DOWNTOWN MONTAUK STABILIZATION PROJECT

EVALUATION OF A STABILIZATION PLAN FOR COASTAL STORM RISK MANAGEMENT IN RESPONSE TO HURRICANE SANDY & PUBLIC LAW 113-2

404(B)1 EVALUATION REPORT

ATTACHMENT D TO THE

ENVIRONMENTAL ASSESSMENT

U.S. Army Corps of Engineers

New York District

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ATTACHMENT D

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1.0 PROJECT DESCRIPTION

1.1 Overall Fire Island to Montauk Point Reformulation Study

The Fire Island Inlet to Montauk Point (FIMP) Reformulation Study is being undertaken to identify a long-term solution to reduce the risk of coastal storm damages along identified reaches of the south shoreline of Long Island in a manner which balances the risks to human life and property while maintaining, enhancing, and restoring ecosystem integrity and coastal biodiversity. The effect of Hurricane Sandy on the study area and Congress's subsequent Disaster Relief Appropriates bill[1] has increased the urgency to implement storm protection measures within the FIMP study area. The overall study has been undertaken to evaluate the full array of alternatives to reduce the risk of storm damages, and determine whether there is federal interest in participating in one or more of these alternatives, and ultimately recommend a jointly-implemented Federal, State, and local plan for addressing the storm damage reduction needs in the study area. In addition to addressing the Corps' national objectives of storm damage reduction and habitat restoration, this collaborative effort identifies alternatives for implementation by other Federal, State and Local agencies to achieve broader study objectives, as reflected in the FIMP Vision Statement. The overall FIMP Reformulation Study area is described in Section 1.3.

1.2 Downtown Montauk Stabilization Project

The Downtown Montauk Stabilization Project (the Project) is a component of the overall FIMP storm damage protection project and consists of stabilization measures focused on the downtown Montauk section of FIMP Reformulation Study. The Project is a measure that will be incorporated into the overall FIMP Reformulation Study, which is a long-term (50-year) plan for storm damage reduction. The dune reinforcement alternative was chosen as the preferred alternative for the Downtown Montauk Stabilization Project. This alternative consists of dune reinforcement along 3,100 ft of the shoreline. Meetings with stakeholders revealed that dune reinforcement with geotubes or geobags rather than rock was preferable since there are restrictions on hard structures in the coastal zone at East Hampton. Geobags, which are geotextile bags filled with sand, are proposed for dune reinforcement. The Project imparts a commitment to complete the FIMP Reformulation Study to select the optimum approach to long-term (50-year) storm damage reduction. The Project will provide immediate protection to the area until the FIMP Reformulation Study can be completed and the long term project can be implemented. Plans illustrating the locations of proposed dune reinforcement are included as Attachment A to the Draft Environmental Assessment (DEA). The Downtown Montauk project area is described in Section 1.4.

1.3 Overall FIMP Study Area

The congressionally authorized FIMP study area extends from Fire Island Inlet east to Montauk Point along the Atlantic Coast of Suffolk County, Long Island, New York. The 83-mile FIMP 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. The study area includes over 200 additional miles of shoreline within the estuary system. The study area also 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.

[1] Public Law (P.L.) 113-2, January 29, 2013.

The FIMP study area represents a complex mosaic of ocean fronting shorelines, barrier islands, tidal inlets, estuaries, and backbay mainland area. 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.

1.4 Downtown Montauk Project Area

Description of Project Area

This report focuses on the Downtown Montauk Stabilization Project increment of the overall FIMP study area. The Montauk Reach is the eastern most of the five designated Reaches within the overall FIMP study area. Montauk is the eastern most hamlet in the Town of East Hampton. It extends from Hook Pond in Easthampton to Montauk Point, a distance of about 20 miles. The Downtown Montauk project area consists of the business area in the hamlet of Montauk and is approximately 1 mile long by 0.25 mile wide.

Downtown Montauk is the largest business area in the hamlet of Montauk. The land use in the Downtown Montauk project area consists of motels, restaurants and shops for transient visitors making Montauk the most seasonal of the hamlets in East Hampton. Residential development is also present in the project area. The layout of downtown Montauk has largely been governed by its unique oceanfront setting and the development pattern. Dense development has resulted from the small size of the lots and the high appeal of a coastal resort community along the Atlantic Ocean.

Within the project 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 and across tidal inlets, continued erosion of the inner continental shelf, redistribution of reworked sediments, and during large storm events through the episodic transport of sand over the dunes.

Types of Habitats in Project Area

Habitats within the Downtown Montauk project area are found mainly along the shoreline, within the limits of sand placement for the proposed dune reinforcement, but also extend landward to Fort Pond. No activities are proposed in, or adjacent to Fort Pond. Habitats in the project area include: nearshore, intertidal, beach, dune and mainland upland. Of these, nearshore, intertidal and beach habitats are regulated under the Clean Water Act Section 404 program. Fill placement will be above mean high water (MHW) and extending landward of the high tide line (HTL), within the beach and dune habitats. Waters in the vicinity of the study area are class SA saline surface waters as designated by the New York State Department of Environmental Conservation (NYSDEC). This classification permits fishing and secondary recreational contact and shellfishing for marketing purposes.

1.5 Study Authority

The FIMP 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% Federal. In addition, Section 156 of the WRDA of 1976, as modified by Section 934 of the WRDA 1986, provides for continued renourishment not to exceed 50 years from initiation of construction of each of these reaches.

The authorized project provides for beach erosion control and hurricane protection along five reaches of the Atlantic Coast of New York from Fire Island Inlet to Montauk Point. Most construction of the authorized plan performed since the 1960's have occurred from Moriches Inlet to Shinnecock Inlet. After several iterations of proceeding with and stopping construction or restudy since 1965, the New York District (District) resumed the efforts of the Reformulation Study in 1994. The District, as requested by Congressional and local interests, was charged to evaluate the feasibility of interim projects which could be implemented pending completion of the Reformulation Study.

This report is being prepared in response to Public Law (PL) 113-2 of January 29, 2013, Disaster Relief Appropriations, in order to expedite implementation of the initial construction recommendations of The Fire Island Inlet to Montauk Point, NY Reformulation Study.

1.6 Project Description Source and Quantity of Fill Material

Project Description

The Dune Reinforcement Alternative for the Downtown Montauk Stabilization Project consists of dune reinforcement along 3,100 feet of the shoreline. Geobags, which are geotextile bags filled with sand, are proposed for dune reinforcement. The geobags are made of UV resistant sand-colored geotextile fabric that can be filled either hydraulically or mechanically with sand. There are several manufacturers that produce large-sized sandbags. The bags are sold in a variety of flat dimensions (shape of the unfilled bag when flat) ranging from 3 x 5 ft to 5 x 15 ft. When the bags are filled, the dimensions typically decrease by 8 to 18 inches. Based on design wave conditions the 7 by 5 foot bags (flat dimensions) were selected for the project. When filled, the bag is approximately 5.5 feet long by 3.5 feet wide by 1.5 feet tall. The nominal weight of the filled bags is 1.7 tons based on sand fill with a unit weight of 165 lbs/ft^3. For greater stability the bags would be aligned with the long side perpendicular to the shoreline and would overlap by 30 to 50% of the filled width. The proposed design calls for stacking the bags along the existing dune at a 1V:2H slope. The dune reinforcement extends from a toe elevation of +3 ft to a crest elevation of +13.5 ft NGVD.

Dune reinforcement with geobags provides a relatively soft, flexible, easily installed, and easily removed alternative. Since the geobags are susceptible to vandalism, puncture, and deterioration from UV light the geobags will be covered by a minimum of 3 feet of sand to decrease the likelihood of the exposure. In order to increase the resiliency of the design and reduce the potential for undermining, additional sand placement to build a berm cap is proposed. The additional sand, estimated at approximately 20,000 cubic yards (6 cy/ft), will provide additional protection to the toe of the structure from undermining and decrease the likelihood of geobags exposure during small storm events. It is estimated that the reinforced dune in combination with the average existing beach width would provide a level of protection of approximately 25 years (i.e., a 4% annual chance of design exceedance). No renourishments are included in the Dune Reinforcement Alternative.

Source and Quantity of Fill Material

The beachfill quantities for the Dune Reinforcement Alternative were estimated from a profile survey conducted by First Coastal on November 11, 2013 at Ocean Beach. The Dune Reinforcement Alternative requires approximately 51,000 cy of sand. This quantity of sand can be obtained from upland sources rather than offshore borrow areas. Several commercial suppliers of upland sand on Long Island that are in within 25 miles to Montauk were identified that could meet the material demand. The fill material would be transported from the distributor to Montauk Beach in either dump trucks or trailers.

Time and Duration of Construction

The proposed project will take an estimated three months to construct and will be completed January 2015 through May 2015. Work will likely take place seven days a week in order to complete before seasonal return of migratory birds and the summer tourist season.

2.0 FACTUAL DETERMINATION

2.1 Physical Substrate Determination

The existing substrate is native sand. The upland sand sources that have been selected were based on the proximity to the Downtown Montauk project area and the quantity/suitability of available material for dune reinforcement with geobags. The material has been deemed compatible with the native sand.

2.2 Water Circulation, Fluctuation, and Salinity Determinations

Water:

Salinity - Not Applicable

Water Chemistry - No impacts expected

Clarity- The project may result in a temporary increase in turbidity in the nearshore and intertidal areas. Minor impacts are expected since there is natural turbidity in the along shore zone. Impacts will be limited in spatial extent and duration.

Color - No impacts are expected

Odor - No measurable odors are expected

Taste - Not applicable

Dissolved Gas Levels - No measurable increase in dissolved gas levels are expected.

Nutrients – No measurable increase in nutrients are expected.

Eutrophication - Not applicable

Other - Not applicable

Current Pattern and Circulation:

Current Pattern and Flow - Sediment transport at the placement areas is dominated by wave driven, long shore currents which tend to move sediment over much of the project length and beyond; this would continue. The project will not alter current pattern or flow.

Velocity - No changes are expected.

Stratification - Not applicable

Normal Water Level Fluctuations:

The project will not result in a shift the high-water line from its present location and will not alter the water level or tidal range.

Salinity Gradients:

Not Applicable

Actions Taken to Minimize Impacts:

The dune reinforcement project is the minimum necessary to provide the desired level of protection. There will be no impact on water circulation, water level fluctuation or the salinity of the nearshore waters where the activity is proposed. Use of hard structures (e.g., rock) was avoided.

2.3 Suspended Particulate/Turbidity Determination

Expected Changes in Suspended Particles and Turbidity Levels in Vicinity of Disposal Site(s):

Temporary minor increases in turbidity in the intertidal and nearshore environment may occur during project construction. However, the existing environment at the placement area is turbid, and therefore, any increase in turbidity will not be noticeable and would be short term and should not extend much beyond the placement area.

Effects on Chemical and Physical Properties of the Water Column:

Light Penetration – Sand particles will settle fairly rapidly. Minor short term impacts are anticipated. However, the existing environment in the intertidal area is turbid, and therefore, any increase in turbidity will not be noticeable and would be short term and should not extend much beyond the placement area.

Dissolved Oxygen - No measurable decrease in dissolved oxygen is expected.

Toxic Metals and Organics - No toxic metals or organic compounds are anticipated to be present in the upland sand source.

Pathogens - No pathogens are anticipated to be present in the upland sand source.

Aesthetics - Temporary short-term increase in turbidity is expected, but the water is naturally turbid at intertidal habitat in the sand placement areas.

Others - Not applicable.

Effects on Biota:

Primary Production, Photosynthesis - No significant impacts are expected.

Suspension/Filter Feeders - Temporary short-term increase in turbidity are expected, but the water is naturally turbid in the intertidal habitat and nearshore waters at the sand placement areas. Therefore, no significant impacts on suspension/filter feeders are anticipated.

Sight Feeders - Temporary short-term increase in turbidity are expected, but the water is naturally turbid in the intertidal habitat and nearshore waters at the sand placement areas. Therefore, no significant impacts on sight feeders are anticipated.

Actions taken to Minimize Impacts:

The dune reinforcement with sand filled geobags is the minimum necessary to provide the desired level of protection. There may be minimal/temporary turbidity impacts on the localized, nearshore waters. Temporary short-term increase in turbidity is expected, but the water is naturally turbid in the intertidal and nearshore waters at the sand placement areas.

2.4 Contamination Determination

The necessary fill material will be obtained from upland sand sources rather than offshore borrow areas. There are upland sand distributors on Long Island that are in close proximity to Montauk that could meet the sediment demand. The material used for the project will meet the sand content requirements. The distributor of the sand will certify that the material is free from contaminants.

2.5 Aquatic Ecosystem and Organism Determination

Effects on Plankton:

No major impacts on plankton are anticipated as the area where the dune reinforcement is proposed is comparatively small and only minor short term localized increases in nearshore turbidity may occur.

Effects on Nekton:

No major impacts on nekton are anticipated as the area where the dune reinforcement is proposed is comparatively small and only minor short term localized increases in nearshore turbidity may occur.

Effects on Benthos:

The project would not utilize an offshore borrow area as a sand source and all sand placement will be above MHW. Therefore, there would be no impacts to the benthic community.

Effects on Aquatic Food Web:

The project would not utilize an offshore borrow area as a sand source. Therefore, it would not affect benthic macro-invertebrates and there would be no impacts on the aquatic food web.

Effects on Special Aquatic Sites:

Sanctuaries and Refuges - Not applicable – no fill material will be placed in sanctuaries and refuges

Wetlands - Not applicable – no fill material will be placed in vegetated wetlands

Mud Flat - Not applicable – no fill material will be placed in mud flats

Vegetated Shallows - Not applicable – no fill material will be placed in vegetated shallows

Coral Reefs - Not applicable – no fill material will be placed in coral reefs

Riffle and Pool Complexes - Not applicable – no fill material will be placed in riffle and pool complexes

Threatened and Endangered Species:

The potential for threatened and endangered species or critical habitat for protected species to occur within the Downtown Montauk project area was assessed through written consultation with the applicable regulatory agencies and through database review. Based on the habitats present in the project area, the proximity of the project area to developed areas and agency responses regarding lack of known records of rare or Federal/state-listed animals and plants or significant natural communities, the likelihood of protected species occurring in the Downtown Montauk project area is minimal. (See Section 3.3.4. of the DEA for additional details on the threatened and endangered species assessment.)

Other Wildlife:

Adverse impacts to other wildlife are not anticipated; these species will avoid the sand placement area during construction and will benefit in the long term from the created beach and dune habitat and stabilized conditions in the project area.

Actions to Minimize Impacts:

The dune reinforcement construction activities will be conducted during late fall/winter when the species that potentially utilize the habitats in the project area are less likely to be present.

2.6 Proposed Dune Reinforcement Site Determination

Mixing Zone Determination:

Because of the short-term duration of the project and the rapid settling time of the proposed sand fill for the dune reinforcement project, determination of a mixing zones is not relevant or applicable.

Determination of Compliance with Applicable Water Quality Standards:

The NYS DEC classifies waters in the project area as SA, saline surface waters. State water quality standards are not expected to be exceeded by the proposed Downtown Montauk Stabilization Project.

Potential Effects on Human Characteristic:

Municipal and Private Water Supply - Not applicable.

Recreational and Commercial Fisheries – Construction will be conducted in the late fall/winter to minimize impacts to recreational fishing. Minimal adverse impacts to sport fishery are expected; these impacts would be short term and limited to the construction period. The project will not affect commercial fisheries.

Water-Related Recreation – Construction will be conducted in the late fall/winter to minimize impacts to water related recreation in this tourism based community.

Aesthetics – The beach and dunes will temporarily be disturbed during construction. The beach will be returned to a width which is generally considered to be aesthetically pleasing.

Parks, National and Historical National Seashores, Wilderness Research Sites, and Similar Preserves – There are no national and historical seashores, wilderness research sites or other preserves in the project area. Therefore, no adverse effects to these areas are expected from the project.

2.7 Determination of Cumulative Effects on the Ecosystem

The Council on Environmental Quality (CEQ) definition of cumulative impacts as found in 40 Code of Federal Regulation (CFR) Section 1508.7 is as follows: "Cumulative Impact is the impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency (Federal or nonfederal) or persons undertakes such other acts." Repeated beach renourishment projects, as well as implementation of other emergency projects, may result in cumulative impacts to resources impacted by the overall the Downtown Montauk Stabilization Project area.

With the exception of the authorized but unconstructed Montauk Point Shoreline Stabilization Project, Federal shoreline stabilization projects on the south shore of Long Island are west and down-drift (long-shore current and ocean shoreline sand generally runs east to west of the project site and would not contribute to the cumulative impacts of this project. The Montauk Point project involves the installation of stone revetment which, while it could cause down-drift erosion adjacently west of that project area, is approximately 4.5 mi. east of the Downtown Montauk project area is therefore not expected to significantly contribute to the cumulative impacts of the proposed action.

Other than beach nourishment projects, local/state actions that are reasonably certain to occur in the project area that could potentially affect fish and wildlife resources include beach maintenance (raking and cleaning), the installation of sand fencing, continued recreational activity, and the maintenance of the proposed action to maintain the sand dune cover to increase the longevity of the proposed alternative.

The cumulative impact assessment of federal nourishment projects on the south shore of Long Island indicate that federal project actions would occur in a dynamic environment whose biotic inhabitants have adapted to these conditions. Studies indicate that borrow area and sand placement areas re-colonize shortly after construction activities are completed. Unlike several of the other projects proposed along the south shore of Long Island the Downtown Montauk project does not propose the use of an offshore borrow area and therefore would not add to the cumulative impacts to the offshore benthic environment. Relative to the categorization provided within Council on Environmental Quality guidance, the cumulative impacts of the Federal projects in the Study Area can be characterized as additive. The impacts are also interactive in that the stabilization of barrier beaches and mainland shoreline may alter/prevent early successional communities such as maritime beach from evolving in overwash areas.

Maintenance of the proposed action by the Town of Easthampton and/or the state of New York is expected after the one-time Corps project is complete. Maintenance activities could include: beach scraping (moving of sand existing on the beach to eroded areas); beach nourishment (upland or off-shore borrow areas); installation of sand fencing and/or beach grass plantings; or replacement of damaged GSCs. Each of these activities could have impacts to fish and wildlife resources addressed in the project area.

The area immediately adjacent to the beach and dunes in the Downtown Montauk project area is fully developed and consists of hotels, commercial and residential structures. Therefore, there is no opportunity for early successional communities to evolve in overwash areas in the project area. The extent of these cumulative impacts will be fully vetted in the EIS prepared for the Reformulation Project.

Cumulative impacts of the Downtown Montauk Stabilization Project alternatives evaluated in this EA are discussed in the following paragraphs.

Cumulative Impacts of the No Action Alternative. With the No Action Alternative there would likely be periodic sand placement as a result of local initiatives; however, there would be no federal contribution to the sand placement area in advance of the FIMP Project implementation. The biotic communities in the sand placement would be expected to recover between stabilization projects and abiotic conditions, such as water quality, would be expected to return to pre-disturbance conditions. Cumulative impacts of the No Action Alternative would be most noticeable in the event of a severe storm and resultant damages to structures and the community.

Cumulative Impact of the Preferred Alternative. The cumulative impacts of the Federal projects in the Study Area are uncertain. The coastal barriers were originally created by natural processes without human intervention. These natural processes redistribute sand in the nearshore environment in response to gradual erosion and storm events. Once coastal barriers are manipulated by human interventions, which Fire Island has undergone through maintenance of the inlets at either end of the island, they are no longer

able to maintain their natural equilibrium. In combination with sea level rise, lower shoreface erosion, bayshore inundation and continuing natural sediment transport processes, the long-term effect of sand placement and prevention of breaches on the coastal barriers is uncertain.

The impacts are also interactive in that the stabilization of barrier beaches and mainland shoreline may alter/prevent early successional communities such as maritime beach from evolving in overwash areas. The natural barrier beach environment exists in a continually changing state of "dynamic equilibrium" that depends on the size of the waves, changes in sea level relative to the land, the shape of the beach, and the beach sand supply. When any one of these factors changes, the others adjust accordingly. Development patterns that have built up over the years took place prior to coastal regulation and research on coastal barrier island behavior and sea level rise. Under the cumulative effect of natural processes acting on an environment altered by human intervention the proposed Downtown Montauk TSP mediates between managing risk to the community and natural processes. The additive damages to homes, businesses, the area's recreational resources, and its economy would be reduced by the Downtown Montauk proposed plan. The use of natural and nonrenewable resources in the salvage, repair, and reconstruction in the aftermath of storm damage would also be reduced. The Downtown Montauk plan maintains the opportunity for long-term management plans in the project area to incorporate natural processes and sea level rise adaptation within risk reduction and community resilience strategies.

Under extreme storm conditions coupled with deterioration of the geotextile fabric of the sand bags, sections or strands of the polypropylene fabric could be released into the environment, contributing to the cumulative inputs of foreign, non-biodegradable debris released to the environment from anthropogenic sources. Strands of material, such as polypropylene, plastic fishing line, etc., poses direct risk to marine life, including marine mammals, sea turtles, and birds as well as fishes, as they can become entangled and unable to swim or feed normally, resulting in injury or mortality. Ultraviolet radiation is expected to degrade the geotextile material into small pieces; reducing the potential for entanglement. Small pieces of foreign matter, particularly plastics, such as the geotextile, pose a physical threat to marine life and can contribute to both direct and indirect impacts on the environment and aquatic species. Ingestion of such materials can physically harm the intestinal tract, or can contribute to malnutrition. Plastic debris accumulated on shorelines or on estuarine and ocean bottoms can damage plants and habitat and prevent re-establishment of native communities, as well as harbor contagions. (USEPA 2014).

Measures to Minimize Cumulative Impacts

The Corps will implement the following measures that will avoid and/or minimize some of the project's impacts to fish and wildlife resources:

- The GSCs will be buried with sand to provide suitable dune habitat.
- The grain size of the sand used to bury the GSCs is the same or slightly larger than the native sediment.
- The project is designed to maximize the stability of the GSCs and reduce the potential for undermining and exposure of the GSC which would diminish habitat suitability for affected species.
- 45,000 cy of sand will be obtained from upland sediment sources and will avoid off-shore borrow area ocean bottom disturbances.

The majority of unavoidable impacts associated with the identified federal projects are likely to occur within the borrow areas. The Downtown Montauk TSP will not contribute to these impacts as upland sand sources will be utilized instead of offshore borrow areas. Thus the cumulative effects of this Federal Stabilization project are minimized. Implementation of the maintenance plan for the preferred alternative will minimize the environmental impacts associated with potential deterioration of the geotextile bags and subsequent release to the environment. Also the geotextile bags are not made of plastic and therefore would not be ingested by marine life which similarly happens with clear plastic material.

2.8 Determination of Secondary Effects on the Ecosystem

No potential secondary effects on the ecosystem are anticipated from the proposed dune reinforcement activities.

3.0 FINDING OF COMPLIANCE OR NON-COMPLIANCE WITH THE RESTRICTIONS ON DISCHARGE

- No significant adaptations of the guidelines were made relative to this evaluation

- Several alternatives to the alleviation of the beach erosion problem in the project area were considered. There are no practicable alternatives under the jurisdiction of Section 404 (b) (1) guidelines.

- The proposed action would not cause violations of applicable state water quality standards or effluent standards.

- The proposed dune reinforcement project would not cause violations of the Toxic Effluent Standards of Section 307 of the Clean Water Act.

- The dune reinforcement project would have no impact on marine sanctuaries designated by the Marine Protection, Research, and Sanctuaries Act of 1972.

- The proposed dune reinforcement project would not result in significant adverse effects on human health and welfare, including municipal and private water supplies, recreational and commercial fishing, plankton, fish, shellfish, wildlife, and special aquatic sites. Significant adverse effects on aquatic ecosystem diversity, productivity and stability are not expected. Impacts to recreational, aesthetic and economic values will be beneficial.

- Appropriate steps to minimize potential adverse impacts of the discharge on aquatic systems include good engineering practices and the use of upland sand material which is compatible with the sediments on the receiving shores.