 952.04, Lot 22** on the official tax map of the Borough of Lavallette, hereinafter the "Property," and Grantor holds the requisite interest to grant this Deed of Easement; and

WHEREAS, the Grantees recognize that the beach at Lavallette, New Jersey is subject to constant erosion and degradation, thereby destroying a valuable natural resource and threatening the safety and property of the Grantor and of all of the citizens of the State; and,

WHEREAS, the Grantees desire to participate with each other and/or the United States Army Corps of Engineers to construct the Manasquan Inlet to Barnegat Inlet Storm Damage Reduction Project, as defined in the December 30, 2003 Chief's Report issued by the Department of the Army, hereinafter "Project"; and,

WHEREAS, in order to accomplish part of the Project, Grantees need a Perpetual Storm Damage Reduction Easement on portions of said Property herein described; and,

WHEREAS, the United States Army Corps of Engineers will not participate in the Project unless the Grantees acquire the real property interest herein described in all real property needed for the Project; and,

WHEREAS, the Borough of Lavallette shall consider this Deed of Easement in establishing the full assessed value of any lands subject to such restrictions; and,

WHEREAS, the Grantor desires to cooperate in allowing the Project to take place on a portion of said Property; and,

WHEREAS, the Grantor acknowledges that it will benefit from the successful implementation of the Project; and,

WHEREAS, the Grantor acknowledges that after successful implementation of the Project the beach and dune are still subject to the forces of nature which can result in both erosion and accretion of the beach and dune; and,

WHEREAS, this Deed of Easement will also serve to implement the Public Trust Doctrine and ensure permanent public access, use and enjoyment of the beach and ocean.

NOW, THEREFORE, in consideration for the benefits to be received by the Grantor from the successful implementation of the Project, the Grantor grants and conveys to Grantees an irrevocable, assignable, perpetual and permanent easement as set forth herein:

GRANT OF EASEMENT: A perpetual and assignable easement and right-of-way for the Manasquan Inlet to Barnegat Inlet Storm Damage Reduction Project in, on, over and across that land of the Property described as **Block 72, Lot 1 and Block 952.04, Lot 22** as shown on the Borough of Lavallette official tax maps for the Blocks and Lots listed above for use by the State of New Jersey and the Borough of Lavallette, their representatives, agents, contractors and assigns to:

- a. Construct, preserve, patrol, operate, maintain, repair, rehabilitate, and replace a public beach, dune system, and other erosion control and storm damage reduction measures together with appurtenances thereto, including the right to deposit sand, to accomplish any alterations of the contours on said land, to construct berms and dunes, and to nourish and re-nourish periodically;
- b. Move, temporarily store and remove equipment and supplies;
- c. Erect and remove temporary structures;
- d. Perform any other work necessary and incident to the construction, periodic renourishment, and maintenance of the Manasquan Inlet to Barnegat Inlet Storm Damage Reduction Project together with the right of public use and access;
- e. Post signs, plant vegetation on said dunes and berms;
- f. Erect, maintain, and remove silt screens and snow fences;
- g. Facilitate preservation of dune and vegetation through the limitation of public access to dune areas;
- h. Trim, cut, fell, and remove from said land all trees, underbrush, debris, obstructions, and any other vegetation, structures, and obstacles within the limits of the easement;
- i. Implement the Public Trust Doctrine and ensure permanent public access, use and enjoyment of the beach and ocean.

The easement reserves to the Grantor, the Grantor's heirs, successors and assigns the right to construct a private dune overwalk structure in accordance with any applicable Federal, State, or local laws or regulations, provided that such structure shall not violate the integrity of the dune in shape, dimension, or function. Prior approval of the plans and specifications for such structures must be obtained from the Borough of Lavallette and the State of New Jersey. Such structures are to be considered subordinate to the construction, operation, maintenance, repair, rehabilitation, and replacement of the project. The easement reserves to the Grantor, the Grantor's heirs, successors, and assigns all such rights and privileges as may be used and enjoyed without interfering with or abridging the rights and easements hereby conveyed to the Grantees, subject however to existing easements for utilities and pipelines, existing public highways, existing paved public roads and existing public streets. Grantor hereby expressly agrees not to grade or excavate within the easement area or to place therein any structure or material other than a dune walkover as referenced above without prior approval of the plans and specifications for said activities from the Borough of Lavallette, the State of New Jersey and/or any applicable Federal agency, as required.

Duration of Easement: The easement granted hereby shall be in perpetuity, and in the event that the Borough of Lavallette or the State of New Jersey shall become merged with any other geo-political entity or entities, the easement granted hereby shall run in favor of surviving entities. The covenants, terms, conditions and restrictions of this Deed of Easement shall be binding upon, and inure to the benefit of the parties hereto and their respective personal representatives, heirs, successors and assigns and shall continue as a servitude running in perpetuity with the land.

If construction of the Project has not begun on said Property by September 30, 2025, then the Grantees, upon written request of the Grantor, shall release this easement of record at the Grantees' sole cost and expense, consistent with all applicable laws in effect at the time the release is requested.

Municipality to Maintain Beach: The Municipality agrees, consistent with all Federal, State and local statutes and regulations, that at all times it shall use its best, good-faith efforts to cause the beach area abutting Grantor's lands to be maintained, consistent with any applicable Federal, State or local laws or regulations, notwithstanding any action or inaction of the State of New Jersey, Department of Environmental Protection or the United States Army Corps of Engineers to maintain the beach area.

Character of Property: Notwithstanding the foregoing, nothing herein is intended or shall be deemed to change the overall character of the Property as private property; nothing herein shall be deemed to grant to the Grantees or otherwise permit the Grantees or any other person to cross over or use any part of the Property which is not within the Easement Area; nothing herein is intended or shall be deemed to alter the boundary lines or setback lines of the Property.

By the acceptance of this Deed of Easement, the Municipality agrees, to the extent allowed by applicable law, that the Lands burdened by the easement herein described shall not be excluded from the calculation of minimum square footage requirements when construing applications under the Zoning Ordinance of the Municipality.

Miscellaneous:

1. The enforcement of the terms of this Easement shall be at the discretion of the Grantees and any forbearance by Grantees to exercise their rights under this Easement in the event of any violation by Grantor shall not be deemed or construed to be a waiver by Grantees of such term or of any subsequent violation or of any of Grantees' rights under this Easement. No delay or omission by Grantees in the exercise of any right or remedy upon any violation by Grantor shall impair such rights or remedies or be construed as a waiver of such rights or remedies.

2. The interpretation and performance of this Deed of Easement shall be governed by the laws of the State of New Jersey.

3. If any provision of this Deed of Easement or the application thereof to any person or circumstance is found to be invalid, the remainder of the provisions of this Easement or the application of such provision to persons or circumstances other than those to which it is found to be invalid, as the case may be, shall not be affected thereby.

4. Any notice, demand, request, consent, approval or communication under this Deed of Easement shall be sent by regular first class mail, postage prepaid and by Certified Mail, Return Receipt Requested, addressed to the mailing addresses set forth above or any other address of which the relocating party shall notify the other, in writing.

5. The captions in this Deed of Easement have been inserted solely for convenience of reference and are not a part of this instrument and shall have no effect upon its construction or interpretation.

IN WITNESS WHEREOF, with the parties understanding and agreeing to the above, they do hereby place their signatures on the date at the top of the first page.

Accepted by the
BOROUGH OF LAVALLETTE, GRANTOR

Witnessed by:

BY: _____
Walter LaCicero, Mayor

NOTARY PUBLIC OF THE
STATE OF NEW JERSEY

Date _____

Accepted by the
BOROUGH OF LAVALLETTE, GRANTEE

Witnessed by:

BY: _____
Walter LaCicero, Mayor

NOTARY PUBLIC OF THE
STATE OF NEW JERSEY

Date _____

Accepted by the
STATE OF NEW JERSEY, GRANTEE

Witnessed by:

BY: _____
Dave Rosenblatt
Administrator
Office of Engineering & Construction

NOTARY PUBLIC OF THE
STATE OF NEW JERSEY

Date _____

STATE OF NEW JERSEY, COUNTY OF _____ SS.:

I CERTIFY that on _____ 2013,

personally came before me and this person acknowledged under oath, to my satisfaction that this person (or if more than one, each person);

- 1) is named in and personally signed this Deed of Easement;
- 2) signed, sealed and delivered this Deed of Easement as his or her act and deed;
- 3) holds the requisite ownership interest and authority to execute this Deed of Easement; and
- 4) made this Deed of Easement for the full and actual consideration as set forth herein.

NOTARY PUBLIC OF THE
STATE OF NEW JERSEY