



Final Environmental Assessment
Town of Betterton Shoreline Stabilization Project
Kent County
PDMC-PJ-03-MD-2017-001

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List of Acronyms, Chemical Formulas, and Abbreviations

ACS – American Community Survey	MHT – Maryland Historical Trust
APE – Area of Potential Effect	MSA – Magnuson-Stevens Fishery Conservation and Management Act
AQPP – Air Quality Planning Program	NAAQS – National Ambient Air Quality Standards
BMP – Best Management Practice	NAVD 88 – North American Vertical Datum of 1988
CAA – Clean Air Act	NCA – Noise Control Act
CBCAA – Chesapeake Bay Critical Area Act	NEPA – National Environmental Policy Act
CEQ – Council on Environmental Quality	NHPA – National Historic Preservation Act
C.F.R. – Code of Federal Regulations	NMFS – National Marine Fisheries Service
CO – Carbon Monoxide	NO ₂ – Nitrogen Oxide
CWA – Clean Water Act	NOAA – National Oceanic and Atmospheric Administration
CZMA – Coastal Zone Management Act	NPDES – National Pollutant Discharge Elimination System
CZMP – Coastal Zone Management Program	NRCS – Natural Resources Conservation Service
DNR – Department of Natural Resources	NRHP – National Register of Historic Places
E&S – Erosion and Sedimentation	NWI – National Wetlands Inventory
EA – Environmental Assessment	O ₃ – Ozone
EFH – Essential Fish Habitat	Pb – Lead
EIS – Environmental Impact Statement	PDMG – Pre-Disaster Mitigation Grant
EO – Executive Order	PFA – Priority Funding Area
EPA – Environmental Protection Agency	PM – Particulate Matter
ERI – Environmental Resources, Inc	ppt – parts per thousand
ESA – Endangered Species Act	RCA – Resource Conservation Area
FEMA – Federal Emergency Management Agency	SAV – submerged aquatic vegetation
FIRM – Flood Insurance Rate Map	SFHA – Special Flood Hazard Area
FONSI – Finding of No Significant Impact	SHPO – State Historic Preservation Officer
FPPA – Farmland Protection Policy Act	SO ₂ – Sulfur Dioxide
IDA – Intensely Developed Area	THPO – Tribal Historic Preservation Officer
IPaC – Information for Planning and Consultation	USACE – United States Army Corps of Engineers
LDA – Limited Developed Area	U.S.C. – United States Code
MBTA – Migratory Bird Treaty Act	USFWS – United States Fish and Wildlife Service
MDE – Maryland Department of the Environment	WMA – Water Management Administration
MDP – Maryland Department of Planning	
MDSPGP – Maryland State Programmatic General Permit	

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SECTION ONE: BACKGROUND

1.1 Project Authority

The Town of Betterton has applied through the Maryland Emergency Management Agency to the Federal Emergency Management Agency (FEMA) for a grant under the Pre-Disaster Mitigation Grant (PDMG) program, authorized by Section 203 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, U.S. Code (U.S.C.) § 5133. The PDMG program is designed to assist states, territories, federally recognized tribes, and local communities in implementing a sustained pre-disaster, natural hazard mitigation program. The program goal is to reduce overall risks to the population and structures from future hazard events, while reducing reliance on federal funding in future disasters. FEMA requires that the state, local, territorial, and tribal governments develop and adopt a hazard mitigation plan as a condition for receiving funding for PDMG projects. These grants are funded annually by congressional appropriations and are awarded on a nationally competitive basis. The Town of Betterton's embankment stabilization proposed project was selected under the PDMG program during the 2017-year cycle, Project ID: PDMC-PJ-03-MD-2017-001.

In accordance with FEMA Directive 108-1 and FEMA Instruction 108-1-1, this Environmental Assessment (EA) has been prepared pursuant to Section 102 of the National Environmental Policy Act (NEPA) of 1969, as implemented by the regulations promulgated by the President's Council on Environmental Quality (CEQ) in 40 Code of Federal Regulations (C.F.R.) Parts 1500-1508. This EA has been prepared to analyze the potential environmental consequences associated with the proposed project and to determine whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).

Recent changes to the CEQ regulations implementing NEPA became effective on September 14, 2020. 85 Fed. R. 43304-76 (July 16, 2020). As stated in 40 C.F.R. § 1506.13, the new regulations apply to any NEPA process begun after September 14, 2020. This EA substantively commenced prior to that date; therefore, this EA conforms to the CEQ NEPA implementing regulations that were in place prior to September 14, 2020, and procedures adopted pursuant to Department of Homeland Security Directive 023-01, Rev. 01, and FEMA Directive 108-1.

1.2 Project Location

The proposed project is located within the Town of Betterton, Kent County, Maryland. The Town of Betterton, approximately 1 square mile in size, is located at the mouth of the Sassafras River on the Upper Chesapeake Bay. The project area includes a 1,382-foot portion of shoreline starting at Bayview Road (39.370764, -76.061709), moving eastward along Bayside Boulevard, and ending near Park Street (39.371096, -76.057059). General location maps of the project area are included in **Appendix A**.

1.3 Purpose and Need

The purpose of the proposed project is to reduce the potential for future shoreline erosion damages to private homes and public property. The primary cause of Betterton's shoreline erosion are waves undercutting the base of the shoreline leading to erosion of the entire bank. The shoreline associated with the Town of Betterton experiences atypical fetch lengths. Fetch is the distance over open water where wind can blow and generate surface waves. Fetch exposure to a shoreline creates higher wave energy thus increasing erosion along the shoreline. Fetch distances in the Chesapeake Bay, where the Town of Betterton is located, range from 1.6 miles to 12 miles long. This area is also a major navigation route for ships, barges, and other vessels traveling to the Delaware Bay. The movements of these vessels create wakes, which increase the potential for erosion at the project location.

In accordance with federal laws and FEMA regulations, the EA process for a proposed federal action must include an evaluation of alternatives and a discussion of the potential environmental impacts. This EA was prepared in accordance with FEMA's regulations as required under NEPA. As part of this NEPA review, the requirements of other environmental laws and executive orders were addressed.

1.4 Existing Facility

Currently the location of the proposed project includes a steep bank along the shoreline that supports very little vegetation and is experiencing ongoing erosion. The erosion has resulted in banks that are approximately 20 feet to 30 feet above the mean high-water line. The shoreline consists of two existing riprap revetments of 150 feet and 220 feet, located east and west of the new proposed revetment at 103 Bayside Boulevard and 9 Bayside Boulevard, respectively. Over time multiple attempts have been made to stabilize the deteriorating shoreline using timber crib bulkhead walls and informal placement by residents of concrete rubble, riprap, and concrete blocks with little success. Debris from these attempts as well as eroding slope material are evident along the shoreline. Erosion is evident in areas along the shoreline and, due to the nature of the shoreline, it will continue to erode over time. See the map in **Appendix A** showing the location of the project area.

SECTION TWO: ALTERNATIVE ANALYSIS

The applicant must provide alternatives to the proposed project and describe the environmental impacts of each alternative. These alternatives include the No Action Alternative, the Proposed Action Alternative, and alternatives that were considered but eliminated from further consideration.

2.1 Alternative 1 – No Action

Under the No Action Alternative, the new riprap revetment would not be constructed. No construction activities would occur to stabilize the 1,012-foot shoreline, nor would construction include enhancement of the existing 150-foot western revetment and 220-foot eastern

revetment. The No Action Alternative would not include any additional measures to address high bank erosion. The No Action Alternative assumes that the infrastructure along Bayside Boulevard will continue to erode and deteriorate.

2.2 Alternative 2 – Town of Betterton Shoreline Stabilization Project (Proposed Action)

The Proposed Action Alternative would stabilize a 1,382-foot section of Betterton’s eroding shoreline through construction of a new riprap revetment and enhancement of existing revetments. The actions would reduce erosion at the toe of the shoreline at an elevation above the normal high-water mark, stabilize the shoreline, and aid in strengthening the shoreline from wave action during storm events. A map is provided in **Appendix A**, showing the location of the Proposed Action. Engineering and design plans for the Proposed Action are included in **Appendix B**. The Proposed Action Alternative was selected by the applicant as it would reduce the continued erosion of the shoreline. The total 1,382-foot riprap revetment project includes construction of 1,012 feet of new riprap revetment along the toe of the high bank slope and repair and enhancement of the remaining 370 feet of existing riprap revetment, which is comprised of two sections located 150 feet west and 220 feet east of the proposed new revetment. Under the Proposed Action, the new riprap revetment would extend channelward approximately 17 feet from the toe of the existing shoreline slope and would extend vertically beyond the mean high-water mark to an elevation of 5 feet. The dimensions of the proposed revetment include a 5-foot wide top, an 8-foot wide slope section, and a 4-foot wide base buried 1.5 feet below the mean low water elevation. The riprap revetment stone would range from 400-1,200 pounds with larger stones placed at the toe of the revetment and 100- to 200-pound stones used to fill gaps. All riprap revetment and stone bedding would have geotextile fabric placed underneath. Select clearing of the embankment would be required to properly install the new stone revetment. The existing revetments would be repaired by placing additional stones of appropriate sizes to ensure consistent protection.

The construction equipment would consist of a large storage barge, a small work barge, an excavator, a small tug to move the barges, a work boat, and a safety boat. The sizes of the barges would be determined by the contractor. The large barge would be used to pick up the stone from the quarry as well as storage. The large barge would require 10 feet of draft. Draft is the minimum depth of the water that the barge can properly and safely operate. The small barge would be used as the work barge and would include a barge mounted excavator. The small barge and excavator would be used to transport stone from the large barge, place the stone to construct the revetment, and remove the existing wooden stairs that provide access to the shoreline. For the revetment portion of the project, no stabilization of the access road is required. No equipment should be used at the top of the embankment; however, office trailers may be placed on or along Bayside Boulevard.

2.3 Alternatives Considered and Eliminated from Further Consideration

In 2016, the Town of Betterton contracted an engineer, J.H. Silcox, to prepare the Betterton Bayside Boulevard Shoreline Stabilization Study (Silcox 2016) that included research and analysis of shoreline stabilization methods (**Appendix C**). The study considered but dismissed two other options.

Nonstructural or Living Shorelines

Nonstructural shorelines are protected and stabilized coastal edges made of natural materials. They consist of plants or other natural elements to stabilize the shorelines of estuarine coasts, bays, tributaries, and other waterbodies. Living shorelines grow over time without impeding the growth of plants and animals. The Maryland Department of the Environment (MDE) requires applicants to show that a no action or relocation alternative is not feasible for erosion stabilization before considering a living shoreline method. MDE can grant exceptions to the living shoreline method requirement if it determines a living shoreline is unsuitable or impractical for stabilizing the area. Silcox (2016) considered living shorelines methods including beach nourishment, slope grading, offshore breakwaters, marsh establishment, containment structures, and groins as ways to stabilize the shoreline. However, each of these options were found to be unsuitable to address the shoreline erosion for the Town of Betterton and to protect it from future erosion. Under the MDE process, if an applicant can demonstrate to MDE that the nonstructural methods are not feasible due to other constraints particular to a site, then MDE will grant the use of a structural method. Constraints particular to a site could include severe tides and wave action; presence of channel width inadequate to support a nonstructural shoreline stabilization measure; and bank elevation and orientation that would prevent grading and successful establishment of vegetation.

A nonstructural option would not be a feasible solution to address the existing erosion in the Town of Betterton because the shoreline is subjected to open fetches, waves, and wakes from barges and ships that exacerbate the erosive conditions. Fetch, waves, and wakes create a high energy environment leading to severe erosion of the shoreline that and a nonstructural method would not improve this condition. These nonstructural or living shoreline options would not be feasible because they are low energy solutions to shoreline erosion. The proposed project area experiences higher energy waves, tides, and water activity than nonstructural methods can withstand. Additionally, the steepness of the bank would make it difficult to grade or successfully establish vegetation and challenging to maintain any established vegetation. Within the project site, there is only a limited area above the mean high-water line that would be suitable for a living shoreline method. Therefore, adding a living shoreline above the mean high-water mark in this area would not aid in the reduction of erosion since it would not cover the entire bank or the shoreline.

Relocation

The second option was the relocation of any structures that are threatened by the erosion of the shoreline. This alternative was eliminated because it would require the loss of waterfront property; the cost of relocating structures would be higher than the cost of implementing erosion

control methods; and the introduction of sediment from uncontrolled erosion into the water may harm living organisms.

SECTION THREE: AFFECTED ENVIRONMENT AND CONSEQUENCES

Preliminary Screening of Assessment Categories

Based on a preliminary screening of resources and the geographic location of the Proposed Action, the following resources would not be affected by the alternatives and do not require a detailed assessment in this EA.

- **Coastal Barrier Resources:** The Coastal Barrier Resources Act is not applicable because the project is not within or near a Coastal Barrier System unit (U.S Fish and Wildlife Service Coastal Barrier Resources System Mapper).
- **Wild and Scenic Rivers:** The Wild and Scenic Rivers Act, 16 U.S.C. § 1271 et seq., is not applicable because there are no federally designated wild and scenic rivers in the project areas, based on a review of the National Wild and Scenic Rivers System website maintained by the USFWS (National Wild and Scenic Rivers System Map).

3.1 Physical Environment

3.1.1 Geology, Seismicity and Soils

The Town of Betterton is located entirely within the Atlantic Coastal Plains formation, within the Eastern Shore of the Delmarva Peninsula Region, in the Denton Plains District. Eight Coastal Plain formations exist within the Town of Betterton: Potomac Group, Magothy, Merchantville, Englishtown, Marshalltown Formations, Mount Laurel Sand, Hornerstown Sand, and Vincentown Formation. Quaternary deposits of upland alluvium are extensive throughout the town with small units of bog, beach sand, marsh deposits, and Holocene alluvium. The Natural Resources Conservation Service (NRCS) Web Soil Survey (**Appendix B**) of the Town of Betterton was consulted for detailed soil information. The dominant soil types in the project area are listed below:

- **Sassafras Gravelly Loam (10-15 percent slopes, severely eroded)** – This soil is sloping and well drained with moderate permeability. Typically, the surface layer is yellowish brown loam. These soils usually occur on rolling side slopes throughout the county, with a brown sandy clay loam.
- **Sassafras Loam (2-5 percent slopes)** – These soils are gently sloping and well drained with moderate permeability. This soil is classified as prime farmland important to the county. It is found on broad uplands and side slopes near draws.

Prime and unique farmlands are protected under the Farmland Protection Policy Act (FPPA) (Public Law 97-98, 7 U.S.C. 4201 et seq.). The FPPA applies to prime and unique farmlands and those that are of state and local importance. It is intended to minimize the extent to which federal programs unnecessarily and irreversibly convert farmland to nonagricultural uses. Implementing procedures included in associated regulations found in Title 7 of the C.F.R., Section 658, established the farmland conversion impact rating system to evaluate the impacts federal programs have on the conversion of farmland to nonagricultural uses. Projects are subject to FPPA requirements if they may irreversibly convert farmland (directly or indirectly) to nonagricultural uses and are implemented or assisted by a federal agency.

Seismic activity in the eastern shore region of Maryland is negligible because the area is not tectonically active (U.S. Geological Survey Seismic Hazard Maps). Therefore, the seismic concerns for all of the alternatives are relatively low and will not be discussed further in this assessment.

Alternative 1 – No Action

Under the No Action Alternative, there would be no impacts to geological features or soils. Normal geomorphological erosional processes would occur on a long-term basis. There would be no FPPA compliance requirements.

Alternative 2 – Town of Betterton Shoreline Stabilization Project (Proposed Action)

For the Proposed Action, the site elevations and tidal benchmark are:

- +0.76 feet mean high-water elevation (Tidal BM#3704A 1999)
- -0.83 feet mean low water elevation North American Vertical Datum of 1988 (NAVD 88)
- High tide is +1.30 feet NAVD 88

Local topography indicates that the stabilization of the shoreline would have long term benefits on the soil and in reducing erosion. The Proposed Action Alternative Base Map (**Appendix B**) is the U.S. Geological Survey U.S. Topo 7.5-minute topographic map for Betterton, Maryland. Area soils would be moderately disturbed by the construction activities of placing the stone to create a riprap revetment. Soil loss may occur directly from construction activities or indirectly via high wind or rain events. To reduce soil erosion, appropriate Best Management Practices (BMPs) would be required and are identified through the National Pollutant Discharge Elimination System (NPDES) permitting process. BMPs may include an erosion and sedimentation (E&S) control plan utilizing silt fences. Additional E&S measures may be implemented from the attached Erosion Control Plan (**Appendix B**).

The NRCS Web Soil Survey was used to determine whether any prime or other farmland is present. Prime farmland was identified for a portion of the project area.

Subject to FPPA requirements, a consultation was conducted with NRCS. It was determined that the project does convert prime or other important farmland and is subject to the FPPA, thus requiring completion of AD-1006 by the federal agency. FEMA completed the AD-1006 form, requested a land evaluation on November 5, 2020, and received the land evaluation response

from NRCS on November 9, 2020 (**Appendix C**). The Proposed Action Alternative converts 2 acres of Prime Farmland and 0 acres of statewide or local important farmland. The relative value of farmland to be converted (on a scale of 0 to 100) was rated 62, with the total site assessment points equaling 5 (out of 160). For projects where the total is 160 or greater (out of 260), federal agencies must consider alternative actions that could reduce adverse impacts. At this site, the total was 67; thus, the completion of AD-1006 meets the compliance requirements for FPPA. The final Land Evaluation and Site Assessment form and correspondence with NRCS can be found in **Appendix C**.

3.1.2 Water Resources and Water Quality

The Clean Water Act (CWA), as amended in 1977, established the basic framework for regulating discharges of pollutants into waters of the United States, with various sections falling under the jurisdiction of United States Army Corps of Engineers (USACE) and the U.S. Environmental Protection Agency (EPA). Section 404 of the CWA establishes the USACE permit requirements for discharging dredged or fill materials into waters of the United States and traditional navigable waterways. USACE regulation of activities within navigable waters is also authorized under the Rivers and Harbors Act of 1899, 33 U.S.C. § 403 et seq. Under the NPDES, EPA regulates both point and non-point pollutant sources, including stormwater and stormwater runoff. In addition, Executive Order (EO) 11990 (Protection of Wetlands) requires federal agencies to avoid, to the extent possible, adverse impacts to wetlands.

Water resources include surface water, groundwater, stormwater, and drinking water. This project area is located in the Chesapeake Bay at the mouth of the Sassafras River. Besides the Bay and the Sassafras River, no other water resources were identified in the project area based on a review of the National Wetlands Inventory (NWI), aerial photography, and topographic maps (**Appendix A**).

The Chesapeake Bay, and its watersheds stretches across six states (Maryland, Virginia, Pennsylvania, Delaware, New York, West Virginia, and the District of Columbia). It is fed by 50 major tributaries (rivers and streams). It is the largest estuary in the U.S., with 11,684 miles of shoreline and covers 64,000 square miles. It supports hundreds of finfish, waterfowl, mussel, and plant species with its diverse and rich ecosystem.

The EPA defines water quality as the “condition of a water body as it relates to purposes such as recreation, scenic enjoyment, aquatic habitat, and human health.” According to Maryland’s 2018 Integrated Report of Surface Water Quality, the Sassafras River has been listed as impaired by polychlorinated biphenyls, total phosphorus, total nitrogen, and total suspended solids (MDE 2019). A Total Maximum Daily Load has been approved to address each of the pollutant listings. The waters of Betterton Beach, located just to the west of the project area, have been listed as impaired for enterococcus. Other important measures of water quality in the Chesapeake Bay include levels of dissolved oxygen, submerged aquatic vegetation (SAV), and Chlorophyll-a.

Alternative 1 – No Action

Under the No Action Alternative, the severe erosion would continue to occur along the shoreline releasing sediments and other pollutants into the water from waves and runoff. Suspended sediments, runoff, and excess nutrients are a major source of water quality degradation in the Chesapeake Bay. The No Action Alternative could further contribute pollutants impacts to water resources resulting in minor, long-term impacts to water quality.

Alternative 2 – Town of Betterton Shoreline Stabilization Project (Proposed Action)

Located in the Chesapeake Bay at the mouth of the Sassafras River, the Town of Betterton's shoreline is an intertidal and subtidal zone as determined by the MDE. The Proposed Action would have long-term benefits on the water quality through the stabilization of the shoreline, reducing sedimentation from erosion and the collection of debris from wave action. The proposed revetment and enhancements would stabilize the bank and reduce the severe erosion to which the shoreline is subjected, thereby reducing the sedimentation that flows into the Chesapeake Bay and Sassafras River. Additionally, the revetment would protect the compromised shoreline from the continued high energy activities like waves, wakes, and fetches that exacerbate the erosion conditions. To stabilize the shoreline the Proposed Action would require the placement of the riprap revetment at the toe of the existing high bank slope with a 4-foot-wide base buried 1.5 feet below the mean low water elevation, thus reducing debris and stabilizing the soils.

The Proposed Action would have moderate, short term impacts on water quality during construction activities. Soil and benthic substrates are highly vulnerable to erosion by wind and water due to disturbance and exposure from construction actions. Temporary suspension of sediments would occur; however, sediments would be expected to settle out within a short time period following completion of construction activities. Over time, the current sediment patterns would be altered by the project, however the purpose of this Proposed Action is to slow down the sedimentation rate in the immediate area. Short-term and temporary impacts to water resources and water quality from construction activities would be minimized through BMPs specified by USACE and Maryland Department of Natural Resources (DNR). Examples of BMPs include silt fences, seeding, and mulching. The applicant obtained permits to construct the Proposed Action in accordance with Section 404 of the CWA. The applicant applied for a Joint Federal/State Application for the Alteration of Any Floodplain, Waterway, Tidal or Nontidal Wetland in Maryland. On January 2, 2020, USACE determined that the Proposed Action is a Category B Activity f(1) New Tidal Revetments and Tidal Shoreline Erosion Control Structures and a Category A under the Maryland State Programmatic General Permit-5 (MDSPGP-5). The MDSPGP-5 authorizes activities pursuant to Section 10 of the Rivers and Harbors Act and Section 404 of the CWA. A list of conditions was provided and must be followed for the MDSPGP-5, and a permit Compliance Self-Certification Form must be completed and returned to the appropriate USACE office following the completion of construction. Project specific conditions from the permit are included in Section Five. Agency correspondence related to the permits is provided in **Appendix C**.

3.1.3 Coastal Resources

3.1.3.1 Chesapeake Bay Critical Area

The Chesapeake Bay Critical Area Act (CBCAA), enacted in 1986 by the Maryland General Assembly, establishes the Chesapeake Bay Critical Area Program, in light of the negative impacts of intense development to the Chesapeake Bay and its tributaries (8 A.C.O.M §16). Under the CBCAA, land within 1,000 feet of the tidal influence of the Chesapeake Bay was determined to be a Critical Area because development had direct and immediate effects on the health of the Chesapeake Bay. Compliance with the CBCAA is done at the local level, and it requires a 100-foot buffer along the shoreline to provide water quality benefits and an area of transition between upland and aquatic habitats.

Under the CBCAA, all land within designated Critical Areas, except federally owned land, is classified into one of three land classifications: Intensely Developed Areas (IDA), Limited Developed Areas (LDA), or Resource Conservation Areas (RCA). These classifications are based on the predominant land use and the intensity of development in the particular area.

- **IDAs** - areas designated for high-intensity development. They are defined as twenty or more adjacent areas where residential, commercial, or industrial land uses dominate the area.
- **LDAs** - areas that are moderate intensity residential development and limited commercial development. In LDAs, conservation of limited existing open spaces is required and removal of forest cover is not permitted without replacement.
- **RCAs** - designated as resource protection areas or low intensity residential development. New commercial and industrial developments are prohibited in these areas.

Under the 2013 New Tidal Wetland Regulations, if an applicant wants to construct a shoreline erosion control measure it must use a nonstructural or living shoreline method. To construct a shoreline erosion control measure, an application for a Tidal Wetlands License must be submitted and include:

- a Joint Federal/State Application for the Alteration of any Tidal Wetland in Maryland,
- a proposed Critical Area Buffer Management Plan, and
- a signed Critical Area Buffer Notification Form.

However, an applicant can obtain a nonstructural/living shoreline waiver if it meets the following criteria:

- The project shoreline is mapped as an area appropriate for structural shoreline stabilization measures.
- The project site is not suitable for a living shoreline due to excessive erosion, severe high energy conditions, extreme water depths, or the fact that the waterway is too narrow for effective use of nonstructural shoreline stabilization measures.

Alternative 1 – No Action

Under the No Action Alternative, no construction or development would occur. Therefore, the No Action Alternative would be consistent with the Critical Area Program.

Alternative 2 – Town of Betterton Shoreline Stabilization Project (Proposed Action)

The Town of Betterton is located entirely within the Critical Area on lands designated as a LDA and IDA (**Appendix A**). The project area is also entirely within the Critical Area Buffer and designated as a Modified Buffer Area.

On September 3rd, 2019, MDE responded to the George, Miles & Buhr, LLC submission of the Critical Area Consistency Report, concurring that the Proposed Action was “generally consistent with the Town of Betterton’s Critical Area Program” (**Appendix C**) because:

- No existing vegetation or trees will be cleared.
- No new lot coverage or impervious surface is proposed.
- Due to the nature of the Proposed Action, Critical Area stormwater management is not needed.
- Neither a tidal nor nontidal wetland permit is required.

3.1.3.2 Coastal Zone Management

The Coastal Zone Management Act (CZMA), 16 U.S.C. § 1451 et seq., enacted in 1972, provides for the management of the nation’s coastal resources, including the Great Lakes. The CZMA establishes polices to preserve, protect, develop, and where possible, restore or enhance the resources of the nation’s coastal zone. Section 307 of the CZMA requires that federal actions, within and outside the coastal zone, which have reasonably foreseeable effects on any coastal use (land or water) or natural resource of the coastal zone be consistent with the enforceable policies of a state's federally approved coastal management program; this is known as Federal Consistency.

The Maryland DNR, Coastal Zone Management Division of the Watershed Services Unit, is the lead agency for the State’s Coastal Zone Management Program. The Federal Consistency requirements are carried out by the Coastal Zone Consistency Division in the Wetlands and Waterways Program of the Water Management Administration (WMA) in the MDE. Maryland’s WMA manages multiple polices related to coastal zone resources, or Maryland’s Enforceable Coastal Policies, including water quality, tidal and nontidal wetlands, living aquatic resources, mineral extraction, tidal shore erosion control, and dredging and disposal of dredge material.

In Maryland, the coastal zone includes the lands and waters that border the Atlantic Ocean and the Chesapeake Bay and its tributaries. Specifically, the coastal zone around the project area is the shoreline and waters of the Chesapeake Bay and the Sassafras River (**Appendix A**).

Alternative 1 – No Action

Under the No Action Alternative, shoreline stabilization would not occur, and the shoreline would continue to erode. Continued erosion of the shoreline would have minor, long-term adverse impacts on coastal resources and would not be consistent with Maryland’s Enforceable Coastal Policies relating to water quality, and other polices that relate to coastal erosion and flooding.

Alternative 2 – Town of Betterton Shoreline Stabilization Project (Proposed Action)

The Proposed Action would have long term benefits on the coastal zone and would be consistent with goals of Maryland’s Enforceable Coastal Policies, by stabilizing the shoreline and improving terrestrial and aquatic habitat. The Proposed Action would be consistent with the Enforceable Coastal Policies including the following:

- Non-Tidal Wetlands
- Living Aquatic Resources
- General Core Polices 3, 6, and 11
- Water Quality policies

Under the State of Maryland Coastal Zone Management Program (CZMP), when both federal and state permit actions are required, the state permit decision constitutes a CZMA Federal Consistency decision. It is the responsibility of WMA to ensure permit decisions address all consistency issues and relevant CZMP enforceable policies (A Guide to Maryland’s Coastal Zone Management Program Federal Consistency Process [**Appendix B**]).

As part of the permit review process, the Town of Betterton submitted a joint federal/state permit application which was received by USACE on August 21, 2019 and approved on January 2, 2020. The permit authorizes the construction of a 1,012-linear foot riprap revetment along the shoreline and enhancement of 370 linear feet of existing riprap revetments (**Appendix C**). USACE determined that with the approval of the permit application the project is consistent with the Maryland CZMP. The Proposed Action would have minor to moderate, short-term impacts to environmental resources during construction activities; these impacts would be temporary and would be minimized through the use of various BMPs. FEMA concurs with the determination that the proposed project is consistent with Maryland’s Enforceable Coastal Polices.

3.1.4 Floodplain Management (Executive Order 11988)

EO 11988 (Floodplain Management) requires that a federal agency avoid direct or indirect support of development within the Special Flood Hazard Area (SFHA), whenever there is a practicable alternative. FEMA’s regulations for complying with EO 11988 and EO 11990 are promulgated in 44 C.F.R. Part 9. FEMA uses Flood Insurance Rate Maps (FIRMs) to identify properties located within the SFHA.

The Project Area is located in the coastal 100-year floodplain of the Chesapeake Bay at the mouth of the Sassafras River as shown on Flood Insurance Rate Map panel #24029C0156D for the Town

of Betterton, Maryland (**Appendix A**). The steep slope shoreline has buffered inland areas from the effects of storms waves and against natural flooding.

As all alternatives are located within the SFHA, the Eight-Step Planning Process for Floodplains and Wetlands has been included below.

Eight-Step Planning Process for Floodplains and Wetlands	
<p>Step 1: Determine whether the Proposed Action is in a wetland and/or the 100- year floodplain, or whether it has the potential to affect or be affected by a floodplain or wetland.</p>	<p>Project Analysis: According to FIRM panel 24029C0156D, effective 6/14/2014, the No Action Alternative is within the 100-year floodplain (Zone VE). Under the No Action Alternative, the site would continue to erode and threaten the safety and property of those who live in the Town of Betterton.</p> <p>Proposed Action Alternative: According to FIRM panel 24029C0156D, effective 6/14/2014, the Proposed Action Alternative site is within the 100-year floodplain (Zone VE). The area is functionally dependent on being located within the floodplain as it is a shoreline. Although the NWI classifies the project area as estuarine and marine deep-water wetlands, a wetland delineation determined that there were no tidal or nontidal wetlands present at the site. Under the Proposed Action Alternative, there would not be impacts to wetlands; however, there would be permanent impacts to 7,590 square feet of intertidal waters and 5,262 square feet of subtidal waters.</p>
<p>Step 2: Notify public at earliest possible time of the intent to carry out an action in a floodplain or wetland and involve the affected and interested public in the decision-making process.</p>	<p>Project Analysis: As part of the permit application process through MDE, MDE notifies the public of the action on behalf of the applicant. The Town of Betterton submitted a Joint Federal/State Application for the Alteration of Any Floodplain, Waterway, Tidal or Nontidal Wetland in Maryland, which was received by USACE August 21, 2019 and approved January 2, 2020. According to MDE, a Public Notice for the project was issued on January 15, 2020 and ended on February 15, 2020.</p>
<p>Step 3: Identify and evaluate practicable alternatives to locating the Proposed Action in a floodplain or wetland.</p>	<p>Project Analysis: The following alternatives were considered in selecting the Proposed Action:</p> <p>No Action Alternative: Under the No Action Alternative, stabilization of the shoreline through the construction or enhancement of riprap revetments would not be conducted. Erosion to the shoreline would continue to occur.</p> <p>Proposed Action Alternative: The Proposed Action Alternative would stabilize 1,382 linear feet of shoreline through construction of 1,012 feet of new riprap revetment and enhancement of 370 feet of existing revetments. The new and enhanced revetments would</p>

	<p>reduce erosion along the shoreline and protect the shoreline from high energy activity like waves, wakes, and fetches.</p> <p>The Proposed Action Alternative is the best option to stabilize the eroding shoreline in the Town of Betterton. Therefore, the rest of the Eight-Step will address the Proposed Action Alternative.</p>
<p>Step 4: Identify the full range of potential direct or indirect impacts associated with the occupancy or modification of floodplains and wetlands, and the potential direct and indirect support of floodplain and wetland development that could result from the Proposed Action.</p>	<p>Project Analysis: Construction activities for the Proposed Action would partially occur within Zone VE. Additionally, work would permanently impact 7,590 square feet of intertidal waters and 5,262 square feet of subtidal waters. The Proposed Action would help minimize impacts to the embankment from high velocity waves caused by storm events.</p>
<p>Step 5: Minimize the potential adverse impacts from work within floodplains and wetlands (identified under Step 4), restore and preserve the natural and beneficial values served by wetlands.</p>	<p>Project Analysis: The Proposed Action is designed to minimize potential adverse impacts to the floodplain over the long-term. The revetment would stabilize the shoreline and prevent continued loss of shoreline soil, thereby reducing sedimentation and nutrient runoff. Additionally, all work would be permitted through permitting agencies and a local floodplain permit would be acquired. Appropriate BMPs would be implemented during construction activities to minimize and prevent temporary impacts from suspended sediments.</p>
<p>Step 6: Re-evaluate the Proposed Action to determine: 1) if it is still practicable considering its exposure to flood hazards; 2) the extent to which it would aggravate the hazards to others; 3) its potential to disrupt floodplain and wetland values.</p>	<p>Project Analysis: The Proposed Action Alternative remains the most practicable because it stabilizes the shoreline and helps it withstand waves, wakes, and impacts from storms. The shoreline stabilization would help reduce flood hazard risks, improve community safety, and reduce the loss of public and private property.</p>
<p>Step 7: If the agency decides to take an action in a floodplain or wetland, prepare and provide the public with a finding and explanation of any final decision that the floodplain or wetland is the only practicable alternative. The explanation should include any relevant factors considered in the decision-making process.</p>	<p>Project Analysis: Public notice of the Proposed Action Alternative would be given as a function of this EA, informing the public of a potential FEMA funded action, occurring partially within the SFHA and intertidal and subtidal waters.</p>
<p>Step 8: Review the implementation and post-implementation phases of the Proposed Action to ensure that the requirements of the EOs are fully implemented. Oversight responsibility shall be integrated into existing processes.</p>	<p>Project Analysis: This step is integrated into the NEPA process and FEMA project management and oversight functions.</p>

Alternative 1 – No Action

Under the No Action Alternative, there would be no construction of the revetment and no stabilization of the shoreline, thus no direct modification of the floodplain. However, the shoreline would continue to erode at a high rate threatening public and private property and the safety of citizens resulting in moderate, long-term impacts.

Alternative 2 – Town of Betterton Shoreline Stabilization Project (Proposed Action)

Under the Proposed Action, the stabilization of the shoreline and reduction in erosion and sedimentation would provide long-term beneficial impacts to the natural floodplain functions of the project area. The revetment would fill in the floodplain of the shoreline, but there would be no long-term, adverse impact to the floodplain. The Proposed Action would aid in the natural functions of the shoreline and protect the shoreline from high energy water conditions such as waves and wakes. Shoreline stabilization would also protect the Town of Betterton and its citizens and mitigate the impacts of storms and other water activity on the community. The applicant/contractor would coordinate with the local floodplain administrator to receive a permit to conduct the activities that would occur within the floodplain.

3.1.5 Air Quality

The Clean Air Act (CAA) requires the EPA to set National Ambient Air Quality Standards (NAAQS) for pollutants to protect the public from potentially harmful amounts of air pollutants. The CAA established two types of national air quality standards. Primary air quality standards protect the public health including the health of sensitive populations, such as people with asthma, older adults, and children. Secondary air quality standards protect public welfare by implementing and promoting healthy ecosystems, preventing poor visibility, and preventing damage to crops and buildings. The EPA has set national ambient air quality standards for six of the following criteria pollutants: Ozone (O₃), Nitrogen Dioxide (NO₂), Carbon Monoxide (CO), Sulfur Dioxide (SO₂), Inhalable Particulate Matter (PM_{2.5} and PM₁₀), and Lead (Pb).

Federally funded actions in nonattainment and maintenance areas are subject to EPA conformity regulations, 40 C.F.R. Parts 51 and 93. The air conformity analysis process ensures that emissions of air pollutants from federally funded activities would not affect the state's ability to achieve the CAA goal of meeting the NAAQS. Section 176(c) of the CAA requires that federally funded projects must not cause/create any violations of the NAAQS (i.e., increase the frequency or severity) or delay attainment.

An area is classified as nonattainment when it does not meet NAAQS standards. The Maryland Department of the Environment Air Quality Planning Program (AQPP) enforces and monitors air quality standards for the State of Maryland. The AQPP monitors the above-mentioned pollutants. According to the AQPP and EPA NAAQS nonattainment mapper, the Town of Betterton is in an attainment area (**Appendix A**). The project area is in the Kent and Queen Anne's County for air quality purposes.

Alternative 1 – No Action

Under the No Action Alternative, no construction activities would occur. Therefore, no short- or long-term impacts to air quality are anticipated.

Alternative 2 – Town of Betterton Shoreline Stabilization Project (Proposed Action)

Under the Proposed Action Alternative, minor, short-term impacts to air quality would occur due to the use of construction equipment with diesel and gasoline engines. Emissions from construction equipment could have minor, temporary effects on the levels of some pollutants including CO, Volatile Organic Compounds, NO₂, O₃, and PM₁₀. Contractors would use BMPs, such as engine runtime schedule, to mitigate emissions of criteria pollutants. To reduce the impacts to air quality, the contractors would be required to follow dust control measures such as irrigation (i.e., sprinkling the area with water to moisten) or using calcium chloride, which would keep the area moist, as needed to mitigate fugitive dust. Any air emissions would be temporary and localized with only minor impacts to the air quality. There would be no long-term impacts to local air quality near the project area.

3.1.6 Zoning and Land Use

The Applicant submitted the project details to the Maryland Department of Planning (MDP) and received an Acknowledgement Letter on December 11, 2017 stating that MDP had received the project details and the project was being reviewed by various state agencies and/or local jurisdictions. On December 28, 2017, the MDP responded to the Applicant with a Recommendation Letter stating that the project is generally consistent with their plans, programs, and objectives; although, the Recommendation Letter included certain conditions. The original Recommendation Letter was valid until December 28, 2020. Therefore, the Applicant asked the MDP for a renewal and this request was acknowledged on December 30, 2020. The Applicant received renewed approval with a new Recommendation Letter on February 12, 2021. As with the original Letter, the new Recommendation Letter states that the project is generally consistent with their plans, programs, and objectives and included certain qualifying conditions. The conditions, which the Applicant must abide by, are set forth in the Letter and are noted in Section Five of this document. All correspondence is included in **Appendix C**.

Alternative 1 – No Action

Under the No Action Alternative, no zoning or land use changes would be required at the project site.

Alternative 2 – Town of Betterton Shoreline Stabilization Project (Proposed Action)

The proposed project location consists of a steep shoreline bank bordered to the south by an area of maintained grass, Bayside Boulevard, and 12 single-family lots. The residential parcels extend north over Bayside Boulevard to the mean high-water mark at the shoreline and include most of the proposed project area. These parcels are zoned as R-2 Single Family Residential and have a land use of low density residential. The area beyond the mean high-water mark is state land. The

MDP Recommendation Letter, dated February 12, 2021, noted that the proposed project is located within the Betterton Priority Funding Area (PFA) and the Proposed Action Alternative would help to preserve the existing PFA areas and infrastructure from erosion. Under the Proposed Action Alternative, no land use or zoning changes would be required. The Recommendation Letter includes a list of qualifying comments and a Project Status Form that must be completed and returned to the State Clearinghouse upon receipt of notification that the project has been approved or not approved. Qualifying comments from the Recommendation Letter are included in Section Five.

3.2 Biological Environment

3.2.1 Terrestrial and Aquatic Environment

Terrestrial and aquatic environments include the native and invasive fish, vegetation, and wildlife and their habitats that can be found in the project area. According to the Maryland DNR, the State of Maryland is home to approximately 90 mammal species, 93 species of reptiles and amphibians, over 400 bird species, and several hundred species of marine and freshwater fish. Additionally, Maryland has over 3,000 native plant species in the state.

Alternative 1 – No Action

Under the No Action Alternative, shoreline stabilization would not occur and the shoreline would continue to erode. The erosion would continue to destabilize the terrestrial areas of the bank as well as the upland areas at the top of the bank. The exposed shoreline would continue to produce runoff into the Sassafras River and the Chesapeake Bay increasing suspended sediments in the water that limit the ability of living organisms to thrive. Therefore, the No Action Alternative would result, in continued minor adverse impacts to the aquatic and terrestrial environments.

Alternative 2 – Town of Betterton Shoreline Stabilization Project (Proposed Action)

The Betterton Bayside Boulevard Shoreline Stabilization Study describes an erosion control analysis of the project area, which is the basis for this evaluation (Silcox 2016; **Appendix C**). As described in the study, residents of the Town of Betterton have attempted to stabilize the shoreline over the years. Remnants of these attempts, deteriorated timber crib bulkhead wall, and dislodged slope debris are evident throughout the project area. In a few areas along the shoreline, erosion has exposed the entire face of the slope. In its current condition, the project area provides minimal habitat for wildlife and plants. The steep slope and eroded soil provide limited forage opportunities and shelter for animal species. The soil erosion creates runoff that flows into the Chesapeake Bay and the Sassafras River, which impacts the water quality, nutrient levels, and turbidity of the surrounding area.

The Proposed Action would have long-term benefits to terrestrial and aquatic habitat. The riprap revetment would create a stabilized terrestrial environment and provide additional nursery, shelter, and foraging habitats for aquatic species. In the short-term, there could be minor impacts to the terrestrial and aquatic species during construction of the revetment when stone and other

materials are placed over existing fish and aquatic plant habitat in intertidal and subtidal areas. Additionally, soil disturbance during construction could increase the amount of suspended sediments and degrade the water quality of the aquatic environment. However, the impacts would be short-term and minor because a more diverse habitat would develop following the construction of the revetement. In order to avoid and minimize potential impacts, BMPs, such as geo filter and adherence to time of year restrictions, would be implemented.

3.2.2 Wetlands (Executive Order 11990)

EO 11990, Protection of Wetlands, requires federal agencies to take action or minimize, to the extent possible, adverse impacts on wetlands that may result from federally funded actions. USACE regulates the discharge of dredged or fill material into waters of the U.S. including wetlands, pursuant to Section 404 of the CWA. USACE and the EPA, define wetlands as “areas that are inundated or saturated by surface 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” (40 C.F.R. 122.2).

Alternative 1 – No Action

Under the No Action Alternative, no impacts to wetlands would occur.

Alternative 2 – Town of Betterton Shore Stabilization Project (Proposed Action)

The NWI was reviewed to identify any potential wetlands in the project area. NWI classifies the Chesapeake Bay and the Sassafras River in the vicinity of the proposed project as estuarine and marine deep-water wetlands and estuarine and marine wetlands. The NWI map is provided in **Appendix A**. Environmental Resources, Inc. (ERI) performed a wetland delineation along the Betterton shoreline. The survey determined that there were no tidal or nontidal wetlands present and that no tidal or nontidal compensatory mitigation is required. Therefore, under the Proposed Action Alternative, no impacts to wetlands would occur. However, the wetland delineation conducted by ERI did find that the shoreline is within the intertidal and subtidal zones. The Proposed Action would impact 7,590 square feet of intertidal and 5,262 square feet of subtidal waters as noted in the Eight-Step Planning Process for Floodplains and Wetlands. Due to this information, authorization from USACE and MDE is required. On August 21, 2019, ERI applied for a Joint Federal/State Application for the Alteration of Any Floodplain, Waterway, Tidal or Nontidal Wetland in Maryland. On January 2, 2020, USACE authorized the Proposed Action as a Category B Activity f(1) New Tidal Revetments and Tidal Shoreline Erosion Control Structures and a Category A under the MDSPGP-5.

3.2.3 Threatened and Endangered Species

The Endangered Species Act (ESA) of 1973 provides a framework for the conservation of threatened and endangered species and their habitats. Section 7 of ESA requires any federal agency that funds, authorizes, or carries out an action to ensure that its action is not likely to jeopardize the continued existence of any endangered or threatened listed species, including plant

species, or result in the destruction or adverse modification of designated critical habitats. The USFWS and National Oceanic and Atmospheric Administration (NOAA) share responsibility for implementing the ESA. The USFWS is responsible for most terrestrial and freshwater species, but also has responsibility over several marine mammal species (i.e. walrus, sea otters, and polar bears). The NOAA National Marine Fisheries Service (NMFS; or NOAA Fisheries) is responsible for the stewardship of the nation's ocean resources and their habitat. Specifically, NOAA Fisheries is responsible for the protection, conservation, and recovery of endangered and threatened marine and anadromous species including whales, sharks, seals, and salmon. Together the agencies share jurisdiction over species like Atlantic salmon and sea turtles.

Alternative 1 – No Action

Under the No Action Alternative, no impacts to listed species, their habitats, or designated critical habitat would occur.

Alternative 2 – Town of Betterton Shoreline Stabilization Project (Proposed Action)

The USFWS Information for Planning and Consultation (IPaC) system identifies the potential for impacts to federally-listed threatened and endangered species. FEMA obtained an Official Species List from the USFWS IPaC system, dated January 12, 2021 (**Appendix B**). No listed species were identified in the IPaC report and no further review was required with their office, thereby satisfying Section 7 of the ESA with regards to species for which USFWS has responsibility.

The NMFS ESA Section 7 mapper for the Greater Atlantic Region was used to identify and determine the potential for impacts to threatened and endangered marine and anadromous species within the project area (**Appendix A**). Six listed species were identified using the mapper including loggerhead sea turtle (*Caretta caretta*), Kemp's ridley sea turtle (*Lepidochelys kempii*), green sea turtle (*Chelonia mydas*), leatherback sea turtle (*Dermochelys coriacea*), Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*), and shortnose sturgeon (*Acipenser brevirostrum*). Project information was submitted to NMFS for further review and determination of impact on August 19, 2020. In this consultation letter, FEMA determined that the proposed project *may affect, but is not likely to adversely affect* the Atlantic sturgeon and shortnose sturgeon. FEMA also determined *no effect* for four species (i.e., loggerhead sea turtle, Kemp's ridley sea turtle, green sea turtle, and leatherback sea turtle) due to unsuitable habitat and/or the project location being outside of the typical species range. A response from NMFS was received on August 31, 2020 with a determination that the Atlantic sturgeon and shortnose sturgeon *will not be exposed to any direct or indirect effects* of the action; no further consultation in accordance with Section 7 of ESA was necessary (**Appendix C**).

3.2.4 Migratory Birds

All native migratory birds, including waterfowl, shorebirds, passerines, hawks, owls, vultures, and falcons are afforded protection under the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-712). The MBTA makes it illegal to take, possess, import, export, transport, sell, purchase,

barter, or offer for sale, purchase, or barter, any migratory bird, or the parts, nests, or eggs of such a bird except under the terms of a valid federal permit (50 C.F.R. 10.13).

Alternative 1 – No Action

Under the No Action Alternative, no impacts to migratory birds would occur.

Alternative 2 – Town of Betterton Shoreline Stabilization Project (Proposed Action)

Under the Proposed Action Alternative, negligible, short-term impacts to migratory birds could occur during construction. Little to no vegetation removal would occur and no critical wildlife habitat occurs within the project area. Although some birds may be temporarily disturbed if they are unable to leave the area during construction, species could return to the general area following completion of construction. There would be no long-term impacts to migratory birds.

3.2.5 Magnuson-Stevens Fishery Conservation and Management Act (MSA)

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) mandates that federal agencies conduct an Essential Fish Habitat (EFH) consultation with NOAA Fisheries regarding any of their actions authorized, funded, or undertaken that may adversely affect EFH. EFH is specified and recognized areas of aquatic habitat, including waters and substrate, that provide shelter and sustain marine fish and invertebrate species. EFH includes all types of aquatic habitats and environments where fish spawn, breed, feed, or grow to maturity such as deep seas, kelp forests, wetlands, and rivers. EFH covers federally managed fish but does not apply to strictly freshwater species. EFH consultations are conducted in order to minimize or avoid environmental impacts during construction and other development that may impact marine fisheries and vital habitats. The NOAA EFH mapper identified potential EFH for one or more life stages of the following species in the project area: windowpane flounder (*Scophthalmus aquosus*), bluefish (*Pomatomus saltatrix*), summer flounder (*Paralichthys dentatus*), red hake (*Urophycis chuss*), little skate (*Leucoraja erinacea*), Atlantic herring (*Clupea harengus*), winter skate (*Leucoraja ocellata*), clearnose skate (*Raja eglanteria*), Atlantic butterfish (*Peprilus triacanthus*), scup (*Stenotomus chrysops*), and black sea bass (*Centropristus striata*) (**Appendix B**).

Alternative 1 – No Action

Under the No Action Alternative, no impacts to essential fish habitat or species managed under the MSA would occur.

Alternative 2 – Town of Betterton Shoreline Stabilization Project (Proposed Action)

The Proposed Action site includes EFH in intertidal and subtidal zones with depths ranging from 0 feet to 2 feet below mean low water with a substrate of unconsolidated sediment composed primarily of muddy sand and gravel. Mapped areas of SAV are close to the proposed site. The site is located at the mouth of the Sassafra River near the Chesapeake Bay resulting in salinity levels of approximately 5 parts per thousand (ppt) to 7 ppt.

The EFH Mapper was used to identify EFH, habitat areas of particular concern, and EFH areas protected from fishing within the project area. This system and other sources were used to assess the potential impacts of the proposed project on the functions and values of EFH and EFH species. The benthic community and nursery habitat for multiple EFH species could be impacted during construction activities due to the temporary disturbance of substrates and increased turbidity resulting in minor, short-term impacts to EFH. After completion of the revetment, the permanent structure would provide long-term beneficial impacts to EFH by providing nursery, forage, and shelter habitat for species. FEMA determined that the adverse effects on EFH were not substantial because of the minimal and temporary nature. This information was submitted to the NOAA EFH Habitat and Ecosystem Division for review and determination on September 11, 2020 (**Appendix C**). A response was received from NMFS on September 29, 2020 with a no objection determination and no further coordination required response (**Appendix C**).

3.3 Hazardous Waste and Materials

A Phase I Environmental Site Assessment was not performed for the project area and hazardous materials are not anticipated to be present, as they are not consistent with historical or current land use; no obvious signs of contamination were observed; and no contaminated sites are located near the project area. A hazardous materials database search of the EPA Envirofacts and Enforcement and Compliance History Online databases did not identify any potential hazardous materials concerns within the project area (US EPA, 2021a, b).

Alternative 1 – No Action

Under the No Action Alternative, no impacts from hazardous waste or materials are anticipated.

Alternative 2 – Town of Betterton Shoreline Stabilization Project (Proposed Action)

Under the Proposed Action Alternative, no impacts from hazardous waste and materials are anticipated. No potential hazardous materials or other environmental concerns were identified within the proposed project area. The MDE Resource Management Program should be contacted prior to construction activities to ensure that any hazardous wastes generated or proposed to be generated or handled and the treatment, storage or disposal of hazardous wastes and low-level radioactive wastes at the facility would be conducted in compliance with applicable state and federal laws and regulations. During construction, any solid waste including construction, demolition and land clearing debris, generated from the subject project, must be properly disposed of at a permitted solid waste acceptance facility, or recycled if possible. The specific conditions are noted in Section Five of this document.

3.4 Socioeconomics

3.4.1 Noise

Noise is generally defined as undesirable sound and is federally regulated by the Noise Control Act of 1972 (NCA). Although the NCA gives the EPA the authority to prepare guidelines for acceptable

ambient noise levels, it only charges those federal agencies that operate noise-producing facilities or equipment to implement noise standards; the EPA's guidelines, and those of many federal agencies, state that outdoor sound levels in excess of 55 Decibels are "normally unacceptable" for noise-sensitive land uses such as residences, schools, and hospitals.

Alternative 1 – No Action

Under the No Action Alternative, no impacts to noise are anticipated as there would be no construction activities.

Alternative 2 – Town of Betterton Shoreline Stabilization Project (Proposed Action)

Under the Proposed Action Alternative, construction and developmental noise impacts would be minor, temporary and limited to the duration of the construction activities. Short-term impacts related to construction activities would include barges hauling materials to the site and the operation of equipment such as the barge mounted excavator for placement of stone and other activities. Equipment and machinery utilized at the site would meet all state and federal noise regulations. Over the short-term, the noise level at the project site is anticipated to be higher due to the construction activities. The Proposed Action Alternative would have no long-term impacts to the existing noise levels.

3.4.2 Public Services and Utilities

Public services are provided by private industries and the local municipalities. These include police, fire, water, sewer, utilities, and road connections.

Alternative 1 – No Action

Under the No Action Alternative, public services and utilities would continue to be provided with no impact.

Alternative 2 – Town of Betterton Shoreline Stabilization Project (Proposed Action)

The proposed project area consists of a steep bank shoreline as well as a small amount of land at the top of the bank. Although there are buried sanitary sewer and stormwater infrastructure and overhead electric lines in the vicinity, it is not anticipated that the Proposed Action would impact the utilities. Additionally, the proposed project construction plans note that the contractor would take measures, where possible, to protect and maintain utility function during and after construction. Office trailers may be placed on or along Bayside Boulevard during construction, but the road and adjacent houses would still be accessible to emergency services, if necessary. Therefore, under the Proposed Action Alternative, no impacts are anticipated to public services and utilities.

3.4.3 Traffic and Circulation

The proposed project area is located just to the north of Bayside Boulevard and is generally bordered on the west by Bayview Road and on the east by Park Street. Glen Street runs north-

south and terminates at Bayside Boulevard at approximately the center of the project area. A short portion of Bayside Boulevard is unpaved and is connected to the paved portions by a pedestrian bridge.

Alternative 1 – No Action

Under the No Action Alternative, no changes to existing traffic patterns would occur and the threat of erosion along Bayside Boulevard would remain.

Alternative 2 – Town of Betterton Shoreline Stabilization Project (Proposed Action)

The Proposed Action would utilize Bayside Boulevard as an access road by enhancing it for construction activity and equipment. The entrances to Bayside Boulevard from the intersecting roads of Bayview Road, Glen Street, and Park Street would have stabilized construction entrances installed for a minimum of 50 feet. These enhancements would consist of the placement of nonwoven geotextile followed by 6 inches of 2-inch to 3-inch aggregate, and a mountable berm at the entrance. A pipe could be added if surface drainage is necessary. Under the Proposed Action Alternative, most material storage would take place on the barge; however, during construction, office trailers may be placed on or along Bayside Boulevard. During construction, the movement of related vehicles and presence of office trailers could result in a temporary increase in or alteration of traffic in the vicinity of the proposed site resulting in short-term, minor impacts to traffic and circulation. No long-term impacts would occur.

3.4.4 Environmental Justice (Executive Order 12898)

EO 12898 (Environmental Justice in Minority Populations and Low-Income Populations) mandates that federal agencies identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. Socioeconomic and demographic data for the project area were analyzed to determine if a disproportionate number of minority or low-income persons have the potential to be adversely affected by the proposed project (**Table 1** and **Table 2**). United States Census Bureau data was used to assemble the following community profiles for the state of Maryland, Kent County, and the Town of Betterton. Specifically, information was taken from the 2019 American Community Survey (ACS) 5-Year Estimates (2015-2019 ACS 5-Year Estimate). The ACS 5-year estimates of social, economic, and demographic characteristics are derived from 60 months of collected data.

Table 1 – Demographics in Maryland, Kent County, and Town of Betterton

Race	Maryland	Kent County	Town of Betterton
White	55.5%	80.7%	78.7%
Black or African American	29.9%	14.3%	9.0%
American Indian and Alaska Native	0.3%	0.1%	0%
Asian	6.3%	1.2%	0%
Native Hawaiian or Other Pacific Islander	0.1%	0%	0%
Some other Race	4.5%	1.4%	0%
Two or More Races	3.4%	2.3%	12.3%

Table 2 – Low-Income Populations in Maryland, Kent County, and Town of Betterton

Income	Maryland	Kent County	Town of Betterton
Above the Federal Poverty Level	90.8%	88.5%	88.2%
Below the Federal Poverty Level	9.2%	11.5%	11.8%

Alternative 1 – No Action

Under the No Action Alternative, the shoreline would continue to erode posing risks to life and property along Bayside Boulevard. However, there would be no disproportionately high or adverse impacts on low-income or minority populations.

Alternative 2 – Town of Betterton Shoreline Stabilization Project (Proposed Action)

Under the Proposed Action Alternative, there would not be any environmental justice concerns related to the project site. The Proposed Action Alternative would stabilize an eroding shoreline to prevent continued erosion and protect the shoreline, Bayside Boulevard, and private property. The Proposed Action Alternative would not have disproportionately high and/or adverse effects on minority or low-income populations. Although the Town of Betterton has a small percentage of low-income and minority populations, the proposed project anticipates no adverse human health impacts and only temporary environmental impacts during construction. The Proposed Action Alternative would comply with EO 12898 and would not result in long-term adverse

socioeconomic impacts. Long-term benefits of the project would include reducing the risk of erosion damage and associated hazards to the community and natural environment.

3.4.5 Safety and Security

To minimize risks to safety and human health, all construction activities would be performed using qualified personnel trained in the proper use of equipment, including all safety precautions. Additionally, all activities would be conducted in accordance with the standards specified in Occupational Safety and Health Administration regulations. EO 13045 (Protection of Children from Environmental Health Risks and Safety Risks) mandates that federal agencies identify and assess health risks and safety risks that may disproportionately affect children. Environmental health and safety risks include those that are attributable to products or substances that the child is likely to encounter or ingest (such as the air we breathe, the food we eat, the water we drink or use for recreation, the soil we live on, and the products we use or are exposed to).

Alternative 1 – No Action

Under the No Action Alternative, there would be no change to the safety and security of individuals. However, without any action to stabilize the area the continued erosion of the shoreline could increase safety risks for the public property, private homes, and roadway in the vicinity resulting in minor, long-term impacts to safety and security.

Alternative 2 – Town of Betterton Shoreline Stabilization Project (Proposed Action)

The Proposed Action would reduce or eliminate ongoing erosion of the shoreline, which in turn would reduce the risk to people, including children, who live and work in the project area. There are no safety risks that would disproportionately affect children. Standard construction-related safety risks could occur for construction workers at the project site. During construction, site safety from construction equipment and activities would be ensured by the contractors performing the work. BMPs would be used during construction activities to ensure the safety and security of workers and residents. Long-term impacts to safety would be beneficial, due to the reduction of shoreline erosion and associated safety risks to homes, roadways, and people in the community.

3.5 Historic and Cultural Resources

Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended, requires federal agencies to consider the impact an undertaking has on historic properties (54 U.S.C. §306108). The review activities required under NHPA are referred as the Section 106 process. According to 36 C.F.R. 60.4, historic properties are defined as districts, sites, buildings, structures, and/or objects that are listed in or eligible for listing in the National Register of Historic Places (NRHP). In accordance with the 36 C.F.R. 800.4, federal agencies are required to identify historic resources within an undertaking's Area of Potential Effect (APE). As defined in 36 C.F.R. Part 800.16(d), the APE "is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic

properties, if such properties exist.” In consultation with the appropriate State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Officer (THPO), federal agencies must evaluate the identified historic resources for NRHP eligibility and assess the potential effects to those historic properties resulting from the proposed undertaking. If the undertaking is determined to have an adverse effect on historic properties, then the agency must attempt to avoid, minimize, or mitigate that adverse effect.

FEMA conducted an archives search of the project area utilizing the Maryland Historical Trust’s (MHT) Interactive Geographic Information System Map MEDUSA. A summary of those results and subsequent consultation is provided in the below paragraphs. With regards to tribal resources, only the Delaware Nation and Delaware Tribe of Indians have known cultural areas of interest in Kent County. Both nations were signatories to the 2019 *Programmatic Agreement Among The Federal Emergency Management Agency The Maryland State Historic Preservation Officer, The Maryland Emergency Management Agency, The Delaware Nation, And The Delaware Tribe Of Indians*. FEMA consulted with both nations in September 2020.

Alternative 1 – No Action

Under the No Action Alternative, no immediate impacts to historic properties would result, however unmitigated shoreline erosion could ultimately result in loss of historic properties should the erosion progress southward. According to MEDUSA, the entirety of the project limits lies within the NRHP-listed Betterton Historic District (MIHP #K-601; NRHP # 84001805). Continued erosion of the shoreline could compromise the contextual setting of the Betterton Historic District, and, in extreme circumstances result in the loss of historic fabric should the land under the Bayside Boulevard structures become unstable.

Alternative 2 – Betterton Bayside Shoreline Stabilization Project (Proposed Action)

Under the Proposed Action Alternative, the Town of Betterton proposes to stabilize a portion of the shoreline along the Sassafras River through the construction of a riprap revetment. According to MEDUSA, the entirety of the project limits lies within the NRHP-listed Betterton Historic District. Dominating the majority of downtown Betterton to the Sassafras River from 6th Avenue at the south, the district is comprised of 157 contributing and 35 non-contributing buildings, most of which are frame Victorian-era buildings once associated with the town’s former resorts. The district includes former hotels and boarding houses including the Rigbie Hotel, the Anchor Inn, the Bayside Inn and Ferncliff, early small resort cottages as well as religious buildings to accommodate Methodist, Catholic, and Episcopal vacationers. At the turn-of-the-twentieth century, the Town of Betterton was a resort community for middle-class families from Baltimore and Philadelphia who would travel to the town from steamboats along the Chesapeake Bay and the Sassafras River. The Betterton Historic District was listed in the NRHP on June 7, 1984 under Criteria A and C for its associations with architecture, commerce, social/humanitarian history, and transportation. The period of significance is from 1880 when the town began to develop to 1930, when the steamboats which provided access to Betterton began to decline and the resorts in the town were beginning to be sold and

redeveloped. Currently, the Town of Betterton is considered one of the most well-preserved nineteenth-century towns along the Chesapeake Bay.

The proposed work would occur on several properties within the district which front the Sassafras River: 9, 11, 13, 15, 17, 101, 103, 105, 107, 109, 111 and 113 Bayside Boulevard. Several of the dwellings on these properties, including 9, 11, 13 and 101 Bayside Boulevard were constructed during the district's period of significance and retain enough architectural integrity to be considered contributing resources to the Betterton Historic District. Additionally, the review of MEDUSA indicated the project area was included in a large Phase I archaeological survey entitled *Prehistoric Archaeological Resources in the Maryland Coastal Zone: A Management Overview*. Completed in 1977 for the Maryland Department of Historic Resources and the Energy Coastal Zone Administration, the survey area covered twelve counties and municipalities (City of Annapolis, Baltimore, Cecil, Charles, Carroll, Calvert, Dorchester, Harford, Kent, Queen Anne's, St. Mary's, and Talbot Counties). No archaeological sites were discovered proximate to the project site. At present, the project area is a heavily eroded segment of land. There is a low potential for archaeological resources in the project area as it is previously disturbed due to the continued erosion and steep slope of the shoreline. As such, FEMA has determined that there will be no effect on archaeological resources.

In a consultation letter dated April 21, 2020, FEMA determined the project as proposed would have No Adverse Effect on the Betterton Historic District. In response, on May 6, 2020, MHT concurred with these findings. In July 2020, project plans slightly changed through the reduction of the linear feet of proposed erosion control and the replacement of the proposed geogrid, backfill and grading, installation of soil drains and stabilization of seeding with additional stone revetment. As such, FEMA notified MHT in a letter dated July 20, 2020 of the proposed project plans and determined the revised scope of work would still constitute No Adverse Effect to the Betterton Historic District. MHT concurred with these findings on July 27, 2020. FEMA also contacted the Delaware Nation and Delaware Tribe of Indians to seek comment on the project on September 9, 2020. As of March 16, 2021, neither tribe has responded to the request for comment.

This concluded the Section 106 Process for the Proposed Action Alternative. Copies of correspondence between FEMA and MHT, the Delaware Nation and the Delaware Tribe of Indians can be found in **Appendix C** of this report.

3.6 Comparison of Alternatives

The following two tables summarize the potential impacts analyzed for the No Action and Proposed Action Alternatives and the impact intensity thresholds used in determining impact.

Table 3 – Impact Intensity Thresholds & Impact Duration Definitions

Impact Intensity Threshold	
Negligible	Changes in the resource or resource related values would be below or at the level of detection. If detected, effects would be considered slight with no perceptible consequences to health or visibility.
Minor	Changes in resources or resource related values would be measurable; although the changes would be small, effects on the resource or the environment would be localized.
Moderate	Changes in the resource or resource related values would be readily apparent. The effects would be sufficient to cause concern, although effects would be relatively local and short-term.
Major	Changes in resources or resource related values would be obvious, the effects would have substantial consequences to the resource and environment and be noticed regionally.
Impact Duration Definitions	
Short-term effect	Recovers in less than three years and contributes to a beneficial effect.
Long-term effect	Takes more than three years to recover and does not contribute to the long-term beneficial effect.
Long-term beneficial effect	Takes more than three years to recover and contributes to the long-term beneficial effect.

Table 4 – Summary of Environmental Impacts

Affected Environment	No Action Alternative	Proposed Action Alternative
Geology, Seismicity and Soils	<ul style="list-style-type: none"> • No impacts 	<ul style="list-style-type: none"> • Moderate, short-term impacts • Long-term beneficial impacts
Water Resources and Water Quality	<ul style="list-style-type: none"> • Minor, long-term impacts 	<ul style="list-style-type: none"> • Moderate, short-term impacts • Long-term beneficial impacts
Chesapeake Bay Critical Area	<ul style="list-style-type: none"> • Consistent with the program 	<ul style="list-style-type: none"> • Generally consistent with program
Coastal Zone Management	<ul style="list-style-type: none"> • Minor, long-term impacts; inconsistent with coastal policies 	<ul style="list-style-type: none"> • Minor to moderate, short-term impacts; consistent with coastal policies
Floodplain Management	<ul style="list-style-type: none"> • Moderate, long-term impacts 	<ul style="list-style-type: none"> • Beneficial long-term impacts

Affected Environment	No Action Alternative	Proposed Action Alternative
Air Quality	• No impacts	• Minor, short-term impacts
Zoning and Land Use	• No impacts	• No impacts
Terrestrial and Aquatic Environment	• Minor, long-term impacts	• Minor, short-term impacts • Long-term beneficial impacts
Wetlands	• No impacts	• No impacts
Threatened and Endangered Species	• No impacts	• No impacts
Migratory Birds	• No impacts	• Negligible, short-term impacts
Magnuson-Stevens Fishery Conservation and Management Act	• No impacts	• Minor, short term impacts • Long-term beneficial impacts
Hazardous Waste and Materials	• No impacts	• No impacts
Noise	• No impacts	• Minor, short-term impacts
Public Services and Utilities	• No impacts	• No impacts
Traffic and Circulation	• No impacts	• Minor, short-term impacts
Environmental Justice	• No impacts	• No impacts
Safety and Security	• Minor, long-term impacts	• Minor short-term impacts • Long-term beneficial impacts
Historic Structures	• Adverse effect to historic properties	• No historic properties affected
Archaeological Resources	• No archaeological resources affected	• No archaeological resources affected
Tribal and Religious Sites	• No effect	• No effect

SECTION FOUR: PUBLIC PARTICIPATION

The NEPA process requires that opportunities be provided for public review and comment. The publication of this draft EA kicked off a 30-day public comment period, offering a formal opportunity for public involvement. FEMA advertised the draft EA for the Town of Betterton Shoreline Stabilization Project, as per NEPA requirements. The 30-day comment period began with initial publication of the Public Notice on April 15, 2021 in the *Kent County News* newspaper. The draft EA document was made available and posted online at the FEMA website at <https://www.fema.gov/emergency-managers/practitioners/environmental-historic/region/3>.

The opportunity for written comment submissions was available by email to FEMA-R3-EHP-PublicComment@fema.dhs.gov or by mail, addressed to FEMA Region 3, 615 Chestnut Street, Sixth Floor, Philadelphia, PA 19106, ATTENTION: Town of Betterton Shoreline Stabilization Project NEPA Comments. No substantive comments were received during the public comment period. The Draft EA became final and the initial Public Notice served as the final Public Notice. The public notice is attached in **Appendix D**.

SECTION FIVE: MITIGATION MEASURES AND CONDITIONS

- If deviations from the proposed scope of work result in substantial design changes, the need for additional ground disturbance, additional removal of vegetation, or any other unanticipated changes to the physical environment, prior to the start of work the applicant (Town of Betterton) must contact FEMA so that the revised project scope can be evaluated for compliance with NEPA and other applicable environmental laws.
- The applicant is responsible for obtaining and complying with all required local, state and federal permits and approvals.
- The applicant/contractor must coordinate with the local floodplain administrator to receive a permit to conduct any activities that would occur within the SFHA.
- All work authorized under the MDSPGP-5 must be performed in compliance with the General and Activity-specific Conditions noted in the permit and, if applicable, any Procedural and Special Conditions.
- The applicant (Town of Betterton) will monitor ground disturbance during the construction phase; should human skeletal remains, or historic or archaeological materials be discovered during construction, all ground-disturbing activities on the project site shall cease and the applicant shall notify the coroner's office (in the case of human remains), FEMA, and MHT.
- Erosion controls will be in place prior to any ground disturbing activities.
- Work must be conducted in the fashion it is proposed in any permit applications. Changes to project design would require reopening consultations with regulatory agencies.
- Heavy machinery and equipment to be used for the Proposed Action will meet federal clean air standards. In addition, all equipment used shall have sound control devices no less effective than those provided on the original equipment. No equipment shall have un-muffled exhaust.
- All equipment shall comply with pertinent equipment noise standards of the U.S. Environmental Protection Agency.
- An E&S Pollution Control Plan has been prepared in accordance with MDE regulations and requirements. The contractor will be required to adhere to the E&S plan during construction in order to minimize erosion and sedimentation impacts to the surrounding environment.
- Any and all necessary MDE and USACE 404 permits will be obtained prior to the start of construction. Any permit special conditions will be adhered to as part of construction.
- Construction equipment will be well maintained and non-polluting.

- Any solid waste including construction, demolition and land clearing debris, generated from the subject project, must be properly disposed of at a permitted solid waste acceptance facility, or recycled if possible.
- The MDE Resource Management Program should be contacted directly by those facilities which generate or propose to generate or handle hazardous wastes to ensure these activities are being conducted in compliance with applicable state and federal laws and regulations. The Program should also be contacted prior to construction activities to ensure that the treatment, storage or disposal of hazardous wastes and low-level radioactive wastes at the facility will be conducted in compliance with applicable state and federal laws and regulations.
- The proposed project may involve rehabilitation, redevelopment, revitalization, or property acquisition of commercial or industrial property. Accordingly, MDE's Brownfields Site Assessment and Voluntary Cleanup Programs (VCP) may provide valuable assistance to the project. These programs involve environmental site assessment in accordance with accepted industry and financial standards for property transfer. The Land Restoration Program should be contacted for specific information about these programs and eligibility.
- Borrow areas used to provide clean earth back fill material may require a surface mine permit. Disposal of excess cut material at a surface mine may require site approval. The Mining Program should be contacted for further details.
- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize federal funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.

SECTION SIX: CONSULTATIONS AND REFERENCES

Maryland Department of the Environment, Air Quality Planning Program.

<https://mde.maryland.gov/programs/Air/AirQualityPlanning/Pages/index.aspx>

Maryland Department of the Environment, Maryland Coastal Zone Management Program.

<https://mde.maryland.gov/programs/Water/WetlandsandWaterways/Pages/CZM.aspx>

Maryland Department of the Environment. 2019. Maryland's Final 2018 Integrated Report of Surface Water Quality.

<https://mde.maryland.gov/programs/Water/TMDL/Integrated303dReports/Pages/2018IR.aspx>

Maryland Department of Natural Resources, Chesapeake and Coastal Service.
<https://dnr.maryland.gov/ccs/Pages/default.aspx>

Maryland Department of Planning. Maryland State Clearinghouse Intergovernmental Review.

Maryland Historical Trust. MEDUSA Cultural Resource Information System.
https://mht.maryland.gov/research_medusa2.shtml

NOAA Fisheries. Essential Fish Habitat (EFH) Mapper.
<https://www.habitat.noaa.gov/application/efhmapper/index.html>

NOAA Fisheries, Greater Atlantic Region, Habitat and Ecosystem Services Division. Essential Fish Habitat (EFH) Consultation.

NOAA Fisheries, Greater Atlantic Region. ESA Section 7 Mapper.
<https://www.fisheries.noaa.gov/region/new-england-mid-atlantic>

NOAA Fisheries, Greater Atlantic Region, Protected Resources Division. Endangered Species Act Section 7 Consultation.

Natural Resources Conservation Service. 2020. Farmland Protection Policy Act Consultation.

Natural Resources Conservation Service. Web Soil Survey.
<https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>

Silcox, J.H. 2016. Betterton Bayside Boulevard Shoreline Stabilization Study: Research and Recommendations. Prepared for Dr. Joseph Stock, June 2016.

U.S. Army Corps of Engineers, Baltimore District. Coordination regarding Maryland State Programmatic General Permit (MDSPGP-5) for Town of Betterton Shoreline Stabilization Project.

U.S. Census Bureau. 2019 American Community Survey 5-Year Estimates for Maryland, Kent County, and Town of Betterton. <https://data.census.gov>

U.S. Environmental Protection Agency. 2021a. Enforcement and Compliance History Online (ECHO). <https://echo.epa.gov/>

U.S. Environmental Protection Agency. 2021b. Envirofacts for Betterton, Maryland.
<https://enviro.epa.gov/>

U.S. Environmental Protection Agency. NAAQS Nonattainment Mapper.
<https://www.epa.gov/outdoor-air-quality-data/interactive-map-air-quality-monitors>

U.S. Fish and Wildlife Service. Coastal Barrier Resources System Mapper.
<https://www.fws.gov/cbra/Maps/Mapper.html>

U.S. Fish and Wildlife Service. National Wetlands Inventory, Wetlands Mapper.
<https://www.fws.gov/wetlands/Data/Mapper.html>

U.S. Fish and Wildlife Service. National Wild and Scenic Rivers System Map.
<https://rivers.gov/map.php>

U.S. Fish and Wildlife Service. 2021. Information for Planning and Consultation (IPaC) Tool.
<https://ecos.fws.gov/ipac/>

U.S. Geological Survey. 2019. 7.5-Minute Topographic Quadrangle Map for Betterton, Maryland.
<https://store.usgs.gov/map-locator>

U.S. Geological Survey. USGS National Seismic Hazard Map. <https://www.usgs.gov/natural-hazards/earthquake-hazards/hazards>

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APPENDICES

Appendix A Maps and Figures

Appendix B Technical Reports

Appendix C Agency Correspondence

Appendix D Public Notice