

Appendix C
Section 404 (b)(1) Analysis

CLEAN WATER ACT SECTION 404 (b)(1) EVALUATION U.S. ARMY CORPS OF ENGINEERS

PROJECT: Maurice River Federal Channel Maintenance and Beneficial Use of Dredged Material

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PROJECT DESCRIPTION: The Maurice River Federal Navigation Channel, adopted as HD 59-644 in 1910 and modified as HD 73-275 in 1935, provides for a channel 7 feet deep and 150 feet wide in Delaware Bay across Maurice Cove to the mouth; thence a channel 7 feet deep, 100 feet wide to the fixed bridge at Millville, 21.5 miles above the mouth, and then 60 feet wide to the mill dam, a further distance of one-half mile, including a turning basin 7 feet deep at Millville. The USACE proposes to conduct maintenance dredging of a portion of the lower Maurice River federal navigation channel in the cove to authorized depth of 7 ft MLLW with 2 ft allowable overdepth in winter 2022. Dredging will remove critical shoaling in priority areas identified by channel users to maintain a safe and reliable navigation channel for commercial and recreational vessels.

The USACE has prepared an Environmental Assessment that evaluates a No Action alternative and alternative placement plans to beneficially use the channel dredged material to place in a degraded (flooded) wetland habitat within the Heislerville Wildlife Management Area (WMA). Along with channel maintenance dredging, the beneficial use placement component provides sediment enrichment to the flooded system and may provide natural infrastructure for increased storm and flood protection to the Heislerville dike. The operation will initially employ a hydraulic pipeline dredge to pump approximately 150,000 cubic yards of dredged material into the adjacent flooded marsh area (approximately 18 acres) within the Heislerville WMA. The environmental benefits include storm surge protection to the vulnerable Heislerville dike, improvement of water quality through the reduction of marsh edge erosion, and wetland habitat restoration.

Impacts associated with implementing the maintenance dredging and beneficial use placement operation include short-term impacts from construction such as temporary impacts to approximately 18 acres of existing subtidal, intertidal shallow water and low marsh habitat. Other temporary impacts are increased turbidity and noise, temporary impacts to aesthetics, and the temporary displacement of wildlife from the area.

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.

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

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

YES NO

d. Appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem

YES NO

Technical Evaluation Factors (Subparts C-F).

	N/A	Not Signif	Signif		
		cant	cant		
a. Potential Impacts on Physical and Chemical Characteristics of the Aquatic Ecosystem (Subpart C) (Sec. 230.20-230.25).					
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)(Sec. 230.30-230.32).					
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)(Sec. 230.40-230.45).					
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)(Sec 230.50-230.45)					
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		

2. Evaluation and Testing (Subpart G) (Sec. 230.60-230.61)

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) Hydro-geography in relation to known or anticipated sources of contaminants..... | | X |
| 3) Results from previous testing of the material or similar material in the vicinity of the project .. | | X |
| 4) Known, significant sources of persistent pesticides from land runoff or percolation | | X |
| 5) Spill records for petroleum products or designated hazardous substances (Section 311 of CWA) | | X |
| 6) Public records of significant introduction of contaminants from industries, municipalities, or other sources | | X |
| 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 | | X |
| 8) Other sources (specify) | | |

List appropriate references.

Final Environmental Assessment for Maurice River Maintenance Dredging and Beneficial Use Placement of Dredged Material.

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

3. 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 | | X |
| 5) Discharge vessel speed and direction | | X |
| 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 | | |

- 9) Other factors affecting rates and patterns of mixing (specify) | X|

List appropriate references:

- Draft Environmental Assessment for
 b. An evaluation of the appropriate factors in 4a above indicates that the disposal site and/or size of mixing zone are acceptable | X| | |
 YES NO

4. Actions To Minimize Adverse Effects (Subpart H)(Sec. 230.70-230.77).

- 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| | |
 NO

List actions taken:

- a. Operations will be scheduled during nonproductivity periods of the year.
 b. Lessons learned from previous similar operations will be implemented to minimize adverse effects to the environment such as employing stabilization measures such as turbidity curtains, earthen berms, and/or coir logs.

5. 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 | | NO | |
- g. Cumulative effects on the aquatic
ecosystem. YES | | NO | |
- h. Secondary effects on the aquatic
ecosystem. YES | | NO | |

6. **Findings of Compliance or non-compliance.** (Sec. 230.12)

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