US Army Corps of Engineers ®
Wilmington District

ENVIRONMENTAL ASSESSMENT

and

FINDING OF NO SIGNIFICANT IMPACT (FONSI)

Morehead City Harbor

Federal Navigation Project

Navigation Corridor

March 2018

US Army Corps of Engineers ®
Wilmington District

FINDING OF NO SIGNIFICANT IMPACT

ENVIRONMENTAL ASSESSMENT

MOREHEAD CITY HARBOR FEDERAL NAVIGATION PROJECT

NAVIGATION CORRIDOR

The U.S. Army Corps of Engineers, Wilmington District (Corps), has conducted an environmental assessment in accordance with the National Environmental Policy Act of 1969, as amended. The Corps assessed the effects associated with the establishment of a navigation corridor at Morehead City Harbor in the Environmental Assessment (EA), dated March 2018, for the *Morehead City Harbor Federal Navigation Project Navigation Corridor*.

As District Commander, U.S. Army Corps of Engineers, Wilmington District, it is my duty in the role of responsible Federal official to review and evaluate, in light of public interest, the stated views of other interested agencies and concerned public, the environmental effects of this proposed action.

My evaluation and findings are as follows:

1. PROJECT DESCRIPTION

The focus of the Environmental Assessment (EA) is the establishment of a navigation corridor within the westward section of the 'Cutoff' and 'Range A' reaches of the Morehead City Harbor Federal Navigation Channel within Beaufort Inlet. The Wilmington District would not maintain the entire widened area, but would follow natural deep water to dredge a channel of the same width as the existing authorization (varying from 600-800 feet in width) within this wider corridor. The exact location of the channel would move over time within this wider corridor to take advantage of naturally-occurring deep water. The establishment of a navigation corridor would not result in a new permanent channel alignment; however, it would provide flexibility and cost savings in maintaining the Morehead City Harbor federal navigation channel. The maintenance dredging of the authorized channel dimensions would occur within the least shoaled

areas present within either the current alignment or the proposed navigation corridor area west of the existing channel. Placement of dredged material would remain consistent with current authorized placement methods and is typically based on sediment quality. Typically, beach quality material is placed on Bogue Banks beaches or in the approved nearshore placement areas and fine-grained material (not beach or nearshore compatible) is placed in the Ocean Dredged Material Disposal Site (ODMDS) in the area designated for fine-grained material. As a general rule, beach quality material is that material which is greater than or equal to 90 percent sand. Anytime beach quality material is placed in the ODMDS, it is placed in an area designated for beach quality material, making it accessible for beach placement at some point in the future. The dredged material would be placed in accordance with the Morehead City Harbor DMMP.

2. COORDINATION

In September 2017, the Wilmington District coordinated the recommended proposed action with federal, state, and local agencies through circulation of the draft EA for a 30-day review period. By letter dated February 12, 2016, the State Historic Preservation Office of North Carolina provided a concurrence letter that no historic resources would be affected by the project (Appendix A). The U.S. Fish and Wildlife Service provided a concurrence letter dated October 26, 2017, satisfying requirements of Section 7 of the Endangered Species Act (Appendix F). The NOAA National Marine Fisheries Service provided a concurrence letter for no adverse effect to federally managed species and essential fish habitat (EFH) dated October 25, 2017 (Appendix F). A Coastal Area Management Act (CAMA) Federal Consistency Concurrence letter from the North Carolina Division of Coastal Management (NCDCM) was received on February 8, 2018 (Appendix H).

A Section 401 Water Quality Certification (WQC) under the Clean Water Act (CWA) of 1977 (P.L. 95-217), as amended, will not be required for the dredging portion of the project since there is no regulated discharge. A WQC #4099 has been obtained for dredged material placed in the authorized nearshore placement areas or beach placement area as part of this project (Appendix B). All conditions of the Section 401 WQC will be met.

All comments received during public review of the draft EA were considered during the preparation of the final EA. Appendix F includes all correspondence related to the Morehead City Harbor Federal Project Navigation Corridor, and Appendix G includes the Corps' responses to comments received on the draft EA. The final EA is available on the Wilmington District website at:
http://www.saw.usace.army.mil/Missions/Navigation/Dredging/Morehead-City-Harbor/.

3. DETERMINATION

Based on the EA prepared for this project, I have determined that this action does not constitute a major Federal action significantly affecting the quality of the human environment. Therefore, the action does not require the preparation of a detailed statement under Section 102(2)(C) of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.). My determination was made considering the following factors discussed in the EA, to which this document is attached:

a. The proposed action would not significantly impact any threatened or endangered species potentially occurring in the project area.

b. No significant cumulative or secondary impacts would result from implementation of this action.

c. The proposed action would not significantly impact cultural resources.

d. The proposed action would result in no significant impacts to air or water quality.

e. The proposed action would result in no significant adverse impacts to fish and wildlife resources.

f. The proposed action would not cause any environmental health risks or safety risks that may disproportionately affect children and complies with Executive Order 13045, "Protection of Children from Environmental Health Risks and Safety Risks."

g. The proposed action will not cause any disproportionately high and adverse human health or environmental effects on minority populations and low-income populations and complies with Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations."

4. FINDINGS AND CONCLUSIONS

The proposed action to establish a navigation corridor within the Morehead City Harbor federal navigation channel would result in no significant environmental impacts.

Date: 19 MAR 18

Robert J. Clark
Colonel, U.S. Army
District Commander

Table of Contents

Contents

Figures

Tables

List of Appendices

Environmental Assessment
Morehead City Harbor
Federal Navigation Project
Navigation Corridor
March 2018

1.0 INTRODUCTION

The U.S. Army Corps of Engineers (USACE), Wilmington District is preparing this Environmental Assessment (EA) for the establishment of a navigation corridor for the Morehead City (MHC) Harbor Federal navigation project, within Beaufort Inlet, Carteret County, North Carolina (NC) (Figure 1). The focus of the Environmental Assessment (EA) is the establishment of a navigation corridor within the westward section of the 'Cutoff' and 'Range A' reaches of the Morehead City Harbor Federal Navigation Channel within Beaufort Inlet. The Wilmington District would not maintain the entire widened area, but would follow natural deep water to dredge a channel of the same width as the existing authorization (varying from 600-800 feet in width) within this wider corridor. The exact location of the channel would move over time within this wider corridor to take advantage of naturally-occurring deep water. The establishment of a navigation corridor would not result in a new permanent channel alignment; however, it will provide flexibility and cost savings in maintaining the Morehead City Harbor federal navigation channel. The maintenance dredging of the authorized channel dimensions would occur within the least shoaled areas present within either the current alignment or the proposed navigation corridor area west of the existing channel. Placement of dredged material would remain consistent with current authorized placement methods and is typically based on sediment quality. Typically, beach quality material is placed on Bogue Banks beaches or in the approved nearshore placement areas and fine-grained material (not beach or nearshore compatible) is placed in the Ocean Dredged Material Disposal Site (ODMDS) in the area designated for fine-grained material. As a general rule, beach quality material is that material which is greater than or equal to 90 percent sand. Anytime beach quality material is placed in the ODMDS, it is placed in an area designated for beach quality material, making it accessible for beach placement at some point in the future. The dredged material would be placed in accordance with the Morehead City Harbor DMMP.

The National Environmental Policy Act of 1969, as amended (NEPA), requires consideration of the environmental impacts for major federal actions. The purpose of this EA is to ensure the environmental consequences of the proposed action are considered and that environmental and project information are available to the public. This EA has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations (CFR) parts 1500- 1508), and Engineering Regulation (ER) 200-2-2.

1.1 Authority

The authorities to construct and maintain the Morehead City Harbor Project are discussed in paragraph 5.1, below. The establishment of a navigation corridor in Beaufort Inlet by shifting the western navigation channel boundary approximately 700 feet west is authorized by ER 1165-2-119, paragraph 9: "Where not otherwise precluded by project authorization, the location

of a completed channel may be altered during the course of the periodic maintenance program if the maintenance can thereby be more economically accomplished and related aids to navigation are readily adjustable to suit the restored channel dimensions at the shifted location."

1.2 Project Area and Location

Morehead City Harbor is a federal navigation project located in the Town of Morehead City, North Carolina, approximately 3 miles from the Atlantic Ocean through Beaufort Inlet. The authorized Morehead City Harbor navigation project is divided into two main parts: the deep draft portion and the shallow draft portion. The project area addressed in this EA includes the Cutoff and Range A, two of the ranges within the deep draft portions of the authorized navigation channel (Figure 2).

1.3 History of Morehead City Harbor

Construction of Morehead City Harbor was originally authorized by the 1910 Rivers and Harbors Act. The original authorization allowed for construction of a navigation channel 10 feet deep by 100 feet wide through Beaufort Inlet to the Morehead City Waterfront. The channel dimensions have been subsequently modified through several congressional documents to the current federal authorization, which consists of both deep draft and shallow draft portions. The deep draft portion of the channel consists of three main ranges or sections: 1) the Inner Harbor, which includes the Northwest, West, and East Legs and the northern portion of Range C; 2) the Outer Harbor, which includes the southern portion of Range C, Range B, the Cutoff and Range A out to Station 110+00; and 3) the Outer Entrance Channel, which is made up of the seaward end of Range A (from station 110+00 out). The shallow draft portion includes 3 additional ranges: Range 2, the Basin, and Range 4. This EA deals with two of the deep draft reaches shown in Figure 2 and described below:

Range A: - 47 feet deep mean lower low water (MLLW) with varying widths from 450 to 650 feet from deep water in the Atlantic Ocean to Beaufort Inlet

Cutoff: - 45 feet deep MLLW with varying width from 600 feet to 800 feet; connecting Range A with Range B

These ranges require annual maintenance dredging, which is typically accomplished by a hopper or pipeline dredge. Dredged material from these reaches contains beach quality material that is placed in the approved nearshore placement area west of Beaufort Inlet or on the shoreline at Fort Macon State Park and Atlantic Beach and has also been disposed of in the ODMDS.

2.0 PURPOSE AND NEED

The purpose of the proposed project is to address maintenance dredging challenges at Beaufort Inlet, which will improve the navigability and safety for commercial vessels calling on the Port of Morehead City. The Morehead City Harbor navigation project is considered a geographically fixed channel and Wilmington District has historically maintained the Morehead City Harbor in accordance with this determination. The dynamic nature of Beaufort Inlet and the high shoaling rates have resulted in significant increases in maintenance dredging costs and dredging feasibility

challenges. The shoaling in Beaufort Inlet creates critical pinch points within the channel. The shoaling area that continually poses a maintenance and navigation challenge is the Shackleford Banks spit located on the east side of Range A and the Cutoff (Figure 2). Based on a shoaling rate analysis completed in 2013, the Shackleford Banks spit was moving west into the navigation channel at approximately 250 feet per year. In 2015, the navigation channel was restricted to depths between 5' to 28' across the entire authorized width in the vicinity of the Shackleford Banks spit. Hydrographic surveys performed in 2017 continue to show the Shackleford Banks spit extending into the authorized navigation channel (Figure 3). The 2017 bathymetric survey showed navigable depth has been significantly reduced from -45 feet mean lower low water (MLLW) to areas as shallow as -7.0 feet MLLW within the authorized navigation channel. In order to consistently provide a navigable channel at Morehead City Harbor, a maintenance dredging plan that more closely follows natural deep water is needed.

The most current channel survey data can be found on the Wilmington District USACE website at: http://www.saw.usace.army.mil/Missions/Navigation/Hydrographic-Surveys/Morehead-City-Beaufort-Harbors/. Maintaining this section of the channel, and therefore providing safe navigation, has become extremely challenging with such a rapid shoaling rate and limited project funding. Additionally, the slope of the material within the channel is extremely steep at nearly 3H: 1V, so traditional dredge plants, such as hopper dredges, are unable to adequately remove the shoal. The only dredge plant with the capability to remove the steep, expansive shoal is a large ocean certified pipeline dredge, which has a much higher cost for mobilization and cost per cubic yard to remove material from the channel. Under current project funding levels, this type of dredge is a fiscal possibility about once every 3 years. For this reason, the full project dimensions cannot be achieved or maintained, which results in ship traffic being forced to follow the deeper water west of the channel, outside the existing authorized footprint. This creates a difficult condition for transiting vessels, as successful navigation of the channel requires vessels to execute a precise "S-turn" as they pass between Shackleford Banks and Bogue Banks, in the portion of the channel with highest current velocities. A commercial cargo ship, the Pola Palekh, ran aground in Beaufort Inlet on November 17, 2016. This led the U.S. Coast Guard to close the entire Morehead City Harbor navigation project to deep draft commercial traffic. The purpose of the proposed project is to take advantage of the natural deep water route, thereby reducing maintenance dredging quantities and dredging costs, and improving navigation for commercial, deep draft vessels calling on the Port of Morehead City.

Figure 1: Morehead City Harbor Location Map

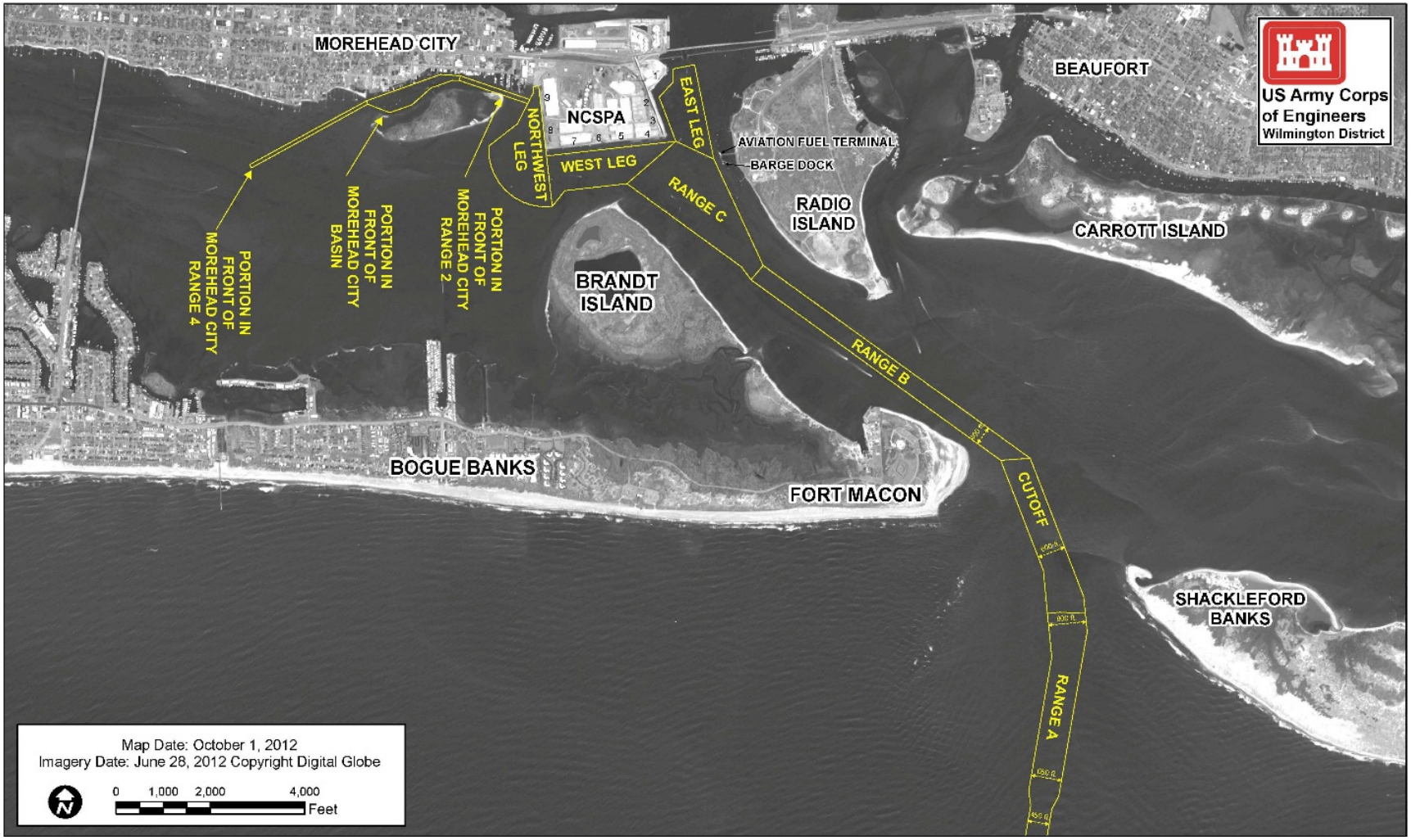


Figure 2: Morehead City Harbor Navigation Project

3.0 INCORPORATION BY REFERENCE

The USACE has produced a number of environmental and planning reports that describe the Morehead City Harbor federal navigation project. These documents were used in the writing and development of this EA and are cited in the References section.

a. U.S. Army Corps of Engineers, Wilmington District. May 1976. Final Environmental Statement, Morehead City Harbor, North Carolina.

b. U.S. Army Corps of Engineers, Wilmington District. May 1976. Morehead City Harbor, North Carolina, General Design Memorandum.

c. U.S. Army Corps of Engineers Wilmington District. October 1983. Morehead City Harbor Beach Disposal, Carteret County, North Carolina, Environmental Assessment.

d. U.S. Army Corps of Engineers, Wilmington District. June 1990 and revised December 1990. Feasibility Report and Environmental Assessment, Morehead City Harbor Improvement, Morehead City, North Carolina.

e. U.S. Army Corps of Engineers, Wilmington District. March 1992. Environmental Assessment and Finding of No Significant Impact, Design Memorandum, Morehead City Harbor Improvement, Morehead City, North Carolina, Project Modifications.

f. U.S. Army Corps of Engineers, Wilmington District. January 1993a. Environmental Assessment and Finding of No Significant Impact, Disposal of Dredged Material on the Ocean Beach of Bogue Banks from the Combined Maintenance Dredging and Deepening of Morehead City Harbor Inner Harbor Navigation Channels and Pumpout of Brandt Island Upland Diked Disposal Site, Carteret County, North Carolina.

g. U.S. Army Corps of Engineers, Wilmington District. April 1993b. Finding of No Significant Impact, Disposal of Dredged Material on the Ocean Beach of Bogue Banks from the Combined Maintenance Dredging and Deepening of Morehead City Harbor, Inner Harbor Navigation Channels, Bulkhead Channel, U.S. Navy Landing Ship Tank (LST) Ramp, and Pumpout of Brandt Island Upland Diked Disposal Site, Carteret County, North Carolina.

h. U.S. Army Corps of Engineers, Wilmington District. August 1994a. Environmental Assessment, Designation and Use of a Placement Area for Underwater Nearshore Berm, Morehead City Harbor Project, Morehead City, North Carolina.

i. U.S. Army Corps of Engineers, Wilmington District. December 1994b. Finding of No Significant Impact, Designation and Use of a Placement Area for Underwater Nearshore Berm, Morehead City Harbor Project, Morehead City, North Carolina.

j. U.S. Army Corps of Engineers. 2001. "Section 111 Report, Morehead City Harbor/Pine Knoll Shores North Carolina", U.S. Army Corps of Engineers, Wilmington District, South Atlantic Division

k. U.S. Army Corps of Engineers, Wilmington District. May 2003. Draft Evaluation Report and Environmental Assessment, Morehead City Harbor Section 933, Carteret County, North Carolina.

l. U.S. Army Corps of Engineers, Wilmington District. June 2009. Environmental Assessment and Finding of No Significant Impact, Interim Operations Plan. Morehead City Harbor, North Carolina.

m. U.S. Army Corps of Engineers, Wilmington District. March 2017. Morehead City Harbor Dredged Material Management Plan (DMMP), Morehead City, North Carolina.

4.0 ALTERNATIVES

4.1 Proposed Action: Establish Navigation Corridor

The focus of the Environmental Assessment (EA) is the establishment of a navigation corridor within the westward section of the 'Cutoff' and 'Range A' reaches of the Morehead City Harbor Federal Navigation Channel within Beaufort Inlet (Figure 3). The Wilmington District would not maintain the entire widened area, but would follow natural deep water to dredge a channel of the same width as the existing authorization (varying from 600-800 feet in width) within this wider corridor. The exact location of the channel would move over time within this wider corridor to take advantage of naturally-occurring deep water. Establishment of a navigation corridor would provide flexibility and cost savings in maintaining the Morehead City Harbor federal navigation channel. The maintenance dredging of the authorized channel dimensions would occur within the least shoaled areas present within either the current alignment or the proposed navigation corridor area west of the existing channel. Placement of dredged material would remain consistent with current authorized placement methods and is typically based on sediment quality. Typically, beach quality material is placed on Bogue Banks beaches or in the approved nearshore placement areas and fine-grained material (not beach or nearshore compatible) is placed in the Ocean Dredged Material Disposal Site (ODMDS) in the area designated for fine-grained material. As a general rule, beach quality material is that material which is greater than or equal to 90 percent sand. Anytime beach quality material is placed in the ODMDS, it is placed in an area designated for beach quality material, making it accessible for beach placement at some point in the future. The dredged material would be placed in accordance with the Morehead City Harbor DMMP.

Shoaling rates in Beaufort Inlet are expected to continue at the same rate and pattern. As a result, the Cutoff portion of the channel will attempt to continue migrating west. To prevent migration of the channel westward (due to encroachment of the Shackleford Banks spit from the east), the USACE plans to mobilize a large pipeline dredge about once every three years, as funds allow, to dredge the channel in its historic location. This will keep the fluctuation of the channel within the established corridor widths. Use of the corridor would occur, on average, two out of every three years of the 3-year maintenance dredging cycle. Establishment of the corridor is expected to reduce maintenance dredging costs and to provide the USACE with increased flexibility in maintaining the Morehead City Harbor channel.

4.2 No Action: Continue to Dredge Authorized Fixed Channel

Under the no action alternative, the USACE would continue to maintain the federally authorized channel in a fixed location. This alternative does not meet the need to reduce maintenance dredging requirements or the need to improve navigation for ships utilizing the Morehead City State Port Terminal. Beaufort Inlet, and especially the Shackleford Banks area, is a very dynamic and constantly changing system. The shoaling rate within the 'Cutoff Channel' is very aggressive, and for the past 5 years, the USACE has not received adequate funding to properly dredge the channel to the fully authorized dimensions. If current funding levels continue in future years, the no action alternative would continue to result in draft restrictions for the Project. While adequate in times of full funding, this alternative's lack of flexibility makes it a less than optimum choice for meeting the purpose and need for the Morehead City Harbor navigation project. Under the no action plan, disposal of dredged material would be in accordance with the Morehead City Harbor DMMP.

4.3 Develop Advanced Maintenance on the Channel Slope to Prevent Accelerated Shoaling

This alternative would involve dredging the channel wider and deeper than the authorized dimensions, along the outside of the channel to the east where the accelerated shoaling is occurring. This advanced maintenance could also involve reducing (flattening) the channel side-slope angle from 3:1 to 5:1.s. Advanced maintenance is dredging to a specified depth and/or width beyond the frequent re-dredging and ensures the reliability and least overall cost of operating and maintaining the project's authorized dimensions. ER 1130-2-520, Chapter 8-2(7) provides that for maintenance dredging of existing projects, Major Subordinate Commanders (MSC) (Division Commanders) are authorized to approve advanced maintenance based on written justification. This option is not viable for several reasons: (1) the restriction of dredge plant options to only a pipeline dredge would limit available contractors to perform the work, and potentially increase costs, (2) the shoaling rates on the west end of Shackleford banks would still occur, which would result in no improvement to the USACE ability to maintain navigable widths, (3) this alternative is more likely to affect the western portion of Shackleford Banks, which is currently designated by the U.S. Fish and Wildlife Service as critical habitat for the piping plover, a federally listed threatened species.

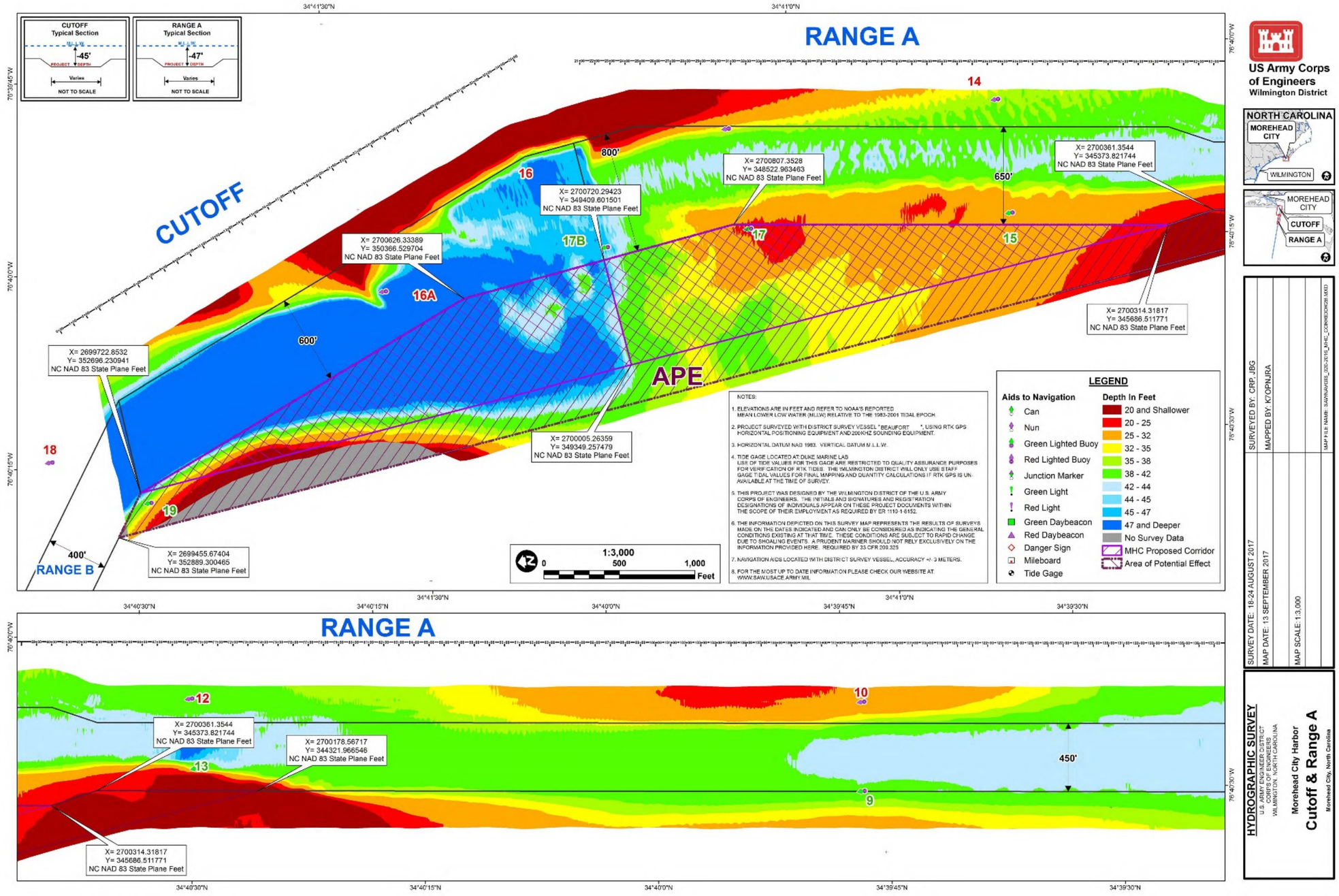


Figure 3: Proposed Navigation Corridor, Morehead City Harbor

4.4 Permanently Relocate the Authorized Channel

Permanently shifting the channel alignment approximately 700 feet west, away from the Shackleford Banks spit, so that the western channel boundary is the same as the 700' shift described above, would provide a navigation channel more aligned with the current natural deep water and would reduce maintenance dredging requirements. However, if the channel alignment is permanently shifted, it would still require the USACE to maintain a fixed channel in a dynamic inlet. This does not allow for the flexibility to adapt to future conditions, which is needed to adequately maintain the channel, and therefore does not improve on the no action alternative. This alternative does not meet the purpose and need and was eliminated from further consideration.

4.5 Construct a Terminal Groin on Shackleford Banks

This alternative would construct a terminal groin on the west end of Shackleford Banks to help retain sand on the barrier island. Based on past coordination with the National Park Service (NPS) during the formulation of the Morehead City Harbor DMMP, the terminal groin alternative was ruled out as not being feasible due to inconsistency with NPS policy. Section 4.8.1.1 of the 2006 NPS Management Policies pertains to shorelines and barrier islands. The section states that:

> Natural shoreline processes (such as erosion, deposition, dune formation, overwash, inlet formation, and shoreline migration) will be allowed to continue without interference. Where human activities or structures have altered the nature or rate of natural shoreline processes, the Service will, in consultation with appropriate state and federal agencies, investigate alternatives for mitigating the effects of such activities or structures and for restoring natural conditions…

The evaluation of a new terminal groin would not further the NPS policy of restoring natural processes and conditions nor would it likely be compatible with NPS wilderness policies, which permit management intervention to correct for human impacts, but only to the extent necessary and consistent with the minimum requirement concept. A structure such as a terminal groin would not likely meet these protective criteria, particularly in light of funding limitations or other factors which may reduce the frequency and/or volume of sediment placement. Additionally, the effectiveness of such a measure has not been modeled, and would take substantial time and funding to evaluate. Therefore, this alternative was eliminated from further consideration.

5.0 AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS

This section will only address the proposed action and the no action alternatives. Other alternatives considered were eliminated early in the planning process and will not be addressed in the following sections. Also, the focus of the following sections is dredging, not disposal or placement of dredged material, which has been addressed in the documents incorporated by reference.

5.1 General Harbor Setting

The Morehead City Federal Navigation channel is located in Carteret County, North Carolina. The construction of Morehead City Harbor was originally authorized by the 1910 Rivers and Harbors Act (H.D. 649, 61st Cong. 2nd sess). The original authorization allowed for construction of a navigation channel 10 feet deep by 100 feet wide through Beaufort Inlet to the Morehead City Waterfront, there after a channel 10 deep by 200 feet wide along the Morehead City wharves. The project's channel dimensions were modified several times, including expansion of the project to provide navigation channels and turning basins which service the North Carolina State Ports Authority (NCSPA) facilities, by the following Acts of Congress: River and Harbor Act of 1930 (Public Law 71-520); River and Harbor Act of 1937 (Public Law 75-392); River and Harbor Act of 1958 (Public Law 85-500); River and Harbor Act of 1970 (Public Law 91-611); Section 1002 of the Water Resources Development Act of 1986 (Public law 99-662); Section 101(14) of the Water Resources Development Act of 1992 (Public Law 102-580); and Section 553 of the Water Resources Development Act of 2000 (Public Law 106-541)

The current federal authorization for the Morehead City Harbor project consists of both deep draft and shallow draft portions. The deep draft portion of the project provides navigation channels from the deep water of the Atlantic Ocean to the NCSPA facilities. The shallow draft portion of the project provides for navigation channels from the waterfront docks at Downtown Morehead City to the deep draft portion of the project. All channels, including channel dimensions and cross-sections, within the Morehead City Harbor project are shown on Figure 4. The Proposed Action may change the alignment of the "Cutoff" and "Range A" sections of the MHC project, but channel dimensions would not increase. The District would not maintain the entire widened area, but would follow natural deep water to dredge a channel of the same width as the existing authorization (varying from 600-800 feet in width) within this wider corridor.

5.2 Physical Resources

5.2.1 Sediments

The Wilmington District conducted an evaluation of existing subsurface data within the Morehead City Harbor Corridor extending to the limits of the Area of Potential Effect (APE) (Figure 4). The quality of material that lies within new areas to be dredged in the proposed corridor was evaluated to determine placement options, but the historic boring layout and spacing were found to be insufficient to properly characterize the material. The previous investigations seemed to indicate a presence of beach quality material, yet further investigation was needed to characterize subsurface trends. The 2016 and 2017 investigations were conducted to identify trends in the spatial distribution of sediments and to identify any data gaps that were not addressed by previous investigations (Figure 5).

Samples were collected within the Cutoff (Corridor -45 feet Mean Lower Low Water (MLLW)) and Range A (Corridor -47 feet MLLW). The Cutoff and Range A; both have 2 feet of allowable dredge overdepth. The purpose of the subsurface investigation was to evaluate the quality and volume of dredged material within the investigation site (Cutoff and Range A).

The green zones in Figures 5 through 7 depict beach quality material, as determined by the composite percent fines passing the number (#) 200 (0.075 millimeter) sieve. Upon completion of the 2016 subsurface investigation, the proposed corridor area was not fully characterized, so a subsequent investigation was conducted in 2017.

The 2016 and 2017 subsurface investigations indicated a significant amount of beach quality fill material; however there is fine-grained (non-beach quality) material that occurs in discrete zones within the dredge prism. "Surficial" Depth Dredge Zone Map (Figure 6) and "Project Depth" Dredge Zone Map (Figure 7) illustrate the beach quality and non-beach quality material. Table 1 and Table 2 have been generated in association with the "Surficial" and "Project Depth" Maps; these tables are to be used as a reference when observing the specific cut elevation map. "Surficial" and "Project Depth" are defined respectively as ocean bottom to -36 feet MLLW, and approximately -36 feet MLLW to project depth (which is -45 feet MLLW in the Cutoff and -47 feet MLLW in Range A). The zones (1-11) in Figure 6 and Figure 7 have been characterized by color to differentiate between beach quality material (green) and non-beach quality material (red). The zone color characterization has been determined by the weighted mean grain size, and percent passing the #200 Sieve within that specific zone. Zone volumes of material within a zone have been identified in a table on the left hand side within Figure 6 and Figure 7, or in Table 1 and Table 2, respectively.

As presented in Tables 1 and 2, calculated averages for percent retained (the #10 Sieve), percent passing (the #200 and #230 Sieves), and mean grain size (in mm) are weighted within each drilling log. Drilling logs within a zone are re-weighted and averaged to determine mean grain size to the dredge cut elevation within that specific zone. For example, Zone 2 (Table 1) contains three drill logs within that zone and the average weighted mean grain size for that zone is 0.4390 mm (as seen in bold text).

Within the proposed Morehead City Harbor Corridor (new area to be dredged) there are approximately 204,000 cubic yards (cy) of non-beach quality material. According to the USCS and ASTM D2487-92 guideline, the non-beach quality material has a weighted mean grain size of 0.026 millimeters (fine-grained, 10.0% fines or less). There are approximately 902,000 cy of beach quality material (fine sand per ASTM D2487-92) with a mean grain size of 0.391 mm (90.0% or greater sand passing the #200 Sieve). These volume estimates are calculated by adding the similar zones together for both the "Surficial" and "Project Depth" Zone maps. The volumes are approximate in-situ volumes. The volume calculations do not take into consideration volume losses due to various dredging and disposal processes. Additional information describing the sediment sampling investigation is available in the Geotechnical Appendix (Appendix E)

The proposed action, which will attempt to take advantage of natural deep water will remove less sediment from the system than is currently being dredged in the historic channel alignment. This will be positive impact for the system by allowing more sediment to stay within the inlet complex.

The no action plan will result in status quo. Dredged material would be removed on an annual basis and volumes would remain comparable to volumes removed historically. No action would result in more sediments being removed from the system than the proposed plan.

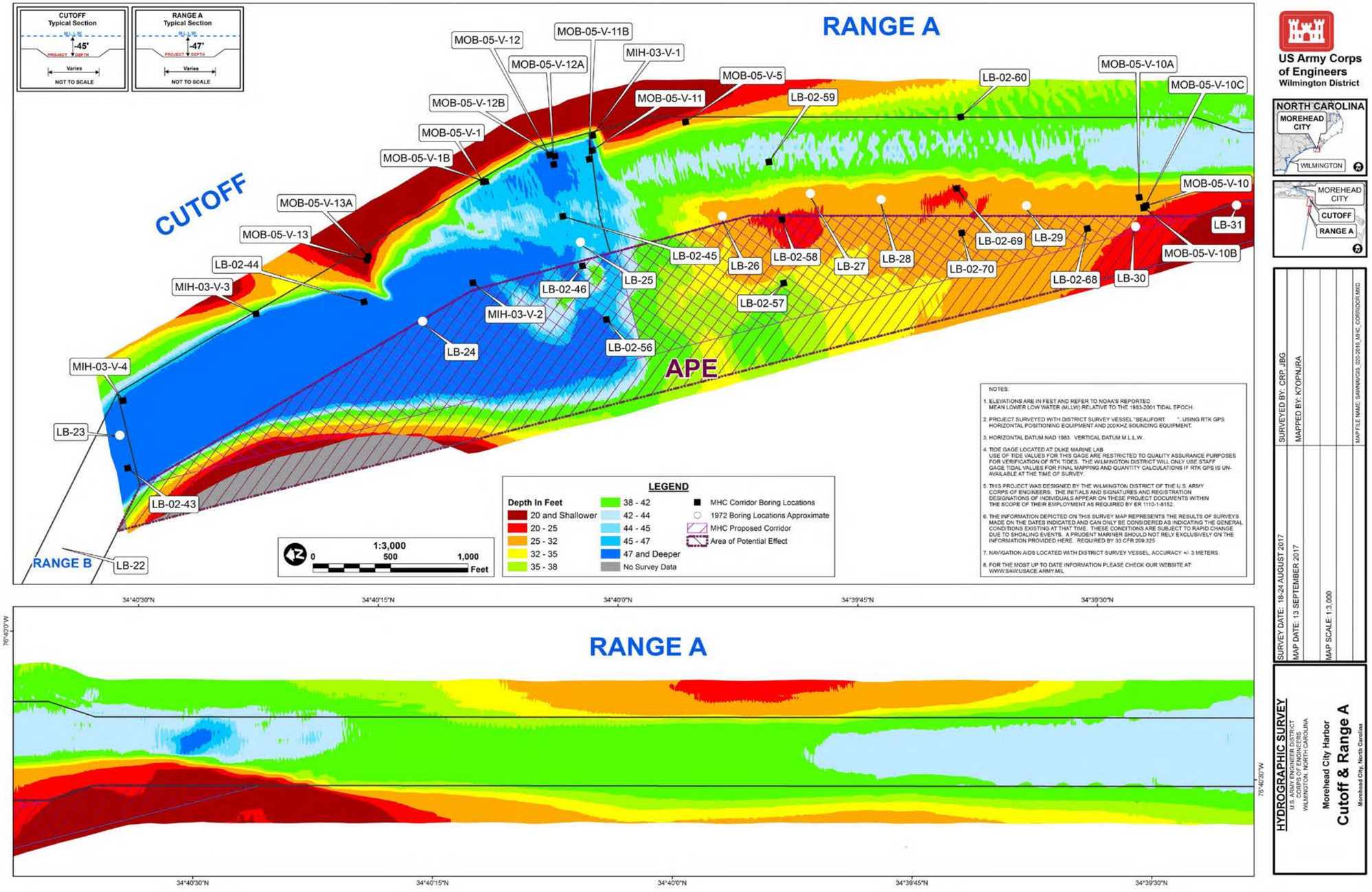


Figure 4: Morehead City Harbor Geotechnical Subsurface Investigation in the Cutoff, Range A

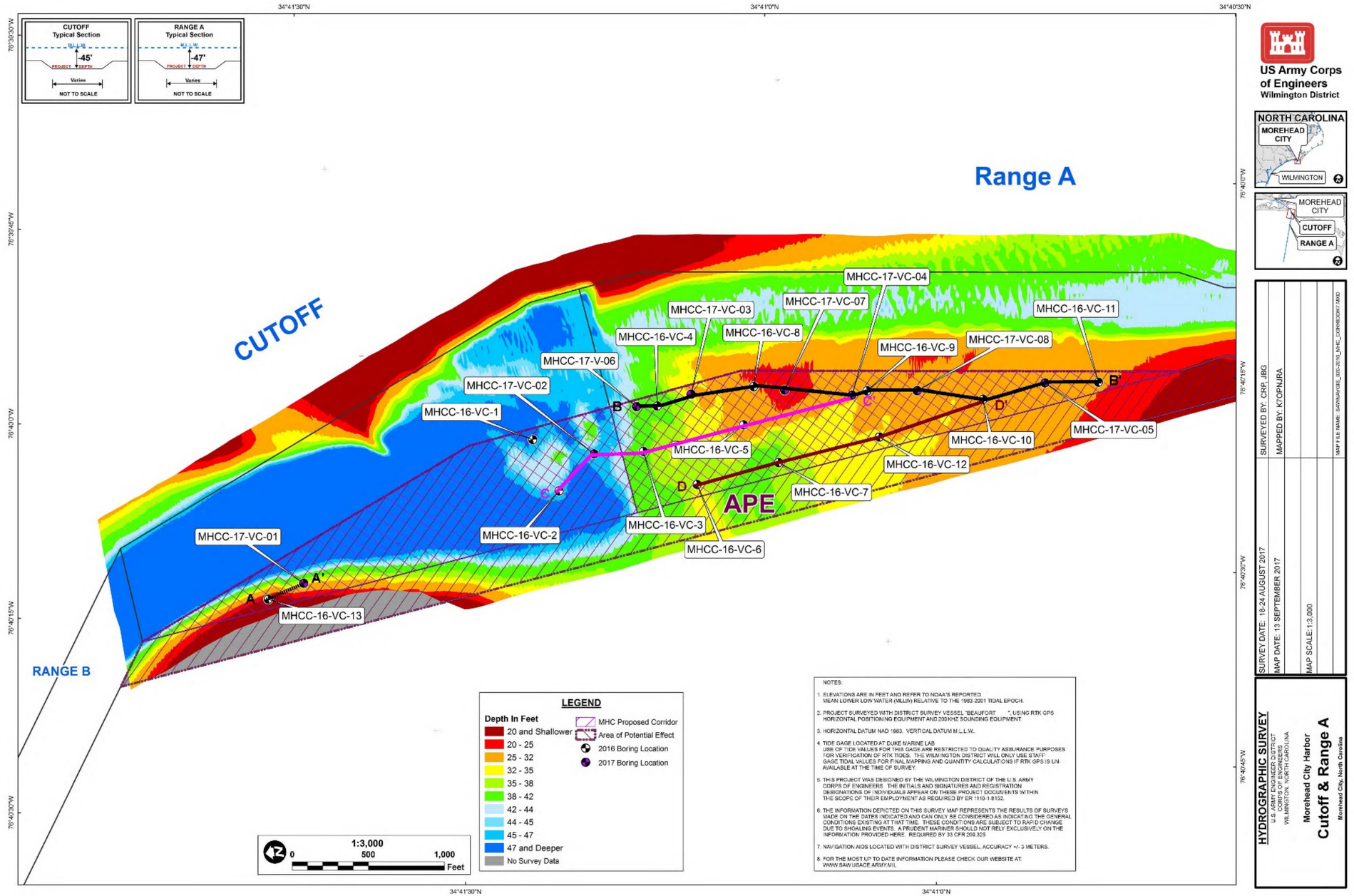


Figure 5: Morehead City Harbor Corridor 2016 and 2017 Geotechnical Subsurface Investigations, Borings with Cross Section Lines: A-A', B-B', C-C', and D-D'

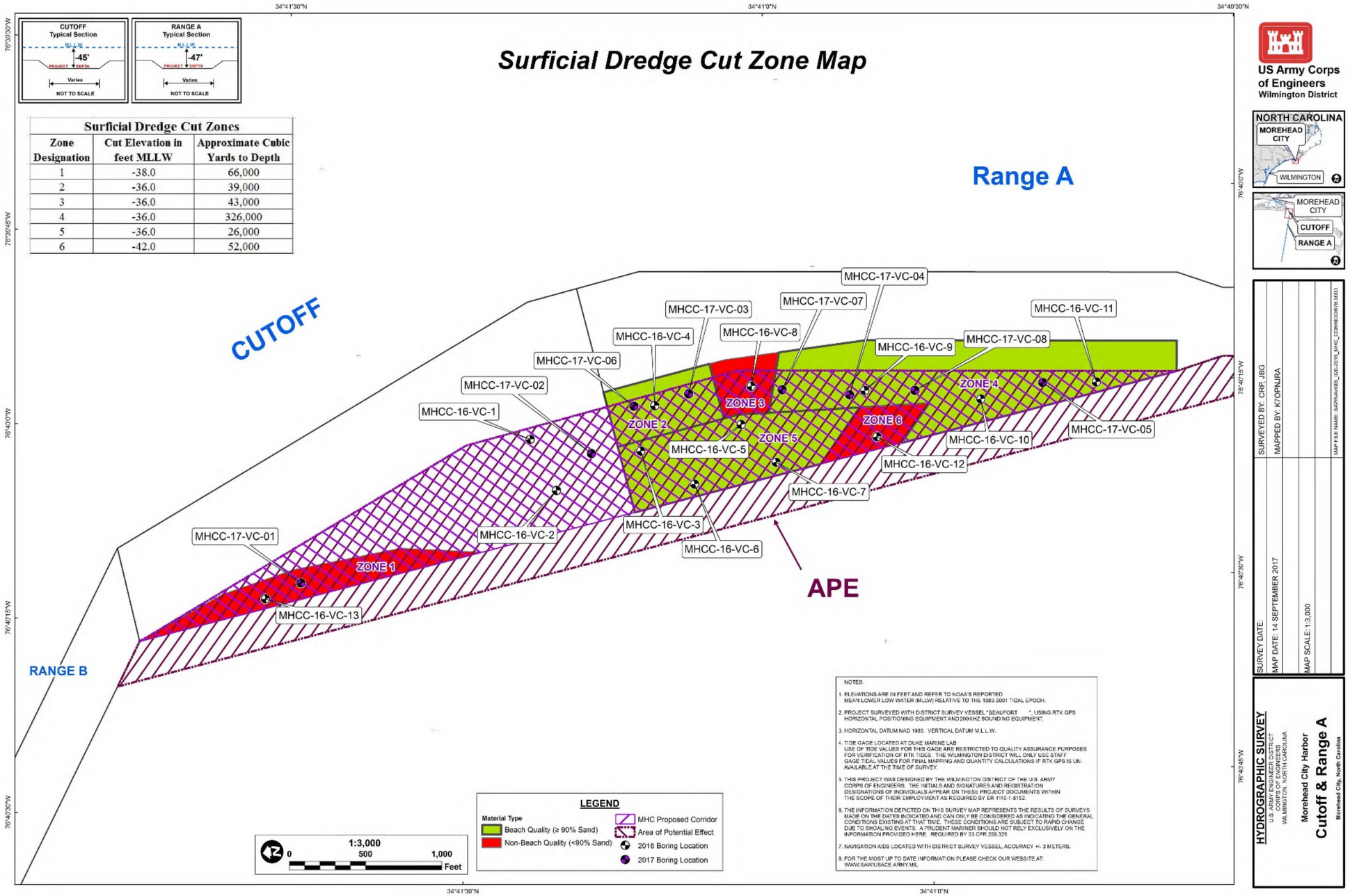


Figure 6: Surficial Dredge Cut Zone Map

Table 1: "Surficial" Depth Cut Zone with Grain Size and Volume Data

Zone Designation	Boring Identification	Top of Core Elevation in MLLW (ft)	Cut Elevation in MLLW (ft)	Cumulative Percent Retained on #10	Weighted Average Percent Passing #200[1]	Weighted Average Percent Passing #230	Weighted Mean Grain Size (mm) to Dredge Cut Elevation Within Zone	ASTM (USCS) Classification[3]	Volume of Beach or Off-Shore Disposal Material (in yd³)	Volume of Off-Shore Disposal Only Material (in yd³)
1	MHCC-16-VC-13	-29.37	-38.0	1.70	80.89	78.60	0.025	Fine Grained		66,000
2	MHCC-16-	-32.59	-36.0	0.00	0.33	0.29	0.489	Medium Sand	39,000	
	MHCC-17-VC-03	-29.90		0.02	0.75	0.69	0.437	Medium Sand		
	Weighted Average of Borings Within Zone[2]			**0.0199**	**0.8330**	**0.6480**	**0.4390**	**Medium Sand**		
3	MHCC-16-VC-8	-25.85	-36.0	7.04	48.82	48.34	0.036	Fine Grained		43,000
4	MHCC-16-	-25.85	-36.0	0.50	0.37	0.32	0.108	Fine Sand	326,000	
	MHCC-16-VC-10	-30.97		1.44	15.83	15.22	0.036	Fine Grained		
	MHCC-16-VC-11	-26.39		5.83	12.63	11.96	0.101	Fine Sand		
	MHCC-17-VC-04	-26.60		0.13	0.61	0.60	1.060	Medium Sand		
	MHCC-17-VC-05	-29.10		28.29	0.72	0.70	0.389	Fine Sand		
	MHCC-17-VC-07	-29.30		0.01	0.71	0.68	1.188	Medium Sand		
	MHCC-17-VC-08	-27.60		8.15	0.74	0.72	0.417	Fine Sand		
	Weighted Average of Borings Within Zone[2]			**0.8769**	**0.2404**	**1.0786**	**0.4160**	**Fine Sand**		
5	MHCC-16-VC-5	-32.55	-36.0	0.00	0.65	0.63	1.750	Medium Sand	26,000	
6	MHCC-16-VC-12	-33.79	-42.0	0.20	95.17	90.64	0.018	Fine Grained		52,000
									Total Volume in Cubic Yards	Total Volume in Cubic Yards
Weighted Mean Grain Size for Entire Project Area to Surficial Dredge Cut Elevation.							**0.4473**		391,000	161,000

NOTE 1: Weighted averages for percent passing sieves are calculated by weight.

NOTE 2: The average in bold is the weighted percent passing (or retained for the #10 column) for the entire zone.

NOTE 3: Sediment Size Classificiations are ASTM D2487-92 version of the USCS; reference USACE EM1110-2-1100.

NOTE 4: Volume Estimates are rounded to the nearest 1,000 Cubic Yards yd³.

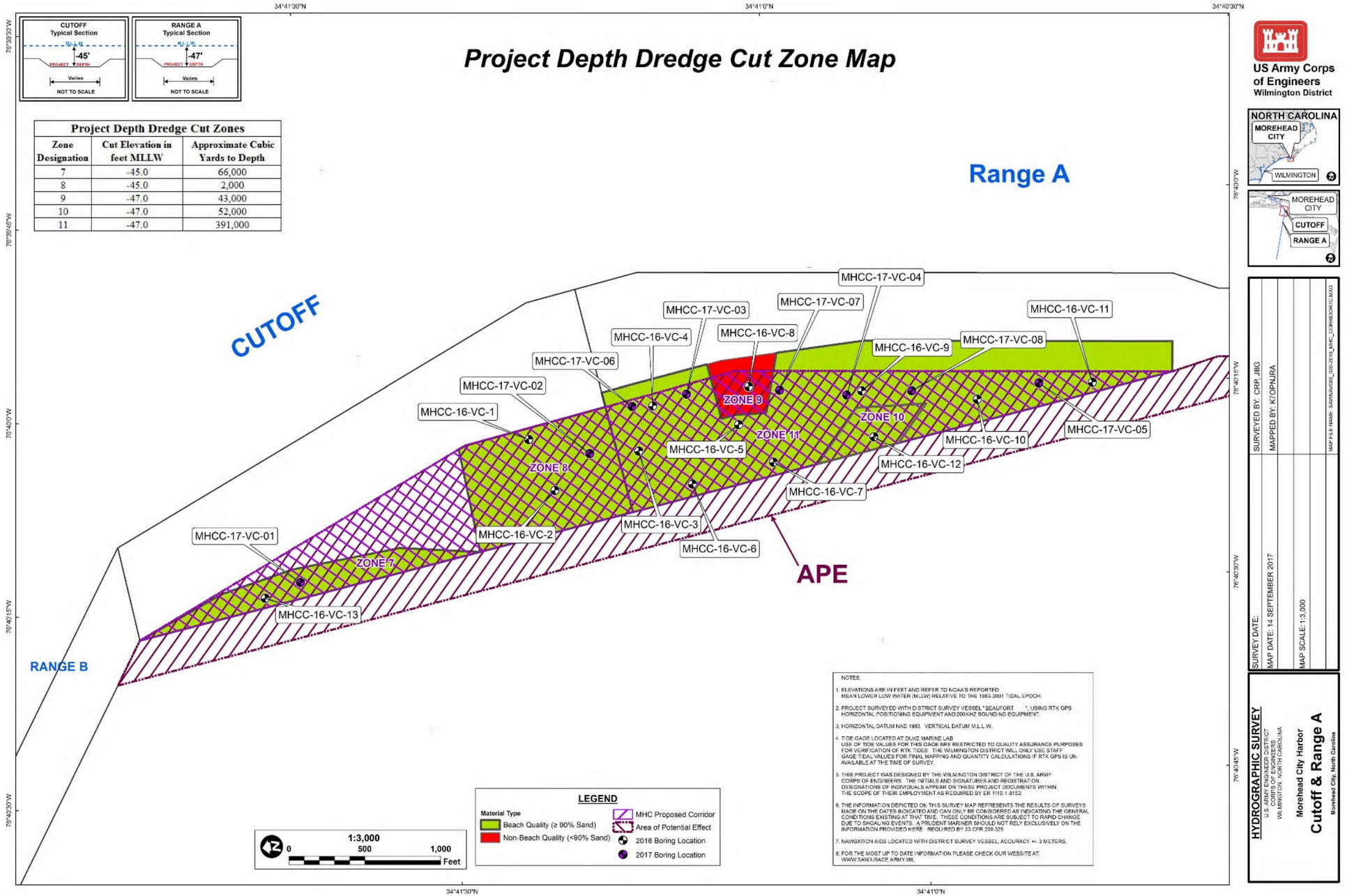


Figure 7: Project Depth Dredge Cut Zone

Table 2: "Project Depth" Dredge Cut Zone with Grain Size and Volume Data

Zone Designation	Boring Identification	Top of Core Elevation in MLLW (ft)	Cut Elevation in MLLW (ft)	Cumulative Percent Retained on #10	Weighted Average Percent Passing #200[1]	Weighted Average Percent Passing #230	Weighted Mean Grain Size (mm) to Dredge Cut Elevation Within Zone	ASTM (USCS) Classification[3]	Volume of Beach or Off-Shore Disposal Material (in yd³)	Volume of Off-Shore Disposal Only Material (in yd³)
7	MHCC-16-VC-13	-29.37	-45.0	1.70	18.58	18.01	0.061	Fine Grained	66,000	
	MHCC-17-VC-01	-37.10		7.78	4.17	3.02	2.973	Coarse Sand		
	Weighted Average of Borings Within Zone[2]			**4.7400**	**11.3750**	**10.5150**	**2.9439**	**Coarse Sand**		
8	MHCC-16-VC-1	-41.12	-45.0	18.74	9.98	9.88	0.977	Medium Sand	2,000	
	MHCC-16-VC-2	-44.34		0.00	0.24	0.17	2.909	Coarse Sand		
	MHCC-17-VC-02	-41.00		7.62	3.86	3.84	2.391	Coarse Sand		
	Weighted Average of Borings Within Zone[2]			**8.7870**	**4.6933**	**4.6300**	**1.6459**	**Medium Sand**		
9	MHCC-16-VC-8	-25.85	-47.0	No Data	No Data	No Data	No Data	No Data		43,000
10	MHCC-16-VC-12	-33.79	-47.0	0.20	9.59	8.75	0.089	Fine Sand	52,000	
11	MHCC-17-VC-06	-31.70	-47.0	0.32	7.33	5.76	1.062	Medium Sand	391,000	
	MHCC-16-VC-3	-42.55		10.17	8.27	8.06	1.682	Medium Sand		
	MHCC-16-VC-4	-32.59		0.00	0.44	0.41	1.169	Medium Sand		
	MHCC-16-VC-6	-41.52		0.00	0.74	0.68	0.933	Medium Sand		
	MHCC-17-VC-03	-29.90		0.96	1.04	1.00	1.806	Medium Sand		
	MHCC-16-VC-5	-32.55		0.00	0.48	0.46	0.953	Medium Sand		
	MHCC-16-VC-7	-36.98		0.00	0.15	0.07	0.342	Fine Sand		
	MHCC-17-VC-07	-29.30		2.07	2.24	2.13	0.416	Fine Sand		
	MHCC-17-VC-04	-26.60		19.13	31.34	30.77	0.056	Fine Grained		
	MHCC-17-VC-08	-27.60		15.24	18.08	17.66	0.416	Fine Sand		
	MHCC-16-VC-10	-30.97		1.44	1.76	1.61	0.091	Fine Sand		
	MHCC-17-VC-05	-29.1		11.24	1.37	1.24	0.319	Fine Sand		
	MHCC-16-VC-11	-26.39		5.83	14.66	14.21	0.011	Fine Grained		
	Weighted Average of Borings Within Zone[2]			**5.1077**	**6.7615**	**6.4662**	**0.6672**	**Medium Sand**		
									Total Volume in Cubic Yards	Total Volume in Cubic Yards
Weighted Mean Grain Size for Entire Project Area to Project Depth (-45 ft MLLW Cutoff, and -47 ft MLLW Range A)							**1.3364**		511,000	43,000

NOTE 1: Weighted averages for percent passing sieves are calculated by weight.

NOTE 2: The averages in bold are the weighted percent(s) passing (or retained for the #10 column) for the entire zone.

NOTE 3: Sediment Size Classifications are ASTM D2487-92 version of the USCS; reference USACE EM1110-2-1100.

NOTE 4: Volume Estimates are rounded to the nearest 1,000 Cubic Yards yd³.

5.2.2 Beaufort Inlet Complex

The Beaufort Inlet complex has been heavily influenced by historic dredging of varying degrees dating back to the original 1910 project authorization. The inlet complex is a convergent nodal point, with net sand transport toward the inlet shoals from both sides of the inlet. Shoaling patterns off of Shackleford Banks create restrictions in the Cutoff portion of the navigation channel which moves the natural deep water west, toward Ft Macon. To a lesser degree a similar pattern is seen within Range A where sediment transport toward the inlet shoals into the navigation channel and creates a more natural deep water channel on the eastern side of the authorized channel.

The majority of material dredged from the Cutoff and Range A (out to Station 110+00) is beach quality and every effort will be made to retain the material within the littoral system. This will be accomplished through direct beach placement and through nearshore placement in the approved nearshore placement areas located on the western and eastern lobes of the ebb shoal. If beach quality material is placed in the ODMDS, it would be placed in the area designated for beach quality material, making it accessible for beach placement in the future. Placement of dredged material will be consistent with current authorized placement methods.

The proposed action will change the location of the dredge cut within the Cutoff and Range A sections of the channel in certain years; however, it is not expected that a significant difference in the quantity dredged over each three year maintenance cycle will occur. This is due to two main factors: 1) Historic dredging has been limited by available project funding, therefore the channel has not routinely been dredged to its fully authorized dimensions. This practice has led to past and current vessel draft restrictions. The navigation corridor will allow dredging to take advantage of the naturally deepened areas of the inlet and increase the potential for dredging the fully authorized template. 2) Shoaling rates are expected to continue at the same rate and pattern. As a result, the Cutoff portion of the channel would attempt to continue migrating west. To prevent migration of the channel westward, the USACE plans to continue the practice of mobilizing a large pipeline dredge once every three years, as project funds allow, to dredge the channel in its historic location. This will keep the fluctuation of the channel within the established corridor widths.

Under the no action plan, the Beaufort Inlet complex will continue to be managed as described in the Morehead City Harbor DMMP with approximately 1 million cubic yards of material dredged annually. This involves the significant challenge of keeping the Shackleford Banks spit from encroaching on the authorized channel, which often results in navigation channel draft (and sometimes width) restrictions.

5.2.3 Prime and Unique Agricultural Land

A review of the Soil Survey of Carteret County, North Carolina indicated that there are no soils in the proposed project area that have been designated as prime or unique agricultural land by the Natural Resources Conservation Service (NRCS). The soils on the two shorelines adjacent to Beaufort Inlet are sands mapped as BE (Beaches-Newhan Complex) and BN (Beaches, Coastal). Both soils mapped as BE and BN are categorized by the NRCS as Land Capability Class VIII: a category of soils and miscellaneous areas that have limitations that preclude their use for

commercial plant production and limit their use mainly to recreation, wildlife habitat, water supply, or esthetic purposes.

Since no prime or unique agricultural lands exist within the project area, there will be no impacts associated with the proposed action or the no action alternatives.

5.2.4 Water Quality

Sensitive aquatic systems within the Morehead City Harbor project area (Atlantic Ocean, Newport River, Bogue Sound, and Back Sound around Cape Lookout National Seashore that may be affected by water quality include submerged aquatic vegetation and associated fauna, marshes, and nektonic communities (fish, shellfish, and marine reptiles and mammals). The following section describes existing water quality conditions that have a direct impact on these aquatic systems.

Morehead City Harbor is located within the confluence of the Newport River and Bogue Sound. Tides are semi-diurnal (two tidal cycles per day), and the average tidal range from mean high to mean low in Morehead City Harbor is about 3.1 feet (NOAA 2013).

Salinity concentrations in the navigation channel through Beaufort Inlet are near sea strength (Salinity greater than 34 parts per thousand) and range from 29.0 parts per thousand (ppt) to 34.5 ppt depending on the sample location, tidal cycle and freshwater discharge (Churchill et al. 1999).

The Clean Water Act requires that the surface waters of each state be classified according to designated uses. North Carolina's tidal salt waters are classified with the following categories:

- Class SC: Secondary Recreation and Aquatic Life Propagation
- Class SB: Primary Recreation plus SC uses
- Class SA: Shellfishing for Market Purposes plus SC/SB uses
- HQW: High Quality Water

If a waterbody does not meet the state designated use standards, it is considered impaired and is placed on the 303(d) list. A review of North Carolina's 303(d) list of impaired waters Draft 2016 Integrated Report Mapper does not show any of the waters within the proposed project area as being impaired waters (NC DEQ 303(d) Online Map, 2016).

The proposed action and the no action alternative will not require a North Carolina Division of Water Resources (NC DWR) 401Water Quality Certification (WQC) for the dredging portion of the project, since there is no regulated discharge, pursuant to the Clean Water Act. However, if dredged material is placed in the authorized nearshore placement area or beach placement for either the proposed action or the no action, the placement would be covered under by WQC # 3809. Coordination for this WQC is covered in more detail in the Morehead City Harbor DMMP. A copy of the WQC can be found in Appendix B.

The proposed action may cause impacts to water quality in the form of transient and minor increases in turbidity during maintenance dredging and dredged material disposal. These impacts are anticipated to be minor and temporary, not causing a long term negative impact on

the local water quality. The minor impacts to water quality may be less than the no action alternative since the implementation of the proposed navigation corridor would be expected to result in less dredging for two out of the three years of the dredging cycle.

The no action alternative would also cause similar impacts to water quality with transient and minor increases in turbidity during the maintenance dredging and dredged material disposal. The impacts from the current maintenance dredging of the authorized channel may be of longer duration than dredging with the proposed action. Although the impacts to water quality may be of longer duration, they would still be minor and temporary; therefore the no action alternative would not have a significant adverse long-term impact on water quality.

5.2.5 Wetlands and Floodplains

Wetlands are areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, as defined by the *Federal Register* (33 CFR 328.3). Wetlands have three essential characteristics—hydrophytic vegetation, hydric soils, and wetland hydrology. Also, wetland habitats provide important services including nutrient cycling, wildlife habitat, and hydrologic storage.

The proposed action occurs within a tidally influenced inlet channel where there are no wetlands or floodplains present; therefore no wetlands or floodplains would be impacted by the proposed action. Pursuant to the Clean Water Act, a 404(b)(1) analysis is included in Appendix C.

The no action alternative occurs within a tidally influenced inlet channel where there are no wetlands or floodplains present; therefore no wetlands or floodplains would be impacted by no action.

5.2.6 Air Quality

The Wilmington Regional Office of the North Carolina Department of Environmental Quality (NCDEQ) has air quality jurisdiction for the project area. The ambient air quality for Carteret County has been determined to be in compliance with the National Ambient Air Quality Standards, and is designated an attainment area for Ozone (O_3), Particulates ($PM_{2.5}$), Carbon Monoxide (CO), and Sulfur Dioxide (SO2) (N.C. Division of Air Quality, 2016); therefore, a conformity determination is not required.

The proposed action would result in removal of less sediment from the channel, which should reduce the amount of time the dredge plant would operate, thereby reducing associated air emissions. Reduction of dredging durations and associated air emissions would be a positive impact to the air quality within Carteret County as compared to the no action plan.

Under the no action alternative, to remove a greater amount of material during channel maintenance, dredging operations may be of longer duration than the proposed action; however, increases in emissions would be temporary and would not result in significant adverse effects on the air quality within this attainment area.

5.2.7 Noise

Noise levels within the vicinity of Beaufort Inlet and Morehead City are variable and often include commercial and recreational boat/ship traffic. Various construction projects and dredging operations may temporarily impact noise, however it is unlikely that the noise created by the proposed navigation corridor will have much effect on the local mainland residences. The Town of Morehead City has a Noise Ordinance Code of Ordinances, Section 10-32 (2016).

The proposed action would require removal of less sediment from the natural deep water channel, therefore reducing the amount of time the dredge would need to operate in the channel. As compared to no action, the shorter work timeframe would reduce the amount of time dredging-related noise would be audible within the inlet area.

The no action alternative is not expected to result in significant increases in noise levels within the project area or nearby surrounding areas, therefore no significant impact to area noise levels is expected.

5.2.8 Hazardous, Toxic, and Radioactive Wastes (HTRW)

The United States Environmental Protection Agency's (EPA) Envirofacts website was queried to identify the presence of EPA-regulated facilities within three miles of the proposed project area. The Envirofacts website contains information collected from regulatory programs and other data relating to environmental activities with the potential to affect air, water, and land resources in surrounding areas. One site was reported within a three mile radius, and was identified as the WWTP immediately adjacent to the proposed project area (EPA 2016). There are no known HTRW sites within the project's APE or the existing authorized channel.

The proposed action would consist of dredging within the deep water channel located within the APE in Beaufort Inlet where no HTRW sites are present. The proposed action will not have a significant effect on HTRW, nor will the action result in creation of HTRW.

No HTRW sites are located within the current authorized channel, therefore the no action alternative will not have a significant effect on HTRW, nor will the action result in creation of HTRW.

5.3 Fisheries and Essential Fish Habitat

Beaufort Inlet supports many popular recreational and commercial fish species. Fish species common to the inlet include: Atlantic Menhaden (*Brevoortia tyrannus*), Black Drum (*Pogonias cromis*), Bluefish (*Pomatomus saltatrix*), Croaker (*Micropogonias undulatus*), Grey Trout (*Cynoscion regalis*), Flounder (*Paralichtys dentalus* (Summer), *Paralichthys lethostigma* (Southern), and *Paralichthys albigutta* (Gulf)), Lizardfish (*Synodus foetens*), Spanish Mackerel (*Scomberomorus maculatus*), Speckled Trout (*Cynoscion nebulosus*), and Spot (*Leiostomus xanthurus*).

Pursuant to the Magnuson-Stevens Act, the South Atlantic Fisheries Management Council (SAFMC) has designated EFH within the project area to encompass intertidal flats, high salinity surf zones, and tidal inlets (including their ebb and flood shoal complexes).

Based on review of the NOAA Habitat Conservation National Marine Fisheries Service's Essential Fish Habitats (EFH) Mapper, there are no EFH or Habitat Areas of Particular Concern (HAPC) identified within the Beaufort Inlet APE project area or the authorized channel.

Beaufort Inlet is an important passageway for the larvae of many species of commercially or ecologically important fish. Spawning grounds for many marine fishes are believed to occur on the continental shelf with immigration to estuaries during the juvenile stage. The shelter provided by the marsh and creek systems in the sound serves as nursery habitat where young fish undergo rapid growth before returning to the offshore environment.

The proposed action could have minor adverse impacts on the marine water column during the dredging events in the form of minor and short-term suspended sediment plumes and related turbidity, as well as the release of soluble trace constituents from the sediment. During dredging, turbidity increases outside the dredging area should be less than 25 NTUs and are, therefore, considered insignificant. Overall water quality impacts of the proposed action are expected to be short-term and minor. Living marine resources dependent upon good water quality are not expected to experience significant adverse impacts due to water quality changes. Fish larvae are likely to become entrained by any dredging within the channel. As a worst-case, it is assumed that entrained animals experience 100% mortality, although some small number may survive. Since the Beaufort Inlet hosts very large numbers of larval organisms, it is not expected that entrainment mortality would adversely affect species population levels.

The no action alternative would have similar minor adverse impacts on the marine water column as the proposed action.

The proposed action will not have a significant adverse impact on area fisheries, EFH or HAPC within the project area. Additional EFH and HAPC analysis was completed for the nearshore placement areas and beach placement as part of the Morehead City Harbor DMMP, March 2017. The report concluded that any impact to EFH would be minor on an individual and cumulative effects basis, and would not require mitigation.

The no action alternative will also not have a significant adverse impact on area fisheries, EFH or HAPC within the project area.

No adverse impacts are anticipated with the proposed action or the no action alternatives.

5.4 Benthos

Estuarine and ocean bottom within areas to be dredged within the navigation corridor are not expected to provide habitat for significant populations of benthic organisms due to their depth and continual disturbance by shoaling, nearby maintenance activities and/or turbulence created by the operation of large ships.

The USACE collected sediment and macroinvertebrate samples at 96 stations (Figure 8) in the vicinity of the Beaufort Inlet ebb tide delta in September 2009 (USACE 2010). Benthic community characterizations and sieve analysis were performed on the sediment samples. A report was compiled describing the methods and results of biological and sediment sampling conducted at the 96 sample locations. The report includes (1) a description of macroinvertebrate community and sediment conditions, (2) a compilation of sediment and macroinvertebrate sampling results; and (3) spatial analyses of similarities and differences between sample sites. The report is summarized in the paragraphs which follow.

Benthic Community. A total of 7,053 organisms representing 260 taxa were identified from 95 samples. Polychaetes were the most numerous organisms, representing 43.9 percent of the total assemblage, followed by malacostracans (primarily amphipods) at 25.7 %, bivalves (10.5 %) and gastropods (10.0 %). The number of taxa per station ranged from 1 to 57. Station densities ranged from 9.1 organisms/m2 to 4,609 organisms/m2.

Similarity Determinations. Clustering of stations based on sediment and macroinvertebrate species populations and assemblages was evident through spatial analysis. The data suggest that the nearshore site showing the closest correlation and strongest relationships between sample sites is located offshore of Shackleford Banks. This area has medium silt/clay content and benthic species diversity and richness values are moderate to high. The shallow water depths cause the benthic environment to be influenced by scour and sediment resuspension caused by wave action and tidal currents.

Although the benthos samples were not taken directly within the proposed navigation corridor it is expected that the area sampled is very similar in sediment and the macroinvertebrates throughout Beaufort Inlet.

The proposed action will have less impact on the benthos within the channel, since the area to be dredged will follow the natural deep water. This will result in channel shifts, so the same bottom area will not be dredged every year. The benthos within the channel will be afforded additional recovery time between dredging events.

The no action alternative would result in continued maintenance dredging of the authorized channel on an annual basis. This annual dredging would have an impact on the benthic organisms of the channel during the each dredging event; however, this impact is expected to be temporary and minor, not resulting in long-term significant impacts. It is expected that the dredged area would recover somewhat between maintenance dredging events.

5.5 Terrestrial Resources

There are no terrestrial resources located within the APE; vegetation and wildlife present on the barrier islands adjacent to the inlet (Bogue Banks and Shackleford Banks) are addressed below.

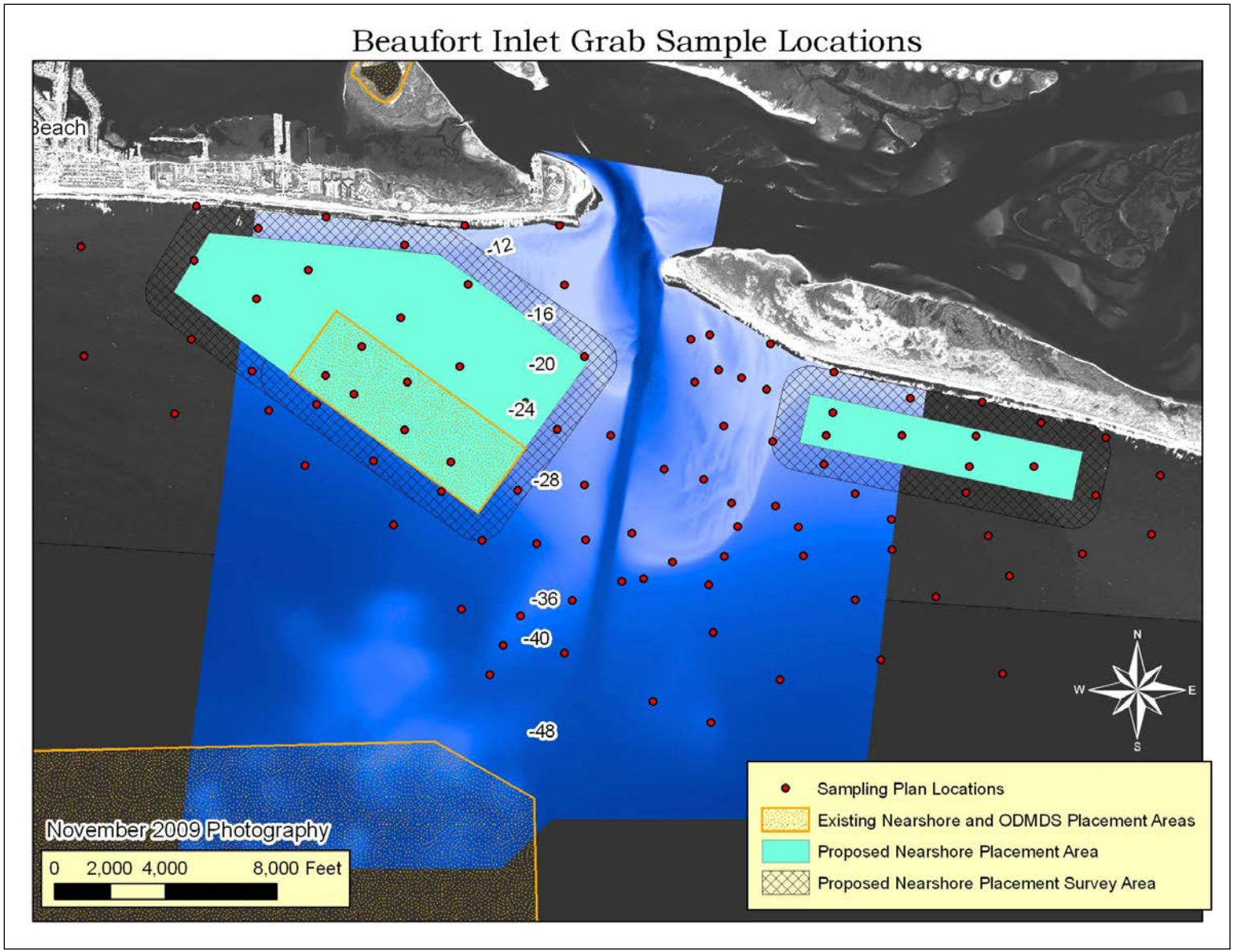


Figure 8: Sediment Sample Locations off Bogue Banks and Shackleford Banks

5.5.1 Vegetation

Vegetation present along the beaches surrounding the inlet consist of beach spurge (*Euphorbia polygonifolia*), sea rocket (*Cakile edentula*) and pennywort (*Hydrocotyle bonariensis*); the threatened plant, seabeach amaranth (*Amaranthus pumilis*) also occurs sporadically along the dune faces of Bogue Banks and Shackleford Banks The dunes along Bogue and Shackleford Banks are more heavily vegetated with American beach grass (*Ammophila breviligulata*), panic grass (*Panicum amarum*) sea oats (*Uniola paniculata*), broom straw (*Andropogon virginicus*) and salt meadow hay (*Spartina patens*).

Beach and dune vegetation will not be impacted by the proposed action since the proposed action involves dredging of a navigation corridor where there is not expected to be any terrestrial vegetation. Material removed from the channel will be placed on the beaches in accordance with the approved disposal practices documented in the Morehead City Harbor DMMP. Over the long-term (approximately 20 years), the volume of dredged material placed on beaches could be less than the volume placed under no action; however, any volume decreases would be expected to be insignificant. The proposed action will not have a significant adverse impact on vegetation.

As addressed in documents incorporated by reference, the no action alternative will also not impact beach and dune vegetation, since dredged material will be placed in accordance with approved disposal practices. The no action alternative will not have a significant adverse impact on area vegetation.

5.5.2 Wildlife

Wildlife present on Bogue Banks and Shackleford Banks includes a mix of mammals, birds, reptiles and amphibians common to North Carolina Barrier Island, along with wild horses on Shackleford Banks managed by the National Park Service. Mammals along the inlet adjacent barrier islands include grey squirrels (*Sciurus carolinensis*), marsh rabbits (*Sylvilagus palustris*), white-tailed deer (*Odocoileus virginianus*), raccoon (*Procyon lotor*), fox (*Vulpes vulpes*), nutria (*Myocaster coypus*), otter (*Lontra Canadensis*), muskrat (*Ondatra zibethicus*) and opossum (*Didelphis virginiana*).

The shoreline area along both sides of Beaufort Inlet provides bird-nesting and foraging habitat for Black skimmers (*Rynchops niger*), least terms (*Sterna antillarum*), Wilson's plovers (*Charadrius wilsonia*), piping plovers (*Charadrius melodus*), common terns (*Sterna hirundo*), willet (Catoptrophorus semipalmatus), and American oystercatcher (*Haematopus palliates*). Other birds often found within the inlet at different times of year include common loon (*Gavia immer*), double-crested cormorants (*Phalacrocorax auritus*), Brown pelicans (*Pelecanus occidentalis*), various gull species, egret species and heron species (Fussell 1985).

A total of 93 amphibian and reptile species are believed to be present on both Bogue and Shackleford Banks (NPS 1983). Species observed include southern leopard frog (*Lithobates sphenocephalus*), green tree frog (*Hyla cinerea*), black rat snake (*Pantherophis obsoletus*), eastern cottonmouth (*Agkistrodon piscivorus*), yellow-bellied turtle (*Trachemys scripta scripta*), and snapping turtle (*Chelydra serpentina*). On Bogue and Shackleford Banks the list of species includes 42 amphibian and 51 reptile species. The largest group of amphibians is frogs, which

include 18 species, followed by salamander/newts, 14 species; toads, 6 species; and other amphibians, 4 species. The largest group of reptiles is snakes, 31 species, followed by turtles, 11 species; and lizards/skinks, 9 species (NPS 1983).

The proposed action is not expected to adversely impact any vegetation or wildlife along the beach or dune areas since the work will occur within the channel at Beaufort Inlet.

The no action alternative will not adversely impact vegetation or wildlife on Shackleford Banks or Bogue Banks since the channel through the "Cutoff" and "Range A" will continue to be maintained as currently authorized. The impacts to vegetation and wildlife in the area under the no action plan were evaluated in detail in the documents incorporated by reference.

5.6 Threatened and Endangered Species

The Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531–1543), provides a program for the conservation of threatened and endangered (T&E) plants and animals and the habitats in which they are found. In accordance with section 7 (a)(2) of the ESA, the USACE has been in consultation with the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) to ensure that effects of the proposed project would not jeopardize the continued existence of listed species or result in the destruction or adverse modification of designated critical habitat of such species.

Updated lists of T&E species for the project area within Carteret County, NC were obtained from NMFS (Southeast Regional Office website) and the USFWS Information, Planning and Conservation System website (http://ecos.fws.gov/ipac/) (Appendix D). These were combined to develop the composite list shown in Table 3, which includes T&E species that could be present in the area based upon their historical occurrence or potential geographic range. The list also includes the bald eagle (*Haliaeetus leucocephalus*) which is protected under the Federal Bald and Gold Eagle Protection Act. Moreover, the actual occurrence of a species in the project area depends upon the availability of suitable habitat, the season of the year relative to a species' temperature tolerance, migratory habits, and other factors.

Dredging within Morehead City Harbor is currently covered by the South Atlantic Regional Biological Assessment (SARBO) issued by the NMFS on September 25, 1997 (NMFS 1997). The SARBO covers dredging activities within navigation channels and borrow areas in the Southeastern United States from the North Carolina (NC)/Virginia (VA) border south to the Florida Keys. The USACE South Atlantic Division (SAD) has established a SARBO Management Protocol (December 2016) for effective implementation of hopper dredging activities under the SARBO and the dredging within Morehead City Harbor. The Wilmington District currently observes a January 1 through March 31 window for hopper dredging at Morehead City Harbor. This window is not a required element of any known authorization, but has been the Wilmington District's internal practice to minimize dredging impacts on sea turtles.

Threatened and endangered species that could be present within the project area include: sea turtles [green (*Chelonia mydas*), loggerhead (*Caretta caretta*), halksbill (*Eretmochelys imbricata*), leatherback (*Dermochelys coriacea*), and Kemp's ridley (*Lepidochelys kempii*)]; red

knot (*Calidris canutus rufa*); piping plover (*Charadrius melodus*); North Atlantic right whale (*Eubalaena glacialis*); shortnose sturgeon (*Acipenser brevirostrum*); Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*); West Indian Manatee (*Trichechus manatus*); and Sea beach amaranth (*Amaranthus pumilus*).

The proposed action would minimize potential impacts to threatened and endangered species by following established operational protocols for dredging and set environmental window restrictions. In addition to these above mentioned measures the proposed action would further minimize potential impacts to endangered species by reducing the amount of material to be removed from the channel, which will reduce the time the maintenance dredging operation would be required. The proposed action may affect but is not likely to adversely affect: sea turtles [green (*Chelonia mydas*), loggerhead (*Caretta caretta*), halksbill (*Eretmochelys imbricata*), leatherback (*Dermochelys coriacea*), and Kemp's ridley (*Lepidochelys kempii*)]; red knot (*Calidris canutus rufa*); piping plover (*Charadrius melodus*); North Atlantic right whale (*Eubalaena glacialis*); shortnose sturgeon (*Acipenser brevirostrum*); Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*); West Indian Manatee (*Trichechus manatus*); and Sea beach amaranth (*Amaranthus pumilus*).

The no action alternative would also continue to minimize potential impacts to threatened and endangered species by following established operational protocols for dredging and set environmental window restrictions. However, the continued maintenance dredging of the existing authorized channel will require additional time as compared to the proposed action since there will not be a reduction in the amount of sediment to be removed. The no action may affect but is not likely to adversely affect sea turtles [green (*Chelonia mydas*), loggerhead (*Caretta caretta*), halksbill (*Eretmochelys imbricata*), leatherback (*Dermochelys coriacea*), and Kemp's ridley (*Lepidochelys kempii*)]; red knot (*Calidris canutus rufa*); piping plover (*Charadrius melodus*); North Atlantic right whale (*Eubalaena glacialis*); shortnose sturgeon (*Acipenser brevirostrum*); Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*); West Indian Manatee (*Trichechus manatus*); and Sea beach amaranth (*Amaranthus pumilus*).

Table 3: Threatened and Endangered Species Potentially Present, Carteret County, North Carolina

Species Common Names	Scientific Name	Federal Status
Vertebrates		
American alligator	*Alligator mississippiensis*	T(S/A)
North Atlantic Right whale	*Eubaleana glacialis*	Endangered
Blue Whale	*Balaenoptera musculus*	Endangered
Sei whale	*Balaenoptera borealis*	Endangered
Sperm whale	*Physeter macrocephalus*	Endangered
Finback whale	*Balaenoptera physalus*	Endangered
Humpback whale	*Megaptera novaeangliae*	Endangered
Green sea turtle	*Chelonia mydas*	Threatened
Hawksbill turtle	*Eretmochelys imbricata*	Endangered
Kemp's ridley sea turtle	*Lepidochelys kempii*	Endangered
Leatherback sea turtle	*Dermochelys coriacea*	Endangered
Loggerhead sea turtle	*Caretta caretta*	Threatened
West Indian Manatee	*Trichechus manatus*	Endangered
Piping Plover	*Charadrius melodus*	Threatened
Red-cockaded woodpecker	*Picoides borealis*	Endangered
Roseate tern	*Sterna dougallii*	Endangered
Red knot	*Calidris canutus rufa*	Threatened
Smalltooth sawfish	*Pristis pectinata*	Endangered
Shortnose sturgeon	*Acipenser brevirostrum*	Endangered
Atlantic Sturgeon	*Acipenser oxyrhynchus*	Endangered
Bald Eagle	*Haliaeetus leucocephalus*	BGPA
Invertebrates		
a skipper (butterfly)	*Atrytonopsis sp1*	FSC

Vascular Plants

Rough-leaved loosestrife	*Lysimachia asperulaefolia*	Endangered
Seabeach amaranth	*Amaranthus pumilus*	Threatened

[1]Green turtles are listed as threatened, except for breeding populations in Florida and on the Pacific Coast of Mexico, which are listed as endangered.

KEY:

Status Definition

Endangered - A taxon "in danger of extinction throughout all or a significant portion of its range."

Threatened - A taxon "likely to become endangered within the foreseeable future throughout all or a significant portion of its range."

FSC – Federal Species of Concern. A species under consideration for listing, for which there is insufficient information to support listing at this time.

T(S/A) - Threatened due to similarity of appearance (e.g., American alligator)--a species that is threatened due to similarity of appearance with other rare species and is listed for its protection. These species are not biologically endangered or threatened and are not subject to Section 7 consultation.

BGPA - Federal Bald and Gold Eagle Protection Act

5.7 Socioeconomic Characteristics

Carteret County is located on the lower coastal plain of eastern North Carolina. The county seat of Beaufort lies 150 miles east of Raleigh and 90 miles north of Wilmington, North Carolina. The principal industries are tourism, construction, services, sport and commercial fisheries. The County is also home to a growing retirement population attracted to the area by a mild climate and beautiful natural surroundings. Tourism is generated by the 65 miles of south-facing beaches, Fort Macon State Park, the NC Aquarium, the NC Maritime Museum, and Cape Lookout National Seashore. Large numbers of vacation homes, motels, restaurants, and shopping centers have been developed to serve the local, retirement, and tourist populations.

From 2000 to 2010, the population of Carteret County grew at a rate of about 12% (i.e., 2000 population was 59,404 and 2010 population was 66,469). About 40% of the residents live in one of the County's municipalities. With its overwhelming economic emphasis on tourism, retail sales in Carteret County comprise the most important source of jobs and income for the County's economy. In 2007, total crop sales for Carteret County were over 20 million dollars, with corn and soybeans as the leading commodities.
Table 4 shows the populations of the beach towns and Carteret County since 2000.

Table 4: Population Statistics (2000 & 2014): Towns/Carteret County, and North Carolina

Town/County/State	2000 Population	2014 Population
Atlantic Beach	789	1,506
Pine Knoll Shores	1,524	1,366
Indian Beach	95	116
Morehead City	7,691	9,258
Carteret County	59,404	69,072
North Carolina	8,046,813	9,944,000

Carteret County population projections for 2010 – 2030 are shown in Table 5.

Table 5: Population Projections, Carteret County, North Carolina
(Source: Office of State Planning, State of North Carolina)

County/State	2010 Population	2020 Population	2030 Population
Carteret	66,469	69,157	71,852
North Carolina	9,535,483	10,966,956	12,465,481

The proposed action would allow the Port of Morehead City Harbor to stay open and fully functioning with no draft restrictions in the channel, benefiting the local economy. The proposed action would positively benefit the economy and socioeconomics in the local area.

The no action alternative will not result in any adverse effects to socioeconomics resources. The existing plan will still allow for dredging and placement activities in line with the current DMMP. Absence of a modification to existing operations in the future, however, most likely will result in continued draft restrictions, as they are in place now. It is not anticipated that a lack of plan implementation will change the number of vessel calls into the port

It is not anticipated that the proposed action will impact the existing shipping operations in the Port of Morehead City. However, there is a potential that cost savings will be realized from implementation of the proposed maintenance scheme, and will make vessel passage more navigable, thus safer. Implementation of a modified dredging regimen is not expected to increase or decrease vessel calls within the port.

5.8 Aesthetics

The total environment of barrier islands, ocean, estuaries, and inlets attract many residents and visitors to the area to enjoy the total aesthetic experience created by the sights, sounds, winds and ocean sprays.

On Bogue Banks, there are two ocean piers (i.e., Bogue Inlet Fishing Pier and Oceanana Fishing Pier) considered important recreational facilities. During fall months, recreational surf fishing is a popular activity on both Bogue and Shackleford Banks. Fort Macon State Park and the North Carolina State Aquarium in Pine Knoll Shores on Bogue Banks, and Cape Lookout National Seashore (CALO) on Shackleford Banks provide recreational activities for residents and visitors, including beachcombing, fishing, swimming, surfing, kayaking and other beach activities.

The proposed action would require less material to be dredged from the natural deep water channel. This would reduce the length of time the dredge plant would be operating in the channel, thereby, having less effect on the natural view shed within Beaufort Inlet. Any affect the dredge would have on the local view shed would be short-term and temporary. There are no long-term significant adverse effects to aesthetics within the project area.

The no action alternative would have a short-term, temporary effects on the local view shed during the time the dredge plant would be present in the inlet during the maintenance dredging operations. There would be no long-term significant adverse effects to the aesthetics within the project area.

5.9 Cultural Resources

The North Carolina State Historic Preservation Office's (SHPO) HPOWEB Map Service was queried to identify known cultural resources in and near the project area (NC State Historic Preservation Office, 2016). This service provides information such as cultural resources sites listed on the National Register of Historic Places, sites designated as Local Landmarks, and other data useful in considering potential project impacts to cultural resources. According to the Map Service, no cultural resources are known to exist in the vicinity of the proposed corridor (Figure 7) (NC State Historic Preservation Office, 2016).

To supplement this information, the SHPO Underwater Archaeology Branch (UAB) was contacted regarding locations of known submerged cultural resources in the project area. According to information received by the UAB, submerged cultural resources are not known to exist within the project footprint.

The Queen Anne's Revenge is a historic ship that belonged to a famous pirate named Blackbeard. The ship wreck was discovered sunk off the coast of Beaufort near the Beaufort Inlet. Currently a team of state underwater archaeologist are working to salvage items from the ship wreck. A special restricted zone is required in the vicinity of the Queen Anne's Revenge, west of Beaufort Inlet. This area continues to be actively surveyed by both public and private interests. This shipwreck area is located outside of the project area and will not be affected by the proposed action or the no action alternative.

Located adjacent to Beaufort Inlet is the Fort Macon State Park. The state park contains the national historic site of Fort Macon, a fully restored fort and the site of the Battle of Fort Macon in 1862. The proposed navigation corridor will not adversely impact the Fort Macon historic site.

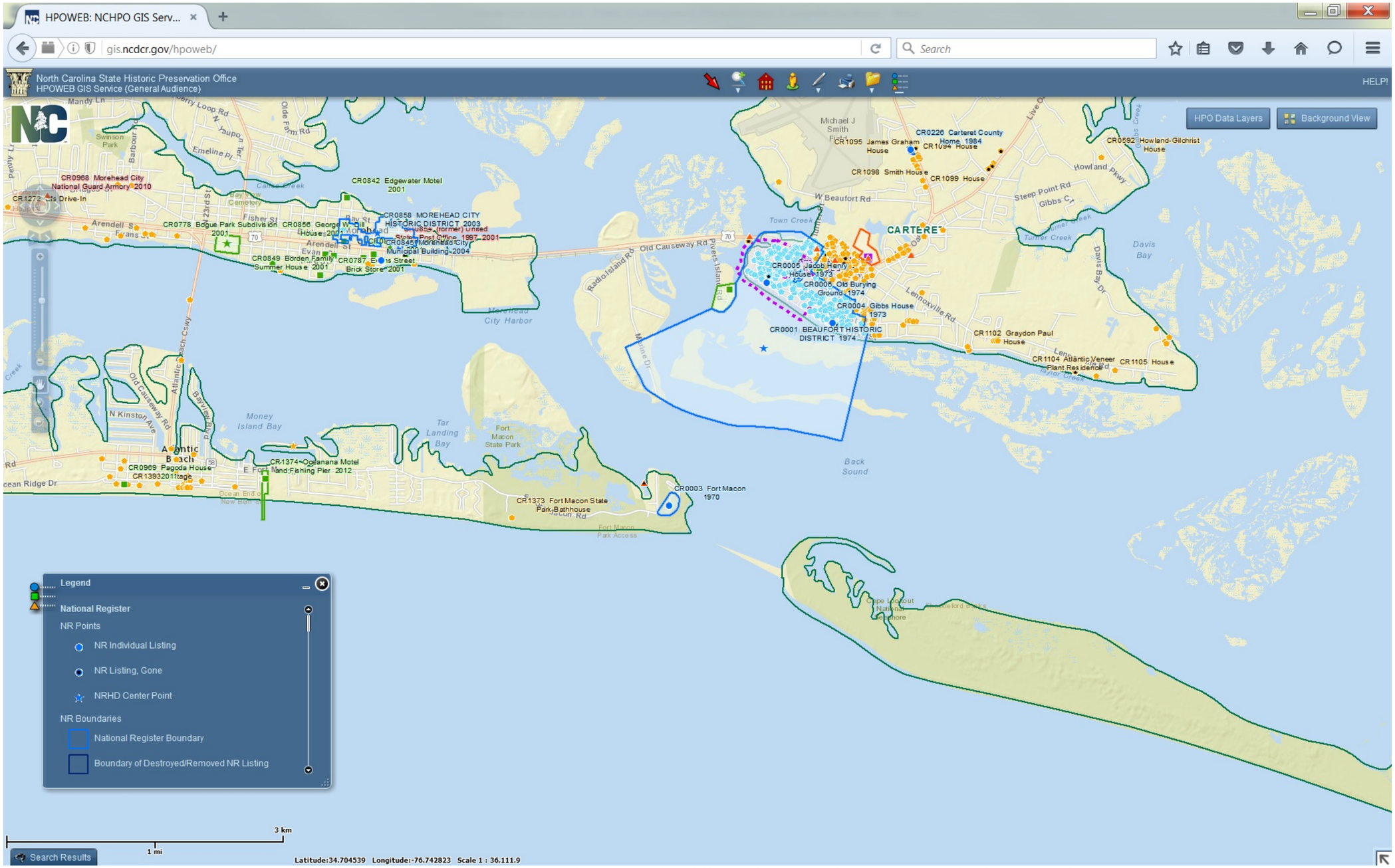


Figure 9: North Carolina State Historic Preservation Office's (SHPO) HPOWEB Map Service for Project Area

The proposed plan is not expected to impact cultural resources in the proposed project area. By letter dated February 12, 2016, SHPO provided concurrence with the USACE's finding of low probability that any potentially eligible archaeological resources will be impacted by the proposed corridor, and was not aware of any historic resources that would be affected by the project (Appendix A). The project area exists within a dynamic system in which bathymetry is subject to change with time. Should any cultural resources be discovered during implementation of the recommended plan, the SHPO would be contacted and construction would be temporarily suspended.

The no action alternative would allow for continued use and maintenance dredging of the existing Morehead City Harbor federal navigation channel as authorized, and also is not expected to impact cultural resources in the project area.

5.10 Other Significant Resources

Section 122 of Public Law 91-611 identifies other significant resources that should be considered during project development. These resources, and their occurrence in the study area are described below.

5.10.1 Air, Noise, and Water Pollution

Air quality, water quality and noise are discussed in Section 5.2 (Specifically: Air quality section, 5.2.7; Water quality section, 5.2.5; and Noise section, 5.2.8) of this EA.

The proposed plan would include dredging within the APE, however this dredging would be performed in accordance with all local, state and federal regulations to avoid impacts to air quality, noise, and water quality. No long-term adverse impacts are anticipated regarding any significant resources identified by Section 122 of Public Law 91-611 by the recommended plan.

The no action alternative would allow for continued use and maintenance dredging of the existing Morehead City Harbor federal navigation channel as authorized, and would not create any additional air, noise or water pollution.

5.10.2 Potential Impacts Due To Climate Change

A review of the EPA analysis for climate change for North Carolina titled, *What Climate Change Means for North Carolina* (https://www3.epa.gov/climatechange/Downloads/impacts-adaptation/climate-change-NC.pdf) states that the sea level along the coast of NC is expected to likely rise anywhere from one to four feet in the next 100 years. Barrier island features like Shackleford Banks and Bogue Banks are likely to experience higher water levels causing beach erosion and opening of new or changing of alignments of existing inlets during larger storm events.

The proposed plan and the no action alternative will not increase the effects of climate change in the inlet complex. However, both alternatives are likely to be affected by climate change in the future due to the proximity of the project area being on the coast where effects of climate change, such as increased storm events and sea level rise, will likely be more dramatic than inland portions of the state.

5.10.3 Environmental Impact Comparison of Alternatives

The table below provides a brief summary and comparison of impacts to the physical and natural environment for the alternatives considered (Table 6).

Table 6: Comparison of Impacts to Resources

Resource	Alternatives	
	Establish Corridor to Follow Natural Deep Water (Proposed Action)	***No Action***
Sediments	Reduction in sediment removed from the channel	No change to quantity of sediment removed from channel
Beaufort Inlet Complex	Change to the location of the dredge cut within the Cutoff and Range A; reduction of sediment removed from the inlet complex	No change to dredged area or quantity of sediment removed from inlet complex
Prime and Unique Agricultural Land	No Effect	No Effect
Water Quality	Minor and temporary increase in turbidity during dredging operations. Impact would be less than no action. No significant long-term negative effect.	Minor and temporary increase in turbidity during dredging operations; no significant long-term negative effect.
Wetlands and Floodplains	No Effect	No Effect
Air Quality	Reduction of air emissions due to less dredging over the long-term	No change to existing air quality emissions
Noise	Duration of noise reduced due to less dredging over the long-term.	No change to existing noise during dredging
Hazardous, Toxic, and Radioactive Wastes (HTRW)	No Effect	No Effect

Resource	Alternatives	
	Establish Corridor to Follow Natural Deep Water (Proposed Action)	***No Action***
Fisheries and Essential Fish Habitat	Minor short-term adverse impacts from sediment plumes and turbidity during dredging, dredging durations may be shorter than no action. No significant adverse impacts.	Minor short-term adverse impacts from sediment plumes and turbidity during dredging. No significant adverse impacts.
Benthos	Minor short-term impacts to benthos during dredging events. Direct impact to the benthos within the channel will be shorter, with a longer recovery time versus the no action. No significant long-term effect.	Minor short-term impacts to benthos during dredging event. No significant long-term effect.
Vegetation	No Effect	No Effect
Wildlife	No Effect	No Effect
Threatened and Endangered Species	May affect but is not likely to adversely affect	May affect but is not likely to adversely affect
Socioeconomic	Decreased costs to maintain the channel; safer, more navigable channel for ships calling on the Port	No adverse effects and positive benefits as a result of placement of coarse-grained dredged material on portions of the oceanfront beached of Bogue Banks.
Aesthetics	Less operating time for the dredge plant would have less effect on the local view shed within Beaufort Inlet.	No change; no adverse impacts
Cultural Resources	No Effect	No Effect

6.0 CUMULATIVE EFFECTS

The CEQ regulations (40 CPR 1508.7) require assessment of cumulative impacts in the decision-making process for federal projects. Cumulative impacts are defined as "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 non-federal) or person undertakes such other actions."

The proposed action to establish a navigation corridor to follow natural deep water adjacent to the authorized federal channel will have minimal impact on the natural and physical resources within the proposed project area. Minor short-term temporary adverse impacts to water quality, benthos, and fisheries are possible during the dredge operation but are not expected to create significant long-term adverse effect for the project area. The proposed action will have positive cumulative effects for the socioeconomics of the surrounding area by allowing improved maintenance of the shipping corridor required for ships to utilize the MHC Port. Over the long term (20 years), the proposed action is likely to remove less sediment from the ebb tidal delta system in comparison to the no action alternative, which means that beaches and the nearshore placement areas may receive less beach quality sand. Removing less sediment will result in less disturbance to the Inlet complex and will benefit navigation by allowing the navigation channel in Beaufort Inlet to be maintained in a more cost effective manner.

Cumulative impacts associated with the proposed action should be minor and short term. Benthic habitat impacts will also be minor since the resource recovery will occur after each dredging event and water quality impacts will also be temporary and limited to the water column area around the dredging location. In summary, the proposed action is expected to result in less cumulative impacts as compared to current maintenance dredging practices.

7.0 STATUS OF ENVIRONMENTAL COMPLIANCE

7.1 National Environmental Policy Act (NEPA)

To ensure the EA included an assessment of impacts on all significant resources in the project area, the Wilmington District circulated a scoping letter dated February 4, 2016, to local governments; state and federal resource agencies; and the NC State clearinghouse for a 30-day comment period. No formal scoping meeting was conducted. All identified agency and stakeholder concerns were considered during the development of this EA.

7.2 Section 103 of the Marine Protection Research and Sanctuaries Act (MPRSA)

In accordance with Section 103 of the Marine Protection, Research, and Sanctuaries Act (MPRSA), any material disposed of in the Morehead City ODMDS will meet applicable ocean dumping criteria (ODC) and be approved for ocean disposal by EPA Region 4 via a concurrence document. Sediments from within all project reaches shown on Figure 2 have previously met ODC, and have been granted EPA Region 4 approval for disposal within the Morehead City ODMDS. Sediments within the defined area of potential affect (Figures 3 and 4), were subjected to required MPRSA Section 103 sampling and testing in late spring of 2017. Results of this testing were reviewed by the USACE for ODC compliance and were provided to EPA Region 4

for review. EPA Region 4 concurrence, regarding maintenance dredged material from all project reaches in Figure 2 and sediment from within the defined area of potential affect (Figures 3 and 4), was most recently received via letter dated September 01, 2017 and is valid for a period of three years. This concurrence letter provides EPA Region 4's position that all Morehead City Harbor Federal Navigation Project dredged materials comply with the ODC and therefore may be disposed of in the Morehead City ODMDS.

7.3 North Carolina Coastal Zone Management Program

The actions addressed in this EA for the proposed MHC Navigation Corridor will take place in the designated coastal zone of the State of North Carolina. Pursuant to the Federal Coastal Zone Management Act (CZMA) of 1972, as amended (P.L. 92-583), federal activities are required to be consistent to the maximum extent practicable with the federally approved coastal management program of the state in which their activities would be occurring.

Along with a copy of the draft EA for the MHC Navigation Corridor, the USACE will submit a separate consistency determination to the N.C. Division of Coastal Management in accordance with Section 307 (c) (l) of the Federal Coastal Zone Management Act of 1972, as amended.

Section 1102 (a) states that "clean, beach quality material from navigation channels within the active nearshore, beach, or inlet shoal systems must not be removed permanently from the active nearshore, beach or inlet shoal system unless no practicable alternative exists. Preferably, this dredged material will be disposed of on the ocean beach or shallow active nearshore area where environmentally acceptable and compatible with other uses of the beach." When considering a project's compliance with Section 1102, NC Division of Coastal Management (NCDCM) has stated that the section should be read in concert with NCAC 7H.0208 (2)(G), which does provide some flexibility for publicly funded projects, allowing them to be considered by review agencies on a case by case basis with respect to dredged material disposal. Disposal of dredged material will be done in accordance with this regulation with the majority of the clean, beach quality material (i.e., 90% or greater sand) being placed on Bogue Banks beaches or in approved nearshore placement areas.

7.3.1 Areas of Environmental Concern (AECs)

The proposed action would take place in or near areas designated under the NC Coastal Management Program as AECs (15A NCAC 7H .0100). Specifically, the activities will occur in three AECs, Estuarine Waters, Ocean Hazard, and Public Trust Area. The following determination has been made regarding the consistency of the proposed action with the State's management objective for the AECs that may be affected:

Estuarine Waters: Estuarine Waters are the state's oceans, sounds, tidal rivers and their tributaries, which stretch across coastal North Carolina and link to the other parts of the estuarine system: public trust areas, coastal wetlands and coastal shorelines. For regulatory purposes, the inland, or upstream, boundary of estuarine waters is the same line used to separate the jurisdictions of the NC Division of Marine Fisheries (NCDMF) and the NC Wildlife Resources Commission (NCWRC). However, many of the fish and shellfish that spend part of their lives in estuaries move between the "official" estuarine and inland waters.

The proposed project would not adversely impact estuarine waters, since all dredging will take place within Beaufort Inlet, adjacent to the authorized MHC channel.

Ocean Hazard: The Ocean Hazard System is made up of oceanfront lands and the inlets that connect the ocean to the sounds. The beach placement area of Bogue Banks is within the designated Ocean Hazard System. The Coastal Resources Commission has designated three-ocean hazard AECs.

1. The Ocean Erodible AEC covers North Carolina's beaches and any other oceanfront lands that are subject to long-term erosion and significant shoreline changes. The seaward boundary of this AEC is the mean low water line. The landward limit of the AEC is measured from the first line of stable natural vegetation and is determined by adding: a distance equal to 60 times the long-term, average annual erosion rate for that stretch of shoreline to the distance of erosion expected during a major storm. The width of the AEC varies from about 145 feet to more than 700 feet.

2. The High Hazard Flood AEC covers land subject to flooding, high waves and heavy water currents during a major storm. These are the lands identified as coastal flood with velocity hazard, or "V zones," on flood insurance rate maps prepared by the Federal Insurance Administration. "V zones" are determined by an engineering analysis of expected flood levels during a storm, expected wave and current patterns, and the existing topography of the land. The high hazard flood AEC often overlaps with the ocean erodible and inlet hazard AECs.

3. Unvegetated Beach Area AEC where no stable natural vegetation is present may be designated as an unvegetated beach area on either a permanent or temporary basis.

The proposed action would not adversely affect oceanfront lands and inlets on Bogue Banks. In fact, the placement of beach quality sand from the maintenance dredging of Morehead City Harbor on the Bogue Banks beaches may reduce the erosion and storm damage potential.

Public Trust Areas: These areas include waters of the Atlantic Ocean and the lands there under from the mean high water mark to the 3-mile limit of state jurisdiction. The nearshore placement areas that may be utilized are located off Bogue and Shackleford Banks within these Public Trust Areas. The ODMDS (not likely to be utilized as part of this proposed action) is located past the 3-mile limit of State jurisdiction. Acceptable uses include those that are consistent with protection of the public rights for navigation and recreation, as well as conservation and management to safeguard and perpetuate the biological, economic, and aesthetic value of these areas. The activities that comprise the proposed action are not intended to adversely impact public rights for navigation and recreation, and are consistent with conservation of the biological, physical, and aesthetic values of public trust areas.

7.3.2 Other State Policies

The following state policies found in the NC Coastal Management Program document are also applicable to the proposed action in terms of beach and nearshore placement of sand from the navigation corridor.

Shoreline Erosion Response Policies: NC Administrative Code 7M - Section .0200 addresses beach restoration projects as feasible alternatives to the loss or massive relocation of oceanfront development when public beaches and public or private properties are threatened by erosion; when beach restoration, renourishment, or sand disposal projects are determined to be socially and economically feasible and cause no significant adverse environmental impacts; and the project is consistent with state policies for shoreline erosion response and state use standards for Ocean Hazard and Public Trust Areas AECs.

Policies on Beneficial Use of Materials from the Excavation or Maintenance of Navigation Channels: NC Administrative Code 7M - Section .1101 states that it is the policy of the state that material resulting from the excavation or maintenance of navigation channels be used in a beneficial way wherever practicable. Policy statement .1102 (a) indicates that "clean, beach quality material dredged from navigation channels within the active nearshore, beach, or inlet shoal systems must not be removed permanently from the active nearshore, beach, or inlet shoal system unless no practicable alternative exists. Preferably, this dredged material will be disposed of on the ocean beach or shallow active nearshore area where environmentally acceptable and compatible with other uses of the beach."

7.4 Clean Water Act

The proposed action has been evaluated under the Section 404(b)(1) (P.L. 95-2017) and is included in Appendix C. The proposed action and the no action alternative will not require a NCDWR 401WQC for the dredging portion of the project since there is no regulated discharge, pursuant to the Clean Water Act. However, if dredged material is placed in the authorized nearshore placement area or beach placement for either the proposed action or the no action the placement would be covered under WQC # 4099. . A copy of the WQC can be found in Appendix B.

The proposed action and the no action alterative are in compliance with Sections 404 and 401 of the Clean Water Act.

7.5 Coastal Barrier Resources Act (CBRA)

The proposed Morehead City Navigation Corridor is in compliance with CBRA. The CBRA of 1982 (PL 97-348) and the Coastal Barrier Improvement Act of 1990 (PL 101-591) restricts federal expenditures in those areas comprising the Coastal Barrier Resources System (CBRS). Within the Morehead City Harbor project area, Fort Macon State Park Unit (NC- 04P) on Bogue Banks is within the CBRS and protected under the Coastal Barrier Improvement Act of 1990. However, the Fort Macon State Park Unit (NC-04P) is designated “P”, which USFWS has defined as “otherwise protected area”. Since the Fort Macon State Park Unit (NC-04P) is owned by the State of North Carolina, this area is require protected from future private development. Additionally, USFWS defines the “P” designation as an area that is not regulated by CBRA since it is State owned property and NPS managed property, respectively. The only restriction to federal expenditures in these “P” designated areas is that federal flood insurance cannot be obtained.

7.6 Sea Level Rise

In accordance with ER 1100-2-8162 dated 31 December 2013, potential relative sea level change must be considered in every USACE coastal activity as far inland as the extent of estimated tidal influence. The Morehead City Harbor is at sea level and water levels are subject to diurnal tidal fluctuations. A thorough sea level rise analysis was performed as part of the Morehead City Harbor DMMP study. The conclusion from the DMMP sea level analysis was that the project has limited exposure to the effects of sea level rise and no associated risks. This sea level rise analysis is applicable to the proposed action since the navigation corridor is adjacent to the existing federally authorized channel and dredged material placement locations for this proposed action are the same as those evaluated for sea level rise in the DMMP.

7.7 Executive Order 11593 (Protection and Enhancement of the Cultural Environment)

The federal government shall provide leadership in preserving, restoring and maintaining the historic and cultural environment of the Nation. Federal agencies shall administer the cultural properties under their control in a spirit of stewardship and trusteeship for future generations, initiate measures necessary to direct their policies, plans and programs in such a way that federally owned sites, structures, and objects of historical, architectural or archaeological significance are preserved, restored, and maintained for the inspiration and benefit of the people, and, in consultation with the Advisory Council on Historic Preservation (16 U.S.C. 470i), institute procedures to assure that federal plans and programs contribute to the preservation and enhancement of non-federally owned sites, structures and objects of historical, architectural or archaeological significance.

The recommended plan, which is establishment of a navigation corridor as part of the Morehead City Harbor federal navigation channel, will not adversely affect cultural resources and will be in full compliance with Executive Order 11593 following completion of the NEPA process.

7.8 Executive Order 11988 (Floodplain Management)

The APE is located within Beaufort Inlet. The objective of the Executive Order is to avoid development in the base floodplain unless it is the only practicable alternative. Typically, beach quality material is placed on Bogue Banks beaches or in the approved nearshore placement areas and fine-grained material (not beach or nearshore compatible) is placed in the Ocean Dredged Material Disposal Site (ODMDS) in the area designated for fine-grained material. The recommended alternative would require work within the VE floodplain due to the location of the navigation channel within Beaufort Inlet. VE zones are coastal high hazard areas where wave action and/or high-velocity water can cause structural damage during the Base Flood (FRIS: North Carolina Flood Risk Information System). There are no viable alternatives to accomplishing the dredging of the channel that are outside the VE floodplain. The proposed corridor maintenance will not result in any changes to the floodplain; therefore public review is not warranted and there would be no losses of natural and beneficial floodplain values. The proposed action will not induce development within the floodplain. The no action alternative does not meet the purpose and need of the project. The proposed action is in compliance with the requirements of Executive Order 11988.

7.9 Executive Order 11990 (Protection of Wetlands)

This Executive Order mandates each federal agency shall provide leadership and shall take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities for (1) acquiring, managing, and disposing of federal lands and facilities; and (2) providing federally undertaken, financed, or assisted construction and improvements; and (3) conducting federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities.

The proposed action would not result in placement of fill in wetlands. Additionally, the proposed work will not result in significant hydrologic or salinity changes affecting wetlands. The proposed action is in compliance with Executive Order 11990.

7.10 Executive Order 12898 (Environmental Justice)

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires the federal government to achieve environmental justice by identifying and addressing high, adverse and disproportionate effects of its activities on minority and low-income populations. E.O. 12898, Environmental Justice, states that the proposed action would not result in adverse human health or environmental effects. Any impacts of the action would not be disproportionate towards any minority or low-income population. The activity does not (a) exclude persons from participation in, (b) deny persons the benefits of, or (c) subject persons to discrimination because of their race, color, or national origin. The activity would not impact "subsistence consumption of fish and wildlife." It requires the analysis of information such as the race, national origin, and income level for areas expected to be impacted by environmental actions. It also requires federal agencies to identify the need to ensure the protection of populations relying on subsistence consumption of fish and wildlife, through analysis of information on such consumption patterns, and the communication of associated risks to the public.

In 2014, Carteret County was racially composed of 89.7% White, 6.2% Black, 4.3% Hispanic, 0.6% American Indian, 1.2% Asian, and 0.1% Native Hawaiian or Pacific Islander, and about 2.0% of the population identify with two or more races (U.S. Census Quickfacts 2014).

According to the latest available U.S. Census data for Carteret County, the median household income in 2014 was $47,179 with an estimated 14.7% of the population living in poverty.

The proposed navigation corridor would not result in adverse impacts on minority populations or low-income populations. Therefore, the proposed action would be in compliance with Executive Order 12898.

7.11 Executive Order 13045 (Protection of Children from Environmental Health Risks)

This Executive Order mandates federal agencies to identify and assess environmental health and safety risks that may disproportionately affect children as a result of the implementation of federal policies, programs, activities, and standards.

In Carteret County, persons under 18 years old make up about 18.4% of the population or about 12,661. Student enrollment for the 2010-2011 school year was about 8,626 students. There are nine elementary, four middle, and three high schools in Carteret County (U.S. Census 2014).

No long-term adverse impacts on schools, residential and commercial areas, or other known gathering places for children are anticipated with the proposed action. The proposed action is in compliance with Executive Order 13045.

7.12 Executive Order 13112 (Invasive Species)

This Executive Order mandates federal agencies to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause.

The proposed action will not promote invasive species proliferation within the project area or surrounding area. Any subsequent occurrence of any invasive species in the project vicinity would not solely be the result of the implementation of the recommended plan. The proposed action is in compliance with Executive Order 13112.

7.13 Executive Order 13186 (Protection of Migratory Birds)

This Executive Order mandates agencies to protect and conserve migratory birds and their habitats pursuant to the Migratory Bird Treaty Act of 1918, as amended.

Migratory shorebirds are found along the beaches of Bogue and Shackleford Banks and use these areas for foraging and roosting habitat. The proposed action may result in placement of beach quality dredged material on the Bogue Banks beaches. Any sediment placed on the beach would be coordinated with USFWS and NCWRC to avoid any adverse impact to migratory shorebirds or their foraging and roosting habitat. The proposed action would not result in adverse effects on migratory shorebirds on either Bogue Banks or Shackleford Banks. The proposed action is in compliance with Executive Order 13186.

7.14 Executive Order 13693 (Planning for Federal Sustainability in the Next Decade)

A new Executive Order (EO) was issued 19 March 2015 (EO 13693 Planning for Federal Sustainability in the Next Decade). Federal leadership will continue to drive national greenhouse gas reductions and support preparations for the impacts of climate change through a combination of more efficient federal operations such as outlined in EO 13693. There is an opportunity for agencies to reduce direct greenhouse gas emissions for at least 40 percent over the next decade while fostering innovation, reducing spending and strengthening the communities where federal facilities are located. The first priority should be placed on reduction of energy use and cost and secondly finding renewable or alternative energy solutions. Employing this strategy for the next decade calls for expanded and updated federal environmental performance goals with a clear overarching objective of reducing greenhouse gas emissions across federal operations and the federal supply chain.

The MHC navigation corridor recommended plan is the least cost, engineeringly sound, environmentally acceptable (Federal Standard) plan for maintaining the federal navigation channel. The dredging of the navigation channel with the proposed corridor alignment would reduce the amount of material to be dredged, therefore saving operating time for the dredge

vessel and any other heavy equipment associated with the dredging and disposal. Additionally, all disposal sites for Morehead City Harbor are within close proximity (3 miles) of the harbor. This keeps dredged material transport distances to the minimum required to meet the Federal Standard, which helps reduce greenhouse gas emissions. Wilmington District will continue to implement positive changes to meet the goals outlined in EO 13693. The proposed action is in compliance with Executive Order 13693.

Table 7: The relationship of the proposed action to Federal Laws and Policies

Title of Public Law	**US CODE**	***Compliance Status**
Abandoned Shipwreck Act of 1987	43 USC 2101	Full Compliance
Anadromous Fish Conservation Act of 1965, As Amended	16 USC 757 a et seq.	Full Compliance
Antiquities Act of 1906, As Amended	16 USC 431	Full Compliance
Archeological and Historic Preservation Act of 1974, As Amended	16 USC 469	Full Compliance
Archeological Resources Protection Act of 1979, As Amended	16 USC 470	Full Compliance
Clean Air Act of 1972, As Amended	42 USC 7401 et seq.	Full Compliance
Clean Water Act of 1972, As Amended	33 USC 1251 et seq.	Full Compliance
Coastal Zone Management Act of 1972, As Amended	16 USC 1451 et seq.	Full Compliance
Endangered Species Act of 1973	16 USC 1531	Full Compliance
Estuary Program Act of 1968	16 USC 1221 et seq.	Full Compliance
Equal Opportunity	42 USC 2000d	Full Compliance
Farmland Protection Policy Act	7 USC 4201 et seq.	Full Compliance
Fish and Wildlife Coordination Act of 1958, As Amended	16 USC 661	Full Compliance
Historic and Archeological Data Preservation	16 USC 469	Full Compliance
Historic Sites Act of 1935	16 USC 461	Full Compliance
Magnuson Fishery Conservation and Management Act – Essential Fish Habitat	16 USC 1801	Full Compliance

National Environmental Policy Act of 1969, As Amended	42 USC 4321 et seq.	Full Compliance
National Historic Preservation Act of 1966, As Amended	16 USC 470	Full Compliance
National Historic Preservation Act Amendments of 1980	16 USC 469a	Full Compliance
Native American Religious Freedom Act of 1978	42 USC 1996	Full Compliance
Executive Orders		
Protection and Enhancement of Environmental Quality	11514/11991	Full Compliance
Protection and Enhancement of the Cultural Environment	11593	Full Compliance
Floodplain Management	11988	Full Compliance
Protection of Wetlands	11990	Full Compliance
Federal Actions to Address Environmental Justice and Minority and Low-Income Populations	12898	Full Compliance
Implementation of the North American Free Trade Agreement	12889	Full Compliance
Invasive Species	13112	Full Compliance

*Full compliance once the NEPA process is complete.

8.0 CONCLUSION

Based on findings described in this EA, it is in the federal interest to implement the proposed navigation corridor for the Morehead City Harbor federal navigation project. The corridor would provide flexibility and cost savings in maintaining the Morehead City Harbor federal navigation channel. Project construction will result in short-term impacts to the benthic community and habitat within the dredged channel; however, it is expected that the affected benthic community will recover between maintenance dredging events. Maintenance dredging will also result in short-term impacts on water quality (increased turbidity within the water column) localized to within the project area. The overall benefit of the proposed action is that it will allow for flexibility in maintaining the MHC navigation channel, reduce maintenance dredging costs, and provide a safer, more navigable channel for ships calling on the Port. Additionally, the duration of dredging events may be reduced, thereby lessening temporary impacts to benthos, water quality, and aesthetics.

9.0 POINT OF CONTACT

Ms. Teresa Russell, CESAW-ECP-PE, U.S. Army Engineer District, Wilmington, 69 Darlington Avenue, Wilmington, North Carolina 28403-1343. Telephone (910) 251-4725, email teresa.e.russell@usace.army.mil.

10.0 REFERENCES

Churchill, J.H., J.O. Blanton, J.L. Hench, R.A. Luettich Jr., and F.E. Werner. (1999). Flood tide circulation near Beaufort Inlet, North Carolina: Implications for larval recruitment. *Estuaries* 22:1057–1070.

FRIS: North Carolina Flood Risk Information System. (2013). Map Number 3720744000J. Retrieved from: http://fris.nc.gov/fris/Index.aspx?FIPS=&ST=NC&user=General Public

Fussell, J.O. 1985. Finding Birds in Carteret County. 96 pp.

National Marine Fisheries Service. (1997). Regional Biological Opinion for the Continued Hopper Dredging of Channels and Borrow Areas in the Southeastern United States. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Silver Spring, Maryland.

National Oceanic and Atmospheric Administration (NOAA). (2016). Essential Fish Habitat Mapper. Retrieved from <http://www.habitat.noaa.gov/protection/efh/efhmapper/index.html>.

National Oceanic and Atmospheric Administration (NOAA). (2013). Tides and Currents: Morehead City, NC Station ID: 8656496. Retrieved from <https://tidesandcurrents.noaa.gov/noaatidepredictions/NOAATidesFacade.jsp?Stationid=8656496>

North Carolina Department of Environment and Natural Resources (NCDENR), NC Division of Water Quality. (2007). White Oak River Basinwide Water Quality Plan.

North Carolina Department of Environmental Quality (NCDEQ), Division of Air Quality. (2016). *Attainment Planning: Designation Status Maps*. Retrieved from < http://www.ncair.org/planning/attainment/>.

North Carolina Department of Environmental Quality (NCDEQ), Division of Marine Fisheries. (2016). *Fishery Nursery Areas, Map 17*. Retrieved from <http://portal.ncdenr.org/web/mf/primary-nursery-areas>.

North Carolina Department of Environmental Quality (NCDEQ), Natural Heritage Program. (2016). *Carteret County Species/Community Search*. Retrieved from: <http://ncnhp.org/web/nhp/database-search> .

North Carolina Department of Environmental Quality (NCDEQ), Division of Water Resources. (2016). *303(d) Files 2016: Online Map*. Retrieved from: < http://deq.nc.gov/about/divisions/water-resources/planning/classification-standards/303d/303d-files>.

North Carolina State Historic Preservation Office. HPOWEB Map Service. N.p., 23 May 2016. Web. 23 May 2016. http://gis.ncdcr.gov/hpoweb/

Tavolaro, J.F., J.R. Wilson, T.L. Welp, J.E. Clausner, and A.Y. Premo. (2007). Overdepth dredging and characterization depth recommendations. ERDC/TN EEDP-04-37, Vicksburg, MS: U.S. Army Engineer Research and Development Center.

Town of Morehead City. (2016). *Code of Ordinances (Supplement No. 95)*. Retrieved from < https://www.municode.com/library/nc/morehead_city/codes/code_of_ordinances>.

U.S. Army Corps of Engineers, Wilmington District. (2001). "Section 111 Report, Morehead City Harbor/Pine Knoll Shores North Carolina", U.S. Army Corps of Engineers, South Atlantic Division.

U.S. Army Corps of Engineers, Wilmington District. (2010). Benthic Characterization Survey and Grain Size Analysis of the Beaufort Inlet Ebb Tide Delta, Morehead City, Carteret County, North Carolina – Final Report. Boynton Beach, Florida: Tetra Tech EC, Inc.

U.S. Army Corps of Engineers, Wilmington District. (2017). Morehead City Harbor Final Integrated Dredged Material Management Plan (DMMP) and Environmental Impact Statement, Morehead City, North Carolina.

U.S. Census Bureau. (2014). Quick Facts, Carteret County, North Carolina. Retrieved from <http://www.census.gov/quickfacts/table/PST045215/37031>.

U.S. Department of Agriculture, Natural Resources Conservation Service North Carolina. *NSSH Part 622*. Retrieved from <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/nc/soils/?cid=nrcs142p2_054226>.

U.S. Department of Agriculture, Soil Conservation Service. (1987). *Soil Survey of Carteret County, North Carolina*.

U.S. Department of the Interior, NPS. (2006). *Management Policies*. Retrieved from: http://www.nps.gov/policy/mp2006.pdf

U.S. Department of the Interior, NPS (1983). *General Management Plan, Cape Lookout National Seashore*. Retrieved from: https://www.nps.gov/calo/learn/management/current-documents.htm

U.S. Environmental Protection Agency. *Envirofacts*. (2016). Retrieved from <http://www.epa.gov/enviro/>.

U.S. Environmental Protection Agency. North Carolina Fact Sheet: *What Climate Change Means for North Carolina*. (2016). Retrieved from < https://www3.epa.gov/climatechange/Downloads/impacts-adaptation/climate-change-NC.pdf>.

U.S. Fish and Wildlife Service (USFWS). (2016). *IPaC – Information, Planning, and Conservation System*. Retrieved from: http://ecos.fws.gov/ipac/

Appendix A

SHPO Correspondence

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

February 4, 2016

Planning and Environmental Branch

Mrs. Renee Gledhill-Earley, Environmental Review Coordinator
North Carolina State Historic Preservation Office
4617 Mail Service Center
Raleigh, NC 27699-4617

Dear Mrs. Gledhill-Earley:

The U.S. Army Corps of Engineers (Corps), Wilmington District, is assessing effects to cultural resources associated with westward realignment of sections of the 'Cutoff' and 'Range A' reaches of the Morehead City Harbor Federal Navigation Channel (Channel), within Beaufort Inlet, North Carolina. Although the area shaded in purple in Figure 1 represents the currently proposed, realigned Channel footprint, the area of potential effect (APE) associated with dredging operations may extend westward of the proposed realignment (Figure 1). Beaufort Inlet is dynamic and experiences a high degree of variability with respect to the location of deep, navigable water. It is believed that the Channel's proposed realignment will reduce maintenance dredging costs and increase ease of navigation for containerships serviced by the Morehead City State Port Terminal.

Since initial cultural resource surveys of the Morehead City Harbor and Beaufort Inlet areas were conducted in 1978, the Corps has conducted remote-sensing surveys and target identification and assessment surveys in 1986, 1988, 1991, 1992, 1997, 2001, and 2008 near the proposed Channel realignment footprint. Additional area surveys have been conducted by academic institutions such as East Carolina University. Although multiple potential targets have been identified in this general area through past surveys, recent coordination with the N.C. State Historic Preservation Office (SHPO), Underwater Archaeology Branch (UAB), has identified 20 specific targets requiring avoidance and/or further investigation (Figure 2). None of these targets are located within the APE and therefore will not be affected by the proposed Channel realignment. Additionally, based on telephone/email communication between the Corps and SHPO UAB concerning the proposed action, and preliminary research conducted by SHPO UAB, it seems unlikely that any submerged archaeological sites potentially eligible for listing in the National Register of Historic Places will be affected by the proposed Channel realignment (Attachment 1).

The Corps has determined that, based on available information, there is a low probability that any potentially eligible archaeological resources will be impacted by the proposed Channel realignment, or by dredging activity within the APE. At your earliest convenience, please

provide comments regarding our determination. If you have any questions please contact Mr. Justin Bashaw, Environmental Resources Section, at Justin.P.Bashaw@usace.army.mil, or you may call him at (910) 251-4581.

Sincerely,

Elden J. Gatwood
Chief, Planning and Environmental Branch

Figures

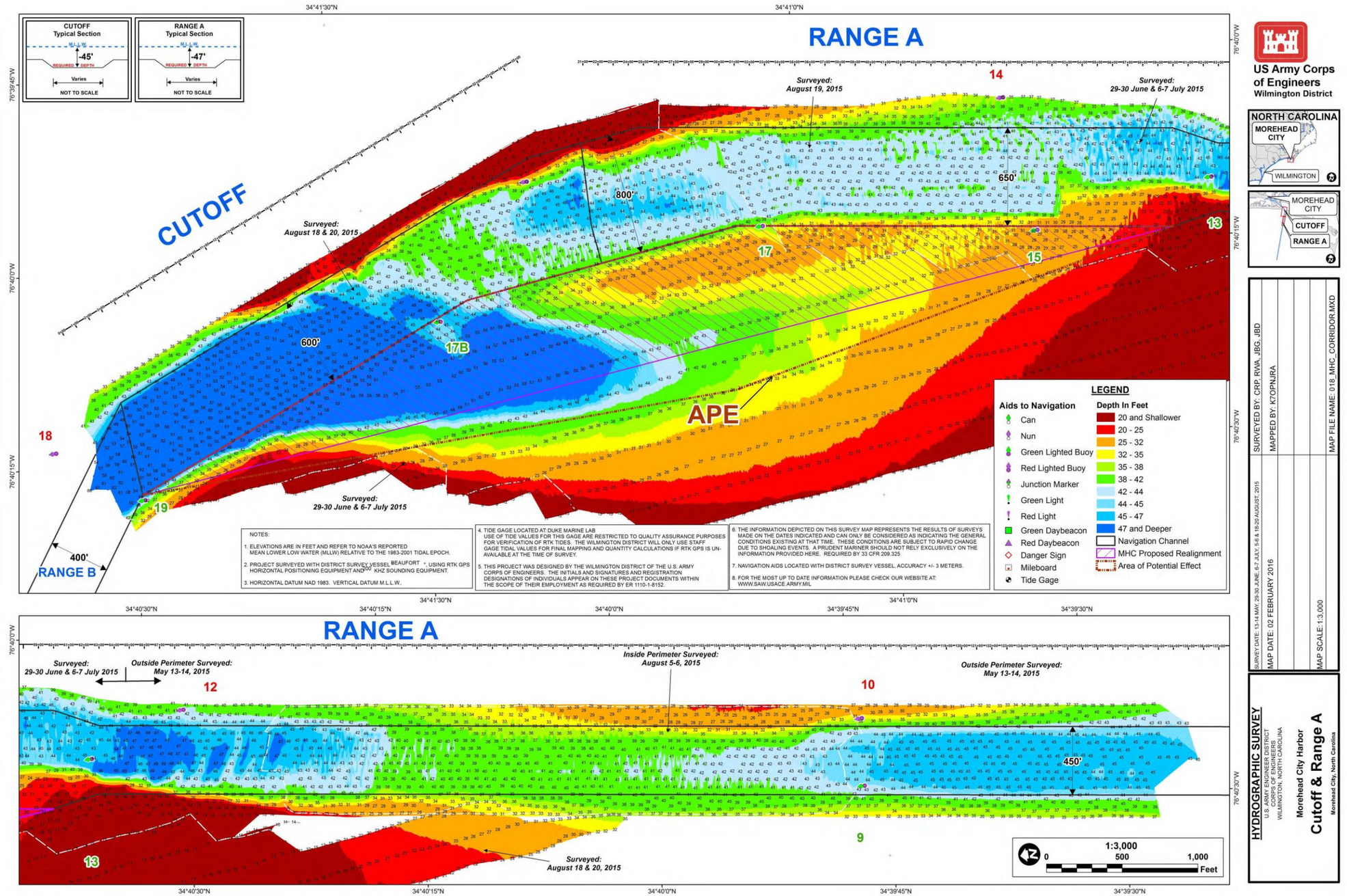


Figure 1. Morehead City Harbor Federal Navigation Channel 'Cutoff' and 'Range A' reach map.

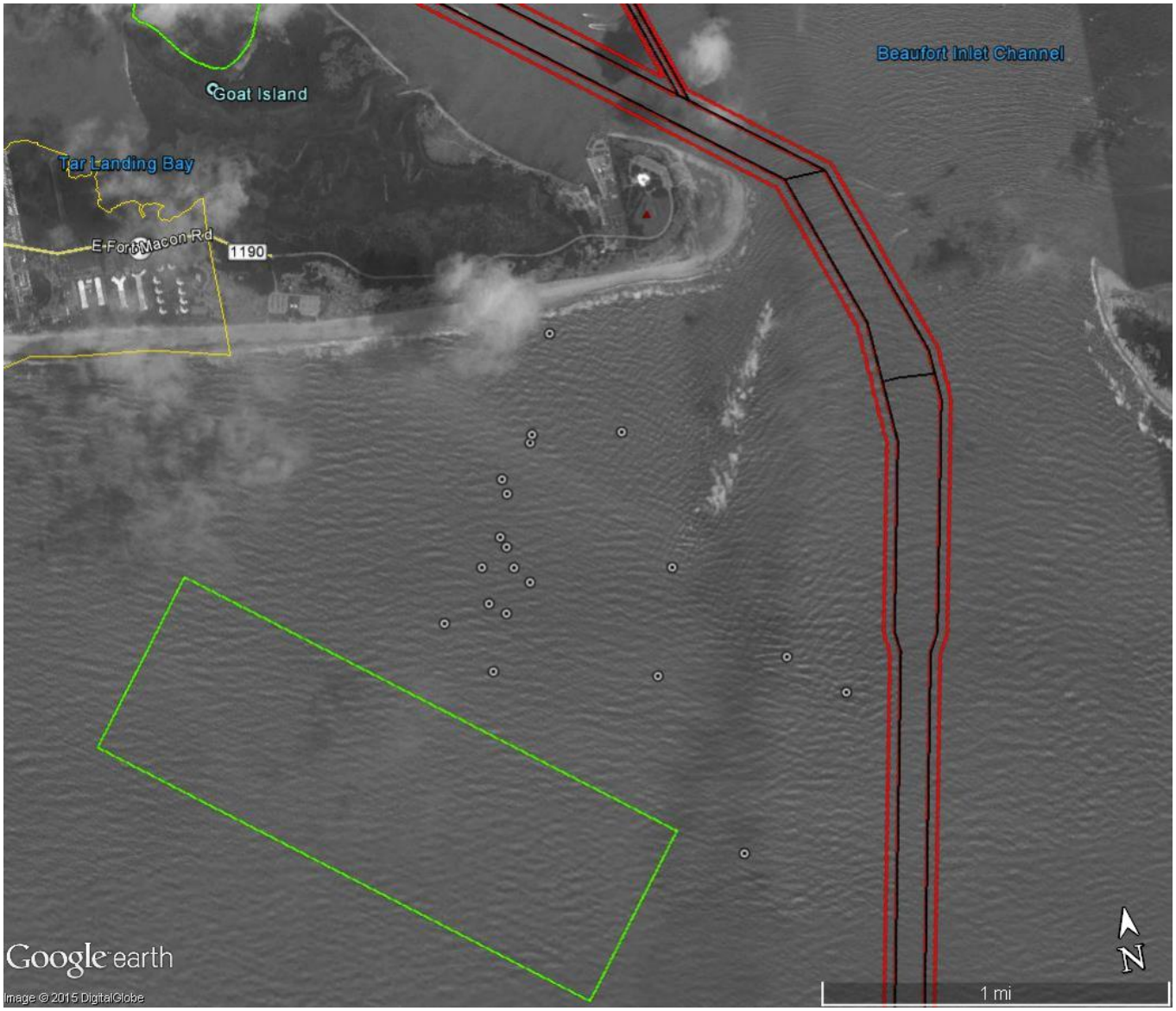


Figure 2. SHPO-identified targets (grey circles) requiring avoidance and/or further investigation.

Attachment 1

N.C. State Historic Preservation Office (SHPO)
Underwater Archaeology Branch (UAB) Coordination

From: Southerly, Chris
To: Bashaw, Justin P SAW
Subject: [EXTERNAL] RE: Morehead City Corridor - Cultural Resources
Date: Tuesday, January 26, 2016 1:24:26 PM

Justin,

Reviewing our records, the realignment/expansion area being considered in Beaufort Inlet west of Range A and the Cutoff does not appear to have been surveyed for submerged cultural resources. However, given the historical migration of the inlet channel and impacts from modern inlet boat traffic, it is unlikely that any submerged archaeological sites potentially eligible for NRHP listing will be affected by the proposed project.

Chris Southerly
Assistant State Archaeologist
Office of State Archaeology - Underwater Branch
NC Department of Natural and Cultural Resources

910 458 9042 office
910 458 4093 fax
chris.southerly@ncdcr.gov

1528 Fort Fisher Boulevard South
Kure Beach, North Carolina, 28449

-----Original Message-----
From: Bashaw, Justin P SAW [mailto:Justin.P.Bashaw@usace.army.mil]
Sent: Monday, January 25, 2016 3:57 PM
To: Southerly, Chris <chris.southerly@ncdcr.gov>
Cc: Owens, Jennifer L SAW <Jennifer.L.Owens@usace.army.mil>; Keistler, Robert W SAW <Robert.W.Keistler@usace.army.mil>
Subject: Morehead City Corridor - Cultural Resources

Good afternoon Chris,

Following up on our phone conversation, the Corps proposes to relocate portions of the 'Cutoff' and 'Range A' sections of the Morehead City Harbor Federal Navigation Channel. As compared to existing conditions, the channel would be shifted ~750 feet to the west in these sections (shift represented as the purple polygon in the attached 'MHC_Corridor' figure).

Would you please provide your preliminary opinion regarding potential impacts to cultural resources/survey needs in these shifted areas relating to dredging and, in an effort to me more than less inclusive, expand your opinion to include all areas west of the proposed channel shift (purple polygon) and deeper than 20 feet (reference attached 'MHC Corridor' figure)?

You'd previously provided me a figure displaying known resources to avoid just south and west of Beaufort Inlet (attached). Thank you. If this figure represents all known resources requiring avoidance in the proposed channel realignment areas in question, there's no need to provide an additional figure. Just please let me know that the existing '...Requiring Avoidance' figure remains applicable.

For your reference, most recent survey information for Morehead City Harbor is located here:

Blockedhttp://www.saw.usace.army.mil/Missions/Navigation/HydrographicSurveys/MoreheadCityBeaufortHarbors.aspx

After your preliminary feedback is received, I'll submit a formal concurrence request through Environmental.Review@dcr.gov.

Thank you Chris, and please do call/email me if my request requires clarification.

Justin Bashaw

Biologist, Cultural Resources Manager
Environmental Resources Section
US Army Corps of Engineers, Wilmington District

- 69 Darlington Avenue
  Wilmington, NC 28403-1343
- 910.251.4581 (telephone)
- 910.251.4744 (facsimile)
- justin.p.bashaw@usace.army.mil

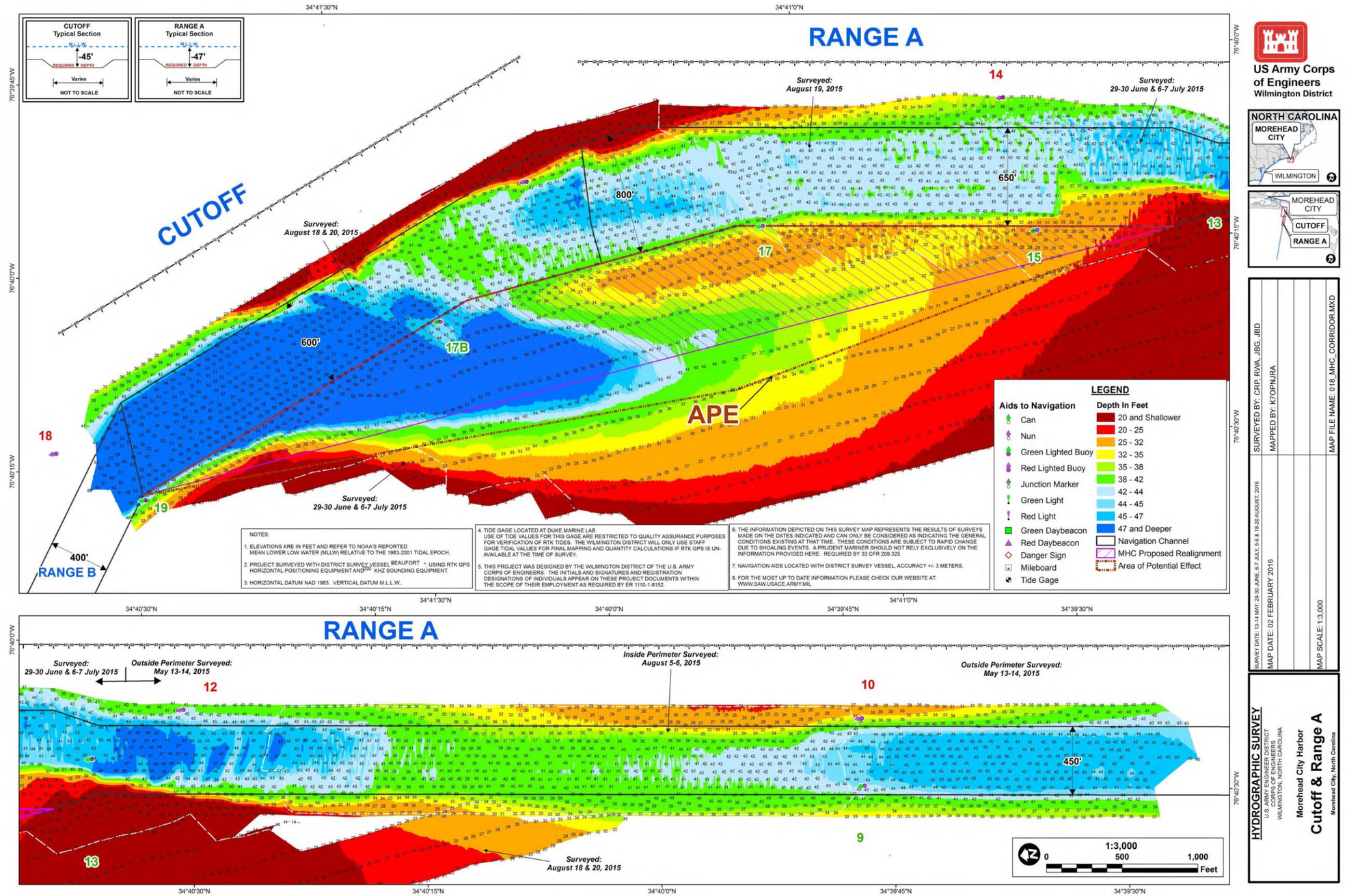


Figure 1. Morehead City Harbor Federal Navigation Channel 'Cutoff' and 'Range A' reach map.

North Carolina Department of Natural and Cultural Resources

State Historic Preservation Office

Ramona M. Bartos, Administrator

Governor Pat McCrory
Secretary Susan Kluttz

Office of Archives and History
Deputy Secretary Kevin Cherry

February 12, 2016

Elden Gatwood
c/o Justin Bashaw
Department of the Army
Wilmington Regulatory Field Office
69 Darlington Avenue
Wilmington, NC 28403

Re: Westward Realignment of Sections of the Cutoff and Range A Reaches of the Morehead City Harbor Federal Navigation Channel, Beaufort Inlet, Carteret County, ER 16-0239

Dear Mr. Bashaw:

Thank you for your letter of February 4, 2016, concerning the above project.

We have conducted a review of the project and are aware of no historic resources which would be affected by the project. Therefore, we have no comment on the project as proposed.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919-807-6579 or environmental.review@ncdcr.gov. In all future communication concerning this project, please cite the above referenced tracking number.

Sincerely,

Renee Gledhill-Earley

for Ramona M. Bartos

Appendix B

NC Division of Water Resources:

Water Quality Certificate # 4099

STATE OF NORTH CAROLINA
DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF WATER RESOURCES

WATER QUALITY GENERAL CERTIFICATION NO. 4099

GENERAL CERTIFICATION FOR PROJECTS ELIGIBLE FOR US ARMY CORPS OF ENGINEERS

- **REGIONAL GENERAL PERMIT 198000048 (EMERGENCY ACTIVITIES ON OCEAN BEACHES)**

Water Quality Certification Number 4099 is issued in conformity with the requirements of Section 401, Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina in 15A NCAC 02H .0500 and 15A NCAC 02B .0200 for the discharge of fill material to surface waters and wetland areas as described in the US Army Corps of Engineers Wilmington District's Regional General Permit 198000048.

The State of North Carolina certifies that the specified category of activity will not violate applicable portions of Sections 301, 302, 303, 306 and 307 of the Public Laws 92-500 and 95-217 if conducted in accordance with the conditions hereinafter set forth.

Effective date: March 19, 2017

Signed this day March 3, 2017

By

for S. Jay Zimmerman, P.G.
Director

Activities meeting any one (1) of the following thresholds or circumstances require *written approval* for a 401 Water Quality Certification from the Division of Water Resources (DWR):

a) If any of the Conditions of this Certification (listed below) cannot be met; or
b) Any permanent fill into or modification of wetlands and/or waters; or
c) Any impacts to streams from excavation or dredging; or
d) Any stream relocation or stream restoration; or
e) Any impacts to waters, or to wetlands adjacent to waters, designated as: ORW (including SAV), HQW (including PNA), SA, WS-I, WS-II, Trout, or North Carolina or National Wild and Scenic River; or
f) Any impacts to coastal wetlands [15A NCAC 07H .0205], or Unique Wetlands (UWL); or
g) Any impact associated with a Notice of Violation or an enforcement action for violation(s) of NC Wetland Rules (15A NCAC 02H .0500), NC Isolated Wetland Rules (15A NCAC 02H .1300), NC Surface Water or Wetland Standards (15A NCAC 02B .0200), or State Regulated Riparian Buffer Rules (15A NCAC 02B .0200); or
h) Any impacts to subject water bodies and/or state regulated riparian buffers along subject water bodies in the Neuse, Tar-Pamlico, or Catawba River Basins or in the Randleman Lake, Jordan Lake or Goose Creek Watersheds (or any other basin or watershed with State Regulated Riparian Area Protection Rules [Buffer Rules] in effect at the time of application) *unless:*
    i) The activities are listed as "EXEMPT" from these rules; or
    ii) A Buffer Authorization Certificate is issued by the NC Division of Coastal Management (DCM); or
    iii) A Buffer Authorization Certificate or a Minor Variance is issued by a delegated or designated local government implementing a state riparian buffer program pursuant to 143-215.23.

Activities included in this General Certification that do not meet one of the thresholds listed above do not require written approval.

I. ACTIVITY SPECIFIC CONDITIONS:

1. The discharge shall not contain levels of pollutants that would result in a violation of state water quality and wetland standards. [15A NCAC 02H .0200]

II. GENERAL CONDITIONS:

1. When written authorization is required, the plans and specifications for the project are incorporated into the authorization by reference and are an enforceable part of the Certification. Any modifications to the project require notification to DWR and may require an application submittal to DWR with the appropriate fee. [15A NCAC 02H .0501 and .0502]

2. No waste, spoil, solids, or fill of any kind shall occur in wetlands or waters beyond the footprint of the impacts (including temporary impacts) as authorized in the written approval from DWR; or beyond the thresholds established for use of this Certification without written authorization. [15A NCAC 02H .0501 and .0502]

   No removal of vegetation or other impacts of any kind shall occur to state regulated riparian buffers beyond the footprint of impacts approved in a Buffer Authorization or Variance or as listed as an exempt activity in the applicable riparian buffer rules. [15A NCAC 02B .0200]

3. In accordance with 15A NCAC 02H .0506(h), compensatory mitigation may be required for losses of greater than 150 linear feet of streams and/or greater than one (1) acre of wetlands. Impacts to isolated and other non-404 jurisdictional wetlands shall not be combined with 404 jurisdictional wetlands for the purpose of determining when impact thresholds trigger a mitigation requirement. For linear publicly owned and maintained transportation projects that are not determined to be part of a larger common plan of development by the US Army Corps of Engineers, compensatory mitigation may be required for losses of greater than 150 linear feet per stream.

   Compensatory stream and/or wetland mitigation shall be proposed and completed in compliance with G.S. 143-214.11. For applicants proposing to conduct mitigation within a project site, a complete mitigation proposal developed in accordance with the most recent guidance issued by the US Army Corps of Engineers Wilmington District shall be submitted for review and approval with the application for impacts.

4. All activities shall be in compliance with any applicable State Regulated Riparian Buffer Rules in Chapter 2 of Title 15A.

5. When applicable, all construction activities shall be performed and maintained in full compliance with G.S. Chapter 113A Article 4 (Sediment and Pollution Control Act of 1973). Regardless of applicability of the Sediment and Pollution Control Act, all projects shall incorporate appropriate Best Management Practices for the control of sediment and erosion so that no violations of state water quality standards, statutes, or rules occur. [15A NCAC 02H .0506(b)(3) and (c)(3) and 15A NCAC 02B .0200]

   Design, installation, operation, and maintenance of all sediment and erosion control measures shall be equal to or exceed the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual*, or for linear transportation projects, the *NCDOT Sediment and Erosion Control Manual*.

   All devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) sites, including contractor-owned or leased borrow pits associated with the project. Sufficient materials required for stabilization and/or repair of erosion control measures and stormwater routing and treatment shall be on site at all times.

For borrow pit sites, the erosion and sediment control measures shall be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual*. Reclamation measures and implementation shall comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act and the Mining Act of 1971.

If the project occurs in waters or watersheds classified as Primary Nursery Areas (PNAs), SA, WS-I, WS-II, High Quality Waters (HQW), or Outstanding Resource Waters (ORW), then the sedimentation and erosion control designs shall comply with the requirements set forth in 15A NCAC 04B .0124, *Design Standards in Sensitive Watersheds*.

6. Sediment and erosion control measures shall not be placed in wetlands or waters except within the footprint of temporary or permanent impacts authorized under this Certification. Exceptions to this condition require application to and written approval from DWR. [15A NCAC 02H .0501 and .0502]

7. Erosion control matting that incorporates plastic mesh and/or plastic twine shall not be used along streambanks or within wetlands. Exceptions to this condition require application to and written approval from DWR. [15A NCAC 02B .0201]

8. An NPDES Construction Stormwater Permit (NCG010000) is required for construction projects that disturb one (1) or more acres of land. The NCG010000 Permit allows stormwater to be discharged during land disturbing construction activities as stipulated in the conditions of the permit. If the project is covered by this permit, full compliance with permit conditions including the erosion & sedimentation control plan, inspections and maintenance, self-monitoring, record keeping and reporting requirements is required. [15A NCAC 02H .0506(b)(5) and (c)(5)]

   The North Carolina Department of Transportation (NCDOT) shall be required to be in full compliance with the conditions related to construction activities within the most recent version of their individual NPDES (NCS000250) stormwater permit. [15A NCAC 02H .0506(b)(5) and (c)(5)]

9. All work in or adjacent to streams shall be conducted so that the flowing stream does not come in contact with the disturbed area. Approved best management practices from the most current version of the *NC Sediment and Erosion Control Manual*, or the *NC DOT Construction and Maintenance Activities Manual*, such as sandbags, rock berms, cofferdams, and other diversion structures shall be used to minimize excavation in flowing water. Exceptions to this condition require application to and written approval from DWR. [15A NCAC 02H .0506(b)(3) and (c)(3)]

10. If activities must occur during periods of high biological activity (e.g. sea turtle nesting, fish spawning, or bird nesting), then biological monitoring may be required at the request of other state or federal agencies and coordinated with these activities. [15A NCAC 02H .0506(b)(2) and 15A NCAC 04B .0125]

All moratoriums on construction activities established by the NC Wildlife Resources Commission (WRC), US Fish and Wildlife Service (USFWS), NC Division of Marine Fisheries (DMF), or National Marine Fisheries Service (NMFS) shall be implemented. Exceptions to this condition require written approval by the resource agency responsible for the given moratorium. A copy of the approval from the resource agency shall be forwarded to DWR.

Work within a designated trout watershed of North Carolina (as identified by the Wilmington District of the US Army Corps of Engineers) or identified state or federal endangered or threatened species habitat, shall be coordinated with the appropriate WRC, USFWS, NMFS, and/or DMF personnel.

11. Culverts shall be designed and installed in such a manner that the original stream profiles are not altered and allow for aquatic life movement during low flows. The dimension, pattern, and profile of the stream above and below a pipe or culvert shall not be modified by widening the stream channel or by reducing the depth of the stream in connection with the construction activity. The width, height, and gradient of a proposed culvert shall be such as to pass the average historical low flow and spring flow without adversely altering flow velocity. [15A NCAC 02H .0506(b)(2) and (c)(2)]

    Placement of culverts and other structures in streams shall be below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20% of the culvert diameter for culverts having a diameter less than or equal to 48 inches, to allow low flow passage of water and aquatic life.

    If multiple pipes or barrels are required, they shall be designed to mimic the existing stream cross section as closely as possible including pipes or barrels at flood plain elevation and/or sills where appropriate. Widening the stream channel shall be avoided.

    When topographic constraints indicate culvert slopes of greater than 5%, culvert burial is not required, provided that all alternative options for flattening the slope have been investigated and aquatic life movement/connectivity has been provided when possible (e.g. rock ladders, cross vanes, etc.). Notification, including supporting documentation to include a location map of the culvert, culvert profile drawings, and slope calculations, shall be provided to DWR 60 calendar days prior to the installation of the culvert.

    When bedrock is present in culvert locations, culvert burial is not required provided that there is sufficient documentation of the presence of bedrock. Notification, including supporting documentation such as, a location map of the culvert, geotechnical reports, photographs, etc. shall be provided to DWR a minimum of 60 calendar days prior to the installation of the culvert. If bedrock is discovered during construction, then DWR shall be notified by phone or email within 24 hours of discovery.

    If other site-specific topographic constraints preclude the ability to bury the culverts as described above and/or it can be demonstrated that burying the culvert would result in destabilization of the channel, then exceptions to this condition require application to and written approval from DWR.

Installation of culverts in wetlands shall ensure continuity of water movement and be designed to adequately accommodate high water or flood conditions. When roadways, causeways, or other fill projects are constructed across FEMA-designated floodways or wetlands, openings such as culverts or bridges shall be provided to maintain the natural hydrology of the system as well as prevent constriction of the floodway that may result in destabilization of streams or wetlands.

The establishment of native woody vegetation and other soft stream bank stabilization techniques shall be used where practicable instead of rip-rap or other bank hardening methods.

12. Bridge deck drains shall not discharge directly into the stream. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means to the maximum extent practicable (e.g. grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. Exceptions to this condition require application to and written approval from DWR. [15A NCAC 02H .0506(b)(5)]

13. Application of fertilizer to establish planted/seeded vegetation within disturbed riparian areas shall be conducted at agronomic rates and shall comply with all other Federal, State and Local regulations. Fertilizer application shall be accomplished in a manner that minimizes the risk of contact between the fertilizer and surface waters. [15A NCAC 02B .0200 and 15A NCAC 02B .0231]

14. If concrete is used during construction, then all necessary measures shall be taken to prevent direct contact between uncured or curing concrete and waters of the state. Water that inadvertently contacts uncured concrete shall not be discharged to waters of the state. [15A NCAC 02B .0200]

15. All proposed and approved temporary fill and culverts shall be removed and the impacted area shall be returned to natural conditions within 60 calendar days after the temporary impact is no longer necessary. The impacted areas shall be restored to original grade, including each stream's original cross sectional dimensions, planform pattern, and longitudinal bed profile. For projects that receive written approval, no temporary impacts are allowed beyond those included in the application and authorization. All temporarily impacted sites shall be restored and stabilized with native vegetation. [15A NCAC 02H .0506(b)(2) and (c)(2)]

16. All proposed and approved temporary pipes/culverts/rip-rap pads etc. in streams shall be installed as outlined in the most recent edition of the *North Carolina Sediment and Erosion Control Planning and Design Manual* or the *North Carolina Surface Mining Manual* or the *North Carolina Department of Transportation Best Management Practices for Construction and Maintenance Activities* so as not to restrict stream flow or cause dis-equilibrium during use of this Certification. [15A NCAC 02H .0506(b)(2) and (c)(2)]

17. Any rip-rap required for proper culvert placement, stream stabilization, or restoration of temporarily disturbed areas shall be restricted to the area directly impacted by the approved construction activity. All rip-rap shall be placed such that the original stream elevation and streambank contours are restored and maintained. Placement of rip-rap or other approved materials shall not result in de-stabilization of the stream bed or banks upstream or downstream of the area or in a manner that precludes aquatic life passage. [15A NCAC 02H .0506(b)(2)]

18. Any rip-rap used for stream or shoreline stabilization shall be of a size and density to prevent movement by wave, current action, or stream flows and shall consist of clean rock or masonry material free of debris or toxic pollutants. Rip-rap shall not be installed in the streambed except in specific areas required for velocity control and to ensure structural integrity of bank stabilization measures. [15A NCAC 02H .0506(b)(2)]

19. Applications for rip-rap groins proposed in accordance with 15A NCAC 07H .1401 (NC Division of Coastal Management General Permit for construction of Wooden and Rip-rap Groins in Estuarine and Public Trust Waters) shall meet all the specific conditions for design and construction specified in 15A NCAC 07H .1405.

20. All mechanized equipment operated near surface waters shall be inspected and maintained regularly to prevent contamination of surface waters from fuels, lubricants, hydraulic fluids, or other toxic materials. Construction shall be staged in order to minimize the exposure of equipment to surface waters to the maximum extent practicable. Fueling, lubrication and general equipment maintenance shall not take place within 50 feet of a waterbody or wetlands to prevent contamination by fuels and oils. [15A NCAC 02H .0506(b)(3) and (c)(3) and 15A NCAC 02B .0211 (12)]

21. Heavy equipment working in wetlands shall be placed on mats or other measures shall be taken to minimize soil disturbance. [15A NCAC 02H .0506(b)(3) and (c)(3)]

22. In accordance with 143-215.85(b), the applicant shall report any petroleum spill of 25 gallons or more; any spill regardless of amount that causes a sheen on surface waters; any petroleum spill regardless of amount occurring within 100 feet of surface waters; and any petroleum spill less than 25 gallons that cannot be cleaned up within 24 hours.

23. If an environmental document is required under the State Environmental Policy Act (SEPA), then this General Certification is not valid until a Finding of No Significant Impact (FONSI) or Record of Decision (ROD) is issued by the State Clearinghouse. If an environmental document is required under the National Environmental Policy Act (NEPA), then this General Certification is not valid until a Categorical Exclusion, the Final Environmental Assessment, or Final Environmental Impact Statement is published by the lead agency. [15A NCAC 01C .0107(a)]

24. This General Certification does not relieve the applicant of the responsibility to obtain all other required Federal, State, or Local approvals before proceeding with the project, including those required by, but not limited to, Sediment and Erosion Control, Non-Discharge, Water Supply Watershed, and Trout Buffer regulations.

25. The applicant and their authorized agents shall conduct all activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act), and any other appropriate requirements of State and Federal Law. If DWR determines that such standards or laws are not being met, including failure to sustain a designated or achieved use, or that State or Federal law is being violated, or that further conditions are necessary to assure compliance, then DWR may revoke or modify a written authorization associated with this General Water Quality Certification. [15A NCAC 02H .0507(d)]

26. When written authorization is required for use of this Certification, upon completion of all permitted impacts included within the approval and any subsequent modifications, the applicant shall be required to return a certificate of completion (available on the DWR website: https://edocs.deq.nc.gov/Forms/Certificate-of-Completion). [15A NCAC 02H .0502(f)]

27. Additional site-specific conditions, including monitoring and/or modeling requirements, may be added to the written approval letter for projects proposed under this Water Quality Certification in order to ensure compliance with all applicable water quality and effluent standards. [15A NCAC 02H .0507(c)]

28. If the property or project is sold or transferred, the new Permittee shall be given a copy of this Certification (and written authorization if applicable) and is responsible for complying with all conditions. [15A NCAC 02H .0501 and .0502]

III. GENERAL CERTIFICATION ADMINISTRATION:

1. In accordance with North Carolina General Statute 143-215.3D(e), written approval for a 401 Water Quality General Certification must include the appropriate fee. An applicant for a CAMA permit under Article 7 of Chapter 113A of the General Statutes for which a Water Quality Certification is required shall only make one payment to satisfy both agencies; the fee shall be as established by the Secretary in accordance with 143-215.3D(e)(7).

2. This Certification neither grants nor affirms any property right, license, or privilege in any waters, or any right of use in any waters. This Certification does not authorize any person to interfere with the riparian rights, littoral rights, or water use rights of any other person and this Certification does not create any prescriptive right or any right of priority regarding any usage of water. This Certification shall not be interposed as a defense in any action respecting the determination of riparian or littoral rights or other rights to water use. No consumptive user is deemed by virtue of this Certification to possess any prescriptive or other right of priority with respect to any other consumptive user regardless of the quantity of the withdrawal or the date on which the withdrawal was initiated or expanded.

3. This Certification grants permission to the Director, an authorized representative of the Director, or DWR staff, upon the presentation of proper credentials, to enter the property during normal business hours. [15A NCAC 02H .0502(e)]

4. This General Certification shall expire on the same day as the expiration date of the corresponding Nationwide Permit and/or Regional General Permit. The conditions in effect on the date of issuance of Certification for a specific project shall remain in effect for the life of the project, regardless of the expiration date of this Certification. This General Certification is rescinded when the US Army Corps of Engineers reauthorizes any of the corresponding Nationwide Permits and/or Regional General Permits or when deemed appropriate by the Director of the Division of Water Resources.

5. Non-compliance with or violation of the conditions herein set forth by a specific project may result in revocation of this General Certification for the project and may also result in criminal and/or civil penalties.

6. The Director of the North Carolina Division of Water Resources may require submission of a formal application for Individual Certification for any project in this category of activity if it is determined that the project is likely to have a significant adverse effect upon water quality, including state or federally listed endangered or threatened aquatic species, or degrade the waters so that existing uses of the water or downstream waters are precluded.

7. Public hearings may be held prior to a Certification decision if deemed in the public's best interest by the Director of the North Carolina Division of Water Resources.

History Note: Water Quality Certification (WQC) Number 4099 issued March 3, 2017 replaces WQC 3908 issued March 19, 2012; WQC 3703 issued November 1, 2007; WQC 3640 issued March 2007; WQC 3493 issued December 2004; and WQC 3372 issued March 18, 2002.

Appendix C

Evaluation of Section 404 (b)(1)

(Public Law 95-217) Guidelines 40 CFR 230

APPENDIX C

Morehead City Harbor Federal Navigation Project Navigation Corridor

Environmental Assessment

Preliminary Evaluation of Section 404 (b) (1) Guidelines 40 CFR 230

Section 404 Public Notice No. CESAW-ECP-PE

1. Review of Compliance (230.10(a)-(d)) A review of the NEPA Document indicates that:	**Preliminary 1/**	**Final 2/**
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 (if no, see section 2 and NEPA document);	YES ☒ NO☐	YES☐ NO☐
b. The activity does not: 1) violate applicable State water quality standards or effluent standards prohibited under Section 307 of the CWA; 2) jeopardize the existence of federally listed endangered or threatened species or their habitat; and 3) violate requirements of any federally designated marine sanctuary (if no, see section 2b and check responses from resource and water quality certifying agencies);	YES ☒ NO☐	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 organism's dependent on the aquatic ecosystem, ecosystem diversity, productivity and stability, and recreational, aesthetic, and economic values (if no, see section 2);	YES☒ NO☐	YES☐ NO☐
d. Appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem (if no, see section 3.03).	YES☒ NO☐*	YES☐ NO☐

2. Technical Evaluation Factors (Subparts C-F)	N/A	Not Significant	Significant
a. Physical and Chemical Characteristics of the Aquatic Ecosystem (Subpart C)			
(1) Substrate impacts.		X	
(2) Suspended particulates/turbidity impacts		X	
(3) Water column impacts.		X	
(4) Alteration of current patterns and water circulation.		X	
(5) Alteration of normal water fluctuations/hydroperiod.		X	
(6) Alteration of salinity gradients.	NA		
b. Biological Characteristics of the Aquatic Ecosystem (Subpart D)			
(1) Effect on threatened/endangered species and their habitat.		X	
(2) Effect on the aquatic food web.		X	
(3) Effect on other wildlife (mammals birds, reptiles, and amphibians).		X	
c Special Aquatic Sites (Subpart E)			
(1) Sanctuaries and refuges.	NA		
(2) Wetlands.	NA		
(3) Mud flats.	NA		
(4) Vegetated shallows.	NA		
(5) Coral reefs.	NA		
(6) Riffle and pool complexes.	NA		
d. Human Use Characteristics (Subpart F)			
(1) Effects on municipal and private water supplies.	NA		
(2) Recreational and commercial fisheries impacts		X	
(3) Effects on water-related recreation.		X	
(4) Aesthetic impacts.		X	
(5) Effects on parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves.		X	

3. Evaluation of Dredged or Fill Material (Subpart G) 3/

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	☒
(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 (Section 311 of CWA) hazardous substances	☒
(6) Other 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).	☐

Reference: 1: U.S. Environmental Protection Agency. *Envirofacts*. (2016). Retrieved from <http://www.epa.gov/enviro/>.

2: U.S. Army Corps of Engineers, Wilmington District. (2017). Morehead City Harbor Dredged Material Management Plan (DMMP), Morehead City, North Carolina.

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 result in degradation of the disposal site.** YES ☒ NO☐

*

4. Disposal Site Determinations (230.11(f)).

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

(1) Depth of water at disposal site ☒

(2) Current velocity, direction, and variability at disposal site ☒

(3) Degree of turbulence ☒

(4) Water column stratification ☒

(5) Discharge vessel speed and direction ☒

(6) Rate of discharge ☒

(7) Dredged material characteristics (constituents, amount and type of material, settling velocities). ☒

(8) Number of discharges per unit of time ☒

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

Reference: U.S. Army Corps of Engineers, Wilmington District. (2017). Morehead City Harbor Dredged Material Management Plan (DMMP), Morehead City, North Carolina.

b. An evaluation of the appropriate factors in 4a above indicates that the disposal site and/or size of mixing zone are acceptable. YES ☒ NO ☐*

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

All appropriate and practicable steps have been taken, through application of recommendations of 230.70-230.77, to ensure minimal adverse effects of the proposed discharge. YES ☒ NO ☐*

For water quality see Section 5.2.4 of the EA. For fisheries see Section 5.3 of the EA. For threatened and endangered species see Section 5.6 of the EA.

6. Factual Determinations (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 at the disposal site (review sections 2a, 3, 4, and 5). YES ☒ NO ☐*

b. Water circulation, fluctuation, and salinity (review sections 2a, 3, 4, and 5). YES ☒ NO ☐*

c. Suspended particulates/turbidity (review sections 2a, 3, 4, and 5). YES ☒ NO ☐*

d Contaminant availability (review sections 2a, 3, and 4). YES ☒ NO ☐*

e. Aquatic ecosystem structure and function (review sections 2b and c, 3, and 5). YES ☒ NO ☐*

f. Disposal site (review sections 2, 4, and 5). YES ☒ NO ☐*

g. Cumulative impact on the aquatic ecosystem. YES ☒ NO ☐*

h. Secondary impacts on the aquatic ecosystem. YES ☒ NO ☐*

7. Findings.

a. The proposed disposal site for discharge of dredged or fill material complies with the Section 404(b)(1) guidelines ☒

b. The proposed disposal site for discharge of dredged or fill material complies with the Section 404(b)(1) guidelines with the inclusion of the following conditions: ☐

c The proposed disposal site for discharge of dredged or fill material does not comply with the Section 404(b)(1) guidelines for the following reasons(s):

(1) There is a less damaging practicable alternative. ☐

(2) The proposed discharge will result in significant degradation of the aquatic ecosystem ☐

(3) The proposed discharge does not include all practicable and appropriate measures to minimize potential harm to the aquatic ecosystem. ☐

8.

Elden J. Gatwood Chief, Planning and Environmental Branch	Robert J. Clark Colonel, U.S. Army District Commander
Date_____	Date _____

*A negative, significant, or unknown response indicates that the permit application may not be in compliance with the Section 404(b)(1) Guidelines.

1/ Negative responses to three or more of the compliance criteria at this stage indicate that the proposed projects may not be evaluated using this "short form procedure." Care should be used in assessing pertinent portions of the technical information of items 2 a-d, before completing the final review of compliance.

2/ Negative response to one of the compliance criteria at this stage indicates that the proposed project does not comply with the guidelines. If the economics of navigation and anchorage of Section 404(b)(2) are to be evaluated in the decision-making process, the "short form evaluation process is inappropriate."

3/ If the dredged or fill material cannot be excluded from individual testing, the "short-form" evaluation process is inappropriate.

Appendix D

USFWS Threatened and Endangered Species List

Requested through USFWS IPaC website

September 15, 2017

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh Ecological Services Field Office
Post Office Box 33726
Raleigh, NC 27636-3726
Phone: (919) 856-4520 Fax: (919) 856-4556

In Reply Refer To: September 15, 2017
Consultation Code: 04EN2000-2016-SLI-0525
Event Code: 04EN2000-2017-E-02443
Project Name: Morehead City Harbor Corridor Project

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The species list generated pursuant to the information you provided identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

Section 7 of the Act requires that all federal agencies (or their designated non-federal representative), in consultation with the Service, insure that any action federally authorized, funded, or carried out by such agencies is not likely to jeopardize the continued existence of any federally-listed endangered or threatened species. A biological assessment or evaluation may be prepared to fulfill that requirement and in determining whether additional consultation with the Service is necessary. In addition to the federally-protected species list, information on the

species' life histories and habitats and information on completing a biological assessment or evaluation and can be found on our web page at http://www.fws.gov/raleigh. Please check the web site often for updated information or changes

If your project contains suitable habitat for any of the federally-listed species known to be present within the county where your project occurs, the proposed action has the potential to adversely affect those species. As such, we recommend that surveys be conducted to determine the species' presence or absence within the project area. The use of North Carolina Natural Heritage program data should not be substituted for actual field surveys.

If you determine that the proposed action may affect (i.e., likely to adversely affect or not likely to adversely affect) a federally-protected species, you should notify this office with your determination, the results of your surveys, survey methodologies, and an analysis of the effects of the action on listed species, including consideration of direct, indirect, and cumulative effects, before conducting any activities that might affect the species. If you determine that the proposed action will have no effect (i.e., no beneficial or adverse, direct or indirect effect) on federally listed species, then you are not required to contact our office for concurrence (unless an Environmental Impact Statement is prepared). However, you should maintain a complete record of the assessment, including steps leading to your determination of effect, the qualified personnel conducting the assessment, habitat conditions, site photographs, and any other related articles.

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

Not all Threatened and Endangered Species that occur in North Carolina are subject to section 7 consultation with the U.S Fish and Wildlife Service. Atlantic and shortnose sturgeon, sea turtles,when in the water, and certain marine mammals are under purview of the National Marine Fisheries Service. If your project occurs in marine, estuarine, or coastal river systems you should also contact the National Marine Fisheries Service, http://www.nmfs.noaa.gov/

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office. If you have any questions or comments, please contact John Ellis of this office at john_ellis@fws.gov.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Raleigh Ecological Services Field Office
Post Office Box 33726
Raleigh, NC 27636-3726
(919) 856-4520

Project Summary

Consultation Code: 04EN2000-2016-SLI-0525

Event Code: 04EN2000-2017-E-02443

Project Name: Morehead City Harbor Corridor Project

Project Type: STREAM / WATERBODY / CANALS / LEVEES / DIKES

Project Description: This review is for the MHC Harbor Corridor Project, where upcoming dredging will still be to authorized widths but will follow deeper water.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/34.69049657307163N76.67460033138323W

Counties: Carteret, NC

Endangered Species Act Species

There is a total of 15 threatened, endangered, or candidate species on this species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

Mammals

NAME	STATUS
West Indian Manatee *Trichechus manatus* There is **final designated** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4469	Threatened

Birds

NAME	STATUS
Piping Plover *Charadrius melodus* Population: except Great Lakes watershed There is **final designated** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot *Calidris canutus rufa* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened
Red-cockaded Woodpecker *Picoides borealis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7614	Endangered
Roseate Tern *Sterna dougallii dougallii* Population: northeast U.S. nesting pop. No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2083	Endangered

Reptiles

NAME	STATUS
American Alligator *Alligator mississippiensis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/776	Similarity of Appearance (Threatened)
Green Sea Turtle *Chelonia mydas* Population: North Atlantic DPS No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6199	Threatened
Hawksbill Sea Turtle *Eretmochelys imbricata* There is **final designated** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3656	Endangered
Kemp's Ridley Sea Turtle *Lepidochelys kempii* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5523	Endangered
Leatherback Sea Turtle *Dermochelys coriacea* There is **final designated** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1493	Endangered
Loggerhead Sea Turtle *Caretta caretta* Population: Northwest Atlantic Ocean DPS There is **final designated** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1110	Threatened

Fishes

NAME	STATUS
Atlantic Sturgeon *Acipenser oxyrinchus oxyrinchus* Population: Carolina DPS No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3252	Endangered
Shortnose Sturgeon *Acipenser brevirostrum* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6635	Endangered

Flowering Plants

NAME	STATUS
Rough-leaved Loosestrife *Lysimachia asperulaefolia* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2747	Endangered
Seabeach Amaranth *Amaranthus pumilus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8549	Threatened

Critical habitats

There are 2 critical habitats wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Loggerhead Sea Turtle *Caretta caretta* https://ecos.fws.gov/ecp/species/1110#crithab	Final designated
Piping Plover *Charadrius melodus* https://ecos.fws.gov/ecp/species/6039#crithab	Final designated

Appendix E

Geotechnical Appendix

Morehead City Harbor Corridor 2016 and 2017 Investigations

The Wilmington District conducted an evaluation of existing subsurface data within the proposed Morehead City Harbor Corridor extending to the limits of the Area of Potential Effect (APE), (Figure 1). The quality of material that lies within the new areas to be dredged within the proposed corridor was evaluated to determine placement options. Vibracore data from 1972, 2002, 2003, and 2005 investigations were evaluated, but the historic boring layout and spacing were found to be insufficient to properly characterize the material. The previous investigations seemed to indicate a presence of beach suitable material, yet further investigation was needed to characterize subsurface trends. The 2016 and 2017 investigations were conducted to identify trends in the spatial distribution of sediments and to identify any data gaps that were not addressed by previous investigations (Figure 1).

Samples were collected within the Cutoff (Corridor -45 feet Mean Lower Low Water (MLLW)) and Range A (Corridor -47 feet MLLW). The Cutoff and Range A, both have 2 feet of allowable dredge overdepth. The purpose of the subsurface investigation was to evaluate the quality and volume of dredged material within the investigation site (Cutoff and Range A).

The contractor performed the subsurface drilling on 24 September 2016. A total of 13 vibracores were collected to a depth of 20 feet, project depth, or until refusal (defined as penetration less than 0.1 feet per 10 second interval). Core locations were surveyed utilizing Real Time Kinematic Global Positioning Systems (RTK-GPS), to accuracies within 0.2 feet both horizontally and vertically. A bathymetric survey was conducted by Geodynamics LLC, using North American Datum 1983(NAD83) NC Zone 3200 for horizontal data, and MLLW with tide corrections using verified tidal data from NOAA Station ID: 8656590 (Atlantic Beach Triple S Pier, NC) for vertical data. All vibracores were collected using a 4-inch diameter galvanized steel sampling barrel, with an interior plastic casing for sample collection.

The completed vibracores were transported to the USACE facility at Snows Cut in Carolina Beach, NC where they were opened, examined, and logged. All materials were classified in accordance with the Unified Soils Classification System (USCS). Once the vibracores were logged, 53 laboratory samples representative of subsurface sediment within the channel widening were sent to a laboratory for visual classification, grain size testing, visual percent (%) shell and limestone estimation specifically using the American Society for Testing Materials (ASTM) methods D2487 and D6913. Subsurface data were consolidated within a gINT database in order to produce the drilling logs. Drilling logs from previous investigations (1972, 2002, 2003, and 2005) were also incorporated into the gINT database. Drilling logs and cross sections were generated using this program, from which a visual representation of field and laboratory classified materials are graphed against their elevation to USACE survey data collected on March 2017 (Figures 3 through 6). Cross sections were generated as two dimensional slices showing selected borings along a profile versus elevation. Multiple cross sections were generated to facilitate visual characterization of subsurface conditions within the proposed channel improvement area. The green zones in Figures 3 through 5 depict beach quality material, as determined by the composite percent fines passing the number (#) 200 (0.075

millimeter) sieve. Upon completion of the 2016 subsurface investigation, the corridor was not fully characterized, so a subsequent investigation was conducted in 2017.

Subsurface drilling for the 2017 investigation was conducted to address any variance in data (eight total geotechnical vibracores, five of which were co-located with section 103 testing cores). The vessel completed the subsurface drilling on 10 April 2017. Vibracore locations were determined using a Trimble Differential Global Positioning System (DGPS) to accuracies within 0.2 feet horizontally and vertically. Horizontal and vertical datums NAD83 state plane coordinates North Carolina (Zone 3200) and MLLW, respectively. Tide elevation data were obtained using a Champion TKO Global Navigation Satellite System (GNSS) interfaced with the North Carolina Real Time Network, and validated tidal data using NOAA station ID: 8656590. The vibracores were drilled using a 4-inch diameter galvanized steel sampling barrel, with an interior plastic casing for sample collection. The vibracores were collected to a depth of 20 feet, refusal or project depth, whichever came first.

The 2016 and 2017 subsurface investigations indicated a significant amount of beach quality fill material; however there is fine-grained material (non-beach quality) that occurs in discrete zones within the dredge prism. "Surficial" Depth Dredge Zone Map (Figure 7) and "Project Depth" Dredge Zone Map (Figure 8) illustrate the beach quality and non-beach quality material. Tables 1 and Table 2 have been generated in association with the "Surficial" and "Project Depth" Maps; these tables are to be used as a reference when observing the specific cut elevation map. "Surficial" and "Project Depth" are defined respectively as ocean bottom to -36 feet MLLW, and approximately -36 feet MLLW to project depth (which is -45 feet MLLW in the Cutoff and -47 feet MLLW in Range A). The zones (1-11) in Figure 7 and Figure 8 have been characterized by color to differentiate between beach quality material (green) and non-beach quality material (red). The zone color characterization has been determined by the weighted mean grain size, and percent passing the #200 Sieve within that specific zone. Zone volumes of material within a zone has been identified on the left hand side table within Figure 7 and Figure 8, or in Table 1 and Table 2 respectively.

As presented in Tables 1 and 2, calculated averages for percent retained (the #10 Sieve), percent passing (the #200 and #230 Sieves), and mean grain size (in mm) are weighted within each drilling log. Drilling logs within a zone are re-weighted and averaged to determine mean grain size to the dredge cut elevation within that specific zone. For example, Zone 2 (Table 1) contains three drill logs within that zone and the average weighted mean grain size for that zone is 0.4390 mm (as seen in bold text).

Summary

Within the proposed Morehead City Harbor Corridor (new area to be dredged) there are approximately 204,000 cubic yards (cy) of non-beach quality material. According to the USCS and ASTM D2487-92 guideline, the non-beach quality material has a weighted mean grain size of 0.026 millimeters (fine grained). There are approximately 902,000 cy of beach quality material (fine sand per ASTM D2487-92) with a mean grain size of 0.391 mm. These volume estimates are calculated by adding the similar zones together for both the "Surficial" and "Project

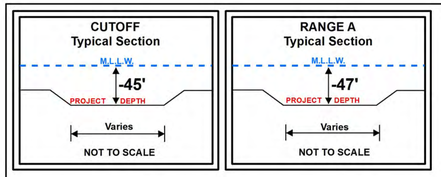
Depth" Zone maps. These are approximate in place volumes. These calculations do not take into consideration volume losses due to various dredging and disposal processes.

References

Sediment Size Classifications. USACE 2002 Coastal Engineering Manual EM 1110-2-1100, Part III, Table III-1-2, pg. III-1-8.

ASTM Standard D2487-92, CSE July 2008, Geotechnical Data Report 2257.

15ANCAC07H.0312 Technical Standards for Beach Fill Projects.



RANGE A

CUTOFF

APE

RANGE B

MOB-05-V-12
MOB-05-V-11B
MIH-03-V-1
MOB-05-V-12A
MOB-05-V-5
LB-02-60
MOB-05-V-10A
MOB-05-V-10C
MOB-05-V-12B
MOB-05-V-11
LB-02-59
MOB-05-V-1
MOB-05-V-1B
MOB-05-V-10
MOB-05-V-13A
LB-31
MOB-05-V-13
LB-02-45
LB-26
LB-02-58
LB-27
LB-28
LB-02-69
LB-29
MOB-05-V-10B
LB-02-44
LB-02-70
LB-02-68
LB-30
MIH-03-V-3
LB-02-46
LB-25
LB-02-57
MIH-03-V-2
LB-24
LB-02-56
MIH-03-V-4
LB-23
LB-02-43
LB-22

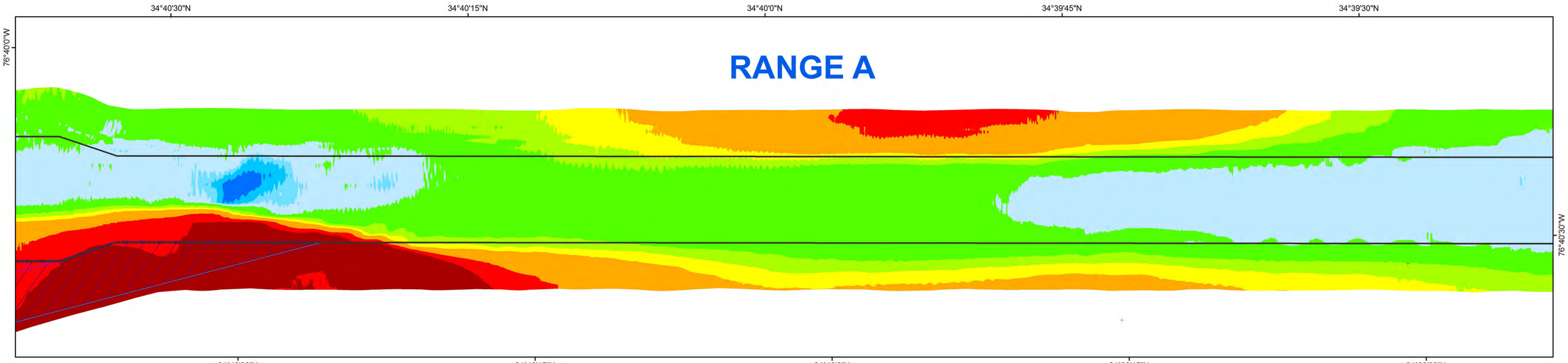
1:3,000
0 500 1,000 Feet

LEGEND

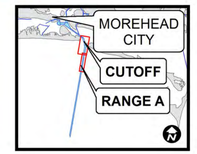
Depth In Feet		
20 and Shallower	38 - 42	MHC Corridor Boring Locations
20 - 25	42 - 44	1972 Boring Locations Approximate
25 - 32	44 - 45	MHC Proposed Corridor
32 - 35	45 - 47	Area of Potential Effect
35 - 38	47 and Deeper	
	No Survey Data	

NOTES:

1. ELEVATIONS ARE IN FEET AND REFER TO NOAA'S REPORTED MEAN LOWER LOW WATER (MLLW) RELATIVE TO THE 1983-2001 TIDAL EPOCH.
2. PROJECT SURVEYED WITH DISTRICT SURVEY VESSEL "BEAUFORT ", USING RTK GPS HORIZONTAL POSITIONING EQUIPMENT AND 200KHZ SOUNDING EQUIPMENT.
3. HORIZONTAL DATUM NAD 1983. VERTICAL DATUM M.L.L.W..
4. TIDE GAGE LOCATED AT: DUKE MARINE LAB
   USE OF TIDE VALUES FOR THIS GAGE ARE RESTRICTED TO QUALITY ASSURANCE PURPOSES FOR VERIFICATION OF RTK TIDES. THE WILMINGTON DISTRICT WILL ONLY USE STAFF GAGE TIDAL VALUES FOR FINAL MAPPING AND QUANTITY CALCULATIONS IF RTK GPS IS UN-AVAILABLE AT THE TIME OF SURVEY.
5. THIS PROJECT WAS DESIGNED BY THE WILMINGTON DISTRICT OF THE U.S. ARMY CORPS OF ENGINEERS. THE INITIALS AND SIGNATURES AND REGISTRATION DESIGNATIONS OF INDIVIDUALS APPEAR ON THESE PROJECT DOCUMENTS WITHIN THE SCOPE OF THEIR EMPLOYMENT AS REQUIRED BY ER 1110-1-8152.
6. THE INFORMATION DEPICTED ON THIS SURVEY MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME. THESE CONDITIONS ARE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS. A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REQUIRED BY 33 CFR 209.325
7. NAVIGATION AIDS LOCATED WITH DISTRICT SURVEY VESSEL, ACCURACY +/- 3 METERS.
8. FOR THE MOST UP TO DATE INFORMATION PLEASE CHECK OUR WEBSITE AT: WWW.SAW.USACE.ARMY.MIL



US Army Corps of Engineers
Wilmington District



SURVEYED BY: CRP, JBG
MAPPED BY: K7OPNJRA
MAP FILE NAME: SAW/NAVGIS_020-2016_MHC_CORRIDOR.MXD

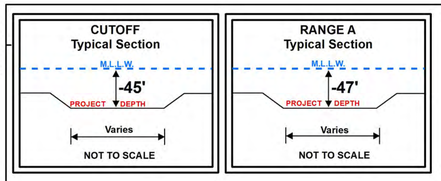
SURVEY DATE: 18-24 AUGUST 2017
MAP DATE: 13 SEPTEMBER 2017
MAP SCALE: 1:3,000

HYDROGRAPHIC SURVEY
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
WILMINGTON, NORTH CAROLINA

Morehead City Harbor

Cutoff & Range A

Morehead City, North Carolina



34°41'30"N
34°41'0"N
34°40'30"N
78°39'30"W
78°39'45"W
78°40'0"W
78°40'15"W
78°40'30"W
76°40'0"W
76°40'15"W
76°40'30"W
76°40'45"W

Range A

CUTOFF

MHCC-17-VC-04
MHCC-17-VC-03
MHCC-17-VC-07
MHCC-16-VC-11
MHCC-16-VC-4
MHCC-16-VC-8
MHCC-16-VC-9
MHCC-17-VC-08
MHCC-17-V-06
MHCC-17-VC-02
MHCC-16-VC-1
MHCC-17-VC-05
MHCC-16-VC-10
MHCC-16-VC-5
MHCC-16-VC-12
MHCC-16-VC-7
MHCC-16-VC-3
MHCC-16-VC-2
MHCC-16-VC-6
MHCC-17-VC-01
MHCC-16-VC-13

A
A'
B
B'
C
C'
D
D'

APE

RANGE B

LEGEND

Depth In Feet

- 20 and Shallower
- 20 - 25
- 25 - 32
- 32 - 35
- 35 - 38
- 38 - 42
- 42 - 44
- 44 - 45
- 45 - 47
- 47 and Deeper
- No Survey Data

- MHC Proposed Corridor
- Area of Potential Effect
- 2016 Boring Location
- 2017 Boring Location

1:3,000
0 500 1,000 Feet

NOTES:

1. ELEVATIONS ARE IN FEET AND REFER TO NOAA'S REPORTED MEAN LOWER LOW WATER (MLLW) RELATIVE TO THE 1983-2001 TIDAL EPOCH.
2. PROJECT SURVEYED WITH DISTRICT SURVEY VESSEL "BEAUFORT ", USING RTK GPS HORIZONTAL POSITIONING EQUIPMENT AND 200 KHZ SOUNDING EQUIPMENT.
3. HORIZONTAL DATUM NAD 1983. VERTICAL DATUM M.L.L.W..
4. TIDE GAGE LOCATED AT: DUKE MARINE LAB
   USE OF TIDE VALUES FOR THIS GAGE ARE RESTRICTED TO QUALITY ASSURANCE PURPOSES FOR VERIFICATION OF RTK TIDES. THE WILMINGTON DISTRICT WILL ONLY USE STAFF GAGE TIDAL VALUES FOR FINAL MAPPING AND QUANTITY CALCULATIONS IF RTK GPS IS UN-AVAILABLE AT THE TIME OF SURVEY.
5. THIS PROJECT WAS DESIGNED BY THE WILMINGTON DISTRICT OF THE U.S. ARMY CORPS OF ENGINEERS. THE INITIALS AND SIGNATURES AND REGISTRATION DESIGNATIONS OF INDIVIDUALS APPEAR ON THESE PROJECT DOCUMENTS WITHIN THE SCOPE OF THEIR EMPLOYMENT AS REQUIRED BY ER 1110-1-8152.
6. THE INFORMATION DEPICTED ON THIS SURVEY MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME. THESE CONDITIONS ARE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS. A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REQUIRED BY 33 CFR 209.325
7. NAVIGATION AIDS LOCATED WITH DISTRICT SURVEY VESSEL, ACCURACY +/- 3 METERS.
8. FOR THE MOST UP TO DATE INFORMATION PLEASE CHECK OUR WEBSITE AT: WWW.SAW.USACE.ARMY.MIL

US Army Corps of Engineers
Wilmington District

SURVEYED BY: CRP, JBG
MAPPED BY: K7OPNJRA
SURVEY DATE: 18-24 AUGUST 2017
MAP DATE: 13 SEPTEMBER 2017
MAP SCALE: 1:3,000
MAP FILE NAME: S:\WNAVGIS_020\2016_MHC_CORRIDOR\7.MXD

HYDROGRAPHIC SURVEY
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
WILMINGTON, NORTH CAROLINA

Morehead City Harbor

Cutoff & Range A

Morehead City, North Carolina

US Army Corps of Engineers
Wilmington District

CROSS SECTION A - A'

DATE: 17/06/08 12:06
SCALE: AS SHOWN
DRAWN BY: Frank J. Cerio II

PROJECT NAME Morehead City Harbor
PROJECT LOCATION North Carolina

Legend: USCS Field Classified Soils
Laboratory Data in Brackets [ ]

MHCC-03MAR2017-FJC2

USCS Silty Sand
No Recovery
USCS Elastic Silt
USCS Poorly-graded Sand
USCS Poorly-graded Sand with Silt
USCS Low Plasticity Clay

To Account for 2 ft. Allowable Overdepth

Beach Disposal

Cutoff (Corridor -45 FT MLLW)

MHCC-16-VC-13
Elev. -30.4'

(0-1') [SM] 17.9% Pass #200 S-1
(1-2') [MH] 81.8% Pass #200 S-2
-34.9'
(5.5-6.5') [MH] 80.4% Pass #200 S-3
-37.4'
(8-9') [SP-SM] 9.4% Pass #200 S-4
-39.4'
-39.6'

MHCC-17-VC-01
Elev.

-40.5'
(2.9-3.9') [SP] 0.97% Passing #200 S-1
-40.9'
-45.6'
(7.4-8.4') [SP] 0.83% Passing #200 S-2
-45.9'
(8.9-9.9') [SM] 33.59% Passing #200 S-3
-47.4'
-49.1'
-51.1'

-45 ft MLLW with an allowable 2 ft overdepth

Elevation (ft) MLLW
-28, -30, -32, -34, -36, -38, -40, -42, -44, -46, -48, -50, -52

300, 250, 200, 150, 100, 50, 0, -50, -100, -150, -200, -250, -300

A (North)
Distance Along Baseline (ft)
A' (South)

STRATIGRAPHY (NODEPTHCORRDATA)-B SIZE - DATA ENTRY GDT - 6/8/17 12:06 - Y:\COMMON\EGP\EGM\MOREHEAD CITY HARBOR\MOREHEAD CITY HARBOR CORRIDOR\GINT\GPJ\MHCC UPDATED 2017 INVESTIGATION (USE THIS ONE).GPJ

US Army Corps of Engineers
Wilmington District

CROSS SECTION B - B'

DATE: 17/06/08 11:42
SCALE: AS SHOWN
DRAWN BY: Frank J. Cerio II

PROJECT NAME Morehead City Harbor
PROJECT LOCATION North Carolina

Legend: USCS Field Classified Soils
Laboratory Data in Brackets [ ]

MHCC-03MAR2017-FJC2

USCS Poorly-graded Sand
USCS Poorly-graded Sand with Silt
USCS Silty Sand
No Recovery
USCS Silt
USCS Elastic Silt

To Account for 2 ft. Allowable Overdepth

Beach Disposal

Range A (Corridor -47 FT MLLW)

MHCC-16-VC-8 Elev -26.4'
(0-0.5') [SP] 4.7% Pass #200 S-1
(0.5-1.5') [MH] 86.5% Pass #200 S-2
-28.4'
(2.5-3') [MH] 97.8% Pass #200 S-3
-29.4'
(3.5-4.5') [SP] 15.4% Pass #200 S-4
-31.4'
(5.5-6.5') [SP] 21.3% Pass #200 S-5
-35.9'
-37.0'

MHCC-17-VC-03 Elev
(2.1-3.1') [SP] 0.75% Passing #200 S-1
(0.5-') [SP] 0 Pass #200 S-1
(5-') [SP] 0.4 #200 S-3
37.6'
(7.6-8.6') [SP] 0.65% Passing #200 S-2
(8.3-9.3') [SP] 2.71% Passing #200 S-2
-42.1'
42.0'
42.6'
-43.5'
(13.6-14.6') [SP] 0.70% Passing #200 S-3
-45.2'
(14.3-15.3') [SM] 25.79% Passing #200 S-3
46.9'
(11.7-17.0') [SP-SM] 7.6% Passing #200 S-4
-47.4'
46.5'
-49.7'
-49.9'

MHCC-17-VC-06 Elev
MHCC-16-VC-4 Elev
(2.3-3.3') [SP] 0.99% Passing #200 S-1

MHCC-17-VC-07 Elev
(8.2-9.2') [SP] 0.65% Passing #200 S-2
-42.2'
-43.0'
(14.7-15.7') [SP] 1.32% Passing #200 S-3
-45.0'
(16.7-17.7') [SP-SM] 9.77% Passing #200 S-4
-46.6'
46.0'
(17.7-18.4') [SP] 2.31% Passing #200 S-5
-47.7'
-49.3'

MHCC-16-VC-9
MHCC-17-VC-04 Elev
(1.4-2.4') [SP] 0.55% Passing S-1
(5-6') [SP] 0.1% Pass S-2
(6.9-7.9') [SP] 0.65% Passing S-2
-34.1'
-34.7'
-35.5'
-37.0'
(11.4-12.4') [ML] 75.5% #200 S-3
-39.3'
(15.4-16.4') [SM] 20.28% Pas #200 S-4
-43.4'
-45.0'
-46.6'

MHCC-17-VC-08 Elev
(1.5-2.5') [SP] #200 S-1
(1.9-2.9') [SP] 0.62% Passing #200 S-1
(5.9-6.9') [SP] 0.74% Passing #200 S-2
-34.1'
-34.7'
-36.7'
(9.4-10.4') [SP] 0.85% Passing #200 S-3
(10.6-10.8') [ML] 69.44% Passing #200 S-4
-38.2'
-38.4'
-39.1'
(11.5-12.7') [ML] 82.87% Passing #200 S-5
-40.3'
(17.9-18.9') [SP-SM] 10.38% Passing #200 S-6
-47.6'
-48.6'

MHCC-16-VC-10 Elev
-31.5'
-31.8'
(0-0.5') [SP] 0.9% Pass #20
(0.5-0.75') [SP] 0.5% Pass #
S-2
-33.8'
-35.0'
(4-4.5') [ML] 54.4% Pass #2 -3
-35.5'
(4.5-5.5') [SP] 1.8% Pass # -4
-36.5'
-37.6'
(7.5-8') [SP-SM] 5.3% Pass S-5
-38.5'
(8.5-9.5') [SP] 0.2% Pass # -6
(12-13') [SP-SM] 10.6% Pas S-7
-44.3'
-45.0'

MHCC-17-VC-05 Elev
(0.9-1.9') [SP] 0.85% Passing #200 S-1
(7.4-8.4') [SP] 0.57% Passing #200 S-2
(13.4-14.4') [SP] 1.85% Passing #200 S-3
-42.1'
-43.0'
-45.7'
-46.2'
-46.5'
(16.4-17.4') [SP] 3.43% Passing #200 S-4
-49.1'

MHCC-16-VC-11 Elev
(1-2') [SP] 0.8% Pass #200 S-1
(4-4.54') [SM] 15.8% Pass #200 S-2
-30.4'
-31.4'
(5-6') [SP-SM] 11.4% Pass #200 S-3
-36.4'
(7.5-8') [SM] 17.0% Pass #200 S-4
-41.4'
(15-16') [SM] 12.3% Pass #200 S-5
-46.4'

-47 ft MLLW with an allowable 2 ft overdepth

Elevation (ft) MLLW
-24 -26 -28 -30 -32 -34 -36 -38 -40 -42 -44 -46 -48 -50

3,000 2,500 2,000 1,500 1,000 500 0

B (North)
Distance Along Baseline (ft)
B' (South)

STRATIGRAPHY (NODEPTHCORRDATA) - B SIZE - DATA ENTRY GDT - 6/8/17 11:42 - Y:\COMMON\ECPEG\MOREHEAD CITY HARBOR\MOREHEAD CITY HARBOR CORRIDOR\GINT\GPJ\MHCC UPDATED 2017 INVESTIGATION (USE THIS ONE).GPJ

US Army Corps of Engineers
Wilmington District

CROSS SECTION C - C'

DATE: 17/06/08 11:48
SCALE: AS SHOWN
DRAWN BY: Frank J. Cerio II

PROJECT NAME Morehead City Harbor
PROJECT LOCATION North Carolina

Legend: USCS Field Classified Soils Laboratory Data in Brackets [ ]

MHCC-03MAR2017-FJC2

USCS Poorly-graded Sand
No Recovery
USCS Silty Sand
USCS Elastic Silt
USCS Poorly-graded Sand with Silt
USCS Silt

To Account for 2 ft. Allowable Overdepth

Beach Disposal

Cutoff (Corridor -45 FT MLLW) and Range A (Corridor -47 FT MLLW)

Cutoff (Corridor -45 FT MLLW)

Range A (Corridor -47 FT MLLW)

MHCC-16-VC-2
Elev
(0.5-') [SP] 0.2% Pass #200
(3.5-') [SP] 1.3% Pass #200
-47.8'
-50.8'
-52.3'
-54.3'
-55.8'
-57.0'

MHCC-17-VC-02
Elev
-42.3'
(1-2.0') [SP] 0.50% Passing #200 S-1
(3-4.0') [SP] 0.58% Passing #200 S-2
-45.2'
(5-6.0') [SP-SM] 10.63% Passing #200 S-3
-49.5'
-51.7'
-52.4'
-53.5'
-55.0'

16-VC-3
Elev
(1-') [SP] 0.2% Pass # 200 S-1
-46.6'
(4-') [SP] 3.7% Pass #200 S-2
-47.6'
(5-') [SM] 20.9% Pass #200 S-3
-48.6'
(6-') [MH] 71.4% Pass #200 S-4
-49.6'
(7-') [SP-SM] 7.4% Pass #200 S-5
-51.6'
(9-') [SP] 4.9.% Pass #200 S-6
-54.1'
(11.5-') [SM] 20.2% Pass #200 S-7
-55.1'
(12.5-') [SP] 3.0% Pass #200 S-8
-56.5'
-57.9'

MHCC-16-VC-5
Elev
(0.5-') [SP] 0.7% Pass #200 S-1
-36.6'
(4-') [SP] 0.5% Pass #200 S-1
-41.2'
-42.2'

MHCC-17-VC-04
Elev
(1.4-2.4') [SP] 0.55% Passing #200 S-1
-31.9'
(6.9-7.9') [SP] 0.65% Passing #200 S-2
-35.5'
-37.0'
(11.4-12.4') [ML] 75.56% Passing #200 S-3
-39.3'
(15.4-16.4') [SM] 20.28% Passing #200 S-4
-43.4'
-45.0'
-46.6'

-45 ft MLLW with an allowable 2 ft overdepth

-47 ft MLLW with an allowable 2 ft overdepth

Elevation (ft) MLLW

-25, -30, -35, -40, -45, -50, -55, -60

2,200 2,000 1,800 1,600 1,400 1,200 1,000 800 600 400 200 0 -200

C (North)

Distance Along Baseline (ft)

C' (South)

STRATIGRAPHY (NODEPTHCORRDATA) - B SIZE - DATA ENTRY GDT - 6/8/17 11:48 - Y:\COMMON\ECPEG\MOREHEAD CITY HARBOR\MOREHEAD CITY HARBOR CORRIDOR\GINT\GPJ\MHCC UPDATED 2017 INVESTIGATION (USE THIS ONE).GPJ

US Army Corps of Engineers
Wilmington District

CROSS SECTION D - D'

DATE: 17/06/08 11:52
SCALE: AS SHOWN
DRAWN BY: Frank J. Cerio II

PROJECT NAME Morehead City Harbor
PROJECT LOCATION North Carolina

Legend: USCS Field Classified Soils
Laboratory Data in Brackets [ ]

MHCC-03MAR2017-FJC2

- USCS Poorly-graded Sand
- USCS Poorly-graded Sand with Silt
- USCS Silty Sand
- No Recovery
- USCS Silt
- USCS Elastic Silt

To Account for 2 ft. Allowable Overdepth

Beach Disposal

Range A (Corridor -47 FT MLLW)

MHCC-16-VC-7
Elev
(0.5-') [SP] 0.6% Pass #200 S-1
-40.5'
(3.5-') [SP] 0.2% Pass #200 S-2
-42.5'
(5.5-') [SP] 0.2% Pass #200 S-3
-44.5'
(7.5-') [SP] 0.1% Pass #200 S-4
-46.6'
-47.2'

MHCC-16-VC-6
Elev
(0.5-') [SP] 0.7% Pass #200 S-1
-47.0'
-51.8'
-52.6'

MHCC-16-VC-12
Elev
(0-1') [SM] 22.9% Pass #200 S-1
-34.8'
(1-2') [MH] 97.1% Pass #200 S-2
-37.3'
(3.5-4.5') [MH] 97.7% Pass #200 S-3
-42.3'
(8.5-9.5') [SM] 22.5% Pass #200 S-4
-44.3'
(10.5-11.5') [SP] 1.0% Pass #200 S-5
-46.8'
-47.4'

MHCC-16-VC-10
Elev
(0-0.5') [SP] 0.9% Pass #200 S-1
-31.5'
(0.5-0.75') [SP] 0.5% Pass #200 S-2
-31.8'
-33.5'
-33.8'
(4-4.5') [ML] 54.4% Pass #200 S-3
-35.0'
-35.5'
(4.5-5.5') [SP] 1.8% Pass #200 S-4
-38.5'
(7.5-8') [SP-SM] 5.3% Pass #200 S-5
-39.5'
(8.5-9.5') [SP] 0.2% Pass #200 S-6
-43.0'
(12-13') [SP-SM] 10.6% Pass #200 S-7
-44.3'
-45.0'

-47 ft MLLW with an allowable 2 ft overdepth

Elevation (ft) MLLW
-30, -32, -34, -36, -38, -40, -42, -44, -46, -48, -50, -52, -54

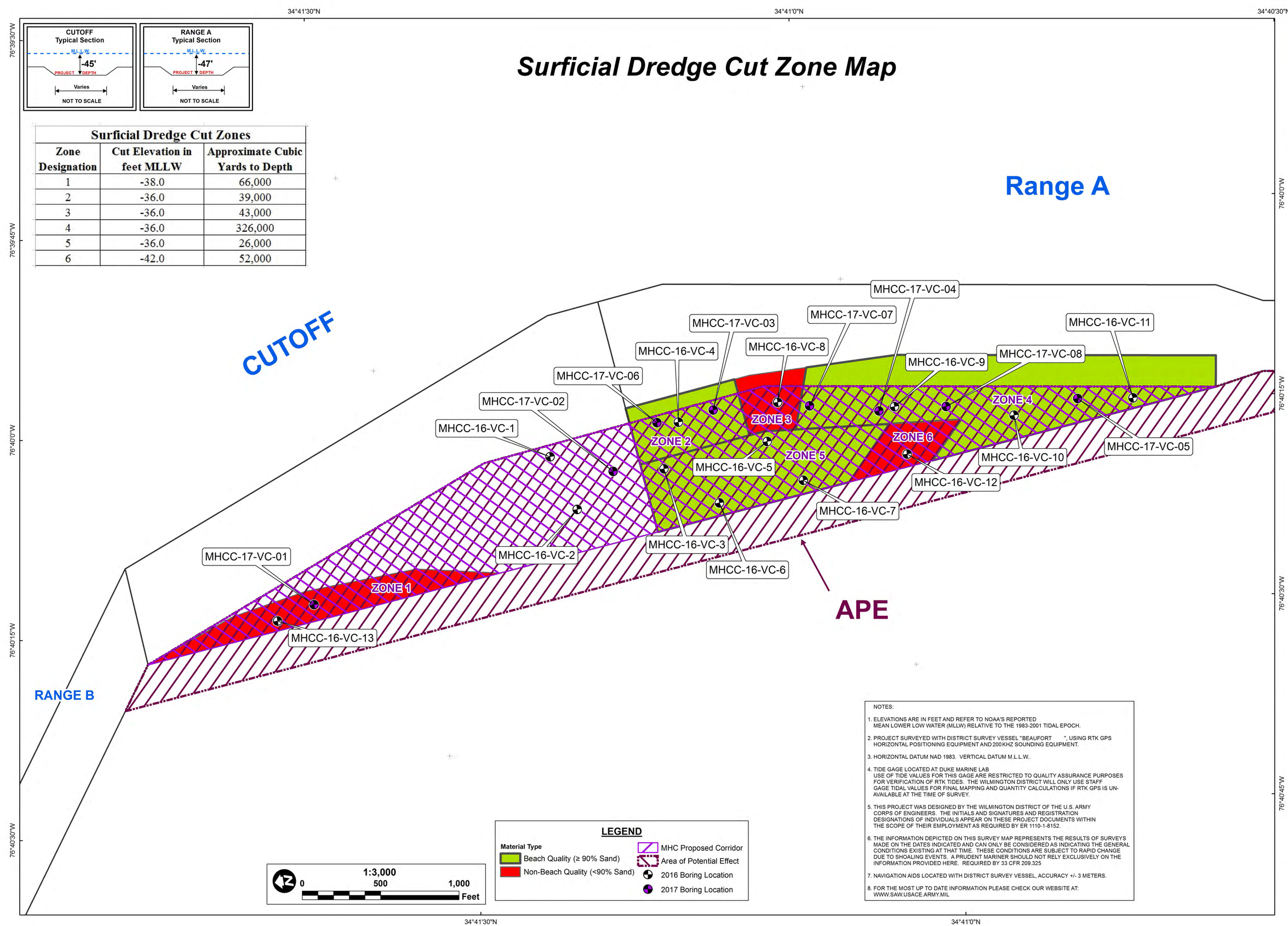
2,000, 1,800, 1,600, 1,400, 1,200, 1,000, 800, 600, 400, 200, 0, -200

D (North)
Distance Along Baseline (ft)
D' (South)

STRATIGRAPHY (NODEPTHCORRDATA) - B SIZE - - DATA ENTRY GDT - 6/8/17 11:52 - Y:\COMMON\ECPEG\MOREHEAD CITY HARBOR\MOREHEAD CITY HARBOR CORRIDOR\GINT\GPJ\MHCC UPDATED 2017 INVESTIGATION (USE THIS ONE).GPJ

Surficial Dredge Cut Zone Map

Surficial Dredge Cut Zones		
Zone Designation	Cut Elevation in feet MLLW	Approximate Cubic Yards to Depth
1	-38.0	66,000
2	-36.0	39,000
3	-36.0	43,000
4	-36.0	326,000
5	-36.0	26,000
6	-42.0	52,000



LEGEND

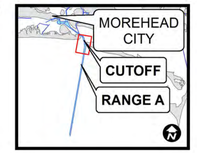
Material Type

- Beach Quality (≥ 90% Sand)
- Non-Beach Quality (<90% Sand)
- MHC Proposed Corridor
- Area of Potential Effect
- 2016 Boring Location
- 2017 Boring Location

NOTES:

1. ELEVATIONS ARE IN FEET AND REFER TO NOAA'S REPORTED MEAN LOWER LOW WATER (MLLW) RELATIVE TO THE 1983-2001 TIDAL EPOCH.
2. PROJECT SURVEYED WITH DISTRICT SURVEY VESSEL "BEAUFORT ", USING RTK GPS HORIZONTAL POSITIONING EQUIPMENT AND 200 KHZ SOUNDING EQUIPMENT.
3. HORIZONTAL DATUM NAD 1983. VERTICAL DATUM M.L.L.W..
4. TIDE GAGE LOCATED AT: DUKE MARINE LAB
   USE OF TIDE VALUES FOR THIS GAGE ARE RESTRICTED TO QUALITY ASSURANCE PURPOSES FOR VERIFICATION OF RTK TIDES. THE WILMINGTON DISTRICT WILL ONLY USE STAFF GAGE TIDAL VALUES FOR FINAL MAPPING AND QUANTITY CALCULATIONS IF RTK GPS IS UN-AVAILABLE AT THE TIME OF SURVEY.
5. THIS PROJECT WAS DESIGNED BY THE WILMINGTON DISTRICT OF THE U.S. ARMY CORPS OF ENGINEERS. THE INITIALS AND SIGNATURES AND REGISTRATION DESIGNATIONS OF INDIVIDUALS APPEAR ON THESE PROJECT DOCUMENTS WITHIN THE SCOPE OF THEIR EMPLOYMENT AS REQUIRED BY ER 1110-1-8152.
6. THE INFORMATION DEPICTED ON THIS SURVEY MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME. THESE CONDITIONS ARE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS. A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REQUIRED BY 33 CFR 209.325
7. NAVIGATION AIDS LOCATED WITH DISTRICT SURVEY VESSEL, ACCURACY +/- 3 METERS.
8. FOR THE MOST UP TO DATE INFORMATION PLEASE CHECK OUR WEBSITE AT: WWW.SAW.USACE.ARMY.MIL

US Army Corps of Engineers
Wilmington District



SURVEY DATE:
MAP DATE: 14 SEPTEMBER 2017
MAP SCALE: 1:3,000

SURVEYED BY: CRP, JBG
MAPPED BY: K7OPNJRA
MAP FILE NAME: SAWNAVGIS_020-2016_MHC_CORRIDOR7B.MXD

HYDROGRAPHIC SURVEY
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
WILMINGTON, NORTH CAROLINA

Morehead City Harbor

Cutoff & Range A

Morehead City, North Carolina

Table 1. "Surficial" Depth Cut Zone with Grain Size and Volume Data.

Zone Designation	Boring Identification	Top of Core Elevation in MLLW (ft)	Cut Elevation in MLLW (ft)	Cumulative Percent Retained on #10	Weighted Average Percent Passing #200[1]	Weighted Average Percent Passing #230	Weighted Mean Grain Size (mm) to Dredge Cut Elevation Within Zone	ASTM (USCS) Classification[3]	Volume of Beach or Off-Shore Disposal Material (in yd³)	Volume of Off-Shore Disposal Only Material (in yd³)
1	MHCC-16-VC-13	-29.37	-38.0	1.70	80.89	78.60	0.025	Fine Grained		66,000
2	MHCC-16-	-32.59	-36.0	0.00	0.33	0.29	0.489	Medium Sand	39,000	
	MHCC-17-VC-03	-29.90		0.02	0.75	0.69	0.437	Medium Sand		
	Weighted Average of Borings Within Zone[2]			**0.0199**	**0.8330**	**0.6480**	**0.4390**	**Medium Sand**		
3	MHCC-16-VC-8	-25.85	-36.0	7.04	48.82	48.34	0.036	Fine Grained		43,000
4	MHCC-16-	-25.85	-36.0	0.50	0.37	0.32	0.108	Fine Sand	326,000	
	MHCC-16-VC-10	-30.97		1.44	15.83	15.22	0.036	Fine Grained		
	MHCC-16-VC-11	-26.39		5.83	12.63	11.96	0.101	Fine Sand		
	MHCC-17-VC-04	-26.60		0.13	0.61	0.60	1.060	Medium Sand		
	MHCC-17-VC-05	-29.10		28.29	0.72	0.70	0.389	Fine Sand		
	MHCC-17-VC-07	-29.30		0.01	0.71	0.68	1.188	Medium Sand		
	MHCC-17-VC-08	-27.60		8.15	0.74	0.72	0.417	Fine Sand		
	Weighted Average of Borings Within Zone[2]			**0.8769**	**0.2404**	**1.0786**	**0.4160**	**Fine Sand**		
5	MHCC-16-VC-5	-32.55	-36.0	0.00	0.65	0.63	1.750	Medium Sand	26,000	
6	MHCC-16-VC-12	-33.79	-42.0	0.20	95.17	90.64	0.018	Fine Grained		52,000
									Total Volume in Cubic Yards	Total Volume in Cubic Yards
Weighted Mean Grain Size for Entire Project Area to Surficial Dredge Cut Elevation.							**0.4473**		391,000	161,000

NOTE 1: Weighted averages for percent passing sieves are calculated by weight.

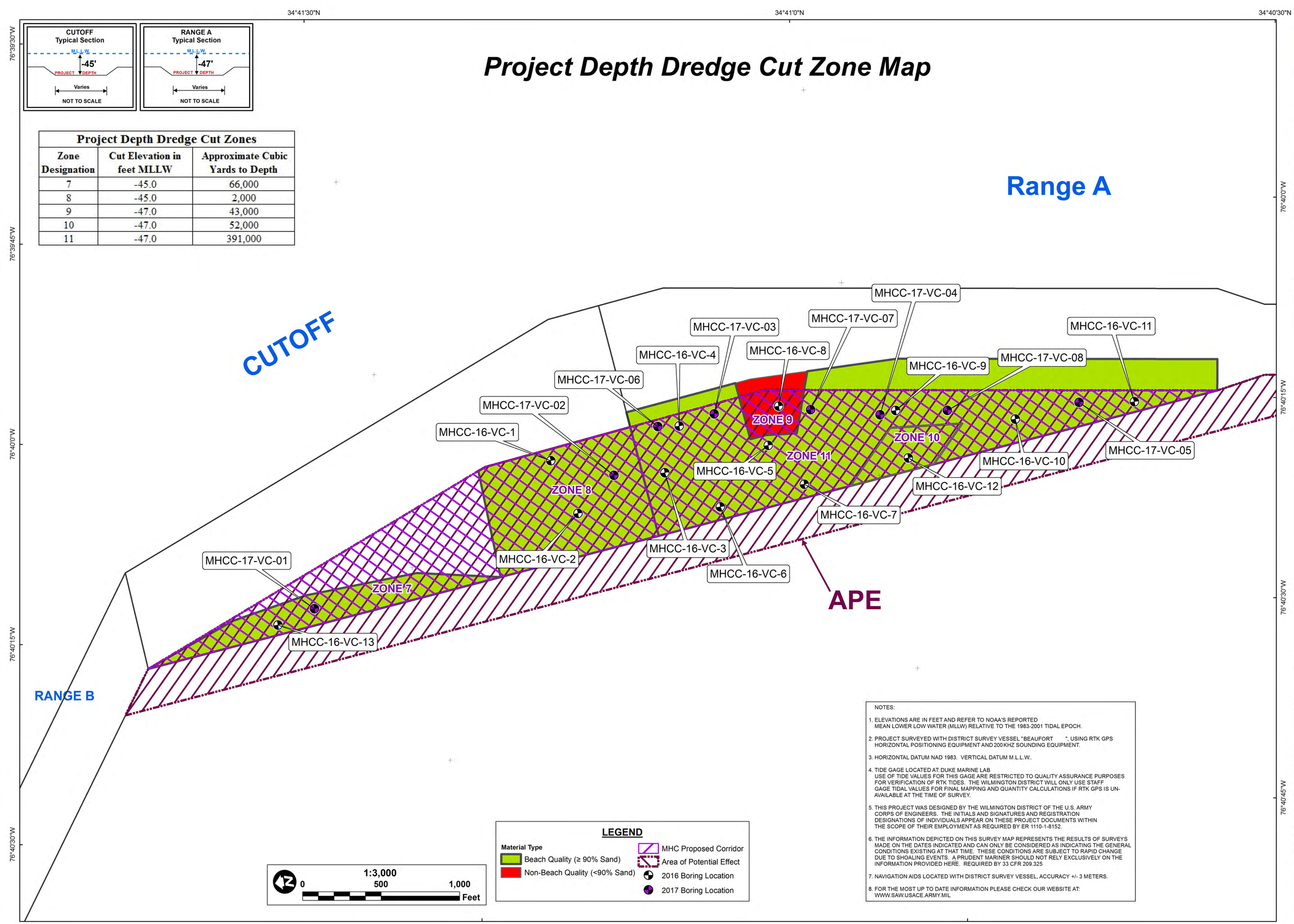
NOTE 2: The average in bold is the weighted percent passing (or retained for the #10 column) for the entire zone.

NOTE 3: Sediment Size Classificiations are ASTM D2487-92 version of the USCS; reference USACE EM1110-2-1100.

NOTE 4: Volume Estimates are rounded to the nearest 1,000 Cubic Yards yd³.

Project Depth Dredge Cut Zone Map

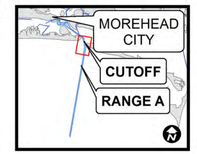
Project Depth Dredge Cut Zones		
Zone Designation	Cut Elevation in feet MLLW	Approximate Cubic Yards to Depth
7	-45.0	66,000
8	-45.0	2,000
9	-47.0	43,000
10	-47.0	52,000
11	-47.0	391,000



NOTES:

1. ELEVATIONS ARE IN FEET AND REFER TO NOAA'S REPORTED MEAN LOWER LOW WATER (MLLW) RELATIVE TO THE 1983-2001 TIDAL EPOCH.
2. PROJECT SURVEYED WITH DISTRICT SURVEY VESSEL "BEAUFORT ", USING RTK GPS HORIZONTAL POSITIONING EQUIPMENT AND 200 KHZ SOUNDING EQUIPMENT.
3. HORIZONTAL DATUM NAD 1983. VERTICAL DATUM M.L.L.W..
4. TIDE GAGE LOCATED AT: DUKE MARINE LAB
   USE OF TIDE VALUES FOR THIS GAGE ARE RESTRICTED TO QUALITY ASSURANCE PURPOSES FOR VERIFICATION OF RTK TIDES. THE WILMINGTON DISTRICT WILL ONLY USE STAFF GAGE TIDAL VALUES FOR FINAL MAPPING AND QUANTITY CALCULATIONS IF RTK GPS IS UN-AVAILABLE AT THE TIME OF SURVEY.
5. THIS PROJECT WAS DESIGNED BY THE WILMINGTON DISTRICT OF THE U.S. ARMY CORPS OF ENGINEERS. THE INITIALS AND SIGNATURES AND REGISTRATION DESIGNATIONS OF INDIVIDUALS APPEAR ON THESE PROJECT DOCUMENTS WITHIN THE SCOPE OF THEIR EMPLOYMENT AS REQUIRED BY ER 1110-1-8152.
6. THE INFORMATION DEPICTED ON THIS SURVEY MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME. THESE CONDITIONS ARE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS. A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REQUIRED BY 33 CFR 209.325
7. NAVIGATION AIDS LOCATED WITH DISTRICT SURVEY VESSEL, ACCURACY +/- 3 METERS.
8. FOR THE MOST UP TO DATE INFORMATION PLEASE CHECK OUR WEBSITE AT: WWW.SAW.USACE.ARMY.MIL

US Army Corps of Engineers
Wilmington District



SURVEY DATE:
MAP DATE: 14 SEPTEMBER 2017
MAP SCALE: 1:3,000
SURVEYED BY: CRP, JBG
MAPPED BY: K7OPNJRA
MAP FILE NAME: S:\WNAV\GIS_020-2016_MHC_CORRIDOR7C.MXD

HYDROGRAPHIC SURVEY
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
WILMINGTON, NORTH CAROLINA

Morehead City Harbor

Cutoff & Range A

Morehead City, North Carolina

Table 2. "Project Depth" Dredge Cut Zone with Grain Size and Volume Data.

Zone Designation	Boring Identification	Top of Core Elevation in MLLW (ft)	Cut Elevation in MLLW (ft)	Cumulative Percent Retained on #10	Weighted Average Percent Passing #200[1]	Weighted Average Percent Passing #230	Weighted Mean Grain Size (mm) to Dredge Cut Elevation Within Zone	ASTM (USCS) Classification[3]	Volume of Beach or Off-Shore Disposal Material (in yd³)	Volume of Off-Shore Disposal Only Material (in yd³)
7	MHCC-16-VC-13	-29.37	-45.0	1.70	18.58	18.01	0.061	Fine Grained	66,000	
	MHCC-17-VC-01	-37.10		7.78	4.17	3.02	2.973	Coarse Sand		
	Weighted Average of Borings Within Zone[2]			**4.7400**	**11.3750**	**10.5150**	**2.9439**	**Coarse Sand**		
8	MHCC-16-VC-1	-41.12	-45.0	18.74	9.98	9.88	0.977	Medium Sand	2,000	
	MHCC-16-VC-2	-44.34		0.00	0.24	0.17	2.909	Coarse Sand		
	MHCC-17-VC-02	-41.00		7.62	3.86	3.84	2.391	Coarse Sand		
	Weighted Average of Borings Within Zone[2]			**8.7870**	**4.6933**	**4.6300**	**1.6459**	**Medium Sand**		
9	MHCC-16-VC-8	-25.85	-47.0	No Data	No Data	No Data	No Data	No Data		43,000
10	MHCC-16-VC-12	-33.79	-47.0	0.20	9.59	8.75	0.089	Fine Sand	52,000	
11	MHCC-17-VC-06	-31.70	-47.0	0.32	7.33	5.76	1.062	Medium Sand	391,000	
	MHCC-16-VC-3	-42.55		10.17	8.27	8.06	1.682	Medium Sand		
	MHCC-16-VC-4	-32.59		0.00	0.44	0.41	1.169	Medium Sand		
	MHCC-16-VC-6	-41.52		0.00	0.74	0.68	0.933	Medium Sand		
	MHCC-17-VC-03	-29.90		0.96	1.04	1.00	1.806	Medium Sand		
	MHCC-16-VC-5	-32.55		0.00	0.48	0.46	0.953	Medium Sand		
	MHCC-16-VC-7	-36.98		0.00	0.15	0.07	0.342	Fine Sand		
	MHCC-17-VC-07	-29.30		2.07	2.24	2.13	0.416	Fine Sand		
	MHCC-17-VC-04	-26.60		19.13	31.34	30.77	0.056	Fine Grained		
	MHCC-17-VC-08	-27.60		15.24	18.08	17.66	0.416	Fine Sand		
	MHCC-16-VC-10	-30.97		1.44	1.76	1.61	0.091	Fine Sand		
	MHCC-17-VC-05	-29.1		11.24	1.37	1.24	0.319	Fine Sand		
	MHCC-16-VC-11	-26.39		5.83	14.66	14.21	0.011	Fine Grained		
	Weighted Average of Borings Within Zone[2]			**5.1077**	**6.7615**	**6.4662**	**0.6672**	**Medium Sand**		
									Total Volume in Cubic Yards	Total Volume in Cubic Yards
Weighted Mean Grain Size for Entire Project Area to Project Depth (-45 ft MLLW Cutoff, and -47 ft MLLW Range A)							**1.3364**		511,000	43,000

NOTE 1: Weighted averages for percent passing sieves are calculated by weight.

NOTE 2: The averages in bold are the weighted percent(s) passing (or retained for the #10 column) for the entire zone.

NOTE 3: Sediment Size Classifications are ASTM D2487-92 version of the USCS; reference USACE EM1110-2-1100.

NOTE 4: Volume Estimates are rounded to the nearest 1,000 Cubic Yards yd³.

Appendix F

Draft EA Comments and Agency Correspondence

KILPATRICK TOWNSEND
ATTORNEYS AT LAW

KILPATRICK TOWNSEND & STOCKTON LLP
www.kilpatricktownsend.com

Suite 1400 4208 Six Forks Road
Raleigh NC 27609
t 919 420 1700 f 919 420 1800

Todd S. Roessler
direct dial 919 420 1726
direct fax 919 510 6121
TRoessler@KilpatrickTownsend.com

October 26, 2017

Via Electronic Mail

Ms. Teresa Russell
U.S. Army Corps of Engineers, Wilmington District
69 Darlington Avenue
Wilmington, NC 28403-1343
Teresa.e.russell@usace.army.mil

Re: Carteret County Shore Protection Office's Comments Regarding U.S. Army Corps of Engineers' Public Notice and Notice of Availability of Draft Environmental Assessment Morehead City Harbor Federal Navigation Project Navigation Corridor

Dear Ms. Russell:

I am writing on behalf of the Carteret County Shore Protection Office (the "County") in response to the U.S. Army Corps of Engineers' (the "Corps") Public Notice and Notice of Availability of Draft Environmental Assessment Morehead City Harbor Federal Navigation Project Navigation Corridor (the "Draft EA"). To take advantage of the natural deep water route and reduce maintenance dredging and improve navigation, the Corps has proposed to establish a navigation corridor by shifting the western navigation channel boundary approximately 700 feet west, away from Shackleford Banks and towards Bogue Banks. As indicated in its comments dated March 2, 2016 (attached), the County supports these objectives; however, as discussed below, the County continues to have concerns that potential impacts to eastern Bogue Banks were not evaluated and believes that the draft EA does not comply with the National Environmental Policy Act, 42 U.S.C. § 4321 ("NEPA").

NEPA requires federal agencies to factor environmental considerations into their discretionary decision-making and directs that federal agencies implement, "to the fullest extent possible," methods and procedures designed to give environmental factors appropriate consideration. 42 U.S.C. § 4332. Preparation of an environmental impact statement ("EIS") is required for "major Federal actions significantly affecting the quality of the human environment." 42 U.S.C. 4332(2)(C). An environmental assessment ("EA"), however, may be prepared to determine the need for an EIS. 40 C.F.R. § 1501.4(b). To document that an EIS is

not necessary, the EA must reach a Finding of No Significant Impact ("FONSI"). 40 C.F.R. § 1508.13.

The draft EA prepared by the Corps recognizes that the area in the vicinity of the channel is "dynamic and experiences a high degree of variability." (Draft EA at 1.) In fact, the Corps recognizes that it is proposing "to establish a navigation corridor in the most dynamic section of the channel by shifting the western navigation channel boundary approximately 700 feet west, away from Shackleford Banks" and towards Bogue Banks. (Draft EA at 1.)

Despite the highly dynamic nature of this inlet complex, the Corps has provided **no** evidence and analysis for determining whether the proposed project will have a significant impact to the inlet system and adjacent shoreline. The potential for changes to inlet shoals and other inlet features (of particular concern is the flood channel parallel to Atlantic Beach and Fort Macon – see attached Memorandum and Figure 3 submitted by the County with its March 2, 2016 comments) must be fully evaluated. The County is concerned that if the flood channel becomes deeper and wider as a result of the proposed project, additional on-shore losses of material from Fort Macon and Atlantic Beach are likely. Without analyzing these potential, significant impacts, the draft EA does not comply with NEPA, and the Corps is unable to reach a FONSI.

To comply with NEPA, the Corps has two options. First, the Corps could prepare an EIS and fully evaluate the potential impacts of shifting the western navigation channel boundary approximately 700 feet west. The environmental review should include a multi-dimensional morphological model that fully examines the potential impacts to the inlet system and adjacent shoreline.

Second, the Corps could incorporate mitigation measures into the project to avoid the preparation of an EIS ("mitigated FONSI"). To reach a mitigated FONSI, the Corps must ensure that the mitigation will be performed and will mitigate the impacts of the proposed project. 76 Fed. Reg. 3843, 3846 (Jan. 21, 2011). The mitigation requirements should be clearly described in the mitigated FONSI, including measurable performance standards and adequate mechanisms for implementation, monitoring, and reporting. 76 Fed. Reg. at 3843. Monitoring is essential in cases such as this where mitigation is necessary to support the FONSI. 76 Fed. Reg. at 3849. The monitoring plan should be described or incorporated by reference in the mitigated FONSI. The mitigation measures must also be enforceable (*i.e.*, subject to sufficient legal authority to ensure that they will be performed). 76 Fed. Reg. at 3848, n.21. Similarly, an agency should not use a mitigated FONSI if it is not reasonable to believe that the necessary funding will be available to ensure adequate monitoring and enforcement. 76 Fed. Reg. at 3849. Finally, an agency should place appropriate restrictions on authorizations that will allow the agency to suspend or cancel the authorizations if the agency fails to comply with the mitigation requirements. 73 Fed. Reg. at 3849.

Thus, if the Corps decides not to prepare an EIS, it must issue a mitigated FONSI. The mitigated FONSI must ensure that the mitigation measures will be performed, including adequate funding, and will mitigate the impacts of the proposed channel realignment. If the Corps proposes to place additional sand on impacted shorelines to offset impacts, the Corps must ensure that additional sand is dredged from the channel so that the Corps is not merely redistributing the same volume of sand along the shoreline (*i.e.*, taking away sand from Atlantic Beach to place on Fort Macon).

The County is also concerned that the proposed realignment of the channel will not provide a long-term solution. As discussed in our prior comments, the proposed realignment may only last two to three years before intervention is again required. The County believes that a terminal groin or jetty at Shackleford is a viable alternative. Applicable National Park Service management policies provide: "sediment disposal and other types of shoreline process interference are permitted in national park units when necessary to restore or mitigate the impacts of human-caused activities." To the extent that the east end of Shackleford Banks is migrating into the fixed channel and eroding, it would be appropriate to place a terminal groin or jetty to offset these impacts.

Finally, in discussing the volume of dredged material and the location of placement, the draft EA assumes that the channel will be dredged to authorized dimensions. For example, with respect to dredge volumes, the draft EA states:

> Using current surveys, the existing channel alignment requires dredging of approximately 2,166,000 cubic yards of sediment to maintain the channel to its authorized dimensions. The proposed action would allow use of the corridor, which would result in an estimated 1,930,000 cubic yards of sediment to be dredged when using the same surveys and authorized channel dimensions, thereby allowing the District to maintain a channel of the same dimensions with approximately 236,000 fewer cubic yards of dredging. (Draft EA at 7.)

The draft EA further states:

> Placement of dredged material would remain consistent with current authorized placement methods and is typically based on sediment quality. . . . The dredged material would be placed in accordance with the Morehead City DMMP. (Draft EA at 7).

Due to lack of funds, the channel is rarely dredged to authorized dimensions. Even if the initial channel widening occurs in either a "Year 2" or "Year 3" of the DMMP, beach-quality material dredged during the initial widening should be placed on the beach in a location that will offset potential impacts of the project and minimize shoaling if either of the following conditions apply: (i) more material than typical years will be dredged as a result of the initial channel widening; or (ii) placement on the beach is a mitigation measure that allows the Corps to avoid

the preparation of an EIS. As stated above, if subsequent monitoring shows that the on-shore volumetric loss rates increase as a result of the project, the DMMP should be modified to require additional placement of dredged material on the beach to mitigate this project impact. [1]

The County understands the continuing shoaling and funding issues associated with the Morehead City Harbor Project; however, shifting the channel 700 feet to the west has the potential to cause significant impacts to the inlet complex and adjacent shorelines. The Corps must either prepare an EIS fully evaluating these potential significant impacts or issue a mitigated FONSI. The County appreciates the opportunity to provide these comments and looks forward to continuing to work with the Corps concerning the management of the Morehead City Harbor Project.

Sincerely,

KILPATRICK TOWNSEND & STOCKTON LLP

Todd S. Roessler

Attachments

cc: The Honorable Walter B. Jones, Jr.
Braxton Davis, DCM Director
Greg "rudi" Rudolph
Johnny Martin
Justin McCorcle

[1] If the Corps pursues a mitigated FONSI, the Corps must ensure that the mitigation will be performed and will mitigate the impacts of the proposed project. Beach placement during the initial widening may be part of the mitigation plan, but all significant impacts must be offset, including those that may occur in subsequent years.

ATTACHMENT

Comments dated March 2, 2016

KILPATRICK TOWNSEND
ATTORNEYS AT LAW

KILPATRICK TOWNSEND & STOCKTON LLP
www.kilpatricktownsend.com

Suite 1400 4208 Six Forks Road
Raleigh NC 27609
t 919 420 1700 f 919 420 1800

Todd S. Roessler
direct dial 919 420 1726
direct fax 919 510 6121
TRoessler@KilpatrickTownsend.com

March 2, 2016

Via Electronic Mail

Elden Gatewood
Chief, Planning and Environmental Branch
U.S. Army Corps of Engineers, Wilmington District
69 Darlington Avenue
Wilmington, NC 28403-1343

Re: Carteret County Shore Protection Office's Comments Regarding U.S. Army Corps of Engineers' Proposal to Prepare an Environmental Assessment to Evaluate Realignment of the Morehead City Harbor Federal Navigation Channel

Dear Mr. Gatewood:

I am writing on behalf of the Carteret County Shore Protection Office (the "County") in response to the U.S. Army Corps of Engineers' (the "Corps") request for comments in response to the Corps' proposal to prepare an Environmental Assessment ("EA") to evaluate realignment of the western sections of the Cutoff and Range A reaches of the Morehead City Harbor Federal Navigation Channel (the "Channel"). According to the Corps, realigning the Channel approximately 300 feet to the west, away from Shackleford Banks, would provide a navigation channel more aligned with natural deep water and would reduce maintenance dredging requirements and increase navigability. Although the County supports these objectives, as discussed below, we have some concerns and request that the Corps evaluate the following issues during the environmental review process.

Although the Corps has indicated that it will prepare an EA, the County questions whether the proposed project is of sufficient complexity that an Environmental Impact Statement ("EIS") should be prepared. The area in the vicinity of the Channel is extremely dynamic and the inlet shoals directly adjacent to the Channel are subject to substantial changes over time. Realigning the Channel may result in unintended consequences, including impacts to the adjacent shoreline. In preparing the EA, the Corps should, among

other things, not only describe the environmental impacts of the proposed project and identify reasonable alternatives, it should also provide sufficient evidence and analysis for determining whether to prepare an EIS.

The notice provided by the Corps indicates that the Corps is proposing to move the channel approximately 300 feet to the west. However, the figure provided by the Corps appears to show a westward shift of 600 to 800 feet (shown from the existing channel westward to a tangent line between Daybeacon 19 to a point between Daybeacon 15 & 16). Without knowing the magnitude and location of the proposed realignment, the County is unable to adequately evaluate potential issues with the proposed realignment. The Corps should clarify the scope of the proposed realignment.

As discussed above, the County is concerned that the proposed realignment may result in unintended impacts to the inlet system and adjacent shoreline. The potential for changes to the inlet shoals and other inlet features (of particular concern is the flood channel parallel to Atlantic Beach and Fort Macon – see attached Memorandum and Figure 3) needs to be fully examined with a multi-dimensional morphological model as part of the environmental review. If the flood channel becomes deeper and wider as a result of the proposed project, additional on-shore losses of material from Fort Macon and Atlantic Beach are likely.

The County is also concerned that the proposed project may not provide a long-term solution to the shoaling issues associated with the Channel. Based on the survey information for Transect 112B (see attached Memorandum and Figure 3 for transect location), it appears that the channel bank has migrated anywhere from 50 to 150 feet westward during years when no dredging has taken place (see attached Memorandum and Figures 1 and 2). Therefore, the proposed realignment may only last two (2) to three (3) years before intervention is again required unless the current pattern of channel bank migration changes as a result of the project, which again supports the need for detailed multi-dimensional morphological modeling to fully investigate potential project effects.

The County also believes that the dynamic nature of this area and likely continued migration of Shackleford Banks to the west requires that the Corps also evaluate long-term alternatives, such as a terminal groin or jetty. As discussed above, the Corps is required to evaluate reasonable alternatives as part of the environmental review process.

The County understands the continuing shoaling and funding issues associated with the Morehead City Harbor Project; however, a potential realignment of the Channel, possibly as much as 800 feet to the west, is a significant project change and requires a detailed study that addresses the concerns discussed above. The County appreciates the opportunity to

provide these comments and looks forward to continuing to work with the Corps concerning the management of the Morehead City Harbor Project.

Sincerely,

KILPATRICK TOWNSEND & STOCKTON LLP

Todd S. Roessler

Attachments

cc: The Honorable Walter B. Jones, Jr.
Donald R. van der Vaart, DEQ Secretary
Braxton Davis, DCM Director
Greg "rudi" Rudolph
Johnny Martin
Justin McCorcle

moffatt & nichol

1616 East Millbrook Road, Suite 160
Raleigh, NC 27609

(919) 781-4626 ❖ Fax: (919) 781-4869
www.moffattnichol.com

Memorandum

To:	Greg "rudi" Rudolph / Todd Roessler
From:	Johnny Martin, PE / Nicole Vanderbeke, PE
Date:	February 29, 2016
Subject:	USACE Proposal to Realign Portions of the Morehead City Harbor Channel
Project:	Carteret County Ongoing Coastal Engineering Support
CC:	File

Rudi/Todd,

Moffatt & Nichol has reviewed the memo provided by the US Army Corps of Engineers (USACE) concerning the proposal to realign portions of the Morehead City Harbor (MHC) Channel Project. While it is difficult at this beginning stage of the project to offer substantive comments, we offer that the following concerns/issues should be addressed in the upcoming EA for the project.

Confirmation of Planned 300' Westward Shift of Channel

The memo provided by the USACE mentions a 300' westward shift of the channel alignment which appears to impact the total channel width by approximately 600' to 800' to the west. Is this understanding correct? During this study, the potential dredging volume for the proposed alignment should be estimated, and it should be confirmed that this dredged volume and location will not disrupt mechanical bypassing volumes and sequencing. Once these impacts are known, the best location for placement of sand to offset any negative impacts can be evaluated.

Modeling of the Proposed Realignment Needed to Fully Investigate Potential Effects

History has proven that the inlet shoals directly adjacent to the channel can be subject to substantial changes. The potential for changes to the inlet shoals and other inlet features (of particular concern is the potential for changes to the flood channel parallel to Atlantic Beach and Fort Macon – see attached Figure 3) needs to be fully examined with a multi-dimensional morphological model as part of the environmental study. This will allow the USACE, State, Carteret County and the Port to understand what the potential impacts to the inlet are and what requirements for maintenance will be to maintain optimum operating characteristics.

Length of Time Before Intervention Required Again

Another item that should be addressed is the impact on channel bank migration. Based on the survey information for Transect 112B (see attached Figure 3 for transect location), it appears that the channel bank has migrated anywhere from 50' to 150' westward during years when no dredging has taken place (see Figures 1 & 2 below). This begs the question of what the length of

benefits will be before intervention is again required. Again, this would require a detailed multi-dimensional morphological modeling to fully investigate potential project effects. Given the recent reduced federal funding for the MHC project and the likely need for State funds in the future, we also believe this points to the potential need for other longer term solutions such as a terminal groin or jetty to be investigated and addressed in the EA.

Conclusion

While all parties involved understand the shoaling and funding issues concerning the MHC Channel project, developing adequate models will be required to make sure that the proposed realignment meets the project objectives in a manner that works for all parties.

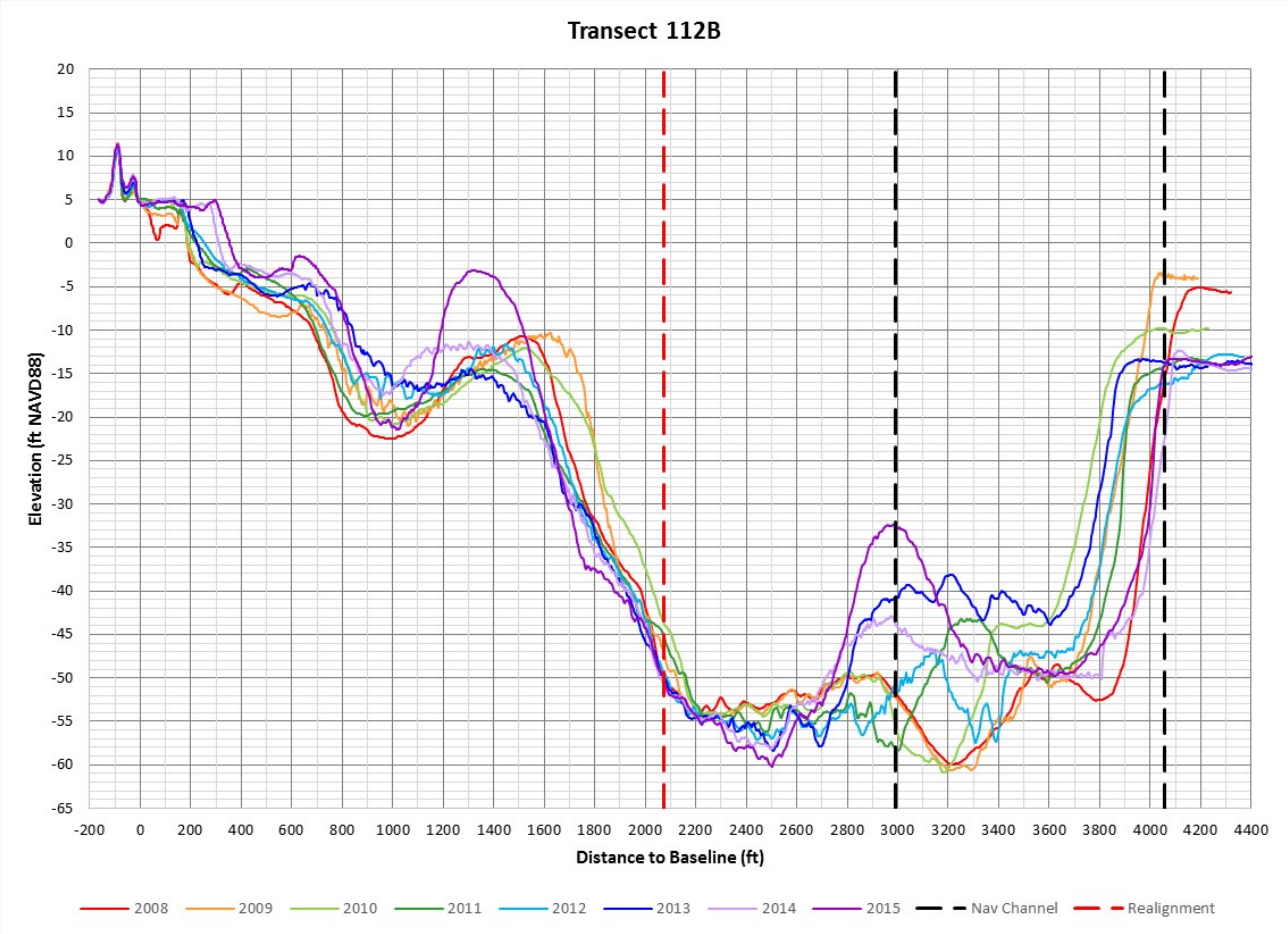


Figure 1. Transect 112B Survey Information Since 2008 with Channel Extents (Please Note that Transect 112B Crosses the Channel at an Angle and Distances Are Affected)

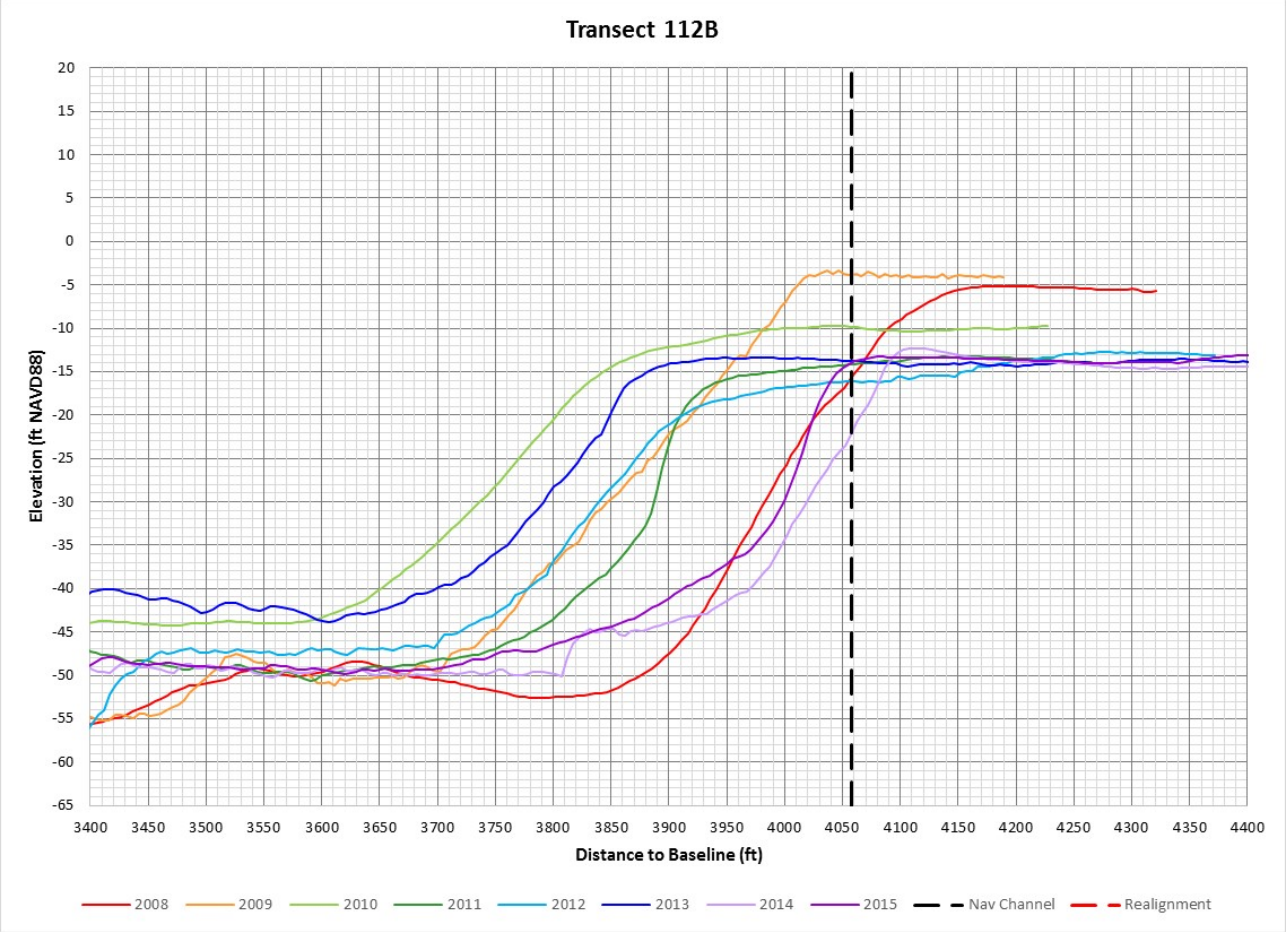


Figure 2. Transect 112B Survey Information Since 2008 with Channel Extents – ZOOMED VIEW TO EASTERN CHANNEL LIMIT (Please Note that Transect 112B Crosses the Channel at an Angle and Distances Are Affected)

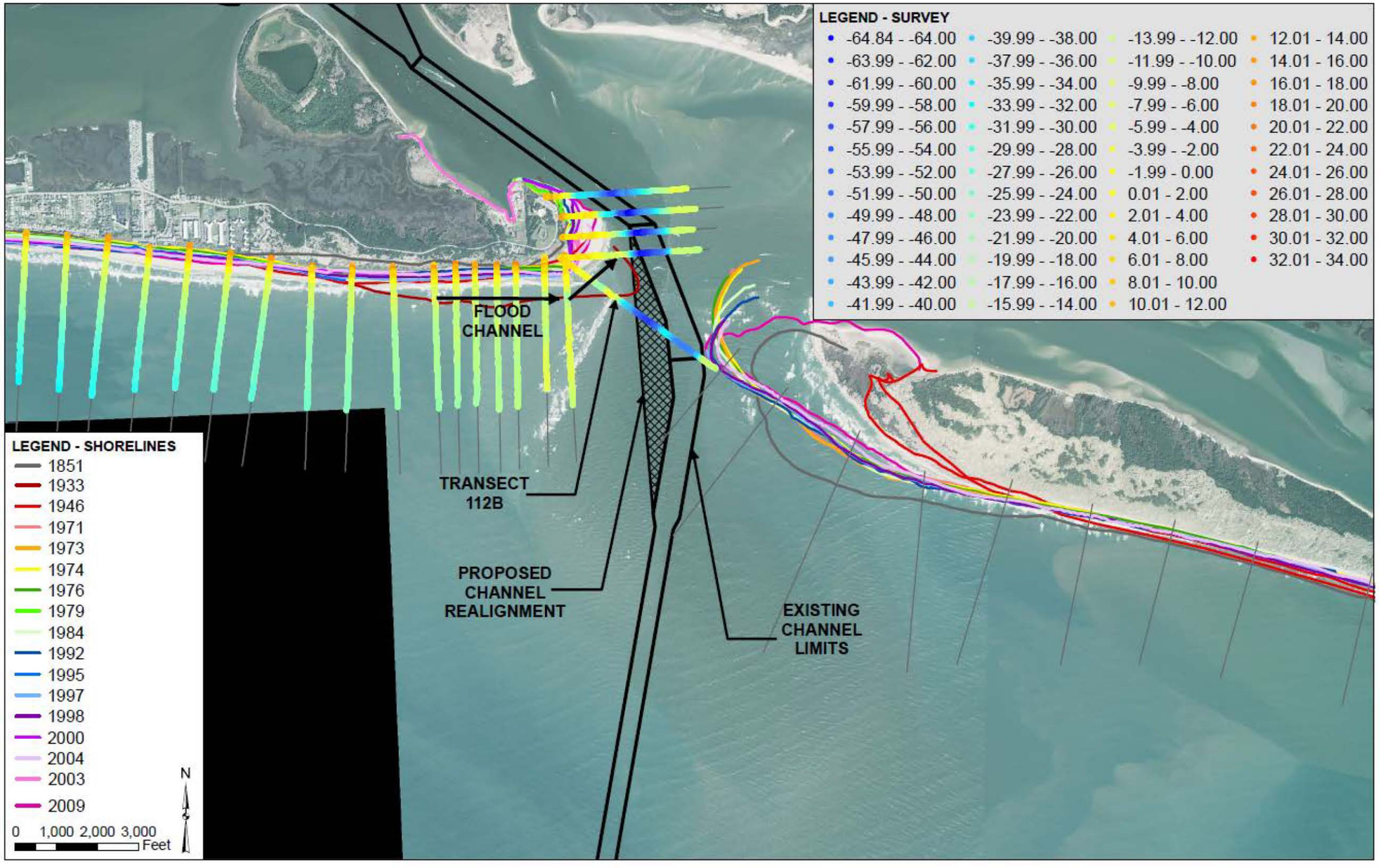


Figure 3. Morehead City Channel Project (Existing and Proposed Channel Limits) With 2015 Survey Data and Numerous Shoreline Datasets

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701-5505
http://sero.nmfs.noaa.gov

October 25, 2017 F/SER47:KR/pw

(Sent via Electronic Mail)

Colonel Robert J. Clark, Commander
U.S. Army Corps of Engineers Wilmington District
69 Darlington Avenue
Wilmington, North Carolina 28403-1398

Attention: Teresa Russell

Dear Colonel Clark:

NOAA's National Marine Fisheries Service (NMFS) reviewed the letter dated September 29, 2017, from the U.S. Army Corps of Engineers (USACE) Wilmington District regarding preparation of the draft *Environmental Assessment (EA) Morehead City Harbor Federal Navigation Project Navigation Corridor*, dated September 2017. The draft EA addresses establishment of a navigation corridor for the Morehead City Harbor Federal Navigation Channel within Beaufort Inlet, Carteret County. Morehead City Harbor is a federal navigation project that allows ships to navigate from the Atlantic Ocean, through Beaufort Inlet, to facilities operated by the North Carolina State Ports Authority and for shallow-draft vessels to navigate to Morehead City's waterfront. The Wilmington District seeks to establish a navigation corridor that would allow adaptive management of the existing authorized channel dimensions, in the context of a dynamic inlet system and natural deep water flows. The Wilmington District's initial determination is that the environmental effects associated with the establishment of a navigation corridor would be temporary in nature and the proposed action would not have a substantial adverse effect of essential fish habitat (EFH) or federally managed species within the project area. As the nation's federal trustee for the conservation and management of marine, estuarine, and diadromous fishery resources, the NMFS provides the following comments and recommendations pursuant to the authorities of the Fish and Wildlife Coordination Act and the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act).

Description of the Proposed Project
Beaufort Inlet is dynamic and experiences severe shoaling and infilling requiring frequent maintenance of the federal navigation channel. Dredging activities associated with maintenance of the Morehead City Harbor Federal Navigation Project remove approximately one million cubic yards of dredged material annually. The Wilmington District seeks to establish a navigation corridor through the inlet complex by shifting the western navigation channel boundary approximately 700 feet west, away from Shackleford Banks. The eastern channel boundary would not change. The existing authorized channel dimensions would be adaptively maintained within the proposed navigation corridor. The proposed actions would allow the Wilmington District flexibility and cost savings in management of the navigation channel. Further, it would allow the Wilmington District to maintain a channel that follows natural deep water possibly reducing maintenance dredging requirements.

Consultation History
The NMFS has provided consultation on a number of projects related to the *Morehead City Harbor Federal Navigation Project* as well as the *Morehead City Harbor Integrated Dredged Material*

Management Plan. Most recently, the NMFS provided consultation by letter, dated August 18, 2016, after determining implementation of the *Morehead City Harbor Integrated Dredged Material Management Plan and Environmental Impact Statement* would adversely affect federally managed species and EFH. Within the letter referenced, the NMFS recommended conservation measures be employed during construction activities to reduce noise disturbance, provide turbidity control, and protect water quality. Further, the NMFS recommended environmental impacts from construction activities be monitored long-term and minimized to the extent practicable throughout the duration of the project (i.e., 20 years).

Essential Fish Habitat

Pursuant to the Magnuson-Stevens Act, the South Atlantic Fisheries Management Council (SAFMC) has designated EFH within the project area to encompass intertidal flats, high salinity surf zones, and tidal inlets (including their ebb and flood shoal complexes). Chapter 5 of the EA describes the environmental setting of the project. Section 5.3 provides descriptions of EFH and affected fishery resources.

The NMFS believes the draft EA minimally addresses EFH and Habitat Areas of Particular Concern (HAPC) considerations and the topic receives no focused discussion. Substantial review of these considerations should be included in preparation of materials to satisfy the National Environmental Policy Act and to assess the potential environmental impacts by proposed actions outlined in the draft EA. The EFH and HAPC characterizations should include a brief summary of designations for each federally managed species in the project area including habitats required during each life stage (including egg, larval, postlarval, juvenile, and adult stages) and time of year of occurrence. The draft EA fails to recognize the project area includes an HAPC for penaeid shrimp and species among the snapper-grouper complex. Additionally, coastal inlets are considered EFH and provide critical habitat functions for Coastal Migratory Pelagics, which include king mackerel (*Scomberomorus cavalla*), Atlantic Spanish mackerel (*Scomberomorus maculatus*), and cobia (*Rachycentron canadum*). The ecological function of tidal inlets (including their ebb and flood tide shoals) is widely recognized for its contributions to spawning, egg and larval dispersal, juvenile recruitment, and as foraging habitat. The SAFMC provides detailed information on the EFH requirements of federally managed species in amendments to the fishery management plans and in *Volume IV of the Fishery Ecosystem Plan of the South Atlantic Region*[1]. Similarly, the SAFMC provides guidance for those developing environmental documentation through the *Users Guide to Essential Fish Habitat Designations by the South Atlantic Fishery Management Council*[2].

The Wilmington District references use of the NMFS EFH Mapper, an online tool for viewing a spatial representation of EFH designated by the NMFS or the regional fishery management councils. While the online tool has great utility in education and outreach, the data in the mapping product were developed using methodologies that reflected regional differences in source data and management needs. Unfortunately, the online mapper has limitations and a number of spatial data quality issues have to be considered when evaluating how EFH and HAPC data are interpreted. The online mapper references these limitations within the disclosure statements on data quality.

Impacts to Essential Fish Habitat

Coastal inlet complexes are dynamic and resilient ecosystems. These ecosystems are often able to recover quickly despite experiencing extreme disturbance events from storms and hurricanes. The primary concern the NMFS has with the proposed project is the cumulative effect from frequent dredging of the inlet when considered with the frequency of inlet dredging utilized in navigation projects and other shoreline protection projects in the region. Generalized environmental impacts are expected to be temporary in nature and of short duration (days) following construction and maintenance activities.

[1] Available at *http://safmc.net/EcosystemLibrary/FEPVolumeIV*

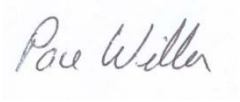
[2] Available at *https://safmc.net/download/SAFMCEFHUsersGuideFinalNov16.pdf*

Impacts include an increase in the turbidity and total suspended solids from sediments, silt, and organic materials. High concentrations of suspended solids for extended durations can impair biological productivity and ecological function by clogging fish gills, affecting recruitment of fish and invertebrates (crustaceans and invertebrates), and suppressing growth of seagrass and shellfish (e.g., oysters, clams, scallops). Disposal and nourishment activities that bury infaunal communities results in direct mortality of many forage species. These infaunal species provide important trophic linkages coupling benthic-pelagic ecosystems. Many of the organisms utilizing these habitats also provide trophic linkages between inshore and offshore populations. Lastly, the results of models and literature suggest mortality associated with larval entrainment by the dredge would be minimal and localized when appropriate precautions are taken.

Comments on the Draft Environmental Assessment
The NMFS believes the Wilmington District in working with state and federal partners has dutifully conducted practicable alternatives analysis to avoid and minimize environmental impacts associated with construction of the Morehead City Harbor Federal Navigation Project Navigation Corridor. The proposed project reflects only minor changes to long-standing dredging and maintenance activities for the federal navigation channel. The NMFS recommends the Wilmington District update the draft EA to include discussion of EFH and HAPCs. We would be pleased to assist with this endeavor as needed. The NMFS has no EFH conservation recommendations for the project. The NMFS may provide EFH conservation recommendations in the future based on new information or changes in the project design that show adverse impacts would occur to EFH or federally-managed fishery species.

Thank you for the opportunity to provide these comments. The NMFS looks forward to further cooperation with this project that is so important for North Carolina. Please direct related questions or comments to the attention of Dr. Ken Riley at our Beaufort Field Office, 101 Pivers Island Road, Beaufort, North Carolina 28516-9722, or at (252) 728-8750.

Sincerely,



/ for

Virginia M. Fay
Assistant Regional Administrator
Habitat Conservation Division

cc: COE, Teresa.E. Russell@usace.army.mil
COE, Elden.J.Gatwood@usace.army.mil
USFWS, Pete_Benjamin@usfws.gov
NCDCM, Doug.Huggett@ncmail.net
NCDCM, Daniel.Govoni@ncdenr.gov
EPA, Bowers.Todd@epa.gov
SAFMC, Roger.Pugliese@safmc.net
F/SER4, David.Dale@noaa.gov
F/SER47, Ken.Riley@noaa.gov

From: Bashaw, Justin P CIV USARMY CESAW (US)
To: Holliman, Daniel; Russell, Teresa E CIV USARMY CESAW (US)
Cc: Militscher, Chris
Subject: RE: Morehead City Harbor Federal Nav Project EA (UNCLASSIFIED)
Date: Monday, October 30, 2017 12:57:39 PM

CLASSIFICATION: UNCLASSIFIED

Good afternoon Dan,

Thank you for providing EPA's comments on the 'Morehead City Harbor Federal Nav Project EA'. In the case of this EA my colleague, Teresa Russell, is the POC. I'm forwarding EPA's comments to her via this email thread so that she can work to compile and address all comments received.

It's worth mentioning that I am the correct USACE Wilmington District POC for MPRSA Section 102/103 matters, though. All federal ocean disposal coordination regarding dredged material originating in the Morehead City Harbor vicinity remains closely coordinated and in compliance with EPA Region 4's Ocean Dumping Management Program and applicable laws.

Best,

-Justin B

Justin Bashaw

Biologist, Cultural Resources Manager, Ocean Disposal Coordinator

Environmental Resources Section

U.S. Army Corps of Engineers, Wilmington District

- 69 Darlington Avenue

  Wilmington, NC 28403-1343

- 910.251.4581 (telephone)

- 910.251.4744 (facsimile)

- justin.p.bashaw@usace.army.mil <mailto:justin.p.bashaw@usace.army.mil>

From: Holliman, Daniel [mailto:Holliman.Daniel@epa.gov]
Sent: Friday, October 27, 2017 3:44 PM
To: Bashaw, Justin P CIV USARMY CESAW (US) <Justin.P.Bashaw@usace.army.mil>
Cc: Militscher, Chris <Militscher.Chris@epa.gov>
Subject: [EXTERNAL] Morehead City Harbor Federal Nav Project EA

Justin,

Per the EA, the EPA understands that the proposed action would establish a navigation corridor within the westward section of the 'Cutoff' and 'Range A' reaches of the Morehead City Harbor Federal Navigation Channel within Beaufort Inlet. The navigation corridor would follow natural deep water to dredge a channel of the same width as the existing authorization (varying from 600-800 feet in width) within this wider corridor.

The EPA also understands that placement of dredged material would remain consistent with current authorized placement methods and is typically based on sediment quality. Typically, beach quality material is placed on Bogue Banks beaches or in the approved nearshore placement areas and fine-grained material (not beach or nearshore compatible) is placed in the Ocean Dredged Material Disposal Site (ODMDS) in the area designated for fine-grained material. The dredged material would be placed in accordance with the Morehead City Harbor Dredge Material Management Plan (DMMP).

EPA Comments:

* EPA previously provided comments on the Morehead City Harbor Integrated DMMP Draft and Final EIS. Our primary concerns outlined in our reviews of the DMMP were related to consideration of sea level rise and storm surge impacts when modeling for disposal sites, determination of sand compatibility, and ensuring compliance with State water quality standards. Comments were provided to the Corps in 2013 on the DEIS and 2016 on the FEIS.

* Based on our review of the subject EA, our primary concern is related to potential impacts to water quality, therefore the EPA requests that any reported exceedances to water quality standards associated with dredge activities and material disposal be reported to the North Carolina Department of Environmental Quality - Water Quality Section and the EPA and shown as a project commitment in the FNSI.

EPA appreciates the opportunity to review the subject EA. If you have any questions give me a call.

Thanks,
Dan

Dan Holliman

USEPA Region 4 | NEPA Program Office

61 Forsyth Street SW | Atlanta, GA 30303

tel 404.562.9531 | holliman.daniel@epa.gov <mailto:holliman.daniel@epa.gov>

CLASSIFICATION: UNCLASSIFIED

NORTH CAROLINA PORTS

November 1, 2017

Ms. Teresa Russell
Wilmington District, Army Corps of Engineers
CESAW-ECP-PE
69 Darlington Ave
Wilmington, NC 28403

Subject: Draft Environmental Assessment
Morehead City Harbor - Federal Navigation Project
Navigation Corridor

Dear Ms. Russell,

The North Carolina State Ports Authority (NSCPA) submits the comments below in response to your letter dated September 29, 2017, requesting comments on the Draft Environmental Assessment (EA) for the proposed Morehead City (MHC) Harbor Navigation Corridor Navigation Project.

The NCSPA fully supports the USACE proposed Navigation Project to shift the western navigation channel boundary 700' west, away from Shackleford Banks. The NCSPA agrees that this shift that allows dredging to follow naturally deep water within the channel, and will improve navigability and safety for vessels calling on the Port of Morehead City.

The areas addressed in the EA have become very dynamic in the last decade and maintaining the channel for safe vessel traffic, based on the current fixed alignment, has increased in cost and frequency of need. With naturally deep water occurring to the west of the current alignment, as shown in figure 1 of the EA, the NCSPA agrees with the USACE's findings that establishing a navigation corridor will result in less amounts of sand that will need to be dredged from the area, less environmental impacts, and lower costs.

The NCSPA fully supports the proposed navigation corridor for the MHC federal navigation project. The NCSPA also supports and agrees with the USACE stated benefits within the EA which include flexibility in maintaining the MHC navigation channel, reducing the maintenance dredging costs and lessening potential impacts water quality, lessening local community

NORTH CAROLINA PORTS

aesthetics, and to providing a safer, more navigable channel for vessels calling on the Port of Morehead City.

Sincerely,

Brian E. Clark
Chief Operating Officer
North Carolina State Ports Authority

North Carolina Division of Parks and Recreation

Governor Roy Cooper | Secretary Susi H. Hamilton

October 27, 2017

Elden Gatwood
Chief, Planning and Environmental Branch
U.S. Army Corps of Engineers
69 Darlington Avenue
Wilmington, NC 28403

Re: NC Division of Parks and Recreation Comments
Environmental Assessment of Morehead City Harbor Navigation Corridor
Morehead City, NC

Dear Mr. Gatwood:

The North Carolina Division of Parks and Recreation (DPR) has reviewed the U.S. Army Corps of Engineers (USACE) Environmental Assessment of the Realignment of the Navigation Channel within Beaufort Inlet in Morehead City, North Carolina. DPR would like to offer the following comments.

DPR understands the difficulties in maintaining the current channel alignment, however DPR is concerned about the possibility of increased erosion on the banks of Fort Macon State Park. In the past USACE has provided the park with beach nourishment through the dredging of the current channel and other dredging operations. DPR would ask that this practice continue and that beach erosion monitoring practices be put in place to gauge the potential increase in erosion due to the realignment of the channel. DPR would ask that USACE continue to coordinate with Fort Macon State Park to evaluate beach nourishment activities and opportunities.

Please let me know if you have any questions.

Sincerely,

Justin Williamson
Environmental Review Coordinator
North Carolina Division of Parks and Recreation
(919) 707-9329 / justin.williamson@ncparks.gov

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh ES Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

October 26, 2017

Teresa Russell
U.S. Army Corps of Engineers, Wilmington District
Planning and Environmental Office
69 Darlington Avenue
Wilmington, NC 28403-1343

Re: Morehead City Harbor Federal Navigation Project Navigation Corridor, Carteret County

Dear Ms. Russell:

The U.S. Fish and Wildlife Service (Service) has reviewed the September 2017 draft Environmental Assessment (EA), concerning the above referenced project. The proposed changes to the maintenance of the navigation corridor for the Morehead City Harbor Federal Navigation Project, based on the description in the EA and other information, is expected to have minimal adverse impacts to fish and wildlife resources. Therefore, we have no objection to the proposed changes.

In accordance with the Endangered Species Act of 1973, as amended, (ESA) and based on the information provided, and other available information, it appears the action is not likely to adversely affect federally listed species or their critical habitat as defined by the ESA. We believe that the requirements of section 7 (a)(2) of the ESA have been satisfied for this project. Please remember that obligations under the ESA must be reconsidered if: (1) new information identifies impacts of this action that may affect listed species or critical habitat in a manner not previously considered; (2) this action is modified in a manner that was not considered in this review; or, (3) a new species is listed or critical habitat determined that may be affected by the identified action.

The Service appreciates the opportunity to review and provide comments on the proposed action. Should you have any questions regarding the project, please contact Kathy Matthews at (919) 856-4520, extension 27.

Sincerely,

Pete Benjamin
Field Supervisor

cc: NMFS, Beaufort, NC
EPA, Atlanta, GA
WRC, Raleigh

STATE OF NORTH CAROLINA
DEPARTMENT OF ADMINISTRATION

ROY COOPER
GOVERNOR

MACHELLE SANDERS
SECRETARY

November 14, 2017

Ms. Teresa Russell
Department of Army
Corps of Engineers
69 Darlington Avenue
Wilmington, North Carolina 28403-1343

Re: SCH File # 18-E-0000-0110; Proposal is for the Morehead City Harbor Federal Navigation Project Navigation Corridor.

Dear Ms. Russell:

The above referenced environmental impact information has been submitted to the State Clearinghouse under the provisions of the National Environmental Policy Act. According to G.S. 113A-10, when a state agency is required to prepare an environmental document under the provisions of federal law, the environmental document meets the provisions of the State Environmental Policy Act. Attached to this letter for your consideration are comments made by the agencies in the review of this document.

If any further environmental review documents are prepared for this project, they should be forwarded to this office for intergovernmental review.

Should you have any questions, please do not hesitate to call.

Sincerely,

Crystal Best

Crystal Best
State Environmental Review Clearinghouse

Attachments
cc: Region P

Mailing Address:
NC DEPARTMENT OF ADMINISTRATION
1301 MAIL SERVICE CENTER
RALEIGH, NC 27699-1301

Telephone: (919) 807-2425
Fax: (919) 733-9571
COURIER #51-01-00
Email: state.clearinghouse@doa.nc.gov
Website: www.ncadmin.nc.gov

Location:
116 WEST JONES STREET
RALEIGH, NORTH CAROLINA

Environmental Quality

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary

MEMORANDUM

To: Crystal Best
State Clearinghouse Coordinator
Department of Administration

From: Lyn Hardison LBH
Division of Environmental Assistance and Customer Service
Environmental Assistance and Project Review Coordinator
Washington Regional Office

RE: 18-0110
Environmental Assessment – Proposal is for the Morehead City Harbor Federal Navigation Project – Navigation Corridor
Carteret County

Date: November 13, 2017

The Department of Environmental Quality has reviewed the proposal for the referenced project. Based on the information provided, several of our agencies have identified permits that may be required and offered some guidance. The Division of Coastal Management will provide comments through the Federal Consistency determination pathway. The comments are attached for the applicant's review.

The Department encourages the applicant to continue to work with our agencies during the environmental review process and as this project moves forward.

Thank you for the opportunity to respond.

Attachments

State of North Carolina Department of Environmental Quality
INTERGOVERNMENTAL REVIEW PROJECT COMMENTS

Reviewing Regional Office: WIRO
Project Number: 18-0110 Due Date: 11/6/2017
County: Carteret

After review of this project it has been determined that the DEQ permit(s) and/or approvals indicated may need to be obtained in order for this project to comply with North Carolina Law. Questions regarding these permits should be addressed to the Regional Office indicated on the reverse of the form. All applications, information and guidelines relative to these plans and permits are available from the same Regional Office.

	PERMITS	SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
☐	Permit to construct & operate wastewater treatment facilities, non-standard sewer system extensions & sewer systems that do not discharge into state surface waters.	Application 90 days before begins construction or award of construction contracts. On-site inspection may be required. Post-application technical conference usual.	30 days (90 days)
☐	Permit to construct & operate, sewer extensions involving gravity sewers, pump stations and force mains discharging into a sewer collection system	Fast-Track Permitting program consists of the submittal of an application and an engineer's certification that the project meets all applicable State rules and Division Minimum Design Criteria.	30 days (N/A)
☐	NPDES - permit to discharge into surface water and/or permit to operate and construct wastewater facilities discharging into state surface waters.	Application 180 days before begins activity. On-site inspection. Pre-application conference usual. Additionally, obtain permit to construct wastewater treatment facility-granted after NPDES. Reply time, 30 days after receipt of plans or issue of NPDES permit-whichever is later.	90-120 days (N/A)
☐	Water Use Permit	Pre-application technical conference usually necessary.	30 days (N/A)
☐	Well Construction Permit	Complete application must be received and permit issued prior to the installation of a groundwater monitoring well located on property not owned by the applicant, and for a large capacity (>100,000 gallons per day) water supply well.	7 days (15 days)
☐	Dredge and Fill Permit	Application copy must be served on each adjacent riparian property owner. On-site inspection. Pre-application conference usual. Filling may require Easement to Fill from N.C. Department of Administration and Federal Dredge and Fill Permit.	55 days (90 days)
☐	Permit to construct & operate Air Pollution Abatement facilities and/or Emission Sources as per 15 A NCAC (2Q.0100 thru 2Q.0300)	Application must be submitted and permit received prior to construction and operation of the source. If a permit is required in an area without local zoning, then there are additional requirements and timelines (2Q.0113).	90 days
☐	Any open burning associated with subject proposal must be in compliance with 15 A NCAC 2D.1900	N/A	60 days (90 days)
☐	Demolition or renovations of structures containing asbestos material must be in compliance with 15 A NCAC 20.1110 (a) (1) which requires notification and removal prior to demolition. Contact Asbestos Control Group 919-707-5950	Please Note - The Health Hazards Control Unit (HHCU) of the N.C. Department of Health and Human Services, must be notified of plans to demolish a building, including residences for commercial or industrial expansion, even if no asbestos is present in the building.	60 days (90 days)
☐	The Sedimentation Pollution Control Act of 1973 must be properly addressed for any land disturbing activity. An erosion & sedimentation control plan will be required if one or more acres are to be disturbed. Plan must be filed with and approved by applicable Regional Office (Land Quality Section) at least 30 days before beginning activity. A NPDES Construction Stormwater permit (NCG010000) is also usually issued should design features meet minimum requirements. A fee of $65 for the first acre or any part of an acre. An express review option is available with additional fees.		20 days (30 days)
☐	Sedimentation and erosion control must be addressed in accordance with NCDOT's approved program. Particular attention should be given to design and installation of appropriate perimeter sediment trapping devices as well as stable Stormwater conveyances and outlets.		(30 days)
☐	Sedimentation and erosion control must be addressed in accordance with _____ Local Government's approved program. Particular attention should be given to design and installation of appropriate perimeter sediment trapping devices as well as stable Stormwater conveyances and outlets.		Based on Local Program
☐	Compliance with 15A NCAC 2H .0126 - NPDES Stormwater Program which regulates three types of activities: Industrial, Municipal Separate Storm Sewer System & Construction activities that disturb ≥1 acre.		30-60 days (90 days)
☐	Compliance with 15A NCAC 2H 1000 -State Stormwater Permitting Programs regulate site development and post-construction stormwater runoff control. Areas subject to these permit programs include all 20 coastal counties, and various other counties and watersheds throughout the state.		45 days (90 days)

State of North Carolina Department of Environmental Quality
INTERGOVERNMENTAL REVIEW PROJECT COMMENTS

Reviewing Regional Office: WIRO
Project Number: 18-0110 Due Date: 11/6/2017
County: Carteret

	PERMITS	SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
☐	Mining Permit	On-site inspection usual. Surety bond filed with DEQ Bond amount varies with type mine and number of acres of affected land. Affected area greater than one acre must be permitted. The appropriate bond must be received before the permit can be issued.	30 days (60 days)
☐	Dam Safety Permit	If permit required, application 60 days before begin construction. Applicant must hire N.C. qualified engineer to: prepare plans, inspect construction, and certify construction is according to DEQ approved plans. May also require a permit under mosquito control program. And a 404 permit from Corps of Engineers. An inspection of site is necessary to verify Hazard Classification. A minimum fee of $200.00 must accompany the application. An additional processing fee based on a percentage or the total project cost will be required upon completion.	30 days (60 days)
☐	Oil Refining Facilities	N/A	90-120 days (N/A)
☐	Permit to drill exploratory oil or gas well	File surety bond of $5,000 with DEQ running to State of NC conditional that any well opened by drill operator shall, upon abandonment, be plugged according to DEQ rules and regulations.	10 days N/A
☐	Geophysical Exploration Permit	Application filed with DEQ at least 10 days prior to issue of permit. Application by letter. No standard application form.	10 days N/A
☐	State Lakes Construction Permit	Application fee based on structure size is charged. Must include descriptions & drawings of structure & proof of ownership of riparian property	15-20 days N/A
☐	401 Water Quality Certification	Compliance with the T15A 02H .0500 Certifications are required whenever construction or operation of facilities will result in a discharge into navigable water as described in 33 CFR part 323.	60 days (130 days)
☐	Compliance with Catawba, Goose Creek, Jordan Lake, Randleman, Tar Pamlico or Neuse Riparian Buffer Rules is required. Buffer requirements: http://deq.nc.gov/about/divisions/water-resources/water-resources-permits/wastewater-branch/401-wetlands-buffer-permits/401-riparian-buffer-protection-program		
☐	Nutrient Offset: Loading requirements for nitrogen and phosphorus in the Neuse and Tar-Pamlico River basins, and in the Jordan and Falls Lake watersheds, as part of the nutrient-management strategies in these areas. DWR nutrient offset information: http://deq.nc.gov/about/divisions/water-resources/planning/nonpoint-source-management/nutrient-offset-information		
☐	CAMA Permit for MAJOR development	$250.00 - $475.00 fee must accompany application	75 days (150 days)
☐	CAMA Permit for MINOR development	$100.00 fee must accompany application	22 days (25 days)
☐	Abandonment of any wells, if required must be in accordance with Title 15A. Subchapter 2C.0100.		
☐	Notification of the proper regional office is requested if "orphan" underground storage tanks (USTS) are discovered during any excavation operation.		
☐	Plans and specifications for the construction, expansion, or alteration of a public water system must be approved by the Division of Water Resources/Public Water Supply Section prior to the award of a contract or the initiation of construction as per 15A NCAC 18C .0300 et. seq., Plans and specifications should be submitted to 1634 Mail Service Center, Raleigh, North Carolina 27699-1634. All public water supply systems must comply with state and federal drinking water monitoring requirements. For more information, contact the Public Water Supply Section, (919) 707-9100.		30 days
☐	If existing water lines will be relocated during the construction, plans for the water line relocation must be submitted to the Division of Water Resources/Public Water Supply Section at 1634 Mail Service Center, Raleigh, North Carolina 27699-1634. For more information, contact the Public Water Supply Section, (919) 707-9100.		30 days
☐	Plans and specifications for the construction, expansion, or alteration of the _____ water system must be approved through the _____ delegated plan approval authority. Please contact them at _____ for further information.		

State of North Carolina Department of Environmental Quality
INTERGOVERNMENTAL REVIEW PROJECT COMMENTS

Reviewing Regional Office: WIRO
Project Number: 18-0110 Due Date: 11/6/2017
County: Carteret

Other Comments (attach additional pages as necessary, being certain to comment authority)

Division	Initials	No comment	Comments	Date Review
DAQ	DAC	☒	No Concerns	11/3/17
DWR-WQROS (Aquifer & Surface)	&	☐	Contact Jim Gregson 910-796-7386 or Jim.Gregson@ncdenr.gov for comments &	11/13/17 / /
DWR-PWS	HLC	☒		11/6/17
DEMLR (LQ & SW)	DES	☐	Dredge disposal will need to have existing permitted areas or will require a new site that would need erosion and sediment control permitting.	10/31/17
DWM – UST	WER	☒		11/6/17
Other Comments		☐		/ /

REGIONAL OFFICES

Questions regarding these permits should be addressed to the Regional Office marked below.

☐ **Asheville Regional Office**
2090 U.S. 70 Highway
Swannanoa, NC 28778-8211
Phone: 828-296-4500
Fax: 828-299-7043

☐ **Fayetteville Regional Office**
225 Green Street, Suite 714,
Fayetteville, NC 28301-5043
Phone: 910-433-3300
Fax: 910-486-0707

☐ **Mooresville Regional Office**
610 East Center Avenue, Suite 301,
Mooresville, NC 28115
Phone: 704-663-1699
Fax: 704-663-6040

☐ **Raleigh Regional Office**
3800 Barrett Drive,
Raleigh, NC 27609
Phone: 919-791-4200
Fax: 919-571-4718

☐ **Washington Regional Office**
943 Washington Square Mall,
Washington, NC 27889
Phone: 252-946-6481
Fax: 252-975-3716

☒ **Wilmington Regional Office**
127 Cardinal Drive Ext.,
Wilmington, NC 28405
Phone: 910-796-7215
Fax: 910-350-2004

☐ **Winston-Salem Regional Office**
450 Hanes Mill Road, Suite 300,
Winston-Salem, NC 27105
Phone: 336-776-9800
Fax: 336-776-9797

Behshad Nowruzi

NORTH CAROLINA STATE CLEARINGHOUSE
DEPARTMENT OF ADMINISTRATION
INTERGOVERNMENTAL REVIEW

COUNTY: CARTERET

F01: PORTS AND HARBORS

STATE NUMBER: 18-E-0000-0110
DATE RECEIVED: 10/10/2017
AGENCY RESPONSE: 11/06/2017
REVIEW CLOSED: 11/09/2017

MS CARRIE ATKINSON
CLEARINGHOUSE COORDINATOR
DEPT OF TRANSPORTATION
STATEWIDE PLANNING - MSC #1554
RALEIGH NC

RECEIVED
Secretary's
NOV 06 2017
Office
DOA

REVIEW DISTRIBUTION

DEPT OF ENVIR. QUALITY - COASTAL MG
DEPT OF ENVIRONMENTAL QUALITY
DEPT OF NATURAL & CULTURAL RESOURCE
DEPT OF TRANSPORTATION
DNCR - NATURAL HERITAGE PROGRAM
DPS - DIV OF EMERGENCY MANAGEMENT
EASTERN CAROLINA COUNCIL

PROJECT INFORMATION

APPLICANT: Department of Army
TYPE: National Environmental Policy Act
Environmental Assessment

DESC: Proposal is for the Morehead City Harbor Federal Navigation Project Navigation Corridor. - view documents at:
http://www.saw.usace.army.mil/Missions/Navigation/PublicNotices/

The attached project has been submitted to the N. C. State Clearinghouse for intergovernmental review. Please review and submit your response by the above indicated date to 1301 Mail Service Center, Raleigh NC 27699-1301.

If additional review time is needed, please contact this office at (919)807-2425.

AS A RESULT OF THIS REVIEW THE FOLLOWING IS SUBMITTED: ☐ NO COMMENT ☒ COMMENTS ATTACHED

SIGNED BY: Colleen Bryant DATE: 11/2/2017

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

November 2, 2017

MEMORANDUM TO: North Carolina State Clearinghouse
Department of Administration
Intergovernmental Review

FROM: Catherine Bryant
NCDOT Transportation Planning Division C.F.B.

SUBJECT: 18-E-0000-0110 NEPA Environmental Assessment – Morehead City Harbor

Thank you for allowing the Transportation Planning Division to review this document. The most current transportation plan covering Carteret County is the 2014 Carteret County Comprehensive Transportation Plan (CTP).

The Carteret County CTP outlines the following within the vicinity of your project:
-Highway: Recommended boulevard (Gallant's Channel Bridge)
-Highway: Road improvements along US 70, NC 101, Turner St, Front St, and W Beaufort Rd
-Public Transportation: Recommended bus route along US 70 and E Fort Macon Rd
-Bicycle: Various recommended on-road and multi-use paths including along US 70 and NC 101
-Bicycle: Various on-road improvements including along US 70, NC 101, and E Fort Macon Rd
-Pedestrian: Various recommended on-road and multi-use paths including along US 70 and NC 101
-Pedestrian: Various on-road improvements including along US 70

The 2018-2027 State Transportation Improvement Program (STIP) lists the following projects as within the vicinity of your project:
-B-5938, SR 1182 (ATLANTIC BEACH CAUSEWAY): REHABILITATE BRIDGE 150068 OVER BOGUE SOUND.
-U-5876, US 70 (ARENDELL STREET): 4TH STREET TO SR 1175 (RADIO ISLAND ROAD). WIDEN TO MULTI-LANES.
-U-5740, US 70 (ARENDELL STREET): MOREHEAD CITY TO BEAUFORT CAUSEWAY. WIDEN AND IMPROVE NEWPORT RIVER BRIDGE.
-U-6058, US 70 (LIVE OAK STREET): NC 101. CONSTRUCT ONE LANE ROUNDABOUT.
-R-3307, US 70: GALLANT'S CHANNEL BRIDGE, FOUR LANES AT RADIO ISLAND TO US 70 NORTH OF BEAUFORT NEAR SR 1429 (OLGA ROAD). MULTI-LANES, PART ON NEW LOCATION.
-R-5816, NC 58 (WEST FORT MACON): ATLANTIC BEACH CAUSEWAY. ADD RIGHT TURN LANE.
-AV-5838, MICHAEL J. SMITH FIELD (MRH): STRENGTHEN RUNWAY TO ACCOMMODATE LARGER AIRCRAFT.
-AV-5746, MICHAEL J. SMITH FIELD (MRH): FULL PARALLEL TAXIWAY 8-26.

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
TRANSPORTATION PLANNING DIVISION
1554 MAIL SERVICE CENTER
RALEIGH, NC 27699-1554

Telephone: (919) 707-0900
Fax: (919) 733-9794
Customer Service: 1-877-368-4968

Location:
1 SOUTH WILMINGTON STREET
RALEIGH, NC 27601

Website: www.ncdot.gov

For maps of recommended projects and a full list of State Transportation Improvement Program (STIP) projects in Carteret County, the Carteret County CTP and STIP can be found on the NCDOT website: https://connect.ncdot.gov/projects/planning/Pages/default.aspx

Please coordinate with the Division 2 office for any impacts to the right-of-way or flow of traffic during your project activities. They can be reached at (252) 775-6100. If you have any questions, please feel free to contact me at (919) 707-0979 or cbryant6@ncdot.gov.

cc: Preston Hunter, PE, NCDOT, Division Engineer (Acting)
Mary Beth Houston, PE, NCDOT, District Engineer
Patrick Flanagan, Down East RPO Transportation Planner

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
TRANSPORTATION PLANNING DIVISION
1554 MAIL SERVICE CENTER
RALEIGH, NC 27699-1554

Telephone: (919) 707-0900
Fax: (919) 733-9794
Customer Service: 1-877-368-4968

Website: www.ncdot.gov

Location:
1 SOUTH WILMINGTON STREET
RALEIGH, NC 27601

NORTH CAROLINA STATE CLEARINGHOUSE
DEPARTMENT OF ADMINISTRATION
INTERGOVERNMENTAL REVIEW

COUNTY: CARTERET **F01:** PORTS AND HARBORS

STATE NUMBER: 18-E-0000-0110
DATE RECEIVED: 10/10/2017
AGENCY RESPONSE: 11/06/2017
REVIEW CLOSED: 11/09/2017

MS RENEE GLEDHILL-EARLEY
CLEARINGHOUSE COORDINATOR
DEPT OF NATURAL & CULTURAL RESOURCE
STATE HISTORIC PRESERVATION OFFICE
MSC 4617 - ARCHIVES BUILDING
RALEIGH NC

CH 17-1964

REVIEW DISTRIBUTION

DEPT OF ENVIR. QUALITY - COASTAL MG
DEPT OF ENVIRONMENTAL QUALITY
DEPT OF NATURAL & CULTURAL RESOURCE
DEPT OF TRANSPORTATION
DNCR - NATURAL HERITAGE PROGRAM
DPS - DIV OF EMERGENCY MANAGEMENT
EASTERN CAROLINA COUNCIL

see ER 13-2624 for Dredging related for project

A-(NC) JCS 144 10-25-17

Due 10/31

PROJECT INFORMATION

APPLICANT: Department of Army
TYPE: National Environmental Policy Act
Environmental Assessment

DESC: Proposal is for the Morehead City Harbor Federal Navigation Project Navigation Corridor. - view documents at:
http://www.saw.usace.army.mil/Missions/Navigation/PublicNotices/

The attached project has been submitted to the N. C. State Clearinghouse for intergovernmental review. Please review and submit your response by the above indicated date to 1301 Mail Service Center, Raleigh NC 27699-1301.

If additional review time is needed, please contact this office at (919)807-2425.

AS A RESULT OF THIS REVIEW THE FOLLOWING IS SUBMITTED: ☒ NO COMMENT ☐ COMMENTS ATTACHED

SIGNED BY: Renee Gledhill-Earley DATE: 10.25.17

NORTH CAROLINA STATE CLEARINGHOUSE
DEPARTMENT OF ADMINISTRATION
INTERGOVERNMENTAL REVIEW

OCT 13 2017

COUNTY: CARTERET

F01: PORTS AND HARBORS

STATE NUMBER: 18-E-0000-0110
DATE RECEIVED: 10/10/2017
AGENCY RESPONSE: 11/06/2017
REVIEW CLOSED: 11/09/2017

MS CINDY WILLIAMS
CLEARINGHOUSE COORDINATOR
DPS - DIV OF EMERGENCY MANAGEMENT
FLOODPLAIN MANAGEMENT PROGRAM
4218 MAIL SERVICE CENTER
RALEIGH NC

REVIEW DISTRIBUTION

DEPT OF ENVIR. QUALITY - COASTAL MG
DEPT OF ENVIRONMENTAL QUALITY
DEPT OF NATURAL & CULTURAL RESOURCE
DEPT OF TRANSPORTATION
DNCR - NATURAL HERITAGE PROGRAM
DPS - DIV OF EMERGENCY MANAGEMENT
EASTERN CAROLINA COUNCIL

PROJECT INFORMATION

APPLICANT: Department of Army
TYPE: National Environmental Policy Act
Environmental Assessment

DESC: Proposal is for the Morehead City Harbor Federal Navigation Project Navigation Corridor. - view documents at:
http://www.saw.usace.army.mil/Missions/Navigation/PublicNotices/

The attached project has been submitted to the N. C. State Clearinghouse for intergovernmental review. Please review and submit your response by the above indicated date to 1301 Mail Service Center, Raleigh NC 27699-1301.

If additional review time is needed, please contact this office at (919)807-2425.

AS A RESULT OF THIS REVIEW THE FOLLOWING IS SUBMITTED: ☑ NO COMMENT ☐ COMMENTS ATTACHED

SIGNED BY: David Hackney DATE: 10/16/17

Not in SFHA.

RECEIVED
Secretary's
OCT 19 2017
Office
DOA

Energy, Mineral & Land Resources
ENVIRONMENTAL QUALITY

ROY COOPER
Governor

MICHAEL S. REGAN
Secretary

TRACY DAVIS
Director

December 28, 2017

Jennifer L. Owens, Chief – Environmental Resources Section
Department of the Army/Wilmington District Corps of Engineers
69 Darlington Avenue
Wilmington, NC 28403

Subject: **EXEMPTION**
Stormwater Project No. SW8 171122
Morehead City Harbor Federal Navigation Project
Carteret County

Dear Chief Owens:

On November 2, 2017, the Wilmington Regional Office of the Division of Energy, Mineral, and Land Resources received a copy of the CAMA Major Permit Application for the subject project. Staff review of the plans and specifications on November 7, 2017 has determined that the development activities proposed at this time will not pose a threat to surface water quality from stormwater runoff. The Director has determined that projects that are reviewed and approved by the Division as not posing a water quality threat from stormwater runoff should not be subject to the stormwater management permitting requirements of 15A NCAC 2H.1000, the stormwater rules. By copy of this letter, we are informing you that this project will not require a stormwater management permit.

If the subject project disturbs one acre or more and has a point source discharge of stormwater runoff, then it is also subject to the National Pollutant Discharge Elimination System (NPDES) stormwater discharge requirements. You are required to have an NPDES permit for stormwater discharge from projects meeting these criteria. All temporary built-upon area associated with the construction of the project must be removed within 30 days of completion of the project, or when it is no longer needed, whichever occurs first.

Please note that the stormwater rules require the Division to permit the *common plan of development*, therefore, any future development of the property, regardless of whether or not a CAMA Major permit is required for that specific development, will require a Stormwater Management Permit application and permit issuance from the Division of Energy, Mineral, and Land Resources prior to any construction.

If you have any questions or need additional information concerning this matter please contact Georgette Scott at (910) 796-7215, or via e-mail at georgette.scott@ncdenr.gov.

Sincerely,

For William E. (Toby) Vinson, Jr., PE, CPESC, CPM, Interim Director
Division of Energy, Mineral and Land Resources

GDS/gds: \\\Stormwater\Permits & Projects\2017 \171122 Exemption\2017 12 permit 171122

cc: Teresa Russell-Environmental Resources Section/Corps of Engineers
Town of Morehead City Building Inspections
Daniel Govoni-DCM Morehead City
Wilmington Regional Office Stormwater File

From: Ford, Mark
To: Russell, Teresa E CIV USARMY CESAW (US)
Subject: Re: [EXTERNAL] contact information for compliance
Date: Tuesday, December 12, 2017 12:07:42 PM

Teresa

Thanks for the information. I have no further comments in regards to this project.

Thanks
Mark

^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^
Mark A. Ford, Ph.D.
Regional Wetlands Ecologist
NPS/SERO
New Orleans
C: 504.452.3018

There are some who can live without wild things, and some who cannot.
From Sand County Almanac-Aldo Leopold

On Wed, Dec 6, 2017 at 7:36 AM, Russell, Teresa E CIV USARMY CESAW (US) <Teresa.E.Russell@usace.army.mil> wrote:

> Mr. Ford,
>
> I have attached some of the comments that I have received from Carteret County, the NC Ports and NC State Parks on the Morehead City Harbor Corridor EA. Thought it may be helpful in your review/comments of the EA.
>
> Best Regards,
>
> Teresa Russell
>
> 910-251-4725
>
> **From:** Ford, Mark [mailto:mark_ford@nps.gov]
> **Sent:** Monday, December 4, 2017 10:49 AM

To: Russell, Teresa E CIV USARMY CESAW (US) <Teresa.E.Russell@usace.army.mil>
Subject: Re: [EXTERNAL] contact information for compliance

Ok thanks

I'll take a look

Mark

^^^^^^^^^^^^

Mark A. Ford, Ph.D.

Regional Wetlands Ecologist

NPS/SERO

New Orleans

C: 504.452.3018

There are some who can live without wild things, and some who cannot.

From Sand County Almanac-Aldo Leopold

On Mon, Dec 4, 2017 at 9:42 AM, Russell, Teresa E CIV USARMY CESAW (US) <Teresa.E.Russell@usace.army.mil> wrote:

> Mark,

I am sorry that this document had a delay in reaching you. I will update your address accordingly. Also, we are working on addressing comments, so if you have any comments on the EA, please feel free to email them to me for incorporation into the final EA.

Best Regards,
Teresa Russell

From: Ford, Mark [mailto:mark_ford@nps.gov]
Sent: Monday, December 4, 2017 10:34 AM
To: Russell, Teresa E CIV USARMY CESAW (US) <Teresa.E.Russell@usace.army.mil>
Subject: [EXTERNAL] contact information for compliance

Hi Teresa

I just received a physical copy of a Public Notice for the Draft EA for Morehead City Harbor Federal Navigation Project Navigation Corridor dated Sept 29, 2017 on today, Dec 4.

The physical copy was sent to the NPS Southeast Regional Office in Atlanta, where it apparently took a great deal of time to get forwarded.

Can my contact information be changed for future reference to my duty station, which is in New Orleans?

My physical address:

Jean Lafitte NHPP

419 Decatur Street

New Orleans, LA 70130

If I need to contact someone else, can you please inform me? Your name was listed as the contact for comments, the deadline of which I have missed.

Thanks

Mark

^^^^^^^^^^^^

Mark A. Ford, Ph.D.

Regional Wetlands Ecologist

NPS/SERO

New Orleans

C: 504.452.3018

There are some who can live without wild things, and some who cannot.

From Sand County Almanac-Aldo Leopold

WALTER B. JONES
3D DISTRICT, NORTH CAROLINA

ROOM 2333
RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
TELEPHONE: (202) 225-3415

COMMITTEES:
COMMITTEE ON ARMED SERVICES

DISTRICT OFFICE:
1105-C CORPORATE DRIVE
GREENVILLE, NC 27858
(252) 931-1003

(800) 351-1697

Congress of the United States
House of Representatives
Washington, DC 20515-3303

November 28, 2017

Colonel Robert J. Clark
U.S. Army Corps of Engineers, Wilmington District
69 Darlington Avenue
Wilmington, NC 28403-1343

Dear Colonel Clark:

I am writing in response to the U.S. Army Corps of Engineers' (the "Corps") Public Notice and Notice of Availability of Draft Environmental Assessment Morehead City Harbor Federal Navigation Project Navigation Corridor (the "Draft EA").

I recognize the importance of Morehead City Harbor and fully support the Corps' mission to maintain the channel and support navigation. It is my understanding that the Corps is proposing to shift the boundary of the navigation channel 700 feet to the west away from Shackleford Banks, which is intended to reduce maintenance dredging requirements and increase navigability. While I support these goals, I share concerns that the Corps has not evaluated potential impacts to the adjacent beaches and Fort Macon State Park. Prior to authorizing moving the western boundary of the channel, I urge the Corps to fully evaluate the potential impacts of its proposed action, including the evaluation of potential impacts to adjacent beaches.

Thank you for your consideration of this request. I look forward to your response.

Sincerely,

Walter B. Jones

Walter B. Jones
Member of Congress

Thank you!

Morehead City Navigation & Pilotage Commission
113 Arendell Street
Room 112
Morehead City, NC 28557

December 18, 2017

Ms. Teresa Russell
Wilmington District, Army Corps of Engineers
CESAW-ECP-PE
69 Darlington Avenue
Wilmington, NC 28403

Dear Ms. Russell

The Morehead City Navigation & Pilotage Commission would like to voice its support for the proposed Morehead City (MHC) Harbor Navigation Corridor Navigation Project.

The Navigation & Pilotage Commission strongly supports the USACE proposal to shift the western navigation channel boundary 700 feet west, away from Shackleford Banks. We agree that shifting the westward boundary will allow dredging to follow natural deep water within the channel, save cost, and will improve navigability and safety for vessels calling on the Port of Morehead City.

The dynamic changes that have been occurring in the Cutoff Channel over the past few years have been taking place at a very alarming rate. Our pilots are presently making huge S turns in the affected area because of the shoaling encroachment from the east. Ships are now being set up at or near slack water to maintain navigation safety.

Thank you for your leadership in this initiative and if you need anything do not hesitate to contact us.

Pat Joyce
Chairman

Morehead City Port Committee
113 Arendell St., Rm. 112
Morehead City, NC 28557

December 19, 2017

Ms. Teresa Russell
Wilmington District, ACOE
CESAW-ECP-PE
69 Darlington Av.
Wilmington, NC 28403

Dear Ms. Russell

The Morehead City Port Committee would like to express support for shifting the western boundary of the navigation channel to the west to take advantage of the deep water that has already established itself in this area. A close look at the hydrographic surveys produced by the ACOE clearly shows that a minimum amount of dredging would have to be done and would better fit in with what is naturally occurring.

Maintaining the deep-water project in a timely and reliable manner at Beaufort Inlet is vital to the economy of North Carolina and the Port of Morehead City's customers. Carteret County's economy is also very dependent upon a safe and stable Beaufort Inlet. Commercial fishing, recreational fishing, and transient boats coming and going to ports south use it extensively.

Our committee supports the timely execution of this change to enhance keeping our shipping lanes open. We would also support a longer-term study using hard data to better understand the complexities of sand migration in the area of Beaufort Inlet, Bogue Banks, and Shackleford Banks. For years Shackleford Banks was growing west and with beach nourishment Bogue Banks was growing to the east. Obviously that could not and did not work.

We thank and support the ACOE for their efforts in this matter.

William Baily

William Baily, Chairman

John Ellis

John Ellis, Board Member
President ILA Local1807 & Local 1847

Don Thomas, Board Member
Vice President/General Manager of Moran Towing of NC

Appendix G

Corps' Responses to Comments

Morehead City Harbor Corridor EA – Comments

1: Todd S. Roessler, Kilpatrick, Townsend & Stockton LLP, on behalf of Carteret County, North Carolina (26 Oct 2017)

Comment 1: Despite the highly dynamic nature of this inlet complex, the Corps has provided no evidence and analysis for determining whether the proposed project will have a significant impact to the inlet system and adjacent shoreline. The potential for changes to inlet shoals and other inlet features (of particular concern is the flood channel parallel to Atlantic Beach and Fort Macon - see attached Memorandum and Figure 3 submitted by the County with its March 2, 2016 comments) must be fully evaluated. The County is concerned that if the flood channel becomes deeper and wider as a result of the proposed project, additional on-shore losses of material from Fort Macon and Atlantic Beach are likely. Without analyzing these potential, significant impacts, the draft EA does not comply with NEPA, and the Corps is unable to reach a FONSI.

Response 1: The proposed navigation corridor action does not alter authorized project channel dimensions or current dredging cycles as described in the final Morehead City Harbor Dredged Material Management Plan (MHC DMMP). The sole purpose of the proposed navigation corridor is to allow flexibility in maintaining navigation access to the port in years when funding levels are reduced, by temporarily shifting the channel location to follow the naturally developed deep water location of the channel thalweg (the line connecting the lowest points of successive cross-sections). The proposed dredging would not result in a new permanent channel alignment, as successive dredging cycles would restore the channel to its current location and address removal of the Shackleford spit, which poses serious issues for navigation as it grows across the channel. Modeling of the impacts of these alignment variations was not evaluated, since the westward shift of the channel and corresponding changes to the inlet shoals and flood margin channels that parallel Fort Macon and Atlantic Beach would occur regardless of the location of USACE maintenance dredging, and USACE will continue to dredge the channel within the historic location, when funding is available, to reduce the impacts to navigation from the Shackleford spit. The information above, and included below in response 4, will be added to the EA to more clearly describe the proposed action and associated impacts.

The EA is in full compliance with NEPA and a FONSI can be reached. We anticipate that dredging outside the current channel limits will occur in limited quantities, will only be practical when a natural deep-water channel already exists in that location, and will be followed by an attempt to reestablish the channel in its historic location. As a result, we do not anticipate a permanent westward alignment of the channel, and further analysis of the effects of such a westward alignment is not necessary, as it is not the intent or likely result of this action.

Comment 2: To comply with NEPA, the Corps has two options. First, the Corps could prepare an EIS and fully evaluate the potential impacts of shifting the western navigation channel boundary approximately 700 feet west. The environmental review should include a multi-dimensional morphological model that fully examines the potential impacts to the inlet system and adjacent shoreline.

Response 2: As described above in Response 1, the proposed action does not include any changes to the current dredging cycle or the federally authorized navigation channel dimensions as described in the MHC DMMP, and the temporary nature of the potential shift in channel location is not expected to significantly change existing physical conditions. Accordingly, as impacts of the proposed action have been adequately addressed in the EA, the USACE is in compliance with NEPA and an EIS will not be prepared.

Comment 3: Second, the Corps could incorporate mitigation measures into the project to avoid the preparation of an EIS ("mitigated FONSI"). To reach a mitigated FONSI, the Corps must ensure that the mitigation will be performed and will mitigate the impacts of the proposed project. 76 Fed. Reg. 3843, 3846 (Jan. 21, 2011). The mitigation requirements should be clearly described in the mitigated FONSI, including measurable performance standards and adequate mechanisms for implementation, monitoring, and reporting. 76 Fed. Reg. at 3843. Monitoring is essential in cases such as this where mitigation is necessary to support the FONSI. 76 Fed. Reg. at 3849. The monitoring plan should be described or incorporated by reference in the mitigated FONSI. The mitigation measures must also be enforceable (i.e., subject to sufficient legal authority to ensure that they will be performed). 76 Fed. Reg. at 3848, n.21. Similarly, an agency should not use a mitigated FONSI if it is not reasonable to believe that the necessary funding will be available to ensure adequate monitoring and enforcement. 76 Fed. Reg. at 3849. Finally, an agency should place appropriate restrictions on authorizations that will allow the agency to suspend or cancel the authorizations if the agency fails to comply with the mitigation requirements. 73 Fed. Reg. at 3849.

Response 3: Based on the impact analysis in the EA, the proposed action will not result in impacts that warrant mitigation; therefore no mitigation is proposed.

Comment 4: Thus, if the Corps decides not to prepare an EIS, it must issue a mitigated FONSI. The mitigated FONSI must ensure that the mitigation measures will be performed, including adequate funding, and will mitigate the impacts of the proposed channel realignment. If the Corps proposes to place additional sand on impacted shorelines to offset impacts, the Corps must ensure that additional sand is dredged from the channel so that the Corps is not merely redistributing the same volume of sand along the shoreline (*i.e.*, taking away sand from Atlantic Beach to place on Fort Macon).

Response 4: Consistent with Response 1 and Response 3 above, the proposed navigation corridor action does not alter authorized project channel dimensions or permanently realign the channel to a new location, and current dredging cycles, as described in the final MHC DMMP, also remain unchanged. Accordingly, the proposed action will not result in impacts that warrant mitigation; therefore a mitigated FONSI is not required. The westward shift of the navigation channel will naturally occur regardless of USACE dredging activities in low funding years and any increases in shoreline loss along Ft Macon or Atlantic Beach would be the result of these natural shifts. The USACE corridor plan would take advantage of these naturally occurring deep areas in years where funding is insufficient to dredge the authorized channel in its currently authorized alignment and would not exacerbate the shoreline losses. However,

disposal of beach-compatible navigation material, as outlined in the MHC DMMP, will continue to be implemented, with placement of beach compatible navigation material on local beaches, as appropriate, based on then-current beach conditions.

Comment 5: The County is also concerned that the proposed realignment of the channel will not provide a long-term solution. As discussed in our prior comments, the proposed realignment may only last two to three years before intervention is again required.

Response 5: Consistent with Response 1 above, the proposed navigation corridor is not intended to be either a proposed permanent channel realignment or a permanent long-term solution, as the purpose of the corridor is solely to allow flexibility in following deep water to maintain navigation access in years of reduced funding. Maintenance dredging of the existing navigation channels, pursuant to the dredging cycle described in the MHC DMMP, remains the USACE approach for long-term maintenance of safe navigation access.

Comment 6: The County believes that a terminal groin or jetty at Shackleford is a viable alternative. Applicable National Park Service management policies provide: "sediment disposal and other types of shoreline process interference are permitted in national park units when necessary to restore or mitigate the impacts of human-caused activities." To the extent that the east end of Shackleford Banks is migrating into the fixed channel and eroding, it would be appropriate to place a terminal groin or jetty to offset these impacts.

Response 6: The consideration of a new navigation improvement at Morehead City Harbor is beyond the scope of this action, which utilizes the authority of Engineer Regulation 1165-2-119 to allow for alterations in channel location, but not the construction of new navigation improvements. Only alternate channel alignments, or a no-action alternative, can be considered and approved under this authority.

As the County has raised this issue several times, however, we will more thoroughly respond to the suggestion to build a groin or jetty on National Park Service land at Shackleford Banks. The Corps does not dispute that jetties or groins may be acceptable tools to reduce shoaling and maintain navigation channels, and agrees that a jetty or groin may be an effective measure to reduce long-term shoaling in this portion of the channel at Morehead City. Our experience in partnering with the National Park Service on the Morehead City Harbor Dredged Material Management Plan and the proposed jetties at Oregon Inlet, however, leads us to the firm conclusion that the National Park Service is highly unlikely to approve the construction of a permanent hardened structure at the south end of Shackleford Banks.

We are concerned that the National Park Service (NPS) may not interpret its policies in the manner suggested by the County, specifically those NPS policies that allow for “shoreline process interference” in situations where it is “necessary to restore or mitigate the impacts of human-caused activities” on the Park. The primary effect of the migration of sand off of Shackleford Banks and into the Morehead City channel is felt in the channel and not the Park, and the jetty or groin that might be built to slow this erosion would be built to aid navigation, not to restore or mitigate the historic shorelines of Shackleford Banks. While a hardened structure in

this location would be likely to reduce erosion off of the Park, thereby conserving the sand resource within Park boundaries, we are not familiar with any situation where the Park Service has considered a hardened terminal structure to be appropriate mitigation for the loss of sand on a barrier island. We are familiar, however, with several examples of the NPS interpreting the 1916 Organic Act and park enabling legislation to disallow construction of navigation feature improvements on park lands.

At Oregon Inlet, the NPS consistently found the construction of jetties for navigation purposes to be incompatible with the purposes of the Park. Final resolution of the issue by the Council on Environmental Quality, which resulted in disapproval of the jetties, included the following statement:

> The NPS has maintained that the construction of jetties on the National Seashore would impair the preservation of the dynamic nature of Bodie Island and its habitats and species. The Corps has made great efforts to address the impairment concerns of the NPS with respect to the Cape Hatteras National Seashore; but, as in the case of the Pea Island National Wildlife Refuge, has been unable to resolve this matter with the NPS.

At Shackleford Banks, the Corps worked for several years with the NPS to reduce the effects of the navigation project on the island, but, in the end, the NPS declined to move forward with a sand placement measure, stating that:

> Shackleford Banks is proposed wilderness and management intervention should only be taken when there is knowledge that [intervention] will result in mitigating past mistakes, impacts of human use and influences outside the proposed wilderness boundary and where the gains from mitigation outweigh the effects of sand placement.

We find it very likely that any consideration of hardened structures on Shackleford Banks would require extensive data collection and modeling efforts, and a range of alternatives to examine not only measures to improve navigation, but also measures to "restore or mitigate" the island itself. It is unclear what funding mechanism could be employed to study measures to restore the island, as these would fall outside the area of Corps responsibility.

A specific cost-shared study to modify the existing Federal project at MHC Harbor would be required to consider alternatives to maintenance dredging, to potentially include hardened structures, to meet the commercial navigational needs of North Carolina and its Ports Authority. Interest in pursuing a cost-shared study of this type should be expressed by the State of North Carolina, through a letter of intent to provide the non-Federal share of study costs to the Wilmington District; such a study could be initiated upon approval, execution of a feasibility cost-sharing agreement and receipt of Federal study appropriations and non-Federal funding. Carteret County may also complete such a study using non-Federal funding under what is commonly referred to as the "Section 203" process, pursuant to 33 U.S.C. § 2231, and present

study recommendations to the Assistant Secretary of the Army for Civil Works for consideration and potential recommendation to Congress regarding the authorization of recommended project modifications. Please let us know if you would like additional information about this avenue for study completion.

Comment 7: Finally, in discussing the volume of dredged material and the location of placement, the draft EA assumes that the channel will be dredged to authorized dimensions. Due to lack of funds, the channel is rarely dredged to authorized dimensions. Even if the initial channel widening occurs in either a "Year 2" or "Year 3" of the DMMP, beach-quality material dredged during the initial widening should be placed on the beach in a location that will offset potential impacts of the project and minimize shoaling if either of the following conditions apply: (i) more material than typical years will be dredged as a result of the initial channel widening; or (ii) placement on the beach is a mitigation measure that allows the Corps to avoid the preparation of an EIS.

Response 7: Dredging outside existing channel limits is a measure that would be used only if a channel could be more efficiently or inexpensively dredged in a location outside the existing limits; the channel will not be widened by dredging a channel that exceeds the current widths (which vary from 600-800 feet within the project area). As such, dredged material quantities for a dredge event that utilizes the corridor would generally be less than in typical years of maintenance dredging. All channel dredging is subject to availability of funding and navigation priorities, and therefore actual volumes removed from the project will vary. Beach compatible material removed from the channel will continue to be handled in accordance with the approved MHC DMMP.

Comment 8: If subsequent monitoring shows that the on-shore volumetric loss rates increase as a result of the project, the DMMP should be modified to require additional placement of dredged material on the beach to mitigate this project impact.

Response 8: Reference Response 1. As the proposed navigation corridor action does not alter authorized project channel dimensions or permanently realign the channel to a new location, and current dredging cycles, as described in the final MHC DMMP, also remain unchanged, impacts to adjacent beaches from proposed use of the navigation corridor are not anticipated. In addition, any changes to the adjacent shoreline related to the natural westward shift of the navigation channel would not warrant USACE mitigation. Beach monitoring of adjacent beaches is not proposed as no impacts over existing conditions are anticipated. As with any ongoing project, if future changed circumstances do not align with our current intent and understanding of the proposed action, we will re-evaluate our action in an appropriate manner.

2: National Marine Fisheries Service (NMFS) (25 Oct 2017)

Comment 1: The NMFS believes the Wilmington District in working with state and federal partners has dutifully conducted practicable alternatives analysis to avoid and minimize environmental impacts associated with construction of the Morehead City Harbor Federal Navigation Project Navigation Corridor. The proposed project reflects only minor changes to long-standing dredging and maintenance activities for the federal navigation channel. The

NMFS recommends the Wilmington District update the draft EA to include discussion of EFH and HAPCs. We would be pleased to assist with this endeavor as needed. The NMFS has no EFH conservation recommendations for the project. The NMFS may provide EFH conservation recommendations in the future based on new information or changes in the project design that show adverse impacts would occur to EFH or federally-managed fishery species.

Response 1: Concur, the EA has been updated to include discussion of EFH and HAPCs within the proposed project area.

US Fish and Wildlife Service (USFWS) (26 Oct 2017)

Comment 1: In accordance with the Endangered Species Act of 1973, as amended, (ESA) and based on the information provided, and other available information, it appears the action is not likely to adversely affect federally listed species or their critical habitat as defined by the ESA. We believe that the requirements of section 7 (a)(2) of the ESA have been satisfied for this project. Please remember that obligations under the ESA must be reconsidered if: (1) new information identifies impacts of this action that may affect listed species or critical habitat in a manner not previously considered; (2) this action is modified in a manner that was not considered in this review; or, (3) a new species is listed or critical habitat determined that may be affected by the identified action.

Response 1: Concur.

Environmental Protection Agency (EPA) (27 Oct 2017)

Comment 1: EPA previously provided comments on the Morehead City Harbor Integrated DMMP Draft and Final EIS. Our primary concerns outlined in our reviews of the DMMP were related to consideration of sea level rise and storm surge impacts when modeling for disposal sites, determination of sand compatibility, and ensuring compliance with State water quality standards. Comments were provided to the Corps in 2013 on the DEIS and 2016 on the FEIS.

Response 1: Concur, Comments below are from the DMMP from USEPA, Region 4 Atlanta, GA, July 26, 2016 Letter, Christopher A. Militscher, Chief:

Comment 2: In future analyses, the EPA recommends that the Corps estimate the direct and indirect GHG emissions caused by the proposal and its alternatives, include construction and operation emissions. Examples of tools for estimating and quantify GHG emissions can be found on Council on Environmental Quality's (CEQ) website. These emissions levels can serve as a reasonable proxy for climate change impacts when comparing the alternatives and considering appropriate mitigation measures. The EPA recommends that future NEPA analyses describe measures to avoid, reduce, and compensate for GHG emissions caused by the proposal, including reasonable alternatives and practicable mitigation opportunities, and disclose the estimated associated GHG reductions. For example, the Corps could consider fuel efficient construction machinery.

Response 2: On April 5, 2017 (Federal Register, Vol. 82, No. 64), the Council on Environmental Quality withdrew final guidance for Federal departments and agencies on consideration of GHG emissions and the effects of climate change in NEPA reviews. Since sea level change analysis is part of ER 1100-2-8162, at this time the withdrawal of the GHG guidance does not affect the implementation of ER 1100-2-8162. Section 7.5 of the Final EA addresses sea level rise and Section 5.2.7 addresses impacts to air quality. As stated in Section 5.2.7, as compared to the No Action plan, the proposed action would result in removal of less sediment from the navigation channel, which should reduce dredging durations and associated air emissions.

Comment 3: Based on our review of the subject EA, our primary concern is related to potential impacts to water quality, therefore the EPA requests that any reported exceedances to water quality standards associated with dredge activities and material disposal be reported to the North Carolina Department of Environmental Quality - Water Quality Section and the EPA and shown as a project commitment in the FNSI.

Response 3: Concur. No exceedances to water quality standards are anticipated as a result of implementation of the proposed action; however, should any occur, they will be reported to the North Carolina Department of Environmental Quality - Water Quality Section and the EPA and shown as an environmental project commitment in the FONSI.

North Carolina Division of Parks and Recreation (27 Oct 2017)

Comment 1: DPR understands the difficulties in maintaining the current channel alignment, however DPR is concerned about the possibility of increased erosion on the banks of Fort Macon State Park. In the past USACE has provided the park with beach nourishment through the dredging of the current channel and other dredging operations. DPR would ask that this practice continue and that beach erosion monitoring practices be put in place to gauge the potential increase in erosion due to the realignment of the channel. DPR would ask that USACE continue to coordinate with Fort Macon State Park to evaluate beach nourishment activities and opportunities.

Response 1: It remains the USACE plan to place material on Fort Macon and Atlantic Beach in Year 1 of its three-year cycle in accordance with the approved MHC DMMP and we will continue to work with the County and DPR to evaluate opportunities for beach placement whenever prudent and practicable. Please note that intermittent use of the navigation corridor area is not intended or anticipated to result in a permanent realignment of the navigation channel.

North Carolina State Ports (1 Nov 2017)

Comment 1: The NCSPA fully supports the proposed navigation corridor for the MHC federal navigation project. The NCSPA also supports and agrees with the USACE stated benefits within the EA which include flexibility in maintaining the MHC navigation channel, reducing the maintenance dredging costs and lessening potential impacts water quality, lessening local community aesthetics, and to providing a safer, more navigable channel for vessels calling on the Port of Morehead City.

Response 1: Acknowledged.

NC State Environmental Clearinghouse Comments Received (14 Nov 2017):

1: North Carolina Department of Environmental Quality, Department of Air Quality (NC DAQ) (3 Nov 2017)

Comment 1: No Concerns.

Response 1: Acknowledged.

2: North Carolina Department of Environmental Quality, Department of Water Resources Public Water Supply (NC DWR-PWS) (6 Nov 2017)

Comment 1: No Comment.

Response 1: Acknowledged.

3: North Carolina Department of Environmental Quality, Division of Energy, Mineral and Land Resources (NC DEMLR) (31 Oct 2017)

Comment 1: Dredge disposal will need to have existing permitted areas or will require a new site that would need erosion and sediment control permitting.

Response 1: Concur.

4: North Carolina Department of Environmental Quality, Division of Waste Management – Underground Storage Tank Program (NC DWM - UST) (6 Nov 2017)

Comment 1: No Comment.

Response 1: Acknowledged.

5: North Carolina Department of Transportation – Statewide Planning (NC DOT) (6 Nov 2017)

Comment 1: The most current transportation plan covering Carteret County is the 2014 Carteret County Comprehensive Transportation Plan (CTP).

Response 1: Acknowledged.

6: North Carolina Department of Natural and Cultural Resource State Historic Preservation Office (NC SHPO) (25 Oct 2017)

Comment 1: No Comment.

Response 1: Acknowledged.

7: North Carolina Department of Public Safety, Division of Emergency Management, Floodplain Management Program (NC DPS) (16 Oct 2017)

Comment 1: No Comment.

Response 1: Acknowledged.

8: North Carolina Department of Environmental Quality, Division of Energy, Mineral and Land Resources (NC DEMLR) (28 Dec 2017)

Comment 1: On November 2, 2017, the Wilmington Regional Office of the Division of Energy, Mineral, and Land Resources received a copy of the CAMA Major Permit Application for the subject project. Staff review of the plans and specifications on November 2, 2017 has determined that the development activities proposed at this time will not pose a threat to surface water quality from stormwater runoff. The Director has determined that projects that are reviewed and approved by the Division as not posing a water quality threat from stormwater runoff should not be subject to the stormwater management permitting requirements of 15A NCAC 2H. 1000, the stormwater rules. By copy of this letter, we are informing you that this project will not require a stormwater management permit.

Response 1: Acknowledged.

Congressman Walter B. Jones (3rd District House of Representative) (28 Nov 2017)

Comment 1: It is my understanding that the Corps is proposing to shift the boundary of the navigation channel 700 feet to the west away from Shackleford Banks, which is intended to reduce maintenance dredging requirements and increase navigability. While I support these goals, I share concerns that the Corps has not evaluated potential impacts to the adjacent beaches and Fort Macon State Park. Prior to authorizing moving the western boundary of the channel, I urge the Corps to fully evaluate the potential impacts of its proposed action, including the evaluation of potential impacts to adjacent beaches.

Response 1: Response letter sent to Congressman Jones on December 8, 2017 stated:

> "As described in the Environmental Assessment, September 2017, the proposed action would establish a navigation corridor within the westward section of the "Cutoff" and "Range A" reaches of the Morehead City Harbor federal navigation channel within Beaufort Inlet. The District would not maintain the entire widened area, but when practical would follow natural deep water to dredge a channel of the same width as the existing authorization within a wider corridor. The dredged material would be placed in accordance with the existing Morehead City Harbor Dredged Material Management Plan (MHC DMMP). To prevent migration of the channel westward and prevent a permanent realignment, the District plans to mobilize a large pipeline dredge, approximately once every three years as funds allow, to dredge the channel in its historic location. These operations will keep the fluctuation of the channel within the established corridor widths and should preclude the permanent relocation of the channel westward. Establishment of

the corridor is expected to reduce maintenance dredging costs and to provide the District with increased flexibility in maintaining the Morehead City Harbor channel.

In your letter, you expressed concerns related to the potential effect that shifting the channel boundary might have on the beaches of Bogue Banks, including Fort Macon State Park. We would like to clarify that our intent is not to shift the channel westward on a permanent basis. As you may recall, in 2012 and again in 2015, the underwater spit of shoaled material on the Shackleford Banks side of the channel caused substantial draft restrictions for vessels at Morehead City Harbor, as the natural deep water channel shifted to the west outside the boundaries of the federal channel limits. Had a corridor like the one we propose existed, the Corps would likely have been able to dredge a small area outside the channel and alleviate navigation problems for the Port in a more timely and cost-effective manner. The intent of our proposed measure is not to dredge a wider channel, or to move the channel west. It is simply to allow for some flexibility that might enable us to quickly respond to future potential navigation issues at Morehead City, particularly in years where funding is limited. We will continue to work to reestablish the current channel location, by removal of the Shackleford spit, when funds and dredge plant availability allow; accordingly, no changes to existing conditions are anticipated."

National Park Service, SERO: Mark A. Ford (12 Dec 2017)

Comment 1: Thanks for the information. I have no further comments in regards to this project.

Response 1: Acknowledged.

Morehead City Navigation & Pilotage Commission (18 Dec 2017)

Comment 1: The Morehead City Navigation & Pilotage Commission would like to voice its support for the proposed Morehead City (MHC) Harbor Navigation Corridor Navigation Project.

The Navigation & Pilotage Commission strongly supports the USACE proposed to shift the western navigation channel boundary 700 feet west, away from Shackleford Banks. We agree that shifting the westward boundary will allow dredging to follow natural deep water within the channel, save cost, and will improve navigability and safety for vessels calling on the Port of Morehead City.

The dynamic changes that have been occurring in the Cutoff Channel over the past few years have been taking place at a very alarming rate. Our pilots are presently making huge S turns in the affected area because of the shoaling encroachment from the east. Ships are now being set up at or near slack water to maintain navigation safety.

Response 1: Acknowledged.

Morehead City Port Committee (19 Dec 2017)

Comment 1: The Morehead City Port Committee would like to express support for shifting the western boundary of the navigation channel to the west to take advantage of the deep water that has already established itself in this area. A close look at the hydrographic surveys produced by the ACOE clearly shows that a minimum amount of dredging would have to be done and would better fit in with what is naturally occurring.

Maintaining the deep-water project in a timely and reliable manner at Beaufort Inlet is vital to the economy of North Carolina and the Port of Morehead City's customers. Carteret County's economy is also very dependent upon a safe and stable Beaufort Inlet. Commercial fishing, recreational fishing, and transient boats coming and going to ports south use it extensively.

Our committee supports the timely execution of this change to enhance keeping our shipping lanes open. We would also support a longer-term study using hard data to better understand the complexities of sand migration in the area of Beaufort Inlet, Bogue Banks, and Shackleford Banks. For years Shackleford Banks was growing west and with beach nourishment Bogue Banks was growing to the east. Obviously that could not and did not work.

Response 1: Acknowledged.

Appendix H

N.C. Division of Coastal Management Consistency Concurrence

Coastal Management
ENVIRONMENTAL QUALITY

ROY COOPER
Governor

MICHAEL S. REGAN
Secretary

BRAXTON C. DAVIS
Director

February 8, 2018

Jennifer Owens
Chief, Environmental Section
Department of the Army
Wilmington District, Corps of Engineers
69 Darlington Avenue
Wilmington, NC 28403-1343

SUBJECT: **CD18-006** Consistency Concurrence Concerning the U.S. Army Corps of Engineers (USACE) Proposed Establishment of a Navigation Corridor for the Morehead City Harbor Federal Navigation Project, Carteret County, North Carolina (DCM#20180006)

Dear Ms. Owens:

We received your consistency submission on October 25, 2017 concerning the proposal to establish a navigation corridor by shifting the western navigation channel boundary approximately 700 feet west for the Morehead City Harbor navigation project within Beaufort Inlet.

North Carolina's coastal zone management program consists of, but is not limited to, the Coastal Area Management Act, the State's Dredge and Fill Law, Chapter 7 of Title 15A of North Carolina's Administrative Code, and the land use plan of the County and/or local municipality in which the proposed project is located. It is the objective of the Division of Coastal Management (DCM) to manage the State's coastal resources to ensure that proposed Federal activities would be compatible with safeguarding and perpetuating the biological, social, economic, and aesthetic values of the State's coastal waters.

DCM circulated the proposal to solicit comments from State agencies that might have an interest in the project. None of the comments received from State agencies indicate that the proposal is inconsistent with the enforceable policies of the NCCMP. The N.C. National Estuarine Research Reserve (NCNERR) submitted comments pertaining to the Rachel Carson National Estuarine Research Reserve. The NCNERR requests that the U.S. Army Corps of Engineers (Corps) include the Rachel Carson Reserve in any future Morehead City Harbor navigation project analyses to determine how project activities may contribute to shoreline changes at the Reserve. The N.C. Wildlife Resources Commission also submitted comments encouraging the Corps to

continue to monitor patterns in the inlet complex and address significant issues relating to channel movement, channel depth, shoaling, erosion, maintenance methodology, and best management practices as needed.

DCM evaluated all information pursuant to the management objectives and enforceable policies of Subchapters 7H and 7M of Chapter 7 in Title 15A of the North Carolina Administrative Code. Based on the information provided to DCM by the Corps at the January 19, 2018 meeting in Morehead City, as well as communications with the Corps and the Carteret County Shore Protection Office, DCM concurs, subject to the following conditions, that the proposed establishment of the proposed navigation corridor is consistent, to the maximum extent practicable, with North Carolina's approved coastal management program:

1) If the Corps should conduct maintenance dredging within the newly-established "corridor" area of the Morehead City Harbor channel (outside current channel limits), and at the end of eight years, the Corps has not substantially dredged the Shackleford Banks (eastern) side of the Cutoff channel at least twice, then the Corps shall re-initiate consistency consultation with DCM in order to evaluate the potential effects of such dredging and the potential to further assess or modify dredging within the corridor region.

2) All dredged material disposal will continue to be conducted in accordance with the existing Morehead City Integrated Dredged Materials Management Plan (DMMP), the DMMP associated Operations Plan, and DCM's consistency determination (DCM# 20160021, CD#16-028) dated December 5, 2016.

Should the proposed action be modified, a revised consistency determination could be necessary. This might take the form of either a supplemental consistency determination pursuant to 15 CFR 930.46, or a new consistency determination pursuant to 15 CFR 930.36. Likewise, DCM intends to monitor this situation closely to determine if dredging in the new western channel location may be resulting in any adverse effects to adjacent properties, such as increased rates of beach erosion along the immediate inlet shorelines at Fort Macon State Park and adjacent beaches. If further project assessments reveal these or other environmental effects not previously considered in this federal consistency review, a supplemental consistency certification will be required. If you have any questions, please contact me at (252) 808-2808. Thank you for your consideration of the North Carolina Coastal Management Program.

Sincerely,

Braxton C. Davis
Director, NC Division of Coastal Management

Cc: Sheila Holman, Assistant Secretary, NC Department of Environmental Quality
Greg Rudolph, Carteret County Shore Protection Office
Randy Newman, Superintendent, Fort Macon State Park
Jeff West, Superintendent, Cape Lookout National Seashore