

## **APPENDIX R**

### **404(B)1**

## APPENDIX R: SECTION 404(b)(1) GUIDELINES EVALUATION

### Introduction

This appendix of the East Rockaway Inlet to Rockaway Inlet and Jamaica Bay Integrated Hurricane Sandy General Re-evaluation Report/Environmental Impact Statement (HSGRR/EIS) presents a Section 404(b)(1) Guideline evaluation for the comprehensive evaluation of improvements to the Rockaway Atlantic Ocean reach, Jamaica Bay, and Coney Island. 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)).

As stated in Section 230.10(a)(4):

For actions subject to NEPA, where the Corps of Engineers is the permitting agency, the analysis of alternatives required for NEPA environmental documents, including supplemental Corps NEPA documents, will in most cases provide the information for the evaluation of alternatives under these Guidelines.

The integrated Draft Hurricane Sandy General Reevaluation Report/Environmental Impact Statement (HSGRR/EIS), to which this evaluation is an appendix, provides the documentation necessary to attest that the project is fully in compliance with the Section 404(b)(1) guidelines. The HSGRR/EIS provides a full project description and location, description of existing conditions, full alternatives analysis, and description of potential impacts as a result of the project and the project's construction.

The analysis provided within the HSGRR/EIS documents that the implementation of the TSP will not cause or contribute to significant degradation of the waters of the United States, as is demonstrated in the following sections.

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.

### *Project Description*

- a. **Location:** The study area consists of the Atlantic Coast of New York City between East Rockaway Inlet and Rockaway Inlet, and the water and lands within and surrounding Jamaica Bay, New York. The Tentatively Selected Plan (TSP) includes physical CSRM elements covered approximately 25 linear miles of oceanfront along Rockaway, across the Rockaway Inlet of Jamaica Bay, and the eastern portion of Coney Island. The study area is vulnerably located within the Federal Emergency Management Agency (FEMA) regulated 100-year floodplain. The shorefront area, which is a peninsula approximately 10 miles in length, generally referred to as Rockaway, separates the Atlantic Ocean from Jamaica Bay immediately to the north. The greater portion of Jamaica Bay lies in the Boroughs of Brooklyn and Queens, New York City, and a section at the eastern end, known as Head-of-Bay, lies in Nassau County. More than 850,000 residents, 48,000

residential and commercial structures, and scores of critical infrastructure features such as hospitals, nursing homes, wastewater treatment facilities, subway, railroad, and schools are within the study area.

- b. General Description: During Hurricane Sandy in October 2012, tidal waters and waves directly impacted the Atlantic Ocean shoreline. Tidal waters amassed in Jamaica Bay by entering through Rockaway Inlet and by overtopping and flowing across the Rockaway Peninsula. Effective coastal storm risk management for communities within the study area requires reductions in risk from two sources of coastal storm damages: inundation, wave attack with overtopping along the Atlantic Ocean shorefront of the Rockaway peninsula and flood waters amassing within Jamaica Bay via the Rockaway Inlet.

The Tentatively Selected Plan (TSP) includes Atlantic Ocean shorefront protection (composite seawall, beach renourishment, groins) along Rockaway, a hurricane barrier across the Rockaway Inlet of Jamaica Bay, and a composite seawall extending from the inland end of the hurricane barrier to the eastern portion of Coney Island. No significant adverse impacts from construction or operation of the TSP on environmental resources in the study area have been identified in the EIS. Short-term, direct, minor adverse impacts to aesthetics, noise, water quality, aquatic habitats and species, marine and terrestrial species, and recreation resources would occur during construction of the TSP. These impacts would end upon completion of construction of the TSP.

- c. Authority and Purpose: The TSP will be conducted by USACE under Section 1135 of the Water Resources Development Act of 1986, as amended. Under Section 1135, the USACE is authorized to review the need for modifications of existing projects for the purpose of providing measures to improve environmental quality and is authorized to address degradation of the environment caused by a past USACE project.

For many years prior to Hurricane Sandy, study area CSRM efforts have emphasized Atlantic shoreline features with the State of New York as the local sponsor. In October 2012, coastal areas in vicinity to New York City were devastated by the impacts of Hurricane Sandy. Awareness of the need for an integrated approach to CSRM opportunities in Jamaica Bay and surrounding communities has increased since Hurricane Sandy. As a result of the devastation associated with Hurricane Sandy, the USACE has been tasked to address “coastal resiliency” and “long-term sustainability” in addition to the traditional USACE planning report categories of “economics, risk, and environmental compliance” (USACE 2013).

Accordingly, USACE has prepared an integrated Draft Hurricane Sandy General Reevaluation Report/Environmental Impact Statement (HSGRR/EIS) examining coastal storm management (CSRM) problems and opportunities for the East Rockaway Inlet to Rockaway Inlet and Jamaica Bay study area. The goal of the Draft HSGRR/EIS is to identify solutions that will reduce Atlantic shoreline and Jamaica Bay vulnerability to storm damage over time, in a way that is sustainable over the long-term, both for the natural coastal ecosystem and for communities.

Consistent with current USACE planning guidance, the study team identified and screened alternatives to address CSRM, and is presenting a tentatively selected plan (TSP). The TSP identifies the overall project features, with the acknowledgement that the specific dimensions of the plan have not been finalized. These final design components will be undertaken after review of the Draft HSGRR/EIS. The Draft HSGRR/EIS will undergo public review, policy review, Agency Technical Review (ATR), and Independent External Peer Review (IEPR). The USACE study team will respond to review comments, then present a recommended plan and develop a Final HSGRR/EIS.

- d. General Description of Placement Material: Sand that is compatible to the existing Rockaway Atlantic Ocean shoreline will be pumped in from a proposed offshore borrow area located approximately 3 miles due south from the Rockaway Atlantic Ocean shoreline. Under the TSP, approximately 1,021,000 cubic yards of sand will be dredged from the proposed borrow area over a 4-year renourishment cycle.
- e. Proposed Discharge Site: Under the TSP, the dredged sand would be placed along the Rockaway Atlantic Ocean shoreline, which is approximately 10 miles long.
- f. Disposal Method: Use of hydraulic dredging equipment for the initial construction and renourishment efforts.

### ***Factual Determinations***

#### a. Physical Substrate Determinations

1 The tentatively selected HSGRR Coastal Storm Risk Management plan for the area from East Rockaway Inlet to Rockaway Inlet and the lands within and surrounding Jamaica Bay New York consists of the following components, which are generally described for 2 Planning Reaches: 1) A reinforced dune and Berm Construction, in conjunction with groins in select locations along the Atlantic Ocean Shoreline; 2) a line of protection along Jamaica Bay and Rockaway Inlet with a storm surge barrier at one of two identified currently identified locations, i.e. plan C1-E and C2; and 3) residual risk features in locations surrounding Jamaica Bay. Twenty-six (26) project residual risk feature locations have been identified for which five (5) have detail available at this time. In general, these features are intended to provide a design height of +6 ft NAVD through various methods to reduce frequent flooding. As additional residual risk features are further developed, additional NEPA documentation and resource agency coordination would be provided. This TSP description includes the maximum footprint for the plan, however the footprint may be reduced in scope based on public and agency comments as well as new information.

If plan C1-E is selected for the barrier:

The TSP extends along approximately 152,000 linear feet of project area extending from the eastern end of the Rockaway peninsula at Inwood, Nassau County to the western end of the Rockaway peninsula, at Breezy Point, Queens, where the plan wraps around the existing shoreline past the Gil Hodges Memorial Bridge. Near Jacob Riis Park a storm surge barrier crosses Rockaway Inlet landing at Floyd Bennet Field, Brooklyn. The plan continues up Flatbush Avenue

before turning west along the existing shoreline and continuing west until Norton Point. From Norton Point, the line of protection continues on the north side of Coney Island, crossing Coney Island Creek. From Coney Island Creek it continues north along the shoreline to high ground.

If the plan C2 is selected for the barrier:

The TSP extends approximately 111,800 linear feet of project area extending from the eastern end of the Rockaway peninsula at Inwood, Nassau County to the western end of the Rockaway peninsula, at Breezy Point, Queens, where the plan wraps around the existing shoreline. A storm surge barrier crosses Rockaway Inlet from Breezy Point to Sheepshead Bay/Kingsborough Community College, Brooklyn. The plan continues west until Norton Point. From Norton Point, the line of protection continues on the north side of Coney Island, crossing Coney Island Creek. From Coney Island Creek it continues north along the shoreline to high ground.

The plan along the Atlantic Ocean Shorefront consists of:

- A reinforced dune (composite seawall) with a structure crest elevation of +17 feet (NAVD88) and dune elevation of +18 feet (NAVD88), and a design berm width of 60 feet extending approximately 35,000 LF from Beach 9<sup>th</sup> to Beach 149<sup>th</sup>. The bottom of dune reinforcement extends up to 15 feet below the dune crest.
- A beach berm elevation of +8 ft NAVD and a depth of closure of -25 ft NAVD;
- A total beach fill quantity of approximately 804,000 cy for the initial placement, including tolerance, overfill and advanced nourishment with a 4-year renourishment cycle of approximately 1,021,000 cy, resulting in an advance berm width of 60 feet;
- Obtaining sand from borrow area located approximately 2 miles south of the Rockaway Peninsula and about 6 miles east of the Rockaway Inlet. It is about 2.6 miles long, and 1.1 miles wide, with depths of 36 to 58 feet and contains approximately 17 million cy of suitable beach fill material, which exceeds the required initial fill and all periodic renourishment fill operations.
- Extension of 5 existing groins; and  
Construction of 13 new groins.

If the C1-E plan is selected, the alignment along Jamaica Bay and Rockaway Inlet consists of:

- Reinforced Dune along the shoreline in Reaches 1 and 2 of the Atlantic Coast Planning Reach, from Beach 149<sup>th</sup> to Breezy Point.
- Levee and from approximately B227th St. north overland across Breezy Point, thence eastward from B222nd St. to B201st St. Approximately 450,000 cy of sediment required for levee construction.
  - Concrete floodwall south along B201st St. extending east along north side of Rockaway Blvd to B184th St., thence north to existing shoreline. Concrete floodwall continues east to storm surge barrier approximately 2300 ft. east of the Gil Hodges Memorial Bridge/Marine Parkway Bridge.

- A 3,970-foot storm surge barrier across Rockaway Inlet from near Jacob Riis Park to Floyd Bennet Field;
- A concrete floodwall on land running north along Flatbush Avenue towards the Belt Parkway;
- A berm-faced elevated promenade running west along the waterside of the Belt Parkway to a concrete floodwall at Gerritsen Inlet;
- A sector gate across Gerritsen Inlet, which ties in to a concrete floodwall;
- Elevated promenades (berm faced and vertical faced) extend from Gerritsen Inlet around Plumb Beach westward to the inlet at Sheepshead Bay;
- A sector gate across Sheepshead Bay
- Seawall reconstruction around the eastern end of Coney island at Kingsborough Community College;
- A reinforced dune across sandy beach at Kingsborough Community College/Oriental and Manhattan Beach, and
- Seawall reconstruction from Manhattan Beach to approximately Corbin Place,
- The Coney Island tie-in, where the line of protection continues west until Norton Point. From Norton Point, the line of protection continues on the north side of Coney Island, crossing Coney Island Creek. From Coney Island Creek it continues north along the shoreline to high ground.

If the C2 plan is selected, the alignment along Jamaica Bay and Rockaway Inlet consists of:

- Reinforced Dune along the shoreline in Reaches 1 and 2 of the Atlantic Coast Planning Reach, from Beach 149<sup>th</sup> to Breezy Point.
- Levee from approximately B227th St. north overland across Breezy Point, to approximately B218th St.
- A 5,715-foot storm surge barrier across Rockaway Inlet from Breezy Point to Sheepshead Bay/Kingsborough Community College;
- Seawall reconstruction from the base of the surge barrier at Sheepshead Bay/Kingsborough Community College to Kingsborough College/Oriental Beach;
- A reinforced dune across sandy beach at Kingsborough Community College/Oriental and Manhattan Beach, and
- Seawall reconstruction from Manhattan Beach to approximately Corbin Place,
- The Coney Island tie-in, where the line of protection continues west until Norton Point. From Norton Point, the line of protection continues on the north side of Coney Island, crossing Coney Island Creek. From Coney Island Creek it continues north along the shoreline to high ground.

The plan for the 5 residual risk feature project areas currently identified (of up to 26 residual risk features) consists of:

**1) Edgemere - contains 2 features (berm and bulkhead) in an area with an existing ground**

**elevation of +4 ft. NAVD, with a design height of +6 ft. NAVD)**

- A berm with one section that is approximately 225' long from intersection of northern portion of Conch Place terminating at Norton Ave and Beach 45th Street,
- A second berm section approximately 3400' long along the eastern shore approximately at Beach 43rd St. extending along the shoreline terminating roughly at the northern corner of beach 35th St.
- A bulkhead approximately 600' from terminus of Beach 44th St. around northern tip of point, to eastern shore approximately at Beach 43rd St.

**2) Norton Basin - contains 2 features (bulkhead and I-wall) in an area with an existing ground elevation of +4 ft NAVD, with a design height of +6 ft NAVD)**

- A bulkhead approximately 200' from the intersection between Norton Drive and Coldspring Rd, extending parallel to Norton Drive along the shoreline.
- An I-Wall from the eastern end of the bulkhead along Norton Drive and north on Westbourne Ave, terminating at intersection with Dunbar St. with a length of 2070 ft.

**3) Mott Basin - contains 2 features (berm and bulkhead) in an area with an existing ground elevation of +4 ft NAVD, with a design height of +6 ft NAVD)**

- A berm section beginning near the northern end of Eggert Pl. running along the shoreline, extending inland to terminus of McBride St. and along Battery road and Pinson St., terminating roughly at intersection between Horton Ave. and Pinson St. with a length: 1360 ft.
- A bulkhead extending from a location approximately 80' from terminus of Dickens St. parallel to Enright road, then running northward parallel to and on the nearest side to Pearl Street and terminating at the shoreline.

**4) Brookville Boulevard - contains 2 features (road raising and two sections of I-wall) in an area with an existing ground elevation of +4 ft NAVD, with a design height ranging from +5.5 ft NAVD to +6 ft NAVD)**

- A road raising segment approximately 2800' long, along Brookville Boulevard, starting from a location approximately 200' north of intersection with Rockaway Boulevard extending northward terminating at Brookville Boulevard and 149th Ave.
- An I-Wall western segment, which is approximately 410' long starting at 231-08 148th Ave and running north, past end of 148th Ave along high ground to 147-51 231st St.
- An I-Wall western segment, which is approximately 1090 ft. long starting at 148-74 Brookville Blvd and running northward along high ground at rear of properties until northern terminus at 148-99 235th St.

**5) Canarsie contains 1 feature (revetment) in an area with an existing ground elevation of +4 ft NAVD, with a design height of +6 ft NAVD)**

- A revetment extending approximately 240' from intersection between E 108th St. and

Flatlands 1st St. and extending along the shoreline a length of 410 ft.

- (2) Sediment Type: Sediments similar to those present in the placement area will be utilized. No impacts are anticipated. (See “Borrow Source Investigation Appendix B,” April 7, 2016; and “Draft Reformulation Study,” March 26, 2015.)
  - (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 Section 6.0
- b. Water Circulation, Fluctuations, and Salinity Determinations
- (2) 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 short- or long-term 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 TSP.
    - (i) Eutrophication: None identified
    - (j) Other: None identified



- (3) Current Patterns and Circulation: No impacts identified
  - (4) Normal Water Level Fluctuations: No impacts identified
  - (5) Salinity Gradients: No impacts expected
  - (6) Actions to Minimize Impacts: Implement recommendations from National Marine Fisheries Service to maintain potential impacts at minor, less-than-significant adverse levels.
- c. Suspended Particulate/Turbidity Determination
- (2) Change at Disposal Site: Short-term, localized increases in suspended particulates/turbidity as a result of placement of material, but no long-term changes.
  - (3) 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 in the borrow area source material.
  - (4) Effects on Biota: Short-term exposure due to localized sediment resuspension during placement of material. No long-term effects are projected.
  - (5) 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 EIS Section 7.25.
- h. Determination of Secondary Effects on the Aquatic Ecosystem: None identified.

### ***Findings of Compliance or Noncompliance***

- a. There are no practicable alternatives for the TSP under the jurisdiction of Section 404(b)(1) Guidelines.
- b. The TSP does not appear to violate applicable state water quality standards or effluent standards.

- c. The TSP 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 will be completed to ensure the safety of any transient species that may be present during construction. Consultation with NMFS will be completed and recommendations will be incorporated into the EIS to ensure potential adverse impacts remain at minor short-term levels.
- d. The TSP 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 will be implemented during construction and operation of the TSP.
- f. No significant adaptations of the guidelines were made relative to this evaluation.

### ***Conclusions***

Based on all of the above, the TSP 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.