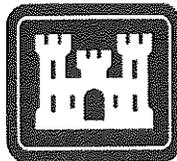

ENVIRONMENTAL APPENDIX B

**CONTINUING AUTHORITIES PROGRAM,
SECTION 204,
BENEFICIAL USES OF DREDGED MATERIAL,
CEDAR ISLAND, VIRGINIA**

**Appendix B – Clean Water Act,
Section 404(b) Report**



**U.S. Army Corps
of Engineers
Norfolk District**

**CONTINUING AUTHORITIES PROGRAM, SECTION 204,
BENEFICIAL USES OF DREDGED MATERIAL,
CEDAR ISLAND, VIRGINIA
SECTION 404 (b) (1) EVALUATION**

Prepared By:

**U.S. Army Corps of Engineers
Operations Branch 803 Front
Street Norfolk, Virginia 23510**



**U.S. Army Corps
of Engineers
Norfolk District**

July 16, 2019

**SECTION 404 (b) (1) EVALUATION
CONTINUING AUTHORITIES PROGRAM, SECTION 204, BENEFICIAL USES OF DREDGED
MATERIAL**

I. INTRODUCTION

This report describes how the U.S. Army Corps of Engineers, the lead federal agency for the Continuing Authorities Program, Section 204, Beneficial Use of Dredged Material, Cedar Island, Virginia will achieve full compliance with Section 404 of the Clean Water Act of 1977 (Public Law 95-217), as amended.

The 404(b)(1) guidelines in 40 CFR 230 contain the substantive criteria for evaluation of proposed discharges of dredged or fill material under Section 404. The principle behind the criteria is that no discharge of dredged or fill material is permitted that would result in unacceptable adverse effects to the aquatic ecosystem. Compliance with the guidelines is evaluated by reviewing the proposed discharge with respect to the four restrictions in 40 CFR 40 CFR 230.10. These restrictions state that:

- No discharge shall be permitted if there is a practicable alternative which would have less adverse impacts on the aquatic ecosystem;
- No discharge shall be permitted if it violates state water quality standards, violates toxic effluent standards or prohibitions under Section 307 of Act, or jeopardizes the continued existence of threatened or endangered species as identified under the Endangered Species Act of 1973.
- No discharge shall be permitted which will cause or contribute to the significant degradation of waters of the United States.
- No discharge shall be permitted unless appropriate and practicable steps have been taken to minimize potential adverse impacts to the aquatic ecosystem.

II. PROJECT DESCRIPTION

A. Location

Cedar Island is a barrier island located within the Delmarva Peninsula in the Virginia Coast Reserve, the largest expanse of protected coastal habitat in the United States. Cedar Island is located centrally within the barrier island chain with the Metompkin Inlet separating Cedar Island from Metompkin Island to the north and Wachapreague Inlet separating Cedar Island from Parramore Island to the south. The western side of Cedar Island, Virginia (referred to as the back-barrier) is flanked by channels, tidal wetlands and marsh islands, lagoons, and mudflats. The coastal mainland Town of Wachapreague is located on the mainland, west of the Cedar Island Back-barrier and is approximately 73 miles north of Norfolk, Virginia. The proposed dredged material placement site is located at a 194 acre southern portion of the Fools Gut Marsh Island which is located across the channel from the Wachapreague Marina located in Wachapreague, Virginia.

B. Description of Proposed Work

The Recommended Plan (or Preferred Alternative) is Alternative 1A which consists of thin-layer spraying of dredged material over a portion of the Fools Gut Marsh Island located in the Cedar Island Back-barrier. Site 1 is located at a 194 acre portion of Site 1 at the Fools Gut Marsh Island that is located across the navigation channel from the Wachapreague Marina. The thin-layer spraying would be done via a hydraulic cutterhead dredge equipped with a pipeline that would spray the dredged material from the Federal navigation channel sites that would include Finney Creek and Bradford Bay Channel to the southern portion of the Fools Gut Marsh Island located at Site 1.

Prior to the initial thin-layer spraying of dredged material, a topographic survey would be conducted to measure reference wetland elevations and to identify target spray wetland enhancement locations at Site 1. Physical field markers would be placed at the enhancement site with elevation target information to assist dredge/pipeline operators to correctly locate and place the correct volume of dredged material at the wetland site. Geospatial target wetland enhancement locations will also be provided to the dredge/pipeline operator. A turbidity curtain would be temporarily placed along the edge of the affected marsh island areas to reduce any potential turbidity issues that could be caused by thin-layer spraying into the adjacent navigation channel and Bradford Bay. A Biologist will be onsite during dredging operations to actively monitor marsh elevations and target spray application areas.

The quantity of dredged material sprayed during each treatment would be approximately 77,435 cubic yards. For planning purposes this allows for an approximately six-inch thin-layer spraying across the project site; however, actual thin-layer placement target application elevations would be determined by the topographic survey to be conducted prior to each thin-layer spraying application.

The assumed project lifecycle is approximately 50 years. The project construction is anticipated to begin in year 2027 with the initial thin-layer spraying to occur over the 194 acres in Site 1. Topographic surveys followed by thin-layer spraying would then occur over the site as needed in year 2041 and 2055. The rehabilitations are assumed to use approximately the same dredging volume as the initial construction. This schedule was chosen to coincide with the dredging maintenance cycle that supports the Bradford Bay and Finney Creek navigation channel and anticipated sea level rise effects to ensure we spray at appropriate timeframes to ensure the marsh island is properly maintained.

C. Authority and Purpose

The Water Resources Development Act of 1992, Continuing Authorities Program Section 204, provides authority for the U.S. Army Corps of Engineers (USACE) to beneficially use material dredged from authorized Federal navigational channels for the protection, restoration, and creation of aquatic and related habitats. The Section 204 authority can be for construction and/or maintenance dredging of authorized Federal navigation channels.

The purpose of this project is to beneficially use dredged material to enhance and/or restore the Cedar Island Back-barrier tidal wetlands, a fragile ecosystem at risk of loss, via a sustainable approach that will also protect tidal shoreline wetlands and marsh islands subjected to the continuing threats of erosion, climate change, and sea level rise.

The primary goal is to beneficially use the dredged material from the Finney Creek Channel and the Bradford Bay Channel for restoration and/or enhancements of the Cedar Island back-barrier tidal shoreline wetlands and/or marsh islands.

The study objectives include the following:

- Restore and/or enhance tidal shoreline wetlands and/or marsh islands to enhance fish and wildlife habitat;
- Incorporate a long-term, sustainable solution to reduce tidal wetland erosion rates and increase sediment accretion rates;
- Create more suitable wetland elevations for tidal shoreline wetlands and/or marsh islands; and
- Adaptively manage restoration and/or enhancement site(s) to address sea level, subsidence, and erosion rise threats.

D. Description of Material

1. **General Characteristics of Proposed Fill Material** – Dredged Material is approximately composed of 50.2 – 52.0% silt; 31.8- 38.2% clay; and 9.8 – 18% sand (Priest et al.1996).
2. **Quantities of Fill Material** – The estimated quantity of dredged material that will be placed at Site 1 to enhance tidal wetlands for each dredging cycle is approximately 77,435 cubic yards.
3. **Source of Material** - Dredged material from the Bradford Bay Channel and the Finney Creek Channel.

E. Description of Proposed Discharge Sites

1. **Location of the Sites** – Please refer to Section II. Project Description, A. Location.
2. **Size of Wetland Sites** – Site 1 consists of approximately 194 acres of tidal marsh island.
3. **Type of Aquatic Resources** – The typical Eastern Shore of Virginia Bay ecosystem includes benthic communities of epifauna (organisms that live attached to surfaces on the bay bottom) such as oysters, sponges, sea stars, and barnacles. Infauna are benthic communities that burrow into sediments and are characterized by worms, clams, and other tunneling organisms.
4. **Timing and Duration of Discharge** – Placement of the dredged material may take place at any time during the year, for a duration of approximately three months.

F. Description of Disposal Method

1. **Dredging**- Hydraulic cutter-head and pipeline conveyance to the southern portion of the Fools Gut Marsh Island (Site 1) to provide beneficial placement of dredged material to enhance the Fools Gut Marsh Island.

III. FACTUAL DETERMINATIONS

A. Physical Substrate Determination

1. **Substrate Elevation and Slope** - The area is relatively flat with little slope as it is a tidal marsh island. The proposed approximate target elevation of the project will be to maintain a saltmarsh cordgrass dominated plant community with target elevation of approximately 0.7 +/-0.2 feet NAVD 88. Portions of the community are also slightly higher with some limited higher marsh species, scrub-shrub elevation, and forested wetlands.
2. **Comparison of Fill Material and Substrates at Discharge Sites** - The dredged material and also the soil composition at the Fools Gut Marsh Island are predominately fine silts and clays.
3. **Dredged/Fill Material Movement** - During dredged material placement operations at Type III Turbidity Curtain will be deployed to contain dredged material prior to setting. Therefore, we would expect on temporary, negligible to minor amounts of dredged/fill material movement that would not violate any water quality standards.
4. **Physical Effects on Benthos** - Reduced use of the Bradford Bay Open-Water Dredged Material Disposal Site would result in a temporary and minor benefit to the benthic community located in and immediately adjacent to the open-water dredged material disposal site. During dredged material placement activities at the Fools Gut Marsh Island there may be a negligible to minor increase in Total Suspended Solids and turbidity in the water column adjacent to the dredged material placement operation. However, we would deploy a temporary, Type III Turbidity Curtain prior to placement operations in order to reduce the potential impacts to local water quality and the benthic community during dredged material placement operations. Because the turbidity would be mitigated by Best Management Practices, we would not anticipate any resulting burial or mortality of the benthic community. We would anticipate that impacts resulting from water quality impacts to the benthic community would be temporary, adverse, and negligible to minor.
5. **Erosion and Accretion Patterns** - There would be no expected changes to erosion or accretion patterns.
6. **Actions Taken to Minimize Impacts**
 - Prior to dredged material placement activities a vegetation and topographic survey will be conducted to determine target dredged material placement locations and elevations. Reference cordgrass-dominated marsh topographic survey points will be taken in and in areas around the dredged material placement site prior to help determine target elevations during dredged material placement activities.
 - Stakes with elevation targets will be deployed out at the dredged material placement site to help guide dredge pipeline operators to the proper locations and so that they have a reference elevation target in the field during dredged material placement activities.
 - A temporary, Type III Turbidity Curtain will be deployed surrounding the dredged material placement to minimize any potential turbidity to the surrounding water column during dredged material placement activities.
 - Prior to dredged material placement activities soil testing for sulfates and anaerobic conditions will be conducted to determine suitability of sediments for marsh beneficial dredged material placement.

B. Water Circulation, Fluctuation, and Salinity Determinations.

1. Water

- a. **Salinity** – No anticipated effect.
- b. **Water Chemistry** – During dredged material placement activities at the Fools Gut Marsh Island there may be a negligible to minor increase in Total Suspended Solids and turbidity in the water column adjacent to the dredged material placement operation. We would anticipate that impacts to water quality would be temporary, adverse, and negligible to minor.
- c. **Clarity** – Minor and temporary turbidity will be generated during construction.
- d. **Color** – Minor and temporary change due to turbidity.
- e. **Odor** – No anticipated effects.
- f. **Taste** – No anticipated effects.
- g. **Dissolved Gas Levels** – No anticipated effect.
- h. **Nutrients** – No anticipated effects.
- i. **Eutrophication** – No eutrophication is anticipated.

2. Current Patterns and Circulation.

- a. **Current Patterns and Flow** – In the future with sea level rise there may be some temporary, negligible to minor benefits to the current patterns and flow by maintaining the existing marsh island.
- b. **Velocity** – In the future with sea level rise there may be some temporary, negligible to minor benefits to the current patterns and flow by maintaining the existing marsh island.
- c. **Stratification** – No anticipated effects.
- d. **Hydrologic Regime** – No anticipated effects.
- e. **Aquifer Recharge** – No anticipated effects.

3. Normal Water Level Fluctuations – No anticipated effects.

4. Salinity Gradients – No anticipated effects.

5. Actions that will be taken to minimize impacts – None necessary as any potential effects would be beneficial.

C. Suspended Particulate/Turbidity Determinations.

- 1. **Suspended particulates and turbidity level** - During dredged material placement activities at the Fools Gut Marsh Island there may be a negligible to minor increase in Total Suspended Solids and turbidity in the water column adjacent to the dredged

material placement operation. We would anticipate that impacts to water quality would be temporary, adverse, and negligible to minor.

2. Effects on chemical and physical properties of the water column

- a. **Light Penetration** – Temporary, negligible to minor adverse impact during dredged material placement.
- b. **Dissolved Oxygen** – No anticipated effects.
- c. **Toxic Metals and Organics** – No anticipated effects.
- d. **Pathogens** – No anticipated effects.
- e. **Aesthetics** – Temporary, negligible to minor adverse effects during dredged material placement.

3. Effects on Biota

- a. **Primary Production, Photosynthesis** – We would not anticipate effects to the plankton community or associated photosynthesis.
- b. **Suspension/Filter Feeders** – Reduced use of the Bradford Bay Open-Water Dredged Material Disposal Site would result in a temporary and minor benefit to the benthic community located in and immediately adjacent to the open-water dredged material disposal site. During dredged material placement activities at the Fools Gut Marsh Island there would be a temporary, negligible to minor increase in Total Suspended Solids and turbidity in the water column adjacent to the dredged material placement operation.
- c. **Sight Feeders** – There would be temporary, negligible to minor adverse impact caused by the increase in Total Suspended Solids and turbidity. There would also be an associated temporary, negligible to minor benefit as open water discharges to the Bradford Bay Open Water Dredged Material Disposal Site would be reduced or eliminated for some dredging cycles.

- 4. Action to Minimize Impacts** - Please refer to Section III. FACTUAL DETERMINATIONS, 6. Actions Taken to Minimize Impacts.

D. Contaminant Determination

1. Evaluation of the Biological Availability of Possible Contaminants in the Fill Material

a. Physical Characteristics of the Fill Material

The sediment grain size in the Cedar back-barrier channels is generally characterized as a fine, silt-dominated composition (50.2 – 52.0% silt; 31.8- 38.2% clay; and 9.8 – 18% sand (Priest et al. 1996)).

- b. Hydrography in Relation to Known or Suspected Sources of Contamination** – No known sources of contamination have previously occurred or are currently existing in the Region of Influence (ROI).

- c. **Results from Previous Testing of the Material or Similar Material in the Vicinity of the Project – Not Applicable**
- d. **Known, Substantive Sources of Persistent Pesticides from Land Runoff or Percolation – There are no recorded incidences.**
- e. **Spill Records for Petroleum Products or Designated Hazardous Substances – The Virginia Department of Environmental Quality VEGIS Database was searched for records of petroleum releases. There were records of spill that occurred at Parramore Island adjacent to Wachapreague Inlet. However, none of these spills have impacted the ROI.**
- f. **Other Public Records of Significant Introduction of Contaminants from Industries, Municipalities or Other Sources - Based on our review and state and federal databases (please refer to the Integrated Feasibility Report/Environmental Assessment for more detailed information) no records have been found that indicated introduction of contaminants from industries, municipalities or other sources.**
- g. **Known Existence of Substantial Deposits of Substances Which Could Be Released in Harmful Quantities by Man-Induced Discharges - No effects are anticipated from the discharges.**

E. Aquatic Ecosystem and Organism Determinations

1. **Effects on Plankton** - Because the increases in Total Suspended Solids and turbidity would be temporary and negligible to minor we would not anticipate impacts to the plankton community.
2. **Effects on Benthos** - Please refer to Section III. FACTUAL DETERMINATIONS, A. Physical Substrate Determination, 4. Physical Effects on Benthos
3. **Effects on Nekton** - Foraging or movement patterns of nekton may be temporarily, adversely affected by increases in Total Suspended Solids and Turbidity resulting from dredged material placement. Impacts would be negligible to minor.
4. **Effects on Aquatic Food Web** - The reduced use of the Bradford Bay Open-Water Disposal Site would provide some temporary, negligible to minor benefits to the benthic fauna. It would be anticipated that dredged material placement at the marsh island may also provide some temporary, negligible to minor benefits by maintaining the marsh island. Because the impacts are temporary and negligible to minor we would anticipate that adverse impacts to water quality resulting from the dredged material placement on the marsh island would not likely affect the aquatic food web.
5. **Effects on Special Aquatic Sites**
 - a. **Sanctuaries and Refuges – No sanctuaries or refuges would be impacted.**
 - b. **Wetlands – Implementation of Alternative 1A would serve to enhance the existing**

Fools Gut Marsh Island by utilizing thin-layer spraying to enhance elevations for the saltmarsh cordgrass-dominated marsh island. The thin-layer spraying will serve to preserve the existing marsh community and marsh diversity on the marsh island. Therefore, anticipated effects to wetlands would be beneficial, temporary, and minor to moderate.

- c. **Mudflats** – With implementation of Alternative 1A there may be temporary, negligible to minor benefits to existing mudflats that surround the marsh island as maintenance of the marsh island would help to also maintain existing mudflat habitat. Potential effects would be beneficial and mudflat mitigation would not be required.
- d. **Vegetated Shallows** – No vegetated shallows would be affected. No compensatory mitigation would be required.
- e. **Riffle and Pool Complexes** - No impacts to riffle or pool complexes would occur; the project would not affect any streams.

6. Effects on Threatened and Endangered Species and Bald Eagle Determination - Federally listed species that have the potential to occur in the project area are provided below in Table 1 (A Bald Eagle Act Determination is provided as well). A summary of impacts resulting from implementation of Alternative 1A is provided in Table 1.

Table 1. Species Conclusion Table

Species / Resource Name	ESA Section 7 / Eagle Act Determination	Notes / Documentation
Piping plover, red knot, and roseate turn	May Affect, Not Likely to Adversely Affect	The project may slightly impact flight and foraging behaviors but any potential effects would be insignificant.
Northern long-eared bat	May Affect, Not Likely to Adversely Affect	This species would not likely occur in the Action Area as the habitat consists of subtidal coastal habitat and a tidal marsh island that has only a few trees. No known suitable foraging or roosting habitat is located in the Action Area. There is no known hibernacula in the Action Area. Effects would be discountable.
Bald eagle	Unlikely to disturb nesting bald eagles. Does not intersect with eagle concentration area	No documented recent nesting has occurred in the project area (The Center for Conservation Biology 2019). Foraging may be temporarily disturbed during project construction.
Critical Habitat	No effect; no critical habitat in Action Area	

Species / Resource Name	ESA Section 7 / Eagle Act Determination	Notes / Documentation
Candidate species	No effect; no candidate species in Action Area	

7. Effects on Other Wildlife - Implementation of Alternative 1A would result in the enhancement of the tidal marsh island habitat at the Fools Gut Marsh Island that provides foraging and stopover habitat to more than 30 species of migratory birds. In addition, implementation of Alternative 1A would result in less dredged material placement at the Bradford Bay Open-Water Disposal Site. This would provide potential benefits to fish species that serve as prey items for some of the migratory bird species.

There could also be some temporary, adverse negligible to minor disturbance effects to wildlife during dredged material placement.

8. Actions to Minimize Impacts - Please refer to III. FACTUAL DETERMINATIONS, A. Physical Substrate Determinations, 6. Actions Taken to Minimize Impacts

F. Proposed Disposal Site Determinations

1. Mixing Zone Determination

- a. **Depth of Water at the Disposal Site** – at marsh island between Mean Low Water and Mean High Water – variable depending on tidal conditions.
- b. **Current Velocity** – Bradford Channel: 2.10 feet per second; Wachapreague Channel: 2.83 feet per second – (flood tide currents).
- c. **Degree of Turbulence** – Negligible
- d. **Water Column Stratification** – Negligible
- e. **Discharge Vessel Speed and Direction** – Slow, wake speeds are typical of vessel traversing this area.
- f. **Rate of Discharge** – Negligible
- g. **Dredged Material Characteristics** – The sediment grain size in the Cedar back-barrier channels is generally characterized as a fine, silt-dominated composition (50.2 – 52.0% silt; 31.8- 38.2% clay; and 9.8 – 18% sand (Priest et al. 1996)).
- h. **Number of Discharges Per Unit of Time** – Dredged material placement would occur in approximately in 2027, 2041, and 2055 but would be contingent on operational dredging cycles and funding availability.

2. Disposal Site and Size

194 acres at the southern portion of the Fools Gut Marsh Island.

3. Actions to Minimize Adverse Discharge Effects

Please refer to Section III. FACTUAL DETERMINATIONS, A. Physical Substrate Determinations, 6. Actions Taken to Minimize Impacts

4. Determination of Compliance with Applicable Water Quality Standards

Please see responses above. State Water Quality Certification under Section 401 of the Clean Water Act required will be obtained from the Virginia Department of Environmental Quality for this project.

5. Potential Effects on Human Use Characteristics

a. Municipal and Private Water Supply – The proposed project would not affect municipal or private water supplies.

b. Recreational and Commercial Fisheries – The reduced use of the Bradford Bay Open Water Placement Disposal Site would provide benefits to commercial and recreational fishery species. Dredged material placement at the Fools Gut Marsh Island would create temporary, negligible to minor increases in Total Suspended Solids that may cause some temporary, negligible disturbance effects to fishery species but no long term effects on fisheries would be anticipated. Enhancement to the tidal marsh island would provide temporary, negligible to minor benefits for fishery species that use the marsh island habitat for foraging and/or nursery grounds.

c. Water-Related Recreation – During dredged material placement there would be a temporary, adverse, negligible to minor recreation impact.

d. Aesthetics of the Aquatic Ecosystem – During dredged material placement there would be a temporary, adverse, negligible to minor aesthetic impact to the natural visual landscape.

e. Parks, National and Historical Monuments, National Seashores Wilderness Areas Research Sites, and similar Preserves – There would be no effect.

f. Determination of Secondary Effects on Aquatic Ecosystems – The marsh island enhancement would serve to provide negligible to minor benefits to aquatic habitat and to the associated food web.

IV. FINDINGS OF COMPLIANCE OR NONCOMPLIANCE WITH THE RESTRICTIONS ON DISCHARGE

A. Adoption of the Section 404(b)(1) Guidelines to this Evaluation

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

B. Evaluation of the Availability of Practicable Alternatives to the Proposed Discharge Sites Which Would Have Less Adverse Impacts on the Aquatic Environment

The Recommended Plan was selected because maximized environmental benefits for the best

value. There was no other reasonable action plan that would have less adverse effects on the environment.

C. Compliance with Applicable State Water Quality Standards

Dredged material placement would be done in accordance with all federal and state requirements. A 401 Water Quality Certification will be obtained from the Virginia Department of Environmental Quality prior to construction. The Recommended Plan is in compliance with all applicable water quality standards.

D. Compliance with Applicable Toxic Effluent Standards or Prohibitions under Section 307 of the Clean Water Act

There is no known history or anticipated contaminated dredged material in the study area. No toxic effluent discharges would be generated with this project.

Section 307 of the Clean Water Act establishes limitation or prohibitions on the discharge materials containing certain toxic pollutants. Should any contaminated material be detected, contaminated dredged material that exhibits acute toxicity will be managed for alternate disposal at a permitted upland facility. Dredged materials identified for alternate disposal may be managed with additional engineering processes to ensure contaminated sediment and associated sediment pore water retained in the dredging process will comply with the 404 guidelines, standards, and alternate disposal facility requirements.

E. Compliance with the Endangered Species Act of 1973

There would be no affect to Federally listed species under the jurisdiction of the National Marine Fisheries Service. There would be no affect to critical habitat as none occurs in the Action Area. Effects to the piping plover, red knot, roseate tern, and northern long-eared bat would be may affect, not likely to adversely affect. A Biological Assessment was submitted to the U.S. Fish and Wildlife Service and consultation has concluded.

F. Compliance with Specific Measures for Marine Sanctuaries Designated by the Marine Protection, Research, and Sanctuaries Act of 1972

Not Applicable – the study is not located in a marine sanctuary and no marine sanctuaries would be affected by the Recommended Plan.

G. Evaluation of the Extent of Degradation of Waters of the United States

1. Significant Adverse Effects on Human Health and Welfare

- a. Municipal and Private Water Supplies** – The project would not affect municipal or private water supplies.
- b. Recreational or Commercial Fisheries** – The reduced use of the Bradford Bay Open Water Placement Disposal Site would provide benefits to commercial and recreational fishery species. Dredged material placement at the Fools Gut Marsh Island would create temporary, negligible to minor increases in Total Suspended

Solids that may cause some temporary, negligible disturbance effects to fishery species but no long term effects on fisheries would be anticipated. Enhancement to the tidal marsh island would provide temporary, negligible to minor benefits for fishery species that use the marsh island habitat for foraging and/or nursery grounds.

- c. **Plankton** - Because the increases in Total Suspended Solids and turbidity would be temporary and negligible to minor we would not anticipate impacts to the plankton community.
- d. **Fish** – The reduced use of the Bradford Bay Open Water Placement Disposal Site would provide benefits to the local fish community. Dredged material placement at the Fools Gut Marsh Island would create temporary, negligible to minor increases in Total Suspended Solids that may cause some temporary, negligible disturbance effects to fish species but no long term effects on fisheries would be anticipated. Enhancement to the tidal marsh island would provide temporary, negligible to minor benefits for fish species that use the marsh island habitat for foraging and/or nursery grounds.
- e. **Shellfish** - During dredged material placement activities at the Fools Gut Marsh Island there may be a negligible to minor increase in Total Suspended Solids and turbidity in the water column adjacent to the dredged material placement operation. However, we would deploy a temporary, Type III Turbidity Curtain prior to placement operations in order to reduce the potential impacts to local water quality and the benthic community during dredged material placement operations. Because the turbidity would be mitigated by Best Management Practices, we would not anticipate any resulting burial or mortality of the benthic community. We would anticipate that impacts resulting from water quality impacts to the benthic community would be temporary, adverse, and negligible to minor.
- f. **Special Aquatic Sites** - The project area is located in the Delmarva barrier island system. This project would serve to provide temporary, negligible to minor benefits to Cedar Island Back-barrier tidal wetlands and mudflats.

2. Significant Adverse Effects on Life Stages of Aquatic Life and Other Wildlife Dependent on Aquatic Ecosystem

There would be no significant, adverse effects on any life stages or aquatic or other wildlife that is dependent on the aquatic ecosystem. Overall impacts of the project would be temporary, beneficial and negligible to minor for the tidal marsh island and associated fish and wildlife resources.

3. Significant Adverse Effect on Aquatic Ecosystem Diversity, Productivity, and Stability

There would be no significant, adverse impacts on aquatic ecosystem diversity, productivity, and stability. Implementation of the Recommended Plan would be anticipated to enhance aquatic ecosystem diversity, productivity, and stability.

4. Significant Adverse Effect on Recreational, Aesthetic, and Economic Values

There would be no anticipated significant, adverse impacts to recreational, aesthetic, or economic values.

H. Appropriate and Practicable Steps Taken to Minimize Potential Adverse Impacts of the Discharge on the Aquatic Ecosystem

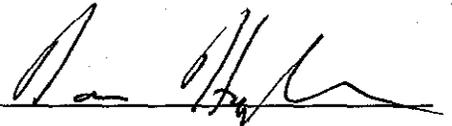
Appropriate steps to minimize potential adverse impacts from any discharges on aquatic systems have been incorporated.

I. Finding

The proposed placement of dredged material are specified as complying with the requirements of the 404(b)(1) Guidelines, with the inclusion of appropriate and practicable conditions as identified herein to minimize pollution or adverse effects on the aquatic ecosystem. These conditions will be attached and made part of the project record.

7-17-19

Date

for 

Susan L. Conner
Chief, Planning and Policy Branch
Norfolk District, USACE

References

Priest, W., I, III, Frye, C.W., Nestlerode, J., Byrne, R.J. 1996. Beneficial Uses of Dredged Material from the Waterway on the Coast of Virginia (WCV). Final Report of the Virginia Marine Resources Commission, Virginia Institute of Marine Science to The Department of Environmental Quality Virginia Coastal Resource Management Program and The National Oceanic and Atmospheric Administration.

The Center for Conservation Biology. 2019. CCB Mapping Portal. VA Eagle Nest Locator. Retrieved from: <http://www.ccbirds.org/maps/>.

U.S. Army Corps of Engineers. 1983. Dredging and Dredged Material Disposal. Engineer Manual 1110-2-5025, Office, Chief of Engineers, Washington, DC.

U.S. Environmental Protection Agency (USEPA). 1998. Evaluation of dredged material proposed for discharge in waters of the U.S. – testing manual, inland testing manual. Prepared by Environmental Protection Agency, Office of Water, Office of Science and Technology, Washington, D.C. and Department of the Army, U.S. Army Corps of Engineers, Operations, Construction, and Readiness Division, Washington.

14-41-1