

APPENDIX Q

404(b)(1)

SECTION 404(b)(1) GUIDELINES EVALUATION

Introduction

This appendix of the Atlantic Coast of New York, Fire Island Inlet to Montauk Point Combined Beach Erosion Control and Hurricane Protection Project (FIMP) (hereafter referred to as “Project”) presents a Section 404(b)(1) Guideline evaluation for the comprehensive evaluation of improvements to the project area. The evaluation is based on the regulations found at 40 CFR 230, Section 404(b)(1): Guidelines for Specification of Disposal Sites for Dredged or Fill Material. The regulations implement Sections 404(b) and 501(a) of the Clean Water Act, which govern the disposal of dredged and fill material inside the territorial sea baseline (§230.2(b)).

Generic 404 (b)(1) Evaluation

The following Section 404(b)(1) evaluation is presented in a format consistent with typical evaluations in the New York area and addresses all required elements of the evaluation.

(1) *Project Description*

- a) Location: The Study Area extends from Fire Island Inlet east to Montauk Point along the Atlantic Coast of Suffolk County, Long Island, New York. The majority of Fire Island lies within the legislative boundaries of the Fire Island National Seashore. The Study Area includes the barrier island chain from Fire Island Inlet to Southampton inclusive of the Atlantic Ocean shorelines, and adjacent back-bay areas along Great South, Moriches, and Shinnecock Bays. The Study Area continues to the east including the Atlantic Ocean shoreline along the mainland of Long Island extending from Southampton to Montauk Point. This area includes the entire Atlantic Coast of Suffolk County covering a shoreline length of approximately 83 miles.

The EIS Study Area extends from Fire Island Inlet east to Montauk Point along the Atlantic Coast of Suffolk County, Long Island, New York. The majority of Fire Island lies within the legislative boundaries of the Fire Island National Seashore (FIIS). The Study Area includes the barrier island chain from Fire Island Inlet to Southampton inclusive of the Atlantic Ocean shorelines, and adjacent back-bay areas along Great South, Moriches, and Shinnecock Bays. The Study Area continues to the east including the Atlantic Ocean shoreline along the mainland of Long Island extending from Southampton to Montauk Point. This area includes the entire Atlantic Coast of Suffolk County covering a shoreline length of approximately 83 miles. The Study Area also includes over 200 additional miles of shoreline within the estuary system. The Study Area includes areas on the mainland that are vulnerable to flooding, which generally extend as far landward as Montauk Highway, for an approximate area of 126 square miles.

- b) General Description: The Study Area represents a complex mosaic of ocean fronting shorelines, barrier islands, tidal inlets, estuaries, and back bay mainland area (see Section 1.6

for a general discussion of the ecosystems and habitats). The Study Area functions as an interconnected system driven by large scale processes with respect to hydrodynamic and sediment exchange, supporting diverse biological and natural resources. Within the Study Area, ocean shoreline sand generally moves east to west alongshore, in response to waves, and currents during normal conditions and during storms. This alongshore movement of sand maintains the prevailing shoreline conditions. In addition to alongshore movement, sediment is also exchanged in the cross-shore direction, through erosion and accretion of the beach and dune, exchange of sand through tidal inlets, and during large storm events through the episodic transport of sand over the island through overwash or breaching. Over the years, the Study Area has become increasingly developed with extensive development on portions of the barrier island and in the mainland floodplain. As development has increased over the past 75 years, activities have been undertaken to provide for and protect infrastructure in the area, and to improve navigation in the area. These past activities have included inlet stabilization, construction of jetties and groins, seawalls, and revetments, beachfill, beach scraping, breach closures, channel dredging in the inlets and bays, bayside bulkheading, and ditching of wetlands for mosquito control.

These activities have been undertaken to address localized problems, and often have been implemented without consideration of regional effects. Collectively, these activities have dramatically altered the existing natural coastal processes. As a result, the area is not functioning as a natural, sustainable system. This leaves over 15,000 structures at risk to major damages from coastal storms such as hurricanes and nor'easters. This risk will continue to grow with continued development, continued erosion, and sea level rise.

The Study Area also includes portions of the Towns of Babylon, Islip, Brookhaven, Southampton and Easthampton, as well as 12 incorporated Villages, the entirety of FIIS, the Poospatuck Indian Reservation, and the Shinnecock Indian Reservation as well as the critical coastal habitat and environmentally sensitive areas, such as the Fire Island National Seashore. The Study Area contains over 46,000 buildings, including 42,600 homes and more than 3,000 businesses. There are 60 schools, 2 hospitals, and 21 firehouses and police stations in the Study Area. Of the buildings within the Study Area, more than 9,000 fall within the modeled 100-year floodplain (storm with a 1 percent probability of occurring in any given year, based upon current modeling). It is estimated that over 150,000 people reside in the coastal 100-year floodplain of the South Shore of Suffolk County, which represents 10 percent of the population of Suffolk County (USCB 2010). The Study Area is also a popular summer recreation area. In addition to the residential population, there is a large seasonal influx of tourists who recreate in this area, and businesses which support the year round and seasonal population of the area.

Commercial, residential, public and other infrastructure in the Study Area are subject to economic losses (or damages) during severe storms. The principal problems are associated with extreme water levels and waves that can cause extensive flooding and erosion both within barrier island and mainland communities. Breaching and/or inundation of the barrier islands also can lead to increased flood damages, especially along the mainland communities bordering Shinnecock, Moriches and Great South Bays.

The current study is called a Reformulation, because it seeks to reexamine the Project that was originally formulated in the 1950's. This Reformulation came about in part due to a referral to the Council on Environmental Quality in response to a 1978 EIS that was prepared for the project subsequent to passage of NEPA in 1969. As a result of the referral, USACE agreed to reformulate the Project with particular emphasis on identifying and evaluating alternatives that considers cumulative impacts on the overall coastal system. The goal of the Reformulation Study is to identify an economically viable, environmentally acceptable plan that addresses the storm damage reduction needs of the Study Area and is acceptable to the key federal, state, and local stakeholders (USACE 2016). Included within the study area is the Fire Island National Seashore (FIIS). The authorizing law for FIIS specifies that any plan for coastal storm risk management with the boundary of FIIS be mutually agreeable with the Secretary of the Interior and Secretary of the Army.

In support of this EIS, the New York District, in cooperation with Federal, State and local agencies, has been conducting Reformulation Study to evaluate several storm damage reduction plans for the Study Area ("Reformulation Study") (USACE 2009a). The Reformulation Study focuses on identifying a long-term solution to reduce the risk of coastal storm damages in the Project Area in a manner which considers the risks to human life and property, while maintaining, enhancing, and restoring ecosystem integrity and coastal biodiversity.

Following Hurricane Sandy on October 29-30, 2012, the New York District has continued to work collaboratively to refine the proposed action that was identified in the 2009 USACE Study to address the agency missions and respond to lessons learned during Hurricane Sandy.

Participating agencies have coordinated their response to storm impacts and the breaches that occurred, to implement the stabilization efforts, and to advance the overall Reformulation Study. Through that process, the New York District and the cooperating agencies have collectively recognized that adjustments to the proposed action that were being formulated were necessary. The New York District has prepared an updated 2016 Reformulation Study (USACE 2016) to document the post-Sandy proposed action for this EIS. As discussed in Chapter 2, the proposed action for this EIS, as well as the reasonable alternatives, were developed in part, through the efforts associated with the 2009 USACE Study and the post-Hurricane Sandy efforts documented in the updated 2016 Reformulation Study.

Within the study area, sediment along the ocean shoreline has a net east to west alongshore movement, in response to waves and currents during normal conditions and during storms. This alongshore movement of sand shapes the prevailing shoreline conditions. In addition to alongshore movement, sediment is also exchanged in the cross-shore direction, through erosion and accretion of the beach and dune, exchange of sand through tidal inlets, and during large storm events (storms generally greater than a 2% annual chance of exceedance) through the episodic transport of sand over the island through overwash or breaching.

Given the complex system and the large number of stakeholders, a collaborative planning approach has been utilized to involve the key stakeholders and the public. An Interagency

Reformulation Group (IRG) was established that provided executive level leadership for the study from the key federal and State agencies. The IRG developed a vision statement that identified the broad objectives for the study. The IRG also established various Technical Management Groups that included agency members, as well as non-governmental organizations and academia.

On October 29, 2012, Hurricane Sandy made landfall near Atlantic City, NJ, where it collided with a blast of arctic air from the north, creating conditions for an extraordinary historic ‘super storm’ along the East Coast with the worst coastal impacts centered on the northern New Jersey, New York City, and the Long Island coastline. Hurricane Sandy’s unusual track and extraordinary size generated record storms surges and offshore wave heights in the New York Bight. The maximum water level at The Battery, NY peaked at +12.4 feet NGVD, exceeding the previous record by over 4 feet. Coastal erosion and damages within the FIMP study area as a result of Hurricane Sandy were severe and substantial. For example, post-Sandy measurements of volume loss of the beach and dunes on Fire Island indicated that the subaerial beach lost 55 percent of its pre-storm volume equating to a loss of 4.5 million cubic yards. A majority of the dunes either were flattened or experienced severe erosion and scarping. As a result of Sandy, further refinements were made to the TFSP, in order to arrive at the Tentatively Selected Plan (TSP), (GRR Chapter 5, Plan Formulation).

The GRR and EIS will serve as a decision document for implementation of the reformulated FIMP project, in accordance with the Disaster Relief Appropriations Act of 2013 (P.L. 113-2). As an “authorized, but unconstructed” project, the reformulated FIMP project is eligible for funding under PL 113-2 for initial construction at full federal expense.

- c) Authority and Purpose: The problems along the shorefront include storm damages due to erosion, wave attack, and flooding. Along the barrier island there is also the threat of barrier island overwash and breaching. Along the back bay, there is the threat of flooding during no-breach conditions. Flooding becomes worse when there is a breach of the barrier island, which allows for more storm water from the ocean. These problems have occurred repeatedly in the past, resulting in damages to the existing environment.

The Fire Island Inlet to Montauk Point, New York, Combined Beach Erosion Control and Hurricane Protection Project was authorized by the River and Harbor Act of 14 July 1960, and subsequently modified in accordance with Section 103 of the River and Harbor Act of 12 October 1962. The project authorization was modified again by Section 31 of the Water Resources Development Act (WRDA) of 1974. The authorization was further modified by section 502 of the WRDA of 1986 (P.L. 99-662). For portions of Fire Island to Montauk Point, other than the portion from Moriches Inlet to Shinnecock Inlet, Section 103 of the WRDA of 1986 (P.L. 99-662) defined the cost sharing of the first cost to be 65 percent Federal. In addition, Section 156 of the WRDA of 1976, as modified by Section 934 of the WRDA 1986, modifies the existing authorization to provide for continued renourishment not to exceed 50 years from initiation of construction of each of these reaches. The WRDA of

1992 further modified the project to extend the period of periodic nourishment to 30 years from the date of project completion for Moriches to Shinnecock Inlet, with the non-Federal share not to exceed 35 percent of the total project cost. The WRDA of 1999 further modified the project authorization, requiring the Corps to submit to Congress a mutually acceptable plan for the Fire Island Inlet to Moriches Inlet Reach (USACE 2009a).). The authorizing law for FIIS specified that any plan for shore protection with the boundary of FIIS be mutually agreeable with the Secretary of the Interior and Secretary of the Army.

The New York District is currently leading the planning effort for the proposed action in this EIS, with the National Park Service (NPS)-FIIS and the U.S. Fish and Wildlife Service (USFWS) as the responsible cooperating agencies and New York State, represented by the New York State Department of Environmental Conservation (NYSDEC), as the local sponsor. As such, each of these agencies has a purpose and need for action, as discussed below

- d. General Description of Placement Material: Sand that is compatible to the existing beach that will be pumped in from offshore borrow area.
- e. Proposed Discharge Site: The Study Area includes the barrier island chain from Fire Island Inlet to Southampton inclusive of the Atlantic Ocean shorelines, and adjacent back-bay areas along Great South, Moriches, and Shinnecock Bays. The Study Area continues to the east including the Atlantic Ocean shoreline along the mainland of Long Island extending from Southampton to Montauk Point. This area includes the entire Atlantic Coast of Suffolk County covering a shoreline length of approximately 83 miles. The Study Area also includes over 200 additional miles of shoreline within the estuary system. The Study Area includes areas on the mainland that are vulnerable to flooding, which generally extend as far landward as Montauk Highway, for an approximate area of 126 square miles.
- f. Disposal Method: Use of hydraulic dredging equipment for the initial construction and renourishment efforts.

Factual Determinations

- a. Physical Substrate Determinations

Inlet Modifications

- Provides for sufficient sand bypassing across the three (3) inlets to ensure the natural longshore transport along the barrier islands.
- Continues the scheduled O&M dredging of the navigation channels at Fire Island, Moriches and Shinnecock Inlets, along with additional dredging of 73,000 to 379,000 cy from the ebb shoals of each inlet, outside of navigation channel, to obtain the required volume of sand needed for the by-passing.
- Bypassed sand is used to construct and maintain a +13 ft. NGVD dune and 90 ft. berm width in identified placement areas
- Provides for monitoring to facilitate adaptive management changes in the future.

Mainland and Nonstructural

- Addresses approximately 4,400 structures within 10 year flood plain using nonstructural measures, primarily through building retrofits, with limited relocations and buy-outs, based upon structure type and condition.
- Includes road raising in four locations, totaling 5.91 miles in length, which will reduce flooding to 1,020 houses.

Barrier Islands

- Breach Response
 - Proactive Breach Response is a plan where action is triggered when the breach and dune are lowered below a 25 year design level of risk reduction, and provides for restoration to the design condition (+13 ft. NGVD dune and 90 ft. berm). This plan is included on Fire Island in vicinity of the FIIS Lighthouse Tract, and in Smith Point County Park (to supplement when needed the sand bypassing), and Smith Point County Park West and also along the barrier island fronting Shinnecock Bay.
 - Reactive Breach Response - is a plan where action is triggered when a breach has occurred, e.g. the condition where there is an exchange of ocean and bay water during normal tidal conditions. It will be utilized as needed when a breach occurs.
 - Conditional Breach Response – is a plan that applies to the large, federally-owned tracts within Fire Island National Seashore, where the breach response team determines whether a breach should be closed. Conditional Breach closure provides for a 90 ft wide berm at elevation 9.5 ft. NGVD only.
- Beach and Dune Fill
 - Provides for a continuous 90 ft. width berm and +15 ft. NGVD dune along the developed shorefront areas fronting Great South Bay and Moriches Bay on Fire Island and Westhampton barrier islands.
 - On Fire Island the alignment follows the post-Sandy optimized alignment that includes overfill in the developed locations and minimizes tapers into Federal tracts.
 - Periodic Renourishment would take place about every 4 years for a 30 year period after initial construction. For years 31 through 50, there would be Proactive Breach Response in those reaches, which continues to provide some storm risk management, albeit less than what was provided by the periodic renourishment.

Sediment Management at Downtown Montauk (Montauk Beach) and Potato Road

- Provides for placing about 120,000 CY on front face of existing berm at each location approximately every 4 years as advance fill to offset erosion.
- The Potato Road feeder beach is contingent upon implementation of a local pond opening management plan for Georgica Pond.

Groin Modifications

- Shorten existing Westhampton groins (1-13) between 70 — 100 ft. to achieve coastal processes restoration after relocation of Ocean Beach water supply wells. Final modifications will be determined during PED.
- Modify the existing Ocean Beach groins (shorten and lower) after relocation of Ocean Beach water supply wells. Final modifications will be determined during PED.

Coastal Process Features

- Project Features that contribute to coastal storm risk management through the reestablishment of the coastal processes are included at six locations as follow:
 - Sunken Forest – Reestablishes coastal protective features by reestablishing the natural conditions of dune, upper beach and bay shoreline by removing bulkhead adjacent to marina and existing boardwalk, regrading and stabilizing disturbed areas using bioengineering and shoreline.
 - Reagan Property – Reestablishes coastal protective features by improving natural conditions of dune, upper beach and shoreline by burying bulkhead, regrading and stabilizing disturbed areas using bioengineering, and creating intertidal areas.
 - Great Gunn – Reestablishes salt marsh features by reestablishing hydrologic connections and disturbances.
 - Tiana – Reestablishes the bay shoreline natural protective features by reestablishing the dune, salt marsh, and enhancing the SAV beds.
 - WOSI – Reestablishes the bay shoreline natural protective features by reestablishing the existing salt marsh.
 - Corneille Estates – Reestablishes bay shoreline natural storm risk management features including bayside beach habitat.

Adaptive Management

- Will provide for monitoring for project success, relative to the original objectives and the ability to adjust specific project features to improve effectiveness.
- Climate change will be accounted for with the monitoring of climate change parameters, identification of the effect of climate change on the project design, and identification of adaptation measures that are necessary to accommodate climate changes as it relates to all the project elements.

Integration of Local and Land Use Regulations and Management

- Local land management regulations to include enforcement of federal and state zoning requirements, as a necessary complementary feature for long-term risk reduction.

- (2) **Sediment Type**: Sediments similar to those present in the placement area will be utilized. No impacts are anticipated.
- (3) **Dredged Material Movement**: Minor short-term movement and existing shore processes will continue.
- (4) **Physical Effects on Benthos**: Minor short-term disruption. No long-term impact.
- (5) **Other Effects**: None identified
- (6) **Action to Minimize Impacts**: See EIS section (4.0)

b. Water Circulation, Fluctuations, and Salinity Determinations

(1) Water

- (a) **Salinity**: Proposed project is not expected to affect salinity because beach fill does not govern the overall water mass movements (tidal flow and river discharge) that control salinity.
 - (b) **Water Chemistry**: No major impacts are expected.
 - (c) **Clarity**: Temporary increase in turbidity will occur from sediment resuspension during placement of the material.
 - (d) **Color**: Minor temporary changes possible but no major impacts are expected.
 - (e) **Odor**: No measurable impacts are expected.
 - (f) **Taste**: Not applicable
 - (g) **Dissolved Gas Levels**: Possible short-term variation may occur due to turbulence created by placement of the material on the beach.
 - (h) **Nutrients**: Temporary and localized nutrient increases may occur due to sediment resuspension during beach fill activities. No long-term increase in nutrients and eutrophication will result from the proposed project.
 - (i) **Eutrophication**: None identified
 - (j) **Other**: None identified
- (2) **Current Patterns and Circulation**: No impacts identified
 - (3) **Normal Water Level Fluctuations**: No impacts identified
 - (4) **Salinity Gradients**: No impacts expected
 - (5) **Actions to Minimize Impacts**: Not applicable

- c. Suspended Particulate/Turbidity Determination
 - (1) Change at Disposal Site: Short-term, localized increases in suspended particulates/turbidity as a result of placement of material, but no long-term changes.
 - (2) Effects on Chemical and Physical Properties of the Water Column: Impact should be minimal since particles will settle out fairly rapidly and no toxic metals or organic compounds are anticipated to be encountered.
 - (3) Effects on Biota: Short-term exposure due to localized sediment resuspension during placement of material. No long-term effects are projected.
 - (4) Action to Minimize Impacts: Placement of material will be completed as early as possible to allow for optimum recruitment of benthic organism within the placement area.
- d. Contaminant Determination: No impacts identified.
- e. Aquatic Ecosystems and Organisms Determination: Possible effects to the gills of nekton species that are in the immediate area of placement. No major impacts are expected.
- f. Proposed Disposal Site Determination: Not applicable.
- g. Determination of Cumulative Effects on the Aquatic Ecosystem: See section (4.0).
- h. Determination of Secondary Effects on the Aquatic Ecosystem: None identified.

Findings of Compliance or Noncompliance

- a. There are no practicable alternatives for the proposed action under the jurisdiction of Section 404(b)(1) Guidelines.
- b. The proposed action does not appear to violate applicable state water quality standards or effluent standards.
- c. The proposal will not have significant adverse impacts on endangered species or their critical habitats. Formal coordination with the USFWS under section 7 of the Endangered Species Act of 1973 is ongoing to insure the safety of any transient species that may be present during construction. Informal consultation with NMFS is ongoing at this time.
- d. The proposed action will not result in significant adverse impacts on human health or welfare, including municipal and private water supplies, recreational and commercial fishing, plankton, fish, shellfish, wildlife and special aquatic sites.
- e. All appropriate steps to minimize adverse environmental impacts have been taken.
- f. No significant adaptations of the guidelines were made relative to this evaluation.

Conclusions

Based on all of the above, the proposed action is determined to be in compliance with the Section 404(b)(1) Guidelines, subject to appropriate and reasonable conditions, to be determined on a case-by-case basis, to protect the public interest.