SUPPLEMENTAL INFORMATION REPORT

CHARLESTON HARBOR POST 45

Part 1. Entrance Channel Design Modifications

Part 2. Pile Driving for Monitoring Equipment

US Army Corps of Engineers, Charleston District

March 2017

This Supplemental Information Report (SIR) was prepared in accordance with Section 13(d) of Engineer Regulation (ER) 200-2-2, *Procedures for Implementing the National Environmental Policy Act (NEPA)* and the Council on Environmental Quality (CEQ) *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* (40 Code of Federal Regulations (CFR) Pts. 1500-1508). The SIR accompanies the Charleston Harbor Post 45 Final Integrated Feasibility Report and Environmental Impact Statement (IFR/EIS), which is incorporated by reference. This SIR will further describe the entrance channel design modifications that developed during the Pre-construction Engineering and Design (PED) phase (***Part 1***) as well as the construction of a pile in the lower harbor to support wave and current monitoring for compliance with Section 106 of the National Historic Preservation Act (***Part 2***). The conditions, project description, and environmental effects described in the Final IFR/EIS are still valid, and this SIR is designed to provide supplemental information to the public and agencies to keep them informed of minor project changes. Supplementation of the IFR/EIS is not required per 40 CFR 1502.9(c) because substantial changes to the proposed action have not occurred nor do the changes have significant bearing on the findings of the Final IFR/EIS.

PART 1. ENTRANCE CHANNEL DESIGN MODIFICATIONS

BACKGROUND:

The study phase for the Post 45 project ended on September 8, 2015, with the issuance of the Chief's Report. The Assistant Secretary of the Army for Civil Works ASA(CW) signed the Record of Descion (ROD) and transmited the report to Congress for consideration for authorization on January 12, 2016. The project was authorized for construction on December 16, 2016, in the Water Resources Development Act (WRDA) of 2016. The PED phase was intiaited with the execution of the Design Agreement on December 16, 2015. The Recommend Plan from the Feasibility Study is described in Section 4.1.1 of the Final IFR/EIS (http://www.sac.usace.army.mil/Portals/43/docs/civilworks/post45/finalreport/1_Main%20Report%20and%20EIS.pdf).

The PED phase of work followed the completion of the Feasibility phase, which recommended the implementation of a plan to deepen the main harbor from -45 ft to -52 ft mean lower low water (MLLW). The Post 45 Final Integrated Feasibility Report and Environmental Impact Statement (IFR/EIS) Recommended Plan would: 1) deepen the entrance channel from -47-ft to -54-ft MLLW; 2) deepen the inner harbor from -45-ft to -52-ft MLLW to the Wando Welch and the new Hugh K. Leatherman, Sr., Terminals; 3) deepen the remaining inner harbor channel reaches to the North Charleston Terminal from -45-ft to -48-ft MLLW; and 4) enlarge turning basins and widen selected

channel reaches to accommodate Post-Panamax Generation 2 and 3 container ships (Figure 1). This part of this SIR serves to document minor dredging depth changes in the Entrance Channel for initial construction that were identified during PED.

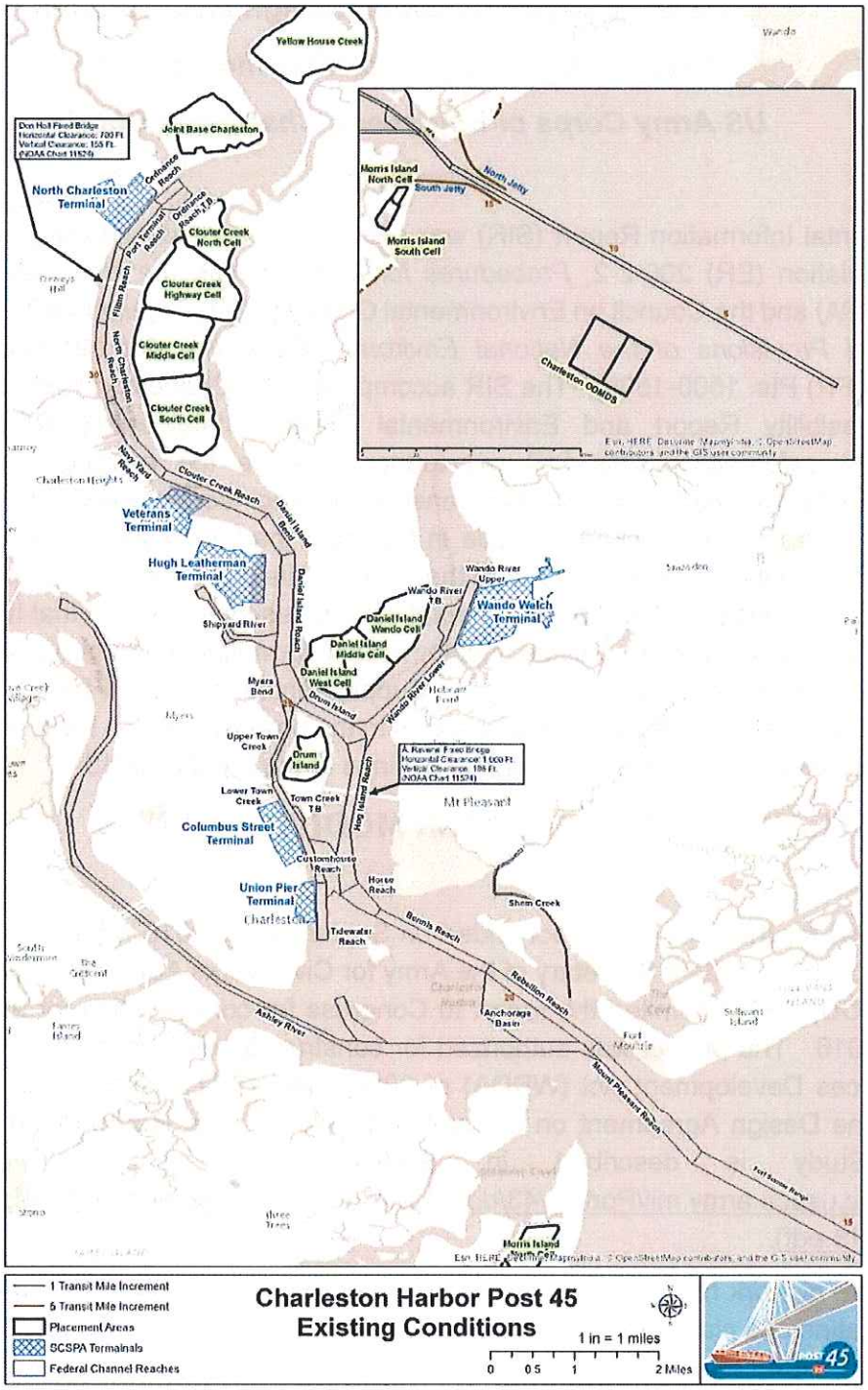
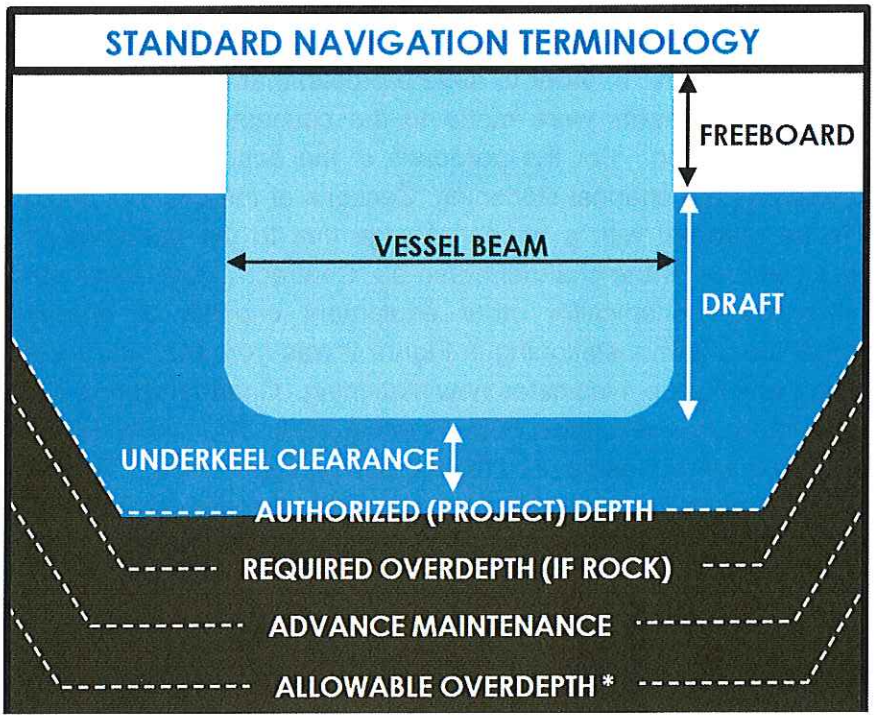


Figure 1. Location of the Federal channels, material placement sites, bridges, and major terminals

DESCRIPTION OF PROPOSED ENTRANCE CHANNEL DESIGN MODIFICATIONS:

The authorized depth for the entrance channel includes the depth needed for the design vessel to traverse the channel (52-ft) as well as an additional 2-ft for wave allowances (54-ft authorized depth). There are several depth allowances beyond the authorized depth, as defined in the Final IFR/EIS, for new construction (dredging of materials not dredged before to deepen or widen a channel). See Figure 2 for a graphic of these dredging allowances. These allowances include: required overdepth, advanced maintenance, and allowable overdepth. Required overdepth is a design term is used to refer to the need for new construction dredging in channel areas with a hard (rock) bottom to be greater then the authorized depth in order to ensure future maintenance of the project to the authorized dimensions. Advance maintenance is dredging to a specified depth beyond the authorized channel dimensions in critical and fast shoaling areas to avoid frequent re-dredging, in order to ensure the reliability and least overall cost of operating and maintaining the project authorized dimensions. Allowable overdepth is in excess of the required construction depth and allows payment for material dredged below the required construction depth to account for inaccuries in the dredging process. It is important to make the distinction between required depth and required overdepth. The addition of the required overdepth during new construction provides space for the dredge to operate above the rock bottom during future maintenance activities. While required depth as a construction term refers to the total depth the dredging contractor is required to clear. The required construction depth includes: the authorized depth plus any required design overdepth and/or advanced maintenance. Utliizing these definitions, the project construction depths for the entrance channel recommended from the Final IFR/EIS include: EC-1 required construction depth to 56-ft and allowable overdepth to 58-ft; and EC-2 required construction depth to 55-ft and allowable overdepth to 57-ft (Figure 3).



***To accommodate for dredging inaccuracies and insure that required contract depth is met**

Figure 2. Standard Navigation Channel Design Terminology

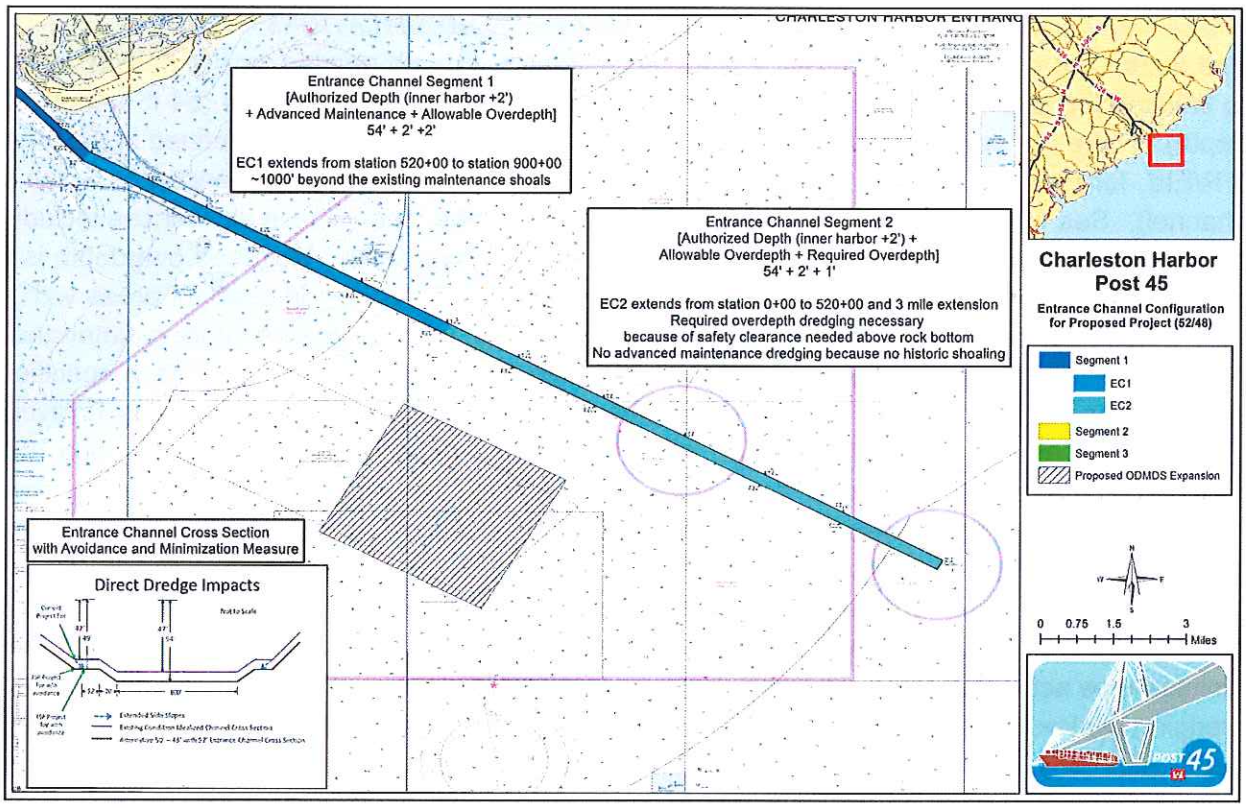


Figure 3. Proposed Entrance Channel Modifications from Feasibility Phase

A design focus of the PED phase was to refine the conceptual plan from the Feasibility study into a detailed plan for construction. In order to have a project that functions as the Recommended Plan intended, some adjustments were made to the conceptual Feasibility template for the Entrance Channel construction. For the purposes of the ensuing discussion, please refer to Figure 4, which indicates the channel stationing. Sections of the channel noted as "Contract 1" are anticipated to be dredged with a hopper dredge due to the presence of unconsolidated materials, whereas sections of the channel noted as "Contract 2" are anticipated to be dredged with a rock cutterhead/mechanical/or other equipment capable of dredging consolidated materials. Note that the channel stationing in Figure 2 was from the old (pre entrance channel extension) stationing and Figure 4 indicates new stationing. Channel station 520+00 from Figure 2 is roughly equivalent to channel station 700+00 in Figure 4. The overall PED updates reduced the volume of material to be dredged during the deepening construction. The below sub-sections document the design changes made in PED to ensure that the authorized project could function as described in the Final IFR/EIS (See Figure 4 which indicates the current channel stationing and the division of the channel into template sections A-D for identification of overdepth requirements).

Template A (Stations 0+00 to 350+00):

Template A updates included the removal of one foot of required design overdepth since there is no rock in the dredge prism in this area. This reach of the entrance channel is in an area where shoaling is not anticipated, however 1-ft of advanced mainteinace is included in the template for

this area to allow for sand waves and some sediment accumulation over time. The Feasibility phase (shown below as the Feasibility Conceptual Template) to PED phase (shown below as the Final Construction Template) refinement in this area is shown below and results in one less foot of dredging.

i. Feasibility Conceptual Template: 54-ft authorized depth + 1-ft required design overdepth + 2-ft allowable overdepth = 55-ft required depth +2-ft allowable overdepth = 57-ft total pay depth

ii. Final Construction Template: 54-ft authorized depth + 1-ft advanced maintenance + 1-ft allowable overdepth = 55-ft required depth +1-ft allowable overdepth = 56-ft total pay depth

Template B (Stations 350+00 to 530+00):

This reach of the entrance channel is in a non-shoaling, consolidated (rock) area. The Feasibility phase to PED phase change in this area is shown below and results in one less foot of dredging.

i. Feasibility Conceptual Template: 54-ft authorized depth + 1-ft required overdepth + 2-ft allowable overdepth = 55-ft required depth + 2-ft allowable overdepth = 57-ft total pay depth

ii. Final Construction Template: 54-ft authorized depth + 1-ft required design overdepth + 1-ft allowable overdepth = 55-ft required depth +1-ft allowable overdepth = 56-ft total pay depth

Template C (Stations 530+00 to 700+00 and 983+00 to 1084+79):

Station 530+00 to 700+00 is a low shoaling area with rock bottom. A shoaling analysis showed the presence of slower forming shoals in this area indicating that future maintenance dredging will be required. By moving 1-ft of allowable overdepth to the required depth, the channel is guaranteed 56-ft of rock being cleared which will allow for at least 54-ft authorized depth + 2 ft allowable overdepth during future maintenance dredging. Station 983+00 to 1084+79 is a low shoaling area with an unconsolidated bottom between the Jetties. Although the internal breakout of the different depth functions has changed from the Feasibility phase, there is no change in the total pay depth that may be dredged in these areas.

i. Feasibility Conceptual Template: 54-ft authorized depth + 1-ft required overdepth + 2-ft allowable ovderdepth = 55-ft required depth + 2-ft allowable overdepth = 57-ft total payable depth that may be dredged

ii. Final Construction Template (530+00 to 700+00): 54-ft authorized depth + 1-ft required overdepth +1-ft advanced maintenance + 1-ft allowable ovderdepth = 56ft required depth + 1-ft allowable overdepth = 57-ft total pay depth

iii. Final Construction Template (983+00 to 1084+79): 54-ft authorized depth + 2-ft advanced maintenance + 1-ft allowable overdepth = 56-ft required depth + 1-ft allowable overdepth = 57-ft total pay depth

Template D (Stations 700+00 to 983+00):

Station 700+00 to 915+00 is a shoaling, consolidated (rock) area, and Station 915+00 to 983+00 is a shoaling, uncsonolidated area. The Feasibility phase to PED phase change in this area is shown below and results in one more foot of dredging.

i. Feasibility Conceptual Template: 54-ft authorized depth + 2-ft advanced maintenance + 2-ft allowable overdepth = 56-ft required depth +2-ft allowable overdepth = 58-ft total pay depth

ii. Final Construction Template: 54-ft authorized depth + 2-ft advanced maintenance + +2-ft required overdepth + 1-ft allowable overdepth = 58-ft required depth +1-ft allowable overdepth = 59-ft total pay depth

As stated above, in rock areas, the depth required for new work dredging becomes the maximum total pay template in future maintenance dredging. In the case of the Feasibility phase conceptual plan, only 56-ft is guaranteed to be cleared. The 2-ft allowable overdepth proposed during the Feasibility study may or may not be dredged resulting in no guarantee that the rock is removed to the full 58-ft needed for future maintenance dredging (54' authorized depth + 2' advanced maintenance + 2' allowable overdepth = 58' total payable depth). Without the ability to dredge 2' of advanced maintenance, the current 2 year maintenance dredging cycle would be at significant risk to increasing to every year during hopper season.

Station 915+00 to 983+00 is a shoaling, unconsolidated area. Though the unconsolidated area does not necessarily need the additional required overdepth it is part of the continuous shoal that occurs from 700+00 to 983+00. It would change the dynamic of the shoal if portions of the shoal were dredged different depths. It is important to note that the addition of 1' of dredging depth potential under the new work contract is only a temporary, initial construction occurrence. This extra foot, if dredged (because it is allowable overdepth), would shoal in quickly bringing the channel back to the 58' of total depth planned in feasibility. However, constructing it this way initially will provide a more viable and sustainable project that can continue the project's current 2 year maintenance cycle as intended by the Recommended Plan of the Feasibility study

SUMMARY OF PED MODIFICATIONS

In summary, these design considerations result in roughly 12 miles of channel being 1-ft shallower than the Feasibility plan, roughly 3.2 miles having no change in total depth from the Feasibility plan, and roughly 5.3 miles being 1-ft deeper than the Feasibility plan for initial construction. The areas that are dredged 1-ft deeper will have no long term affect on water quality because they are in shoaling areas and will only be maintained to -58-ft for any operations and maintenance contracts. Maximum maintenance of the channel most likely will be as follows (total pay depth) though unconsolidated areas may be maintained up to 58' if necessary as per the project authorization:

i. Station 0+00 to 530+00: -55-ft

ii. Station 530+00 to 700+00: -56-ft

iii. Station 700+00 to 983+00: -58-ft

iv. Station 983+00 to 1084+00: -56-ft

Overall, it is anticipated that dredging volumes during new work construction will be decreased by approximately 588,000 Cubic Yards.

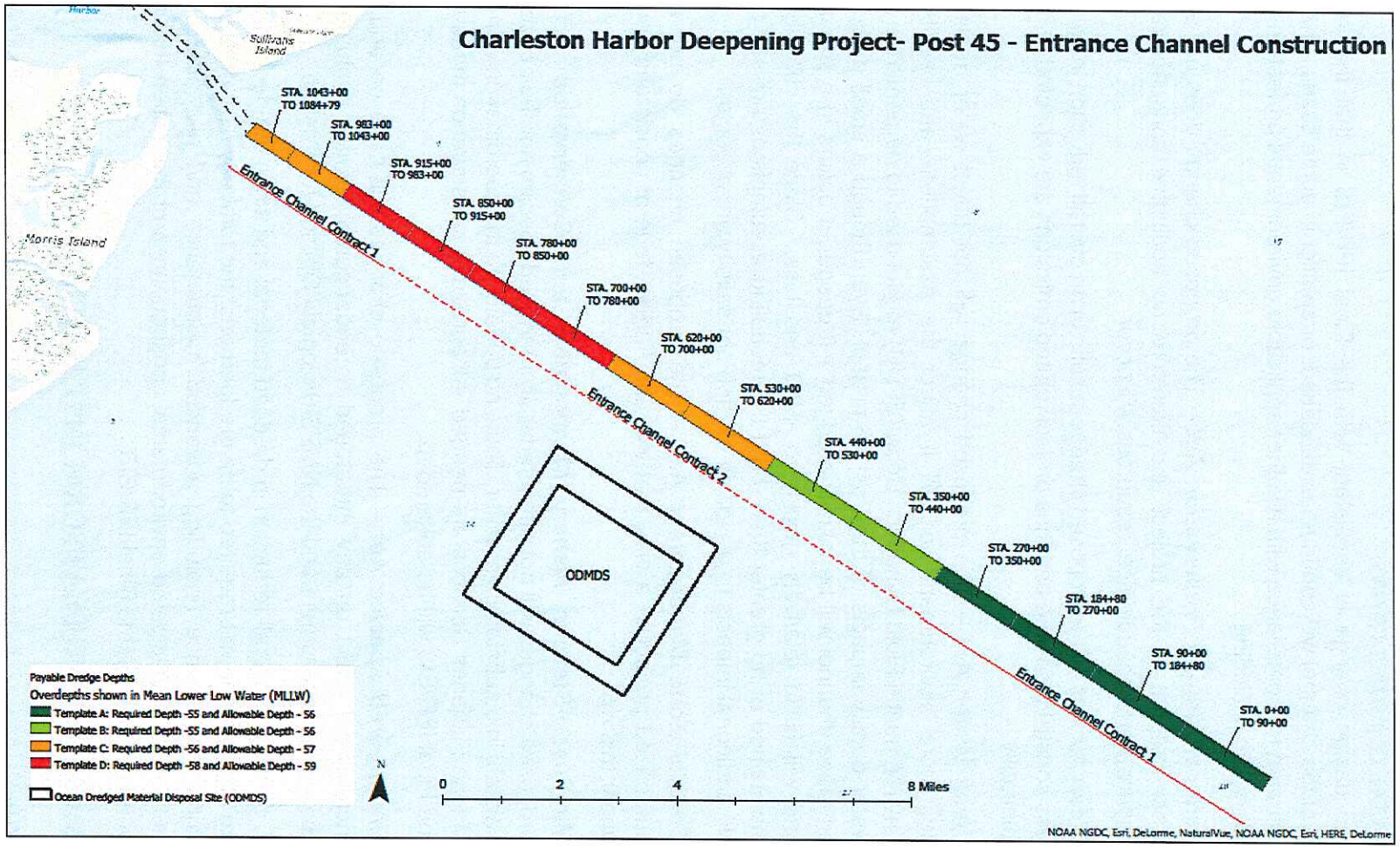


Figure 4. Proposed modifications resulting from PED phase including channel stationing

ENVIRONMENTAL CONSIDERATIONS:

The proposed design change is consistent with the Final IFR/EIS in that the long term maintenance of the channel will continue as described, or smaller in some cases. The change has been evaluated for compliance with all other applicable environmental protection statutes, executive orders, etc. including:

i. ***National Historic Preservation Act*** – The proposed change does not affect the areal footprint of the project and therefore no additional concerns related to underwater archaeological resources will occur.

ii. ***Clean Air Act*** – The proposed change results in an overall reduction in volume and less construction time and thus project related emissions are expected to decrease minimally.

iii. ***Clean Water Act*** – The proposed change will not affect water quality of the nearshore environment nor will it affect the assumptions and results of the Environmental Fluid Dynamics Code (EFDC) model used to demonstrate potential water quality impacts of the Post 45 project. Even though a small portion of the entrance channel will be initially dredged 1-ft deeper, it occurs in a shoaling area and will fill in relatively quickly to -58-ft and less. Since the channel will be maintained at no greater than -58 ft the modeling assumptions are still accurate. No additional impacts to dissolved oxygen nor salinity are expected.

iv. ***Coastal Zone Management Act*** – The proposed changes do not alter the authorized project in a way that warrants further federal consistency evaluation under this act.

v. ***Magnuson-Stevens Fishery Management and Conservation Act*** – The proposed changes will not affect federally managed species nor their essential fish habitats in a substantial manner. Thus, no updates to the coordination with National Marine Fisheries Services are needed. All agreed to conservation measures from the Final IFR/EIS will be adhered to.

vi. ***Endangered Species Act*** – The proposed changes will have no additional or incremental effect on any threatened or endangered species evaluated in the Biological Assessment and the NMFS Biological Opinion for Post 45.

In summary, due to the overall reduction in dredged material and since the deeper areas are anticipated to shoal in and not required to be dredged past the total payment dredging depth of -58-ft during maintenance (including advanced maintenance and allowable overdepth dredging) there are no anticipated environmental consequences of this action that have not previously been identified in the Final IFR/EIS.

PART 2: MONITORING PLATFORM INSTALLATION

BACKGROUND:

The below sections document the environmental consequences of constructing a single wood pile structure to support monitoring equipment for the Post 45 Navigation Project. The pile will

be located in Charleston Harbor near Sullivan's Island offshore from Ft. Moultrie (Figure 5). The equipment will consist of a 12" diameter timber resulting in a platform on which monitoring equipment can be attached to collect data regarding waves, currents, and video of vessel traffic, as prescribed in the Programmatic Agreement (PA) between the U.S. Army Corps of Engineers (USACE), the SC Department of Archives and History (SCDAH), and the National Park Service (NPS). The PA was part of the Post 45 Final Integrated Feability Report/Environmental Impact Statement (IFR/EIS).

ENVIRONMENTAL CONSIDERATIONS

This proposed action has been reviewed by the USACE and the U.S. Coast Guard (USCG). The USCG has categorically excluded the installation of this pile under 67 FR 48243 Appendix, and current Coast Guard CE #23, in accordance with Section 2.B.2. and Figure 2-1 of the National Environmental Policy Act (NEPA) Implementing Procedures and Policy for Considering Environmental Impacts, COMDTINST M16475.1D, from further environmental documentation, since implementation of this action will not result in any:

1) Significant cumulative impacts on the human environment;
2) Substantial controversy or substantial change to existing environmental conditions;
3) Impacts which are more than minimal on properties protected under 4(f) of the Department of Transportation (DOT) Act as superseded by Public Law 97-449, and Section 106 of the National Historic Preservation Act;
4) Inconsistencies with any Federal, state, or local laws or administrative determinations relating to the environment.

The impacts of this pile installation are within the scope of those covered under the USACE Nationwide Permit (NWP) #5, which covers scientific measurement devices. Nationwide permits authorize activities that are similar in nature and cause only minimal adverse environmental impacts to aquatic resources separately or on a cumulative basis. Activities ranges from work associated with aids to navigation and utility lines to residential developments and maintenance activities. The NWP #5 defines scientific monitoring equipement as, "devices, whose purpose is to measure and record scientific data, such as staff gages, tide and current gages, meteorological stations, water recording and biological observation devices, water quality testing and improvement devices, and similar structures." While the NWP is not necessary to authorize this action, it is important to document that the nature and impacts of the action are consistent with the scope and will satisfy the conditions of the NWP.

Figure 5. Proposed Pile and Monitoring Equipment Location

Coordination with SC Department of Natural Resources, National Marine Fisheries Service, US Fish and Wildlife Service (USFWS), SC Department of Health and Environmental Control (SCDHEC) – Office of Ocean and Coastal Resource Management, SCDHEC - Bureau of Water, SCDHEC – Bureau of Air Quality, SCDAH, SC Institute for Anthropology and Archaeology (SCIAA),NPS, US Geological Survey, and U.S. Environmental Protection Agency did not reveal any significant concerns. The proposed pile installation is expected to be completed by the USCG utilizing best management practices to avoid and minimize environmental impacts. The pile will have no effect on either National Marine Fisheries Service (NMFS) or USFWS resources protected under the Endangered Species Act (ESA). Known species in the area include Right Whales, numerous species of sea turtles, piping plovers, red knots, and wood storks. All of these species are mobile and can avoid the project area during pile installation. Noise impacts from pile driving will be minimal and short term. USCG has indicated that their vessels will also adhere to requirements while operating in the Right Whale Seasonal Management Area (SMA). The location of the pile was thoroughly discussed with

both the NPS and SCIAA to address both concerns over the viewshed for visitors to Ft. Moultrie and potential impacts to Bowman's Jetty (identified in Figure 5). Bowman's Jetty is a Civil War naval junkyard with several wrecked blockade runners in the area. The polygon identified within Figure 5 was determined to be a suitable location for the pile to be installed. USACE selected the northwestern portion of the polygon to further minimize concerns regarding Bowman's Jetty.

SUMMARY OF DECISION

These proposed actions have been reviewed by the USACE and are not expected to result in any significant adverse environmental impacts as described in the National Environmental Policy Act of 1969. Supplementation of the IFR/EIS is not required per 40 CFR 1502.9(c) because substantial changes to the proposed action have not occurred nor do the changes have significant bearing on the findings of the Final IFR/EIS.

DATE: 20 March 2017

MATTHEW W. LUZZATTO, P.E., PMP
Lieutenant Colonel, EN
Commander, U.S. Army Engineer District,
Charleston