

**National Park Service
US Department of the Interior**



Christiansted National Historic Site

**Finding of No Significant Impact
Replace the Existing Wharf Bulkhead Environmental Assessment
St. Croix, US Virgin Islands**

September 2019

Recommended:

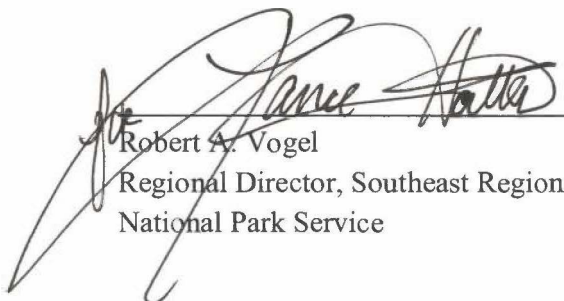
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Approved:


Robert A. Vogel
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National Park Service

9/25/19
Date

FINDING OF NO SIGNIFICANT IMPACT

The National Park Service (NPS) prepared an environmental assessment (EA) to evaluate the impacts of replacing the existing wharf bulkhead at the Christiansted National Historic Site (Christiansted NHS or the park), which is located in the historic town of Christiansted on the island of St. Croix, US Virgin Islands. This project is being undertaken to prevent damage from more frequent and more powerful seasonal hurricanes and to mitigate and remediate the effects of historic and continuing storm damage to the Christiansted NHS waterfront landscape, associated historic buildings, visitor use, and marine vessel operations.

The EA was prepared in accordance with the National Environmental Policy Act of 1969 (NEPA; 42 United States Code [USC] 4321 et seq.) and its implementing regulations (40 Code of Federal Regulations [CFR] 1500-1508.9); the Department of the Interior NEPA regulations (43 CFR Part 46); and with NPS Director's Order 12: Conservation Planning, Environmental Impact Analysis, and Decision-making (2011) and its accompanying handbook (2015). The statements and conclusion reached in this finding of no significant impact (FONSI) are based on the documentation and analysis provided in the EA and associated decision file. To the extent necessary, relevant sections of the EA are incorporated by reference below.

SELECTED ALTERNATIVE

The EA analyzed two alternatives (the no-action alternative and the proposed action/NPS preferred alternative) and the associated impacts on the environment. Based on the analysis presented in the EA, the NPS has selected the proposed action/NPS preferred alternative for implementation.

Selected Alternative Description

The selected alternative will replace 700 linear feet of the existing bulkhead. The new bulkhead design will have a 40-year life cycle. The existing bulkhead will be encapsulated and enclosed by the new bulkhead instead of removed. This will reduce the amount of construction debris generated that will require disposal at an upland site. Any debris removed from the construction site will be properly disposed of at an approved upland site.

Following the release of the EA, the NPS received a request from National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) Protected Species Division (PSD) to reduce the footprint of the new wharf bulkhead to 18 inches seaward to align with the US Army Corps of Engineers (USACE) Jacksonville District's Programmatic Biological Opinion (JAXBO), which identified techniques referred to as project design criteria to avoid or minimize adverse effects to Endangered Species Act (ESA)-listed species or designated critical habitat. In response to this request, the NPS revised the design of the new wharf bulkhead, where possible, to meet the project design criteria. Although the footprint of the steel sheet pile portion of the bulkhead cannot be reduced due to structural design requirements, the NPS revised the design of the cast-in-place concrete portion to reduce the footprint to the allowable values indicated in the JAXBO project design criteria. Two additional changes to the selected alternative include the removal of the fendering system from the new wharf bulkhead and installation of new decking for a portion of the public Christiansted boardwalk at the western end of the project area. Instead of removing the existing decking, stockpiling it during construction, and replacing it following construction, the NPS would use new material to rebuild the boardwalk.

Because of these changes in the selected alternative the description here differs from that in the EA on pages 7-11. All changes to the alternative and the subsequent analyses for marine resources, special-status species, archeological resources, and visitor use and experience are presented in Appendix E: Errata. The redesign of the concrete portion of the bulkhead will result in less of an impact, as a smaller amount of marine bottomlands would be affected. In addition, removal of the fendering system, extending the boardwalk to match the extent of the new concrete cap of the bulkhead, and replacing the decking with new material will not have an additional effect on park resources that was not analyzed in the EA.

Replacement of the wharf bulkhead will include: 1) removing and relocating corals on the bulkhead and on the marine bottomlands within 15 feet of the bulkhead; 2) relocating two isolated artifacts from the project area; 3) replacing approximately 500 linear feet of the existing steel sheet pile bulkhead with new steel sheet piles; 4) repairing approximately 200 linear feet of existing cast-in-place concrete bulkhead by pouring a new cast-in-place reinforced concrete gravity wall; 5) installing new mooring cleats; 6) extending the existing decking on the western end of the bulkhead to be flush with the new concrete cap; and 7) rehabilitating the existing concrete apron. These actions are summarized in the following paragraphs and described in detail in Chapter 2: Alternatives of the EA.

Coral Relocation

- All coral colonies that are 5 centimeters (cm) or larger attached to the existing bulkhead and on the marine bottomlands within 15 feet of the bulkhead will be removed and relocated prior to construction.
- Live corals will be salvaged to the extent practicable and relocated to a designated recipient site.
- Corals that exhibit outward symptoms of disease will not be relocated to prevent the risk of disease transmission at the recipient site.

Archeological Resource Protection

- Prior to construction, two isolated artifacts from within the project area will be removed and relocated to a location outside the area of potential effects as determined by the Virgin Islands State Historic Preservation Office (VISHPO).

Bulkhead Replacement.

- Approximately 500 linear feet of existing steel sheet pile bulkhead will be replaced with new steel sheet piles driven immediately (24 inches) seaward of the face of the existing bulkhead. The new steel sheet pile bulkhead will be a cantilever structural design and will have a reinforced concrete fascia and cap.
- Approximately 200 linear feet of cast-in place concrete bulkhead will be repaired by pouring a new cast-in-place reinforced concrete gravity wall on top and seaward (18 inches) of the existing concrete bulkhead. The new gravity wall will be self-supported and will not require internal tiebacks.
- The bulkhead will maintain the existing bulkhead height of +5.26 feet, which will allow the new bulkhead to handle washover during future storm events.
- The replacement of the bulkhead will be accomplished through a combination of in-water and land-based construction.
- In the eastern portion of the project area, repair of the concrete bulkhead will be completed from the existing concrete wharf apron to the extent possible due to shallow water and a high

prevalence of seagrasses in this area. Some work will occur in the water (approximately 3 feet seaward of the footprint of the new bulkhead) and could include placement of the temporary form and support structures for the concrete wall.

- In-water construction will be used to install new steel sheet piles in the central and western portion of the study area, where the water depth is sufficient, using a vibratory hammer. Subsurface predrilling and preforming methods could be used to penetrate subsurface cemented bedrock where necessary.
- New mooring cleats will be installed along the top of the new bulkhead cap.
- A portion of the public Christiansted boardwalk at the western end of the project area will be removed and extended to match the extent of the bulkhead's new concrete cap. New decking materials will be selected to match the existing boardwalk to the extent possible.
- The concrete sidewalk adjacent to the bulkhead will be rehabilitated to improve the condition of and increase the design life of the concrete sidewalk. Rehabilitation will include filling and repairing existing voids beneath the existing concrete, thoroughly cleaning the concrete, repairing visible concrete damage (e.g. cracks, chips, spall, etc.), and applying an overall surface treatment.

Construction Equipment, Timing, and Detours.

- Coral removal and relocation will occur prior to the start of construction but not during peak hard coral spawning or coral bleaching periods (July 1 through October 31), as established through consultation with NMFS and the Virgin Islands Department of Planning and Natural Resources (VIDPNR) Coastal Zone Management.
- Construction is anticipated to take approximately 12 months.
- Construction will require intermittent closures of a portion of the Fort Christiansvaern parking area and the driveway to the King Christian Hotel in the western end of the site.
- Vehicular access, including emergency vehicle access, will be maintained throughout the entire construction period by implementing traffic control measures, including detours and protection of open lanes.

Rationale for Decision

The NPS selected the proposed action/NPS preferred alternative for implementation because it will protect the cultural landscape at Christiansted National Historic Site from more frequent and more powerful seasonal hurricanes. The selected alternative will have a life cycle of approximately 40 years and allow the bulkhead to handle overtopping and sustain storm washover during future storm events. The selected action will provide the NPS with the opportunity to restore and enhance visitor access to the waterfront from the water and the land. Although there will be minor adverse impacts to marine resources, special-status species, and archeological resources as a result of the construction activities, these impacts are small (approximately 0.03 acre of the 390-acre Christiansted Harbor) compared with the overall benefit of preserving the waterfront landscape, associated historic structures, visitor use, and marine vessel operations.

Resource Protection Measures

The selected alternative incorporates the mitigation measures listed in appendix A of this document.

FINDING OF NO SIGNIFICANT IMPACT

As documented in the EA, adverse impacts on marine resources, special-status species, archeological resources, and visitor use and experience will occur as a result of implementing the selected alternative; however, no significant adverse impacts were identified. Relevant significance criteria considered; damage to or loss of coral colonies 5 cm or greater, disturbance to and loss of benthic habitat and special status species, as well as resource protection and mitigation measures provided for the duration of construction,

As described in the EA, the selected alternative, which includes the resource protection measures detailed in appendix A, will have a minimal effect on marine resources. The removal and relocation of corals on and adjacent to the bulkhead prior to construction will avoid adverse impacts, and the relocation could restore or augment the coral reef area at the relocation site, resulting in beneficial impacts. Installation of the new bulkhead under the selected alternative will result in a permanent loss of approximately 0.03 acre of benthic habitat adjacent to the existing bulkhead. This represents a very small portion of the habitat available in the Christiansted Harbor, which is approximately 390 acres. Construction activities will also present the potential for impacts from resuspension of sediment, construction noise, and vessel strikes. Mitigation measures will be used to avoid or minimize these impacts; therefore, impacts to benthic habitat and designated essential fish habitat (EFH) will be negligible, localized to the area of construction, and temporary to the timeframe of construction activities.

Similar to marine resources, the selected alternative will have a small adverse impact on special-status species. Pursuant to Section 7 of the ESA, the selected alternative will have *no effect* on elkhorn coral (*Acropora palmata*) and staghorn coral (*A. cervicornis*) and *may affect but is not likely adversely affect* the following federally listed species: boulder star (*Orbicella franksi*), lobed star (*Orbicella annularis*), and mountainous star (*Orbicella faveolata*), Nassau grouper (*Epinephelus striatus*), striped croaker (*Corvula sanctaeluciae*), Antillean manatee (*Trichechus manatus manatus*), green sea turtle (*Chelonia mydas*), leatherback sea turtle (*Dermochelys coriacea*), hawksbill sea turtle (*Eretmochelys imbricata*), and loggerhead sea turtle (*Caretta caretta*). The lobed star coral complex (boulder star coral, lobed star coral, and mountainous star coral) and Nassau grouper are also managed species under the Magnuson-Stevens Fishery Conservation and Management Act. Pursuant to the EFH requirements of this act and its implementing regulations, it is anticipated that there will be a minimal impact on habitats designated as EFH. The selected alternative will have negligible impacts on five territory-protected seabirds (brown pelican [*Pelecanus occidentalis*], magnificent frigatebird [*Fregata magnificens*], laughing gull [*Leucophaeus atricilla*], gull-billed tern [*Gelochelidon nilotica*], and coastal least tern [*Sterna antillarum antillarum*]), as the birds may be temporarily affected by construction noise but the project will not alter the habitats of these species.

Implementing the selected alternative will result in overall beneficial effects to terrestrial and submerged archeological resources. Prior to construction, two isolated submerged artifacts (an 18th century wooden stock anchor and a small 18th to mid-19th century cannon) will be removed and relocated from the water seaward of the existing bulkhead, resolving the adverse effects on these resources. The cannon is currently cemented to the bulkhead and removing it could lead to deterioration of the artifact and an adverse effect. During construction, resource protection measures (appendix A) will avoid ground disturbance, protecting terrestrial archeological resources. The new bulkhead will protect terrestrial cultural resources by reducing the effects from sea level rise, erosion, and weathering and by providing further protection to Christiansted NHS and the historic buildings on the wharf grounds from severe storm events, resulting in beneficial effects.

The visitor experience at Christiansted NHS will be altered by the selected alternative. Following the short-term adverse impacts from disruption of use in the project area, the current visitor experience will

be restored and potentially enhanced. Once the bulkhead is replaced, the park will have the ability to expand visitor opportunities to the waterfront from the water as well as from land, as new docking cleats will be installed, and the concrete apron will be repaired and treated. Impacts on visitor use and experience after installation of the new bulkhead will be beneficial.

AGENCY CONSULTATION

National Marine Fisheries Service. The NPS initiated consultation with NMFS PSD on February 13, 2019 for activities related to research, restoration, and relocation of threatened Caribbean corals. On February 20, 2019, NMFS PSD concurred with the NPS determination that the proposed activities fall within the scope of Programmatic Biological Opinion on Threatened Caribbean Coral Research, Restoration and Relocation (NMFS 2016).

On March 4, 2019, the NPS initiated consultation with NMFS Habitat Conservation Division (HCD) regarding essential fish habitat (EFH), and on March 6, 2019, NMFS HCD provided concurrence that the EA could be used to meet the EFH consultation requirements. On March 26, 2019, the NPS received confirmation from NMFS HCD on the list of EFH species that would be analyzed in the EA. The NPS initiated informal consultation with NMFS HCD on May 30, 2019 to fulfill the EFH requirements of the Magnuson-Stevens Fishery Conservation and Management Act (16 USC Section 1801 et seq.) In a letter dated June 19, 2019, NMFS HCD concurred with the NPS determination of minimal impacts on federally managed fisheries or EFH.

May 30, 2019, the NPS initiated informal consultation with NMFS PSD to fulfill the requirements of Section 7 of the ESA. Following review of the EA, NMFS PSD requested more information regarding the design of the new wharf bulkhead. The NPS revised the design of the cast-in-place concrete portion to reduce the footprint of the bulkhead from 1,530 square feet to 1,300 square feet or 0.03 acres. In a letter dated August 15, 2019, NMFS PRD concurred with the USACE that the project is similar to the effects analyzed in JAXBO and authorized the USACE's JAXBO supersede request thereby ending consultation with NMFS.

US Fish and Wildlife Service. In consultation with the US Fish and Wildlife Service (USFWS) under section 7 of the ESA, NPS submitted a letter that determined the selected alternative *may affect but is not likely to adversely affect* the Antillean manatee, green sea turtle, leatherback sea turtle, hawksbill sea turtle, or loggerhead sea turtle. The USFWS concurred with the park's determination on March 8, 2019.

Virgin Islands Department of Planning and Natural Resources. The NPS initiated consultation with the VIDPNR for the Coastal Zone Management Determination and any applicable permits on February 12, 2019. The NPS and the VIDPNR participated in a pre-application meeting on February 12, 2019 to discuss preliminary comments on the proposed action and get agency input on regulatory requirements. In a letter dated May 30, 2019, the NPS transmitted the Notice of Availability and the Replace Wharf Bulkhead EA for review by the DPNR. On June 7, 2019, the NPS submitted the Federal Consistency Determination Request and 401 Water Quality Certification Permit for the Replacement of the Existing Wharf Bulkhead project. The VIDPNR concurred with the park's determination that the project is consistent to the maximum extent practicable with the Virgin Islands Coastal Zone Management Program on September 9, 2019.

Virgin Islands State Historic Preservation Office. The NPS initiated consultation with the Virgin Islands State Historic Preservation Office (VISHPO) under Section 106 of the National Historic Preservation Act regarding this project on October 24, 2018. In a letter dated April 10, 2019, the NPS requested review of its determination of the area of potential effect and concurrence with the findings of the archeological survey on completed in December of 2018. The VISHPO sent a letter of concurrence on May 14, 2019.

The NPS and SHPO determined that the selected alternative would result in an adverse effect to two isolated submerged artifacts. The NPS subsequently provided the Advisory Council on Historic Preservation (ACHP) an opportunity to comment and participate in the consultation to resolve adverse effects in a Memorandum of Agreement (MOA) on May 22, 2019. The ACHP did not join the consultation. The NPS drafted a MOA outlining stipulations to minimize or mitigate the adverse effect. The VISHPO provided minor edits to the draft MOA and signed the MOA on July 31, 2019. The MOA is included in this document as appendix C.

US Army Corps of Engineers. The NPS initiated consultation with the USACE under Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act on October 24, 2018. The NPS, NMFS, and USACE participated in a pre-application meeting on April 10, 2019 to discuss regulatory requirements. The meeting participants agreed with the use of the PBO, if it is determined that no hardbottom habitat or essential features for ESA-listed corals were present in the project area. The NPS submitted the USACE Joint Permit Application for the Replace the Wharf Bulkhead project on June 5, 2019. On July 12, 2019, the USACE requested additional information from the NPS regarding the potential of reducing the footprint of the new wharf bulkhead. The NPS revised the design of the cast-in-place concrete portion to reduce the footprint of the bulkhead from 1,530 square feet to 1,300 square feet or 0.03 acres. The USACE concurred with the NPS's request for authorization under JAXBO on August 19, 2019.

US Environmental Protection Agency. The NPS initiated consultation with the US Environmental Protection Agency (EPA) on October 24, 2018. The EPA did not respond to the initial consultation. In a letter dated May 30, 2019, the NPS transmitted the notice of availability of the Replace Wharf Bulkhead EA and provided a copy of the EA for review by the USEPA, and the USEPA provided their concurrence with the analysis in the EA in a letter on June 26, 2019.

CONCLUSION

As described above, the selected alternative does not constitute an action meeting the criteria that normally requires preparation of an environmental impact statement (EIS). The selected alternative will not have a significant effect on the human environment in accordance with Section 102(2)(c) of NEPA.

Based on the foregoing, it has been determined that an EIS is not required for this project and, thus, will not be prepared.

Appendix A: Mitigation Measures

Appendix B: Non-Impairment Determination

Appendix C: Memorandum of Agreement

Appendix D: Errata

APPENDIX A: RESOURCE PROTECTION MEASURES

To minimize impacts related to the selected alternative, the National Park Service (NPS) will implement mitigation measures whenever feasible. Subject to the final design and approval of plans by relevant agencies, mitigation measures will include, but will not be limited to, the items listed below.

General Resource Protection

- Staging of materials will take place only in designated areas. Areas for barge access will be established.
- Ground protection measures will be required in all locations where equipment will operate, or materials will be placed off of paved surfaces. These measures will include plywood or other horizontal type mat that will prevent ruts from movement of heavy equipment designating limits of disturbance for contractors, fencing in all upland work areas to keep disturbances in an NPS-defined minimal impact area, establishing corridors for construction vehicle movement, staging of construction materials and equipment in minimal impact areas, and limiting construction access.
- All work areas will be fenced in order to keep related disturbances within the NPS-defined limits of construction. All workers will be instructed to avoid conducting activities beyond the fenced construction zone.
- All construction workers will be required to wear identifiable uniforms indicating they can be in the designated work area or met by project foreman for site access and control if making a delivery.
- Construction employees will be instructed on the sensitivity of the general environment, and their activity will be monitored.
- Best management practices will be followed to avoid exposure of the terrestrial and aquatic environment to risks such as fuel or chemical spills and leaks, especially during application of the apron sealant. Spill kits will be available on site in sufficient numbers and volumes to treat hydraulic spills in the event of a broken hose.
- Construction will only occur during daylight hours to reduce light pollution and to avoid night-time noise disruption.
- All protection measures will be clearly stated in the construction specifications.
- Construction equipment will be properly maintained to minimize noise from use of equipment. Contractors will use sound attenuated compressors and generators. Equipment and machinery will not exceed 85 decibels when measured at a distance of 100 linear feet.
- A traffic plan, to include pedestrians, vehicles, and marine vessels, will be prepared to reduce the potential impacts on visitors, as well as businesses that use the existing wharf.

Coral Removal and Relocation

- Prior to construction, all coral colonies that are 5 centimeters (cm) or larger that are reasonable candidates for relocation (not showing outward signs of disease) will be removed from the bulkhead structure and on the marine bottomlands within 15 feet of the bulkhead and reattached to a natural reef hardbottom recipient site. All coral relocation activities will be conducted

following the guidelines established in the Virgin Islands Department of Planning and Natural Resources (VIDPNR) *Coral Mitigation Relocation Recommendations* (VIDPNR 2018) and in consultation with National Oceanic and Atmospheric Administration National Marine Fisheries Service (NMFS).

- Coral removal and relocation will not be conducted during peak hard coral spawning or coral bleaching periods (July 1 through October 31), as established through consultation with NMFS and the VIDPNR Coastal Zone Management Coral Program. No diseased corals will be moved to the relocation site.
- All self-contained underwater breathing apparatus (SCUBA) divers will adhere to the standard operating procedures to disinfect their dive gear prior to dive operations to prevent the spread of disease among corals.
- Removal, relocation and reattachment methodologies will include a variety of hand tools; no power tools or heavy pry bars will be utilized. Rubber gloves will be worn while handling corals to minimize mucous removal and abrasion.
- Corals removed from the Christiansted bulkhead will be relocated to an appropriate recipient site. Corals will be immediately transplanted upon arrival to the recipient site to minimize the amount of time the corals are unattached to substrate.
- In order to ensure the success of the re-attachment and to minimize secondary impacts during the restoration project period, it is recommended that this work only be performed when certain environmental conditions are met, such as relatively calm sea conditions.
- Following the relocation of all corals, a baseline survey will be conducted in which the size, health, and location of all relocated corals be recorded. Subsequent monitoring will be performed on a regular monitoring schedule to determine the efficacy of the relocation effort. The performance standard to determine mitigation success for coral relocation activities should be at least 85% overall survival of all relocated species, with secure substrate attachment (USCRTF 2016); the VIDPNR requires three years of monitoring following relocation.

Marine Resource Protection

- Water quality monitoring will be conducted throughout construction activities. Water quality will be continuously monitored to ensure that turbidity does not exceed levels that will be harmful to aquatic communities, as determined through agency consultation.
- Turbidity and siltation from the installation of sheet piles will be minimized, confined to the immediate vicinity of the project work area, and contained through the use of turbidity curtains, which will be installed around the immediate work area during in-water construction operations. The turbidity curtain will be moved as work progresses along the bulkhead. The turbidity curtain will remain in place post-construction until all turbidity and siltation subsides from in-water construction.
- Erosion and sediment controls will be carefully designed, installed, and maintained to reduce sedimentation and limit turbidity and siltation into Christiansted Harbor.
- A marine observer (a certified diver) will be present during all in-water activities and will monitor barge relocation and spot before and after barge spud-down location. The marine observer will provide measures for reduction and prevention of the spread of invasive seagrasses and avoid impacts to existing benthic organisms. Surface buoys will be used to demarcate the area where construction and barge activities will be restricted to protect seagrass benthic habitat. Dive operations will require, at minimum, a top-side support worker for the diver in the water.

- In areas with significant amounts of invasive seagrasses, propeller wash should be minimized to reduce the spread of invasive seagrasses.
- The existing bulkhead will be encapsulated and enclosed by the new bulkhead to reduce debris that will have to be disposed at an upland site.
- All manmade construction debris will be collected and not allowed to enter marine waters.
- All debris removed from the bulkhead construction site will be barged off St. Croix to disposed of at an approved upland site. All trash and debris within the direct footprint of the new bulkhead will be removed from the water and disposed of properly.
- All debris or spill material will be properly disposed of at an approved off-site disposal facility.
- All equipment will be checked daily for leaks and any necessary repairs made prior to commencement of work. Fueling of construction-related equipment will occur away from the bulkhead construction site at a designated location with the ability to handle an accidental spill. Spill response kits will be available on site in sufficient numbers and volumes for the heavy equipment being used.
- A vibratory hammer will be used for all sheet pile installation; the use of any impact hammer will be prohibited. Use of a soft start of the vibratory hammer will be used as necessary to reduce overall underwater noise levels.
- Underwater acoustic monitoring will likely be employed during construction activities to ensure noise levels are below acceptable requirements that will be determined through agency consultation.

Special-Status Species Protection

- Prior to construction activities, a survey will be conducted in and adjacent to the project area to ensure that there are no nesting birds in the vicinity.
- Prior to in-water work, an exclusion zone will be established. For this project the exclusion zone includes all marine waters within 200 feet of the existing bulkhead. The exclusion zone will be marked with US Coast Guard- or Port Authority-approved markers to ensure avoidance. Because the buoys could potentially impact navigable waters, the methods of creating the required marine vessel exclusion zone will be determined through consultation with the US Coast Guard and the Port Authority.
- All personnel associated with the project will be instructed about the presence of special-status species and the need to avoid collisions with and injury.
- All on-site project personnel are responsible for observing water-related activities for the presence of special-status species. Personnel will review the entire exclusion zone for the presence of special-status species for 30 minutes prior to commencement of construction. If any special-status species are present within the exclusion zone, construction activities will not begin until the animal(s) has left the exclusion zone, or no special-status species have been observed in the exclusion zone for 15 minutes.
- During all in-water construction, a marine resources monitor will be present to observe the exclusion zone. Established marine vessel speed restrictions and safe operating distances will be heeded. All in-water operations, including marine vessels, must be shut down if a special-status species comes within 50 feet of the operation. Activities will not resume until the animal has moved beyond the 50-foot radius of the project operation, or until 15 minutes elapses if the

animal has not reappeared within 50 feet of the operation. Animals will not be herded away or harassed into leaving.

- All in-water lines will be stiff, taut, and non-looping to minimize the risk of entanglement with sea turtles and manatees. If flexible lines are used, they must be enclosed in plastic or rubber sleeves/tubes that add rigidity and prevent the line from looping and tangling.
- Operation hours will be restricted to daytime hours to avoid and minimize effects to sea turtles.
- If work is conducted during sea turtle nesting season, turbidity curtains will be inspected prior to the start of work for any hatchlings that could be taking shelter in curtain folds. US Fish and Wildlife Service and/or VIDPNR Division of Fish and Wildlife will be contacted if hatchlings are found.

Cultural Resource Protection

- Submerged archeological resources will be relocated prior to construction to avoid impacts.
- An archeological monitor will be employed during the construction activities to observe and stop work if previously unknown archeological resources are discovered.
- If unknown resources are found, the contractor will immediately halt all activity within a 100-foot radius of the discovery, notify the NPS Cultural Resources Specialist and VISHPO of the discovery, and implement interim measures to protect the discovery from looting and vandalism. VISHPO will determine next actions for materials found during work.
- Staging areas will be established to confine storage of materials and equipment to specific locations on the site.
- A buffer of 10 to 12 feet will be established between any historic structure and work area, except where the bulkhead meets the Fort Christiansvaern wing wall.
- Vibration/crack monitors will be placed on historic structures, and the structures will be inspected daily prior to the onset of construction activities.
- Terrestrial acoustic monitoring will likely be employed during construction activities to ensure noise levels are below acceptable requirements that will be determined through agency consultation and historic structures are not damaged from vibrations.
- The color(s) of the new wharf installation will be selected to blend with the color effect at Christiansted National Historic Site.
- All areas where construction equipment will be used along the historic waterfront will have ground protection to ensure minimal to no ground disturbance.

References

US Virgin Islands Department of Planning and Natural Resources (DPNR). 2018. *Coral Mitigation Relocation Recommendations*. December.

APPENDIX B: NON-IMPAIRMENT DETERMINATION

By enacting the National Park Service (NPS) Organic Act of 1916 (Organic Act), Congress directed the US Department of Interior and the NPS to manage units “to conserve the scenery and the natural and historic objects and wildlife therein and to provide for the enjoyment of the same in such a manner and by such a means as will leave them unimpaired for the enjoyment of future generations” (54 USC 100101). Congress reiterated this mandate in the Redwood National Park Expansion Act of 1978 by stating that NPS must conduct its actions in a manner that will ensure no “derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress” (54 USC 100101).

NPS *Management Policies 2006*, Section 1.4.4, explains the prohibition on impairment of park resources and values:

While Congress has given the Service the management discretion to allow impacts within parks, that discretion is limited by the statutory requirement (generally enforceable by the federal courts) that the Park Service must leave park resources and values unimpaired unless a particular law directly and specifically provides otherwise. This, the cornerstone of the Organic Act, establishes the primary responsibility of the Nation Park Service. It ensures that park resources and values will continue to exist in a condition that will allow the American people to have present and future opportunities for enjoyment of them.

This determination on impairment has been prepared for the selected alternative described in the Finding of No Significant Impact for the Environmental Assessment for replacement of the existing wharf bulkhead at Christiansted National Historic Site (Christiansted NHS or the park). An impairment determination is made for the resource topics of marine resources, special-status species, and archeological resources. These resources are considered fundamental to Christiansted NHS because of the historical significance of the park and the Christiansted waterfront is a key feature of the cultural landscape. An impairment determination is not made for visitor use and experience because impairment findings relate back to park resources and values, and these impact areas are not generally considered to be park resources or values according to the Organic Act and cannot be impaired in the same way that an action can impair park resources and values.

MARINE RESOURCES

Prior to construction, all corals 5 centimeters or greater and not showing outward signs of disease that are located on the bulkhead or immediately adjacent to the bulkhead (the marine bottomlands 15 feet seaward of the existing bulkhead) will be removed and relocated to a site designated through consultation with the Virgin Islands Department of Planning and Natural Resources. On February 20, 2019, National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) concurred with the NPS determination that the proposed activities fall within the scope of the *Programmatic Biological Opinion on Threatened Caribbean Coral Research, Restoration and Relocation*; those activities which fall within the scope of the Programmatic Biological Opinion will not cause jeopardy to any ESA-listed species under NOAA’s jurisdiction.

The selected alternative will result in the permanent loss of approximately 0.03 acre of marine bottomlands as a result of encapsulating the existing wharf bulkhead with a new steel sheet pile and concrete bulkhead. Most of the affected marine bottomlands (approximately 0.02 acre) consists of habitat with poor conditions for marine life, but the eastern portion (less than 0.01 acre) contains essential fish

habitat (EFH). The loss of benthic habitat will be small compared to the marine bottomlands available throughout Christiansted Harbor (approximately 390 acres). Some individual benthic organisms and seagrass will be lost from placement of the new bulkhead, but the impacts will be small and localized and benthic communities are expected to recolonize new subsurface areas shortly after construction activities.

Marine organisms could be affected by changes in the water column from resuspension of sediment during construction activities. The sediment plume created by construction will be small, be contained within turbidity curtains, and will settle out of the water column within a few hours following construction. Water quality monitoring during construction activities will ensure that turbidity levels will not reach levels that will be harmful to marine organisms. Adverse impacts will be further mitigated through measures identified in appendix A. Impacts from changes in substrate, interference with feeding, and decreased visibility will be negligible.

Direct impacts on marine organisms could also occur due to construction noise and the potential for vessel strikes. No impacts from vessel strikes are anticipated, as mobile species are expected to vacate the project area and a marine observer will ensure that marine organisms are not harmed by the placement of barge spuds. Noise has the potential to disturb, injure, or cause mortality in less mobile species; mobile species are expected to move away from the source of the noise. Impacts from construction noise will be mitigated through measures identified in appendix A. Although there could be a loss of less mobile species, the loss will be localized and negligible due to the small area and short duration of construction activities.

Pursuant to the EFH requirements of the Magnuson-Stevens Fishery Conservation and Management Act and implementing regulation, the selected alternative will have no more than a minimal impact on habitats designated as EFH.

Overall, impacts from loss of habitat, temporary increases in turbidity, construction noise, and the potential for vessel strikes could occur, but the impacts will be minimized to the extent possible through project design and best management practices. Following construction, it is anticipated that benthic communities will recolonize the marine bottomlands that were disturbed during construction that mobile species will return to use the habitats adjacent to the new bulkhead, and corals will colonize the new bulkhead. Because benthic organisms are expected to recolonize, the loss of benthic habitat will be small, water quality impacts will be small and temporary, and overall direct impacts to marine resources will be minimized through the use of resource protection measures, the selected action will not result in impairment of marine resources area.

SPECIAL-STATUS SPECIES

The federally listed species present or potentially present in the project area are elkhorn coral, staghorn coral, Nassau grouper, striped croaker, Antillean manatee, green sea turtle, leatherback sea turtle, hawksbill sea turtle, and loggerhead sea turtle. Five territory-protected seabirds (brown pelican, magnificent frigatebird, laughing gull, gull-billed tern, and coastal least tern) may also be present.

Coral relocation prior to construction activities will avoid direct mortality to corals in the project area and potentially enhancing the coral reef at the relocation site. As stated in the previous section, NMFS concurred that the selected action falls within the scope of the *Programmatic Biological Opinion on Threatened Caribbean Coral Research, Restoration and Relocation* and will not cause jeopardy to federally listed corals.

Nassau grouper and striped croaker could be impacted by direct injury or mortality resulting from construction noise and vessel strikes and indirect adverse impacts resulting from a loss of foraging habitat, increased turbidity, and disturbance from noise. With the implementation measures presented in appendix A, impacts to these species will be negligible.

The manatee and sea turtle species are expected to occur in the project area as transient species only. Although these species could be affected from loss of a small amount of marginal foraging habitat, resuspension of sediment, construction noise, and vessel strikes, the implementation of mitigation measures, such as the use of a marine observer during in-water construction, turbidity curtains, a manatee and sea turtle monitoring plan, and use of a vibratory hammer, impacts will be negligible.

The NPS has made a determination *no effect* for elkhorn and staghorn corals, as the project area lacks the essential feature for critical habitat for these species. For boulder star, lobed star, and mountainous star corals, Nassau grouper, striped croaker, Antillean manatee, and green, leatherback, hawksbill, and loggerhead sea turtles, the NPS has made a determination of *may affect not likely to adversely affect*.

Boulder star, lobed star, and mountainous star corals and Nassau grouper are also managed species under the Magnuson-Stevens Fishery Conservation and Management Act. Pursuant to the EFH requirements of this act and its implementing regulations, it is anticipated there will be a no more than minimal impact on habitats designated as EFH.

The NPS anticipates that the project area will be recolonized by corals and benthic communities and used by mobile species following construction activities. Because the selected action will result in negligible adverse impacts on special-status species through a small loss of habitat, temporary increases in turbidity, construction noise, and vessel strikes and these impacts will be minimized to the extent possible through project design and best management practices, the selected alternative will not result in impairment of special-status species.

ARCHEOLOGICAL RESOURCES

The project area contains both terrestrial and submerged archeological resources. Once constructed, the new bulkhead will protect terrestrial archeological resources from sea level rise, erosion, and weathering and the effects of severe storm events. During construction, terrestrial archeological resources will be protected by fencing, the use of protective mats to prevent rutting, selecting appropriate construction staging areas, employing an archeological monitor during construction activities, and establishing corridors for vehicle movement. Prior to construction, two isolated artifacts (an 18th century wooden stock anchor and an 18th to mid-19th century cannon) will be removed from the project area and relocated to a site designated by the Virgin Islands State Historic Preservation Office (VISHPO). Relocating the artifacts will resolve the adverse effects of the selected alternative. The cannon is currently cemented to the existing bulkhead and removing it could expose the iron to saltwater and lead to deterioration of and an adverse effect to this artifact. Because construction of the new bulkhead will protect terrestrial archeological resources the artifacts would be protected and would therefore will not result in impairment of archeological resources.

SUMMARY

The NPS has determined that the implementation of the NPS selected alternative will not constitute an impairment of the resources or values of the Christiansted NHS. As described above, implementing the selected alternative is not anticipated to impair resources or values that are essential to the purposes identified in the establishing legislation of the park, key to the natural or cultural integrity of the park, or

identified as significant in the park's relevant planning documents. This conclusion is based on consideration of the park's purpose and significance, a thorough analysis of the environmental impacts described in the EA, the comments provided by the public and others, and the professional judgment of the decision-maker guided by the direction of the NPS *Management Policies 2006*.

APPENDIX C: MEMORANDUM OF AGREEMENT

MEMORANDUM OF AGREEMENT

Between

THE NATIONAL PARK SERVICE

And

THE VIRGIN ISLANDS STATE HISTORIC PRESERVATION OFFICE

Regarding

**MITIGATION OF ADVERSE EFFECTS FOR ACTIVITIES ASSOCIATED WITH THE
REPLACEMENT OF THE WHARF BULKHEAD ALONG THE CHRISTIANSTED
NATIONAL HISTORIC SITE WATERFRONT**

JULY 2019

WHEREAS, the Christiansted National Historic Site (NHS) is a unit of the National Park Service (NPS) within the NPS Southeast Region and charged to meet the directives of the NPS Organic Act of 1916 (P.L. 64-235, 39 Stat. 535) to “conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations,” as it applies to the park units; and

WHEREAS, the NPS is proposing to replace the existing wharf bulkhead along the Christiansted NHS waterfront (project). Christiansted NHS is located in the historic town of Christiansted on the island of St. Croix, US Virgin Islands (see attachment A); and

WHEREAS, the NPS, in compliance with the National Environmental Policy Act of 1969, as amended (NEPA) (Public Law 91-190), its implementing regulations (40 CFR 1500-1508), and the Department of the Interior’s NEPA regulations (43 CFR Part 46), has prepared an environmental assessment. The assessment of potential impacts determined that the project could affect two isolated artifacts are located within the project area; and

WHEREAS, the NPS recognizes that in 1998, the US Virgin Islands enacted Act Number 6234, known as the Antiquities and Cultural Properties Act (codified in Title 29, Chapter 17 of the US Virgin Islands Code [29 V.I.C.]). This law sets forth the policies and responsibilities of the Territory to protect and manage its terrestrial and marine historical , cultural , and archeological resources for the benefit of its citizens; and

WHEREAS, by this law, the NPS recognizes that the Government of the Virgin Islands lays an exclusive claim of ownership over all historical, cultural, and archeological materials located on lands owned by the Territory, whether on land or submerged within three miles of the coastline; and

WHEREAS, the NPS has determined that this Project constitutes an undertaking subject to review under Section 106 of the National Historic Preservation Act (NHPA), as amended, 54 USC 306108 (formerly 16 USC § 470f), *Protection of Historic Properties*, its implementing regulations, 36 CFR Part 800, herein referred to as Section 106, and 29 V.I.C. Chapter 17, § 952; and

WHEREAS, the NPS has determined that implementation of this Project may affect properties listed in or eligible for listing in the National Register of Historic Places (NRHP) or the Virgin Islands Registry of Historic Places, and the NPS has consulted with the US Virgin Island State Historic Preservation Office (VISHPO) pursuant to 36 CFR Part 800.14(b)(1)(ii); and

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WHEREAS, the NPS has notified the Advisory Council on Historic Preservation (ACHP) of the potential adverse effect pursuant to 36 CFR Part 800.6(a)(1) and 36 CFR Part 800.14(b)(3) on (add date) and has invited the ACHP to participate in consultation and the ACHP has declined to participate; and

WHEREAS, the NPS has solicited and considered the views of the public using its NEPA public involvement procedures pursuant to 40 CFR Part 1500.2(d) and 40 CFR Part 1506.6, and National Preservation Act notification 36 CFR 800.2 (d) (2); the NPS has notified the public through news release October 25, 2019, public involvement period October 24 – November 24, 2019, public meeting November 7, 2018, and news release May 30, 2019, public review period June 1 – June 30, 2019, and public meeting June 18, 2019; and

NOW, THEREFORE, the NPS and the VISHPO agree that should the NPS proceed with the Undertaking; the NPS will ensure that the following stipulations are implemented to satisfy the NPS's Section 106 responsibilities for all individual actions related to the Undertaking:

STIPULATIONS

I. UNDERWATER ARCHEOLOGICAL RESOURCES

- A. The NPS will have the two artifacts (e.g., 18th century wooden stock anchor and 18th, to mid-19th century cannon) currently located within the work limits of the project area relocated to a place of VISHPO designation. The VISHPO will be on sight during any relocation activities.
- B. During removal, the artifact(s) will be lifted straight up and moved using air bags or a crane winch, rather than dragging it, to the relocation site, to avoid causing damage to it or other marine resources.
- C. Relocation will be performed by commercial divers and relocated to a site designated by VISHPO. The relocation site will be inspected prior to work to ensure installation of cannon and anchor will not impact any marine or cultural submerged resources in the area.
- D. The contractor or other entity responsible for the relocation of the artifacts will be required to abstain from revealing either the original location, or the place of relocation, of the object(s). The contractor will not take pictures and will not share or post any information regarding the relocation on social media or will not take any action that would create a risk of loss of archeological resources, as per 29 V.I.C. Chapter 17 § 961. Confidentiality of site location.
- E. The VISHPO will take full responsibility for the selected relocation site for the artifacts and full responsibility of the artifacts following relocation.
- F. Any press releases by NPS and VISHPO will emphasize the Antiquities and Cultural Properties Act (V.I.C. 29) and state that violators of the law (someone who appropriates, excavates, injures or destroys or cause to be appropriated, excavated, injured or destroyed any historical, cultural or archeological site, object, specimen, artifact, ruin, or feature situated in lands owned by the Government without a valid permit) may result in criminal and civil penalties.

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II. TERRESTRIAL HISTORIC PROPERTIES

- G. Terrestrial acoustic monitoring would be employed during construction activities to ensure noise levels are below acceptable requirements that would be determined through agency consultation and historic structures are not damaged from vibrations.
- H. A buffer of 10 to 12 feet will be established between any historic structure and work area, except where the bulkhead meets the Fort Christiansvaern wing wall.
- I. An archeological monitor will be employed during the construction activities to observe and stop work if previously unknown archeological resources are discovered. NPS shall ensure that all application documents include the following provisions:
 - 1. If previously unidentified historic properties or unanticipated effects to historic properties are discovered during replacement activities, the contractor shall immediately halt all activity within a one hundred (100) foot radius of the discovery, notify the NPS and VISHPO of the discovery and implement interim measures to protect the discovery from looting and vandalism. VISHPO will determine next actions for materials found during work.
 - 2. Immediately upon receipt of the notification required in Stipulation II.B.1 of this MOA, the NPS shall:
 - a) inspect the application site to determine the extent of the discovery and ensure that activities have halted;
 - b) clearly mark the area of the discovery;
 - c) implement additional measures, as appropriate, to protect the discovery from looting and vandalism; and
 - d) have a professional archeologist inspect the application site to determine the extent of the discovery and provide recommendations regarding its NRHP eligibility and treatment; and
 - e) notify the VISHPO of the discovery describing the measures that have been implemented to comply with Stipulations II.B.1 and B.2 (a-d) of this MOA.
 - 3. Within forty-eight (48) hours of receipt of the notification described in Stipulation II.B.2 (e) of this MOA, the NPS shall provide the VISHPO with its assessment of the NRHP eligibility of the discovery and the measures it proposes to take to resolve adverse effects. In making its official evaluation, the NPS, in consultation with the VISHPO may assume the discovery to be NRHP eligible for the purposes of Section 106 pursuant to 36 CFR Part 800.13(c). The VISHPO shall respond within forty-eight (48) hours of receipt.
 - 4. The application activities may proceed in the area of the discovery when the NPS has determined that implementation of the actions undertaken to address the discovery pursuant to Stipulation II.B are complete.

III. HUMAN REMAINS

In the unlikely event that human remains are uncovered during the undertaking, the NPS shall treat all human remains in a manner consistent with the ACHP's "Policy Statement Regarding Treatment of Burial Sites, Human Remains and Funerary Objects" (February 23, 2007) or ACHP policy in effect at the time remains and funerary artifacts are handled.

IV. MONITORING AND REPORTING

Each year following the execution of this MOA until it expires or is terminated, the NPS shall provide the VISHPO a summary report detailing work undertaken, relocated artifacts, and monitored pursuant to the Project and provide photographs of work completed. The report shall include any scheduling changes proposed, any problems encountered, and disputes and objections received in the NPS's efforts to carry out the terms of the MOA.

V. DISPUTE RESOLUTION

A. Should any consulting party object in writing to the NPS regarding any action carried out or proposed with respect to this MOA or the implementation of its terms, the NPS shall consult with the objecting party in an effort to resolve the objection. If, after initiating such consultation, the NPS determines that the objection cannot be resolved, the NPS shall:

1. Forward all documentation relevant to the dispute, including the NPS's proposed resolution, to the ACHP. The ACHP shall provide the NPS with its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation. Prior to reaching a final decision on the dispute, the NPS shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, consulting parties to this MOA, and provide them with a copy of this written response. The NPS will then proceed according to its final decision.
2. If the ACHP does not provide its advice regarding the dispute within the thirty (30) day time period, the NPS may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, the NPS shall prepare a written response that takes into account any timely comments regarding the dispute from the consulting parties to this MOA and provide them and the ACHP with a copy of such written response.

B. The NPS's responsibility to carry out all actions under this MOA that are not the subject of the objection remains unchanged.

VI. RESOLUTION OF OBJECTIONS BY THE PUBLIC

At any time during implementation of the measures stipulated in this MOA, should an objection pertaining to this MOA or the effect of the Project on historic properties be raised by a member of the public, the NPS shall notify the other consulting parties, and attempt to resolve the objection. If the NPS determines that the objection cannot be resolved, the NPS shall comply with Stipulations V.A and V.B of this MOA.

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VII. AMENDMENT

Should any party to this MOA request an amendment, the requesting party shall notify all other parties in writing. The written notification shall include a statement of purpose of the required modification and the proposed working to amend the MOA. All parties shall review the proposed amendment and, if necessary, shall consult among themselves to discuss the amendment. If after consultation it is agreed that the amendment is necessary or desirable, all parties to this original MOA shall sign the amended MOA. If necessary, dispute resolution shall follow Stipulation V.

VIII. TERMINATION

If any signatory determines that the terms of this MOA will not or cannot be carried out, that party shall immediately consult with the other signatories and concurring parties to seek an amendment in accordance with Stipulation VII of this MOA. If within thirty (30) days an amendment cannot be reached, any signatory may terminate the MOA upon written notification to the other signatories and concurring parties.

Once the MOA is terminated, and prior to work continuing on the Undertaking, the NPS must either (a) execute another MOA pursuant to 36 CFR Part 800.6, or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR Part 800.7. The NPS shall notify the signatories as to the course of action it will pursue.

IX. DURATION OF AGREEMENT

This MOA will expire if its terms are not carried out within five (5) years from the date of its execution. Prior to such time, the signatories may consult and agree in writing to an extension for carrying out the terms of the MOA in accordance with Stipulation VII above.

Execution of this MOA by the NPS and the VISHPO and implementation of its terms are evidence that the NPS has taken into account the effects of the Project on historic properties, and that the NPS has satisfied its Section 106 responsibilities for the Undertakings covered by this agreement.

Upon the completion of all stipulations to this MOA, the NPS shall circulate to the VISHPO a signed memorandum documenting that the NPS has fulfilled all its responsibilities under this MOA.

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SIGNATORIES:

NATIONAL PARK SERVICE:

FOR  _____ Date: 7-31-19
Gregory Camacho, Acting Superintendent
Christiansted National Historic Site
National Park Service, US Department of the Interior

VIRGIN ISLANDS STATE HISTORIC PRESERVATION OFFICE:

 _____ Date: 31-July-2019
Jean-Pierre L. Oriol, Commissioner/State Historic Preservation Officer
Department of Planning and Natural Resources
Virgin Islands State Historic Preservation Office

APPENDIX D: ERRATA

Following the release of the Environmental Assessment, the National Park Service (NPS) received a request from National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) Protected Species Division (PSD) to reduce the footprint of the new wharf bulkhead to 18 inches seaward to align with the US Army Corps of Engineers (USACE) Jacksonville District's Programmatic Biological Opinion (JAXBO), which identified techniques referred to as project design criteria to avoid or minimize adverse effects to Endangered Species Act (ESA)-listed species or designated critical habitat. In response to this request, the NPS revised the design of the new wharf bulkhead, where possible, to meet the project design criteria. Although the footprint of the steel sheet pile portion of the bulkhead cannot be reduced due to structural design requirements, the NPS revised the design of the cast-in-place concrete portion to reduce the footprint to the allowable values indicated in the JAXBO project design criteria. Two additional changes to the selected alternative since the release of the EA include the removal of the fendering system from the new wharf bulkhead and installation of new decking for a portion of the public Christiansted boardwalk at the western end of the project area, instead of removing the existing decking, stockpiling it during construction, and replacing it following construction.

The changes to the *Replace the Wharf Bulkhead at Christiansted National Historic Site Environmental Assessment* to revise the proposed action/NPS preferred alternative are summarized below, and are provided in strikeout format in the decision file.

Reducing the footprint of the concrete portion of the new bulkhead – The NPS made this change to the selected action in response to a request from National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) Protected Species Division (PSD) to reduce the footprint of the new wharf bulkhead to 18 inches seaward to align with the US Army Corps of Engineers (USACE) Jacksonville District's Programmatic Biological Opinion (JAXBO), which identified techniques referred to as project design criteria to avoid or minimize adverse effects to Endangered Species Act-listed species or designated critical habitat. The footprint of the steel sheet pile portion of the bulkhead cannot be reduced due to structural design requirements and will be installed approximately 24 inches seaward of the existing bulkhead. The NPS revised the design of the cast-in-place concrete portion to reduce the footprint to the allowable values indicated in the JAXBO project design criteria; the concrete portion of the new bulkhead will be installed 18 inches seaward instead of 32 inches, as analyzed in the EA. This reduces the footprint of the bulkhead from 1,530 square feet to 1,300 square feet or 0.03 acres. The concrete portion of the bulkhead is located in the eastern portion of the project area where essential fish habitat also occurs. The revised bulkhead design would result in a loss of approximately 300 square feet of marine bottomlands, as opposed to the 530 square feet associated with the original design. Included in this area is approximately 130 square feet (<0.01 acre) of a seagrass bed that is dominated by turtle grass that is anchored amongst rubble, stone, and various trash; this is reduced from the previous design which would have directly affected 280 square feet of the seagrass bed. The amount of the seagrass bed directly impacted would be reduced from 280 square feet to 130 square feet (<0.01 acre). A 600 square foot portion of marine bottomlands beyond the footprint of the concrete portion of the bulkhead could be indirectly impacted during construction activities. This includes approximately 285 square feet of seagrass.

The EA analyzed impacts to marine resources from the installation of the new wharf bulkhead and determined that the impacts from loss of benthic habitat will be small and adverse and localized to a small area of the larger Christiansted Harbor. The redesign of the concrete portion of the bulkhead will result in less of an impact, as a smaller amount of marine bottomlands would be affected. Therefore, the conclusions reached in the EA did not change.

Removal of a fendering system on the new bulkhead – A fendering system acts like a bumper and absorbs kinetic energy of a boat as it is approaching the wharf to protect both the vessel and the bulkhead. Removal of the fendering system will not have an impact on the resources analyzed in the EA. The NPS will still have the ability to expand visitor opportunities and restore marine vessel operations.

Installing new decking for a portion of the public Christiansted boardwalk at the western end of the project area – Instead of stockpiling the existing boardwalk decking and using the current material to rebuild the boardwalk following construction of the new wharf bulkhead, the NPS will use new material to rebuild the boardwalk. The new material will be selected to match the existing boardwalk to the extent possible. The boardwalk will be extended to match the extent of the new concrete cap of the bulkhead, but replacing the decking with new material will not have an effect on park resources.