CAPE COD CANAL & SANDWICH BEACHES

SHORE DAMAGE MITIGATION STUDY

FINDING OF NO SIGNIFICANT IMPACT

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Cape Cod Canal and Sandwich Beaches
Section 111 Shore Damage Mitigation Study
Draft Finding of No Significant Impact

The U.S. Army Corps of Engineers New England District (USACE) has conducted an environmental analysis in accordance with the National Environmental Policy Act of 1969, as amended. The Draft Integrated Detailed Project Report and Environmental Assessment (DPR/EA) dated November 2020 for the Cape Cod Canal and Sandwich Beaches Section 111 Shore Damage Mitigation Study addresses the mitigation of storm damage attributable to navigation works in the town of Sandwich, Massachusetts.

The Draft DPR/EA, incorporated herein by reference, evaluated various alternatives that would mitigate storm damages in the study area attributable to the Cape Cod Canal Federal Navigation Project (Canal FNP). In order to maintain safe navigation into and out of the Canal, two stone jetties were constructed at the east entrance to reduce wave energy and prevent shoaling of the channel itself. The Canal jetties interrupt natural longshore sediment transport through the littoral system thereby causing significant erosion along the downdrift shoreline in Sandwich, Massachusetts, specifically along Town Neck Beach. Significant loss of the beach and damage to shorefront structures has occurred in recent years, and if the conditions are left unaddressed, impacts to the community would increase significantly because of continued erosion. Therefore, the USACE recommends that the following measures take place to mitigate damages:

<u>Constructible Measures:</u>

- Construction of a 388,000 cubic yard engineered beach profile at Town Neck Beach that includes a foreshore (intertidal beach), backshore (high tide beach) and vegetated dune.
- Dredging, pumping and grading of approximately 388,000 cubic yards of beach compatible material from a nearshore borrow area located at Scusset Beach.

<u>Programmatic Measures:</u>

- Investigate the potential long-term beneficial use of material dredged from the Canal on Town Neck Beach as it relates to maintenance dredging of the Canal FNP. Approximately 90,000 cubic yards of beach compatible material are dredged from the east end of the Canal approximately once every seven years as part of recurring operations and maintenance. That material is typically disposed of offshore at the Cape Cod Canal Disposal Site. This study established a cause-and-effect relationship between the Canal FNP and the downdrift erosion that should serve as the baseline justification for considering a long-term sediment management strategy for beneficially reusing material routinely dredged from the Canal.

In addition to a “no action” plan, six primary alternatives with several sub-components were evaluated. The alternatives included three beach nourishment alternatives (alternatives 1-3),

two jetty modification alternatives (alternatives 4-5), and one permanent sediment bypass alternative (alternative 6). These alternatives also considered groin modifications, potential sediment sources, sediment quantities, and dredging methodologies. Section 5 of the DPR/EA discusses the alternative formulation and selection for this study.

For all alternatives, the potential effects were evaluated, as appropriate. A summary assessment of the potential effects of the recommended plan are listed in Table 1.

Table 1: Summary of Potential Effects of the Recommended Plan

	Insignificant effects	Insignificant effects as a result of mitigation*	Resource unaffected by action
Aesthetics	☒	☐	☐
Air quality	☒	☐	☐
Aquatic resources/wetlands	☒	☐	☐
Invasive species	☐	☐	☒
Fish and wildlife habitat	☒	☐	☐
Threatened/Endangered species/critical habitat	☒	☐	☐
Historic properties	☒	☐	☐
Other cultural resources	☐	☐	☒
Floodplains	☒	☐	☐
Hazardous, toxic & radioactive waste	☐	☐	☒
Hydrology	☒	☐	☐
Land use	☒	☐	☐
Navigation	☒	☐	☐
Recreation	☒	☐	☐
Noise levels	☒	☐	☐
Socio-economics	☒	☐	☐
Environmental justice	☒	☐	☐
Soils	☒	☐	☐
Tribal trust resources	☐	☐	☒
Water quality	☒	☐	☐
Climate change	☒	☐	☐

All practicable and appropriate means to avoid or minimize adverse environmental effects were analyzed and incorporated into the recommended plan. Actions taken to avoid and minimize impacts, as detailed in the DPR/EA, will be implemented. These actions include: the implementation of a construction time of year to avoid impacts to Endangered Species Act-listed species; avoidance of placing dredged sand on eelgrass (*Zostera marina*) and complex rocky habitat; grading of the beach to provide suitable nesting habitat for piping plovers (*Charadrius melodus*); the requirement of a National Marine Fisheries Service-approved endangered species observer on-board all dredging and disposal vessels to look out for listed whales and sea turtles;

and the implementation of speed restrictions on project vessels to reduce the likelihood of strikes to listed marine species.

No compensatory mitigation is required as part of the recommended plan.

Public review and a 30-day state and agency review of the Draft DPR/EA will commence in November 2020 with the release of the draft report. All comments submitted during the review period will be responded to in the Final DPR/EA and FONSI.

Pursuant to section 7 of the Endangered Species Act of 1973, as amended, the USACE determined that the recommended plan is not likely to adversely affect (NLAA) the following listed species or their designated critical habitat: piping plovers, roseate terns (*Sterna dougallii dougallii*), red knots (*Calidris canutus rufa*), North Atlantic right whales (*Eubalaena glacialis*), fin whales (*Balaenoptera physalus*), shortnose sturgeon (*Acipenser brevirostrum*), Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*), Kemp's Ridley sea turtles (*Lepidochelys kempii*), leatherback sea turtles (*Dermochelys coriacea*), loggerhead sea turtles (*Caretta caretta*), and green sea turtles (*Chelonia mydas*). The implementation of measures outlined above and in section 6 of the DPR/EA led to the USACE NLAA determination. Coordination with the U.S. Fish and Wildlife Service and National Marine Fisheries Service is on-going.

Pursuant to section 106 of the National Historic Preservation Act of 1966, as amended, the USACE determined that historic properties would not be adversely affected by the recommended plan. Coordination with the State Historic Preservation Officer and Tribal Historical Preservation Officers is on-going.

Pursuant to the Clean Water Act of 1972, as amended, the discharge or fill material associated with the recommended plan has been found to be compliant with section 404(b)(1) Guidelines (40 CFR 230). The Clean Water Act section 404(b)(1) Guidelines evaluation is found in Appendix A6 of the DPR/EA.

A water quality certificate pursuant to section 401 of the Clean Water Act will be obtained from the Commonwealth of Massachusetts prior to construction. The USACE will ensure that the recommended plan meets the requirements of water quality certification during the pre-construction engineering and design phase. All conditions of the water quality certification shall be implemented in order to minimize adverse impacts to water quality.

A determination of consistency with the Commonwealth of Massachusetts Coastal Zone Management program pursuant to the Coastal Zone Management Act of 1972 will be obtained from the Massachusetts Office of Coastal Zone Management (MACZM) prior to construction. The Preliminary Coastal Zone Management Consistency Determination (CZM CD) is Appendix A2 of the DPR/EA and will be coordinated with the MACZM during the pubic and agency review period beginning in November 2020. A Final CZM CD will be submitted to the MACZM during the pre-construction engineering and design phase. All conditions of the consistency determination shall be implemented in order to minimize adverse impacts to the coastal zone.

All applicable environmental laws have been considered and coordination with appropriate agencies and officials is on-going. An Essential Fish Habitat Assessment (Appendix A3 of the DPR/EA) will be coordinated with the National Marine Fisheries Service during the public and agency review period beginning in November 2020. A Record of Non-Applicability pursuant to the Clean Air Act (Appendix A4 of the DPR/EA) will be coordinated with the U.S. Environmental Protection Agency during the same timeframe.

Technical, environmental, and economic criteria used in the formulation of alternative plans were those specified in the Water Resources Council's 1983 Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies. All applicable laws, executive orders, regulations, and local government plans were considered in evaluation of alternatives. Based on this report, and pending reviews by other Federal, State and local agencies, Tribes, the public, and a final review by my staff, it is my determination that the recommended plan would not cause significant adverse effects on the quality of the human environment; therefore, preparation of an Environmental Impact Statement is not required.

_____ _____

Date

John A. Atilano, II
Colonel, U.S. Army
District Engineer

CLEAN WATER ACT SECTION 404(b)(1) EVALUATION
U.S. ARMY CORPS OF ENGINEERS, NEW ENGLAND DISTRICT
CONCORD, MA

PROJECT: Cape Cod Canal and Sandwich Beaches Section 111 Shore Damage Mitigation Study, Sandwich, Massachusetts

PROJECT MANAGER: Mr. Michael Riccio **Phone:** (978) 318-8685
FORM COMPLETED BY: Ms. Grace Moses **Phone:** (978) 318-8717

PROJECT DESCRIPTION:
The Federally recommended plan, also referred to as Alternative 1A/E, includes the one-time construction of a 388,000 cubic yard engineered beach along Town Neck Beach using material dredged from the nearshore at Scusset Beach using either a mechanical or hydraulic dredge. This alternative is intended to address erosion of Town Neck Beach which has occurred as a result of the construction of the jetties at the east entrance of the Cape Cod Canal Federal Navigation Project (Canal).

Projects constructed under Section 111 of the CAP program cannot exceed a total project cost of $12.5 million. This constraint significantly influenced the alternatives analysis and the resulting recommended plan. Specific to this study area, there is a perpetual nature to the problem in that as long as the Canal exists in its current form, so too will the erosion along the downdrift shoreline. Consequently, no permanent solution was identified that was also implementable under Section 111 of the CAP program. In lieu of such a solution, this study recommends a plan that would maximize the mitigation achievable through the Section 111 authority and also recommends that additional efforts be made to develop a long term sediment management strategy for the east entrance of the Canal that would more sustainably maintain the Sandwich shoreline. Primary features of the Recommended Plan are as follow:

<u>Constructible Measures</u>:

- Construction of a 388,000 cubic yard engineered beach profile at Town Neck Beach that includes a foreshore (intertidal beach), backshore (high tide beach) and vegetated dune
- Dredging, pumping and grading of approximately 388,000 cubic yards of beach compatible material from a nearshore borrow area located at Scusset Beach

<u>Programmatic Measures</u>:

- Investigate the potential long-term beneficial use of material dredged from the Canal on Town Neck Beach as it relates to maintenance dredging of the Canal FNP. Approximately 90,000 cubic yards of beach compatible material are dredged from the east end of the Canal approximately once every seven to nine years as part of recurring operations and maintenance. That material is typically disposed of offshore at the Cape Cod Canal Disposal Site. This study established a cause-and-effect relationship

between the Canal FNP and the downdrift erosion that should serve as the baseline justification for considering a long-term sediment management strategy for beneficially reusing material routinely dredged from the Canal.

U.S. ARMY CORPS OF ENGINEERS
NEW ENGLAND DISTRICT
Evaluation of Clean Water Act Section 404(b) (1) Guidelines

PROJECT: Cape Cod Canal and Sandwich Beaches Section 111 Shore Damage Mitigation Study, Sandwich, Massachusetts

1. Review of Compliance (Section 230.10(a)-(d)).

a. The discharge represents the least environmentally damaging practicable alternative and if in a special aquatic site, the activity associated with the discharge must have direct access or proximity to, or be located in the aquatic ecosystem to fulfill its basic purpose.	| X | YES	| | NO
b. The activity does not appear to: 1) violate applicable state water quality standards or effluent standards prohibited under Section 307 of the CWA; 2) jeopardize the existence of Federally listed threatened and endangered species or their critical habitat; and 3) violate requirements of any Federally designated marine sanctuary	| X | YES	| | NO
c. The activity will not cause or contribute to significant degradation of waters of the U.S. including adverse effects on human health, life stages of organisms dependent on the aquatic ecosystem, ecosystem diversity, productivity and stability, and recreational, aesthetic, and economic values	| X | YES	| | NO
d. Appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem	| X | YES	| | NO

2. Technical Evaluation Factors (Subparts C-F).

	N/A	Not Significant	Significant*
a. Potential Impacts on Physical and Chemical Characteristics of the Aquatic Ecosystem (Subpart C).			
1) Substrate.		X	
2) Suspended particulates/turbidity.		X	
3) Water.		X	
4) Current patterns and water circulation.		X	
5) Normal water fluctuations.		X	
6) Salinity gradients.	X		
b. Potential Impacts on Biological Characteristics of the Aquatic Ecosystem (Subpart D).			
1) Threatened and endangered species.		X	
2) Fish, crustaceans, mollusks and other aquatic organisms in the food web.		X	
3) Other wildlife.		X	
c. Potential Impacts on Special Aquatic Sites (Subpart E).			
1) Sanctuaries and refuges.	X		
2) Wetlands.	X		
3) Mud flats.	X		
4) Vegetated shallows.		X	
5) Coral reefs.	X		
6) Riffle and pool complexes.	X		
d. Potential Effects on Human Use Characteristics (Subpart F)			
1) Municipal and private water supplies.	X		
2) Recreational and commercial fisheries.		X	
3) Water related recreation.		X	
4) Aesthetics.		X	
5) Parks, national and historic monuments, national seashores, wilderness areas, research sites, and similar preserves.	X		

3. Evaluation and Testing (Subpart G).

a. The following information has been considered in evaluating the biological availability of possible contaminants in dredged or fill material. (Check only those appropriate.)

1)	Physical characteristics	| X |
2)	Hydrography in relation to known or anticipated sources of contaminants	| |
3)	Results from previous testing of the material or similar material in the vicinity of the project	| |
4)	Known, significant sources of persistent pesticides from land runoff or percolation	| |
5)	Spill records for petroleum products or designated hazardous substances (Section 311 of CWA)	| |
6)	Public records of significant introduction of contaminants from industries, municipalities, or other sources	| |
7)	Known existence of substantial material deposits of substances which could be released in harmful quantities to the aquatic environment by man-induced discharge activities	| |
8)	Other sources (specify)	| |

List appropriate references.

Draft Integrated Feasibility Study and Environmental Assessment for Cape Cod Canal Section 111.

b. An evaluation of the appropriate information in 3a above indicates that there is reason to believe the proposed dredge or fill material is not a carrier of contaminants, or that levels of contaminants are substantively similar at extraction and disposal sites and not likely to require constraints. The material meets the testing exclusion criteria.

| X |	| __ |
YES	NO

4. Disposal Site Delineation (Section 230.11(f)).

a. The following factors, as appropriate, have been considered in evaluating the disposal site.

1)	Depth of water at disposal site	| X |
2)	Current velocity, direction, and variability at the disposal site	| X |
3)	Degree of turbulence	| X |
4)	Water column stratification	| |
5)	Discharge vessel speed and direction	| |
6)	Rate of discharge	| X |
7)	Dredged material characteristics (constituents, amount, and type of material, settling velocities)	| X |
8)	Number of discharges per unit of time	| X |
9)	Other factors affecting rates and patterns of mixing (specify)	| X |

List appropriate references:

Draft Integrated Feasibility Study and Environmental Assessment for Cape Cod Canal Section 111.

b. An evaluation of the appropriate factors in 4a above indicates that the fill site and/or size of mixing zone is acceptable

| X |	| |
YES	NO

5. Actions To Minimize Adverse Effects (Subpart H).

All appropriate and practicable steps have been taken, through application of recommendation of Section 230.70-230.77 to ensure minimal adverse effects of the proposed discharge.

| X |	| |
YES	NO

List actions taken:

Placement of beach fill would occur between October 1 and December 31 of any year to avoid impacts to species such as winter flounder (*Pseudopleuronectes americanus*), and species listed under the Endangered Species Act including: piping plovers (*Charadrius melodus*), roseate terns (*Sterna dougallii dougallii*), red knots (*Calidris canutus rufa*), North Atlantic right whales (*Eubalaena glacialis*), fin whales (*Balaenoptera physalus*), shortnose sturgeon (*Acipenser brevirostrum*), Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*), Kemp's Ridley sea turtles (*Lepidochelys kempii*), leatherback sea turtles (*Dermochelys coriacea*), loggerhead sea turtles (*Caretta caretta*), and green sea turtles (*Chelonia mydas*). Dredged sand will not be placed on eelgrass (*Zostera marina*) or complex rocky habitat. After placement, the beach will be appropriately graded to provide suitable nesting habitat for piping plovers. In order to reduce the likelihood of vessel strikes to listed marine species, a

vessel speed restriction of 10 knots or less will be adhered for all project vessels during construction. Finally, a National Marine Fisheries Service-approved endangered species observer will be present on-board all dredging and disposal vessels to look out for listed whales and sea turtles.

6. Factual Determination (Section 230.11).

A review of appropriate information as identified in items 2 - 5 above indicates that there is minimal potential for short- or long-term environmental effects of the proposed discharge as related to:

a.	Physical substrate (review sections 2a, 3, 4, and 5 above).	YES	X	NO
b.	Water circulation, fluctuation and salinity (review sections 2a, 3, 4, and 5).	YES	X	NO
c.	Suspended particulates/turbidity (review sections 2a, 3, 4, and 5).	YES	X	NO
d.	Contaminant availability (review sections 2a, 3, and 4).	YES	X	NO
e.	Aquatic ecosystem structure, function and organisms (review sections 2b and c, 3, and 5)	YES	X	NO
f.	Proposed disposal site (review sections 2, 4, and 5).	YES	X	NO
g.	Cumulative effects on the aquatic ecosystem.	YES	X	NO
h.	Secondary effects on the aquatic ecosystem.	YES	X	NO

7. Findings of Compliance or Non-compliance.

The proposed disposal site for discharge of dredged or fill material complies with the Section 404 (b)(1) guidelines. YES | X | NO | |

_____ _____

Date

John A. Atilano, II.
Colonel, U.S. Army
District Engineer

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