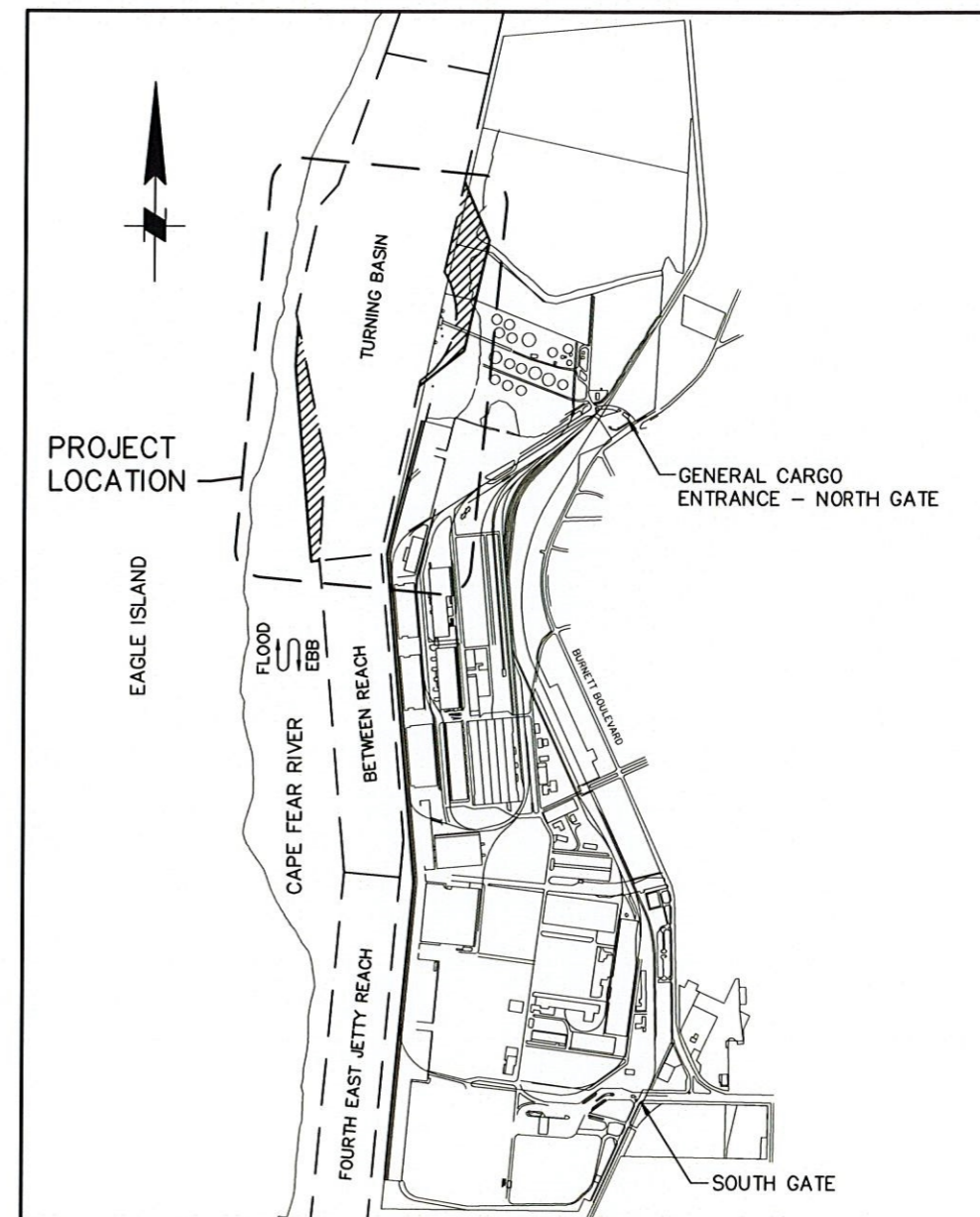


VICINITY MAP
NOT TO SCALE



LOCATION MAP
NOT TO SCALE

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DCM WILMINGTON, NC

OCT 29 2018

PROJECT TITLE: NORTH CAROLINA STATE PORTS AUTHORITY
WILMINGTON TERMINAL
TURNING BASIN EXPANSION

DATUM: MLLW
PREPARED BY: MOFFATT & NICHOL

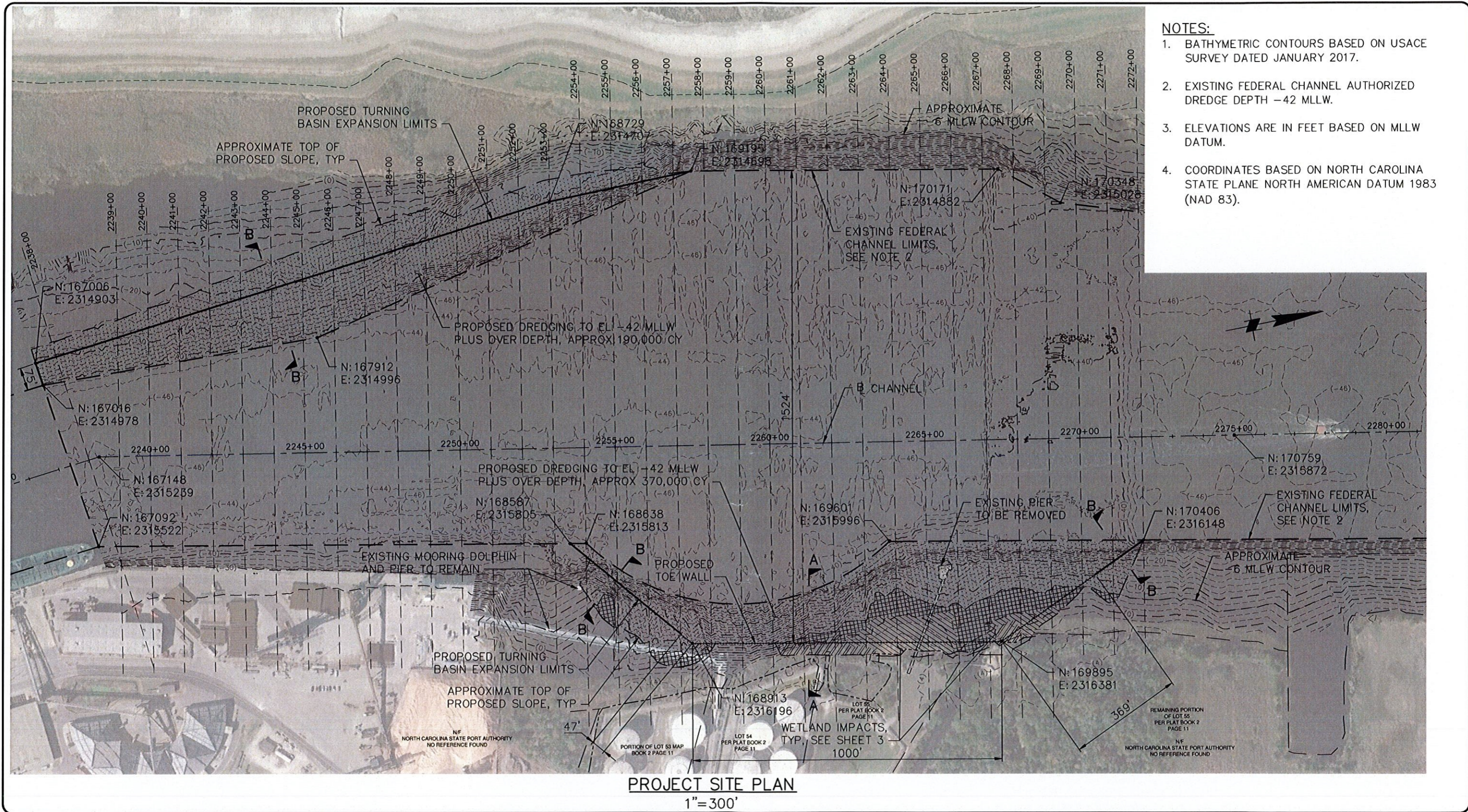
PREPARED FOR: NORTH CAROLINA STATE PORTS AUTHORITY



DATE: OCTOBER 2018

SHEET TITLE:
PROJECT VICINITY AND LOCATION MAP

SHEET
1
OF
16



- NOTES:**
- BATHYMETRIC CONTOURS BASED ON USACE SURVEY DATED JANUARY 2017.
 - EXISTING FEDERAL CHANNEL AUTHORIZED DREDGE DEPTH -42 MLLW.
 - ELEVATIONS ARE IN FEET BASED ON MLLW DATUM.
 - COORDINATES BASED ON NORTH CAROLINA STATE PLANE NORTH AMERICAN DATUM 1983 (NAD 83).

PROJECT TITLE: NORTH CAROLINA STATE PORTS AUTHORITY
WILMINGTON TERMINAL
TURNING BASIN EXPANSION

DATUM: MLLW

PREPARED BY: MOFFATT & NICHOL

PREPARED FOR: NORTH CAROLINA STATE PORTS AUTHORITY

DATE: OCTOBER 2018

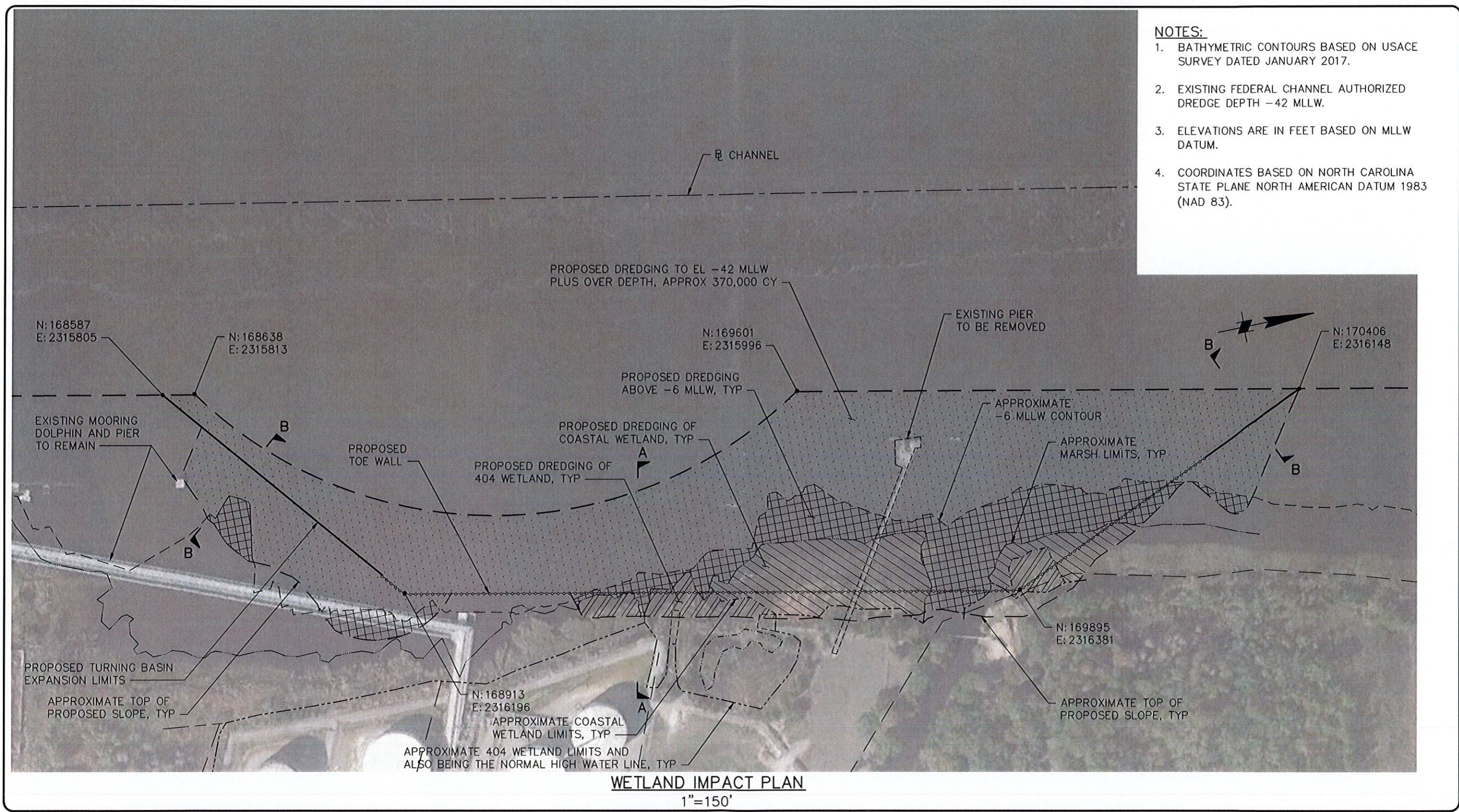
NORTH CAROLINA PORTS

SHEET TITLE:
PROJECT SITE PLAN

0 150' 300'
1"=300'

SHEET
2
OF
16

- NOTES:**
- BATHYMETRIC CONTOURS BASED ON USACE SURVEY DATED JANUARY 2017.
 - EXISTING FEDERAL CHANNEL AUTHORIZED DREDGE DEPTH -42 MLLW.
 - ELEVATIONS ARE IN FEET BASED ON MLLW DATUM.
 - COORDINATES BASED ON NORTH CAROLINA STATE PLANE NORTH AMERICAN DATUM 1983 (NAD 83).



PROJECT TITLE: NORTH CAROLINA STATE PORTS AUTHORITY
WILMINGTON TERMINAL
TURNING BASIN EXPANSION

DATUM: MLLW
PREPARED BY: MOFFATT & NICHOL

PREPARED FOR: NORTH CAROLINA STATE PORTS AUTHORITY

NORTH CAROLINA PORTS

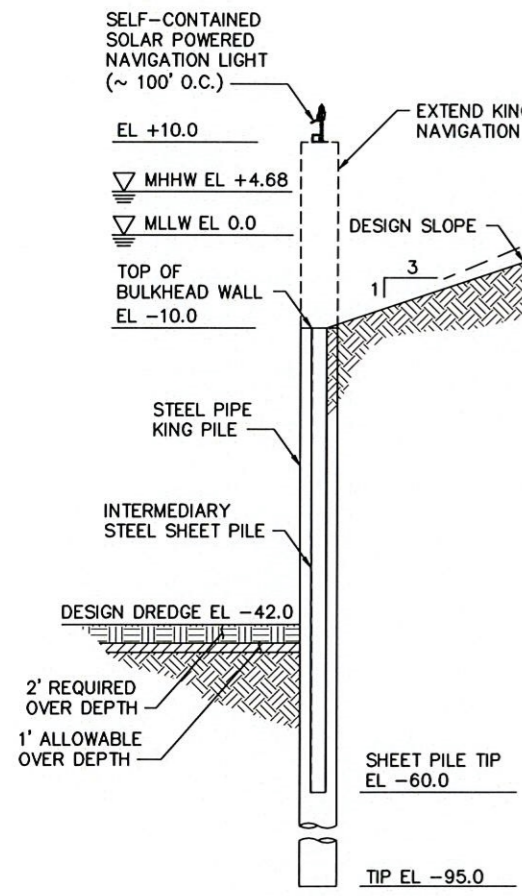
DATE: OCTOBER 2018

SHEET TITLE:
WETLAND IMPACT PLAN

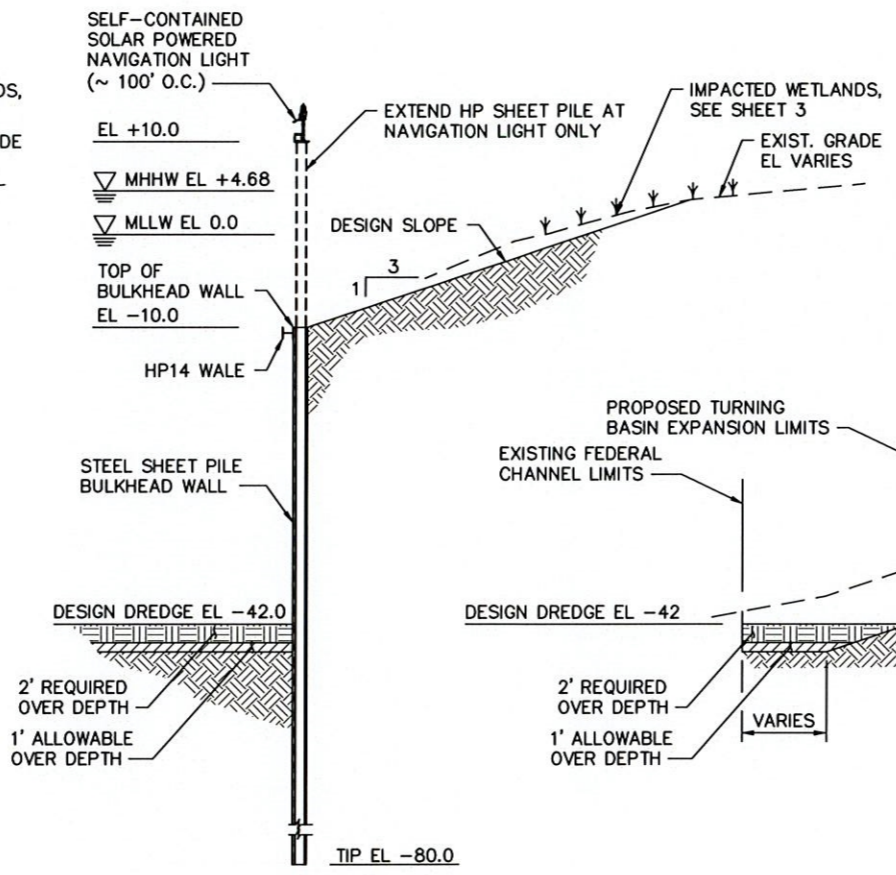
0 75' 150'
1"=150'

SHEET
3
OF
16

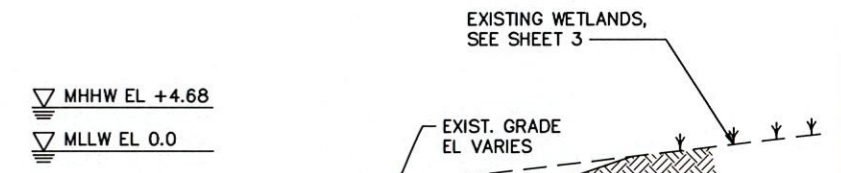
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RECEIVED
DCM WILMINGTON, NC
OCT 29 2018



SECTION A-A
KING PILE WALL
1"=20'



SECTION A-A
SHEET PILE WALL ALTERNATIVE
1"=20'



SECTION B-B
1"=20'

PROJECT TITLE: **NORTH CAROLINA STATE PORTS AUTHORITY
WILMINGTON TERMINAL
TURNING BASIN EXPANSION**

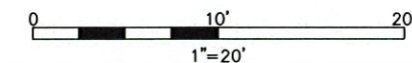
DATUM: MLLW
PREPARED BY: MOFFATT & NICHOL

PREPARED FOR: **NORTH CAROLINA STATE PORTS AUTHORITY**

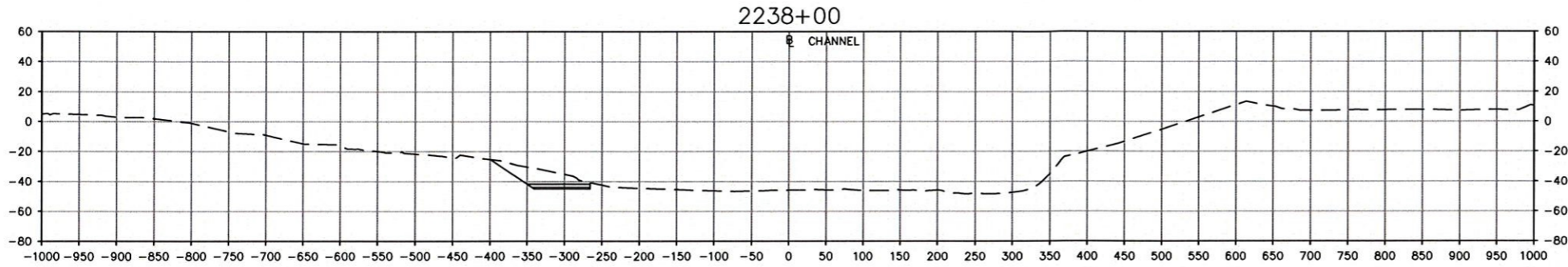


DATE: OCTOBER 2018

SHEET TITLE:
TYPICAL SECTIONS



SHEET
4
OF
16

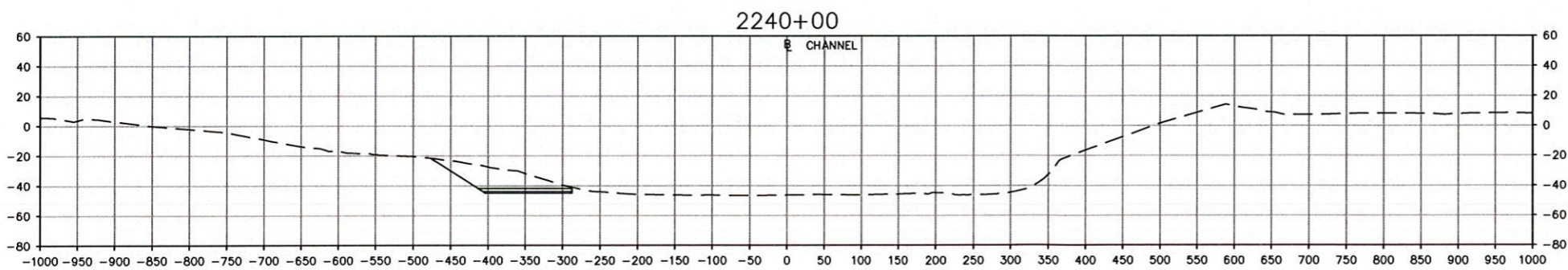
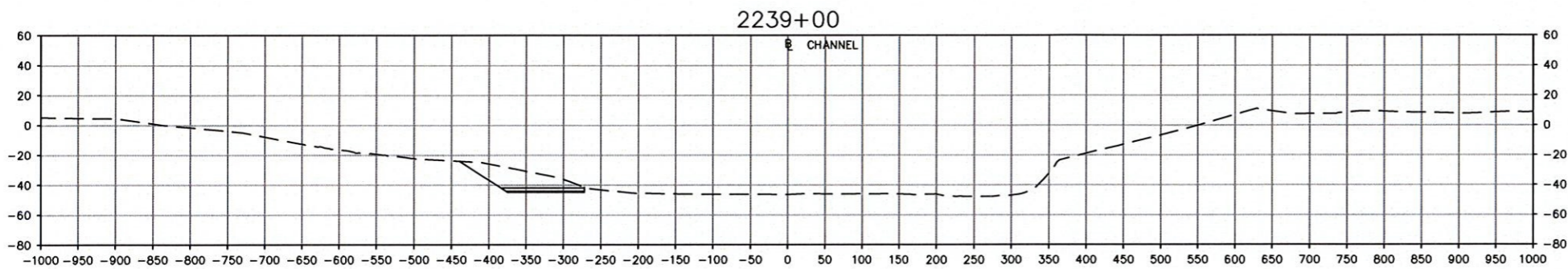


- NOTES:**
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LEGEND

----- APPROXIMATE EXISTING GRADE

———— PROPOSED DREDGING



PROJECT TITLE: NORTH CAROLINA STATE PORTS AUTHORITY
WILMINGTON TERMINAL
TURNING BASIN EXPANSION

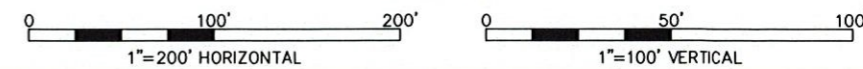
DATUM: MLLW
PREPARED BY: MOFFATT & NICHOL

PREPARED FOR: NORTH CAROLINA STATE PORTS AUTHORITY



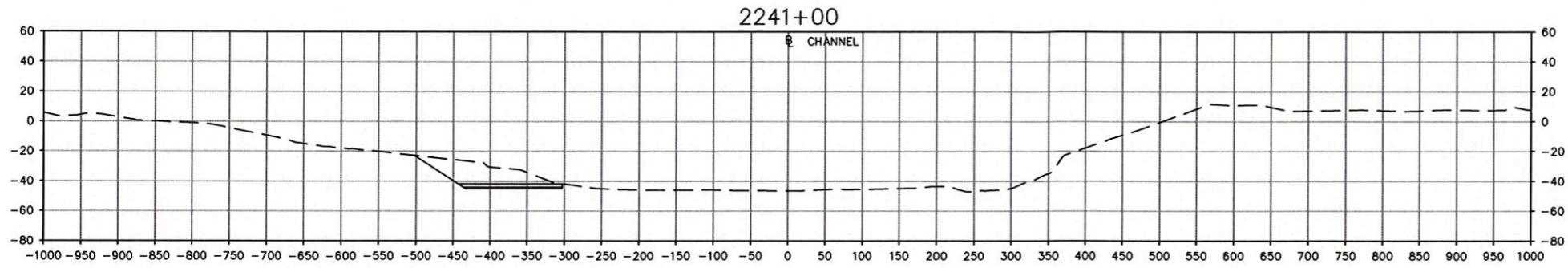
DATE: OCTOBER 2018

SHEET TITLE:
CROSS SECTIONS
1 OF 12



SHEET
5
OF
16

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RECEIVED
DCM WILMINGTON, NC
OCT 29 2018

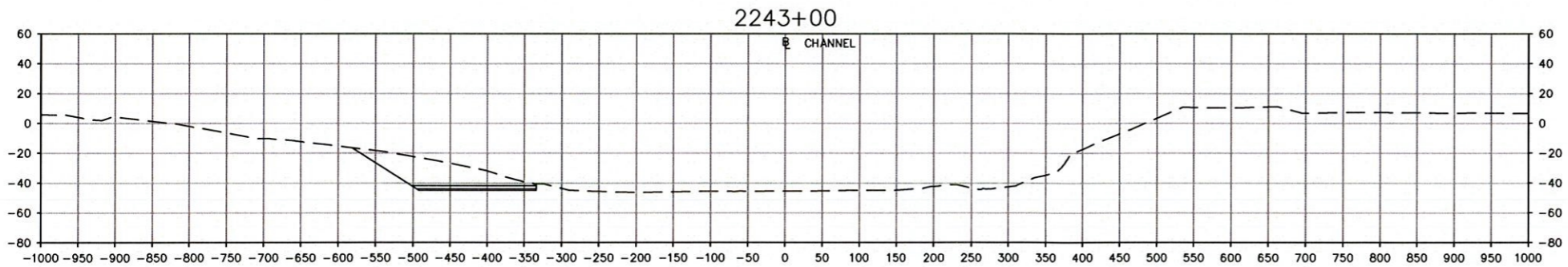
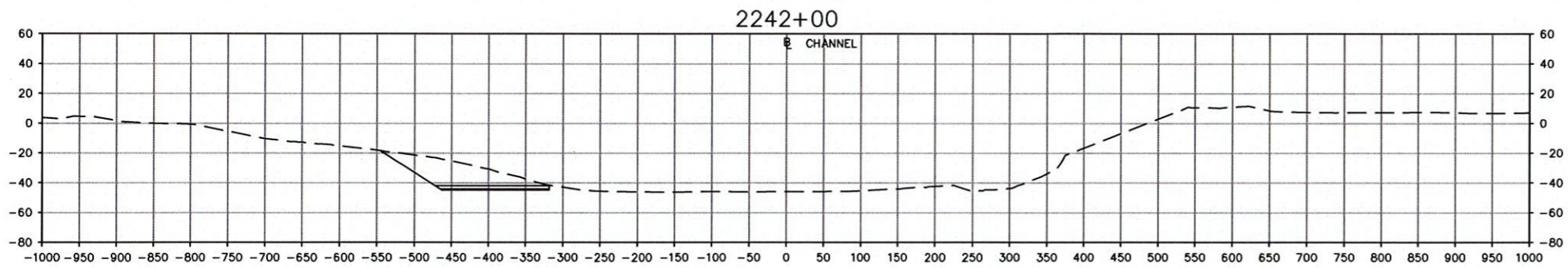


NOTES:

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LEGEND

- APPROXIMATE EXISTING GRADE
- PROPOSED DREDGING



PROJECT TITLE: **NORTH CAROLINA STATE PORTS AUTHORITY
WILMINGTON TERMINAL
TURNING BASIN EXPANSION**

DATUM: MLLW

PREPARED BY: MOFFATT & NICHOL

PREPARED FOR: **NORTH CAROLINA STATE PORTS AUTHORITY**

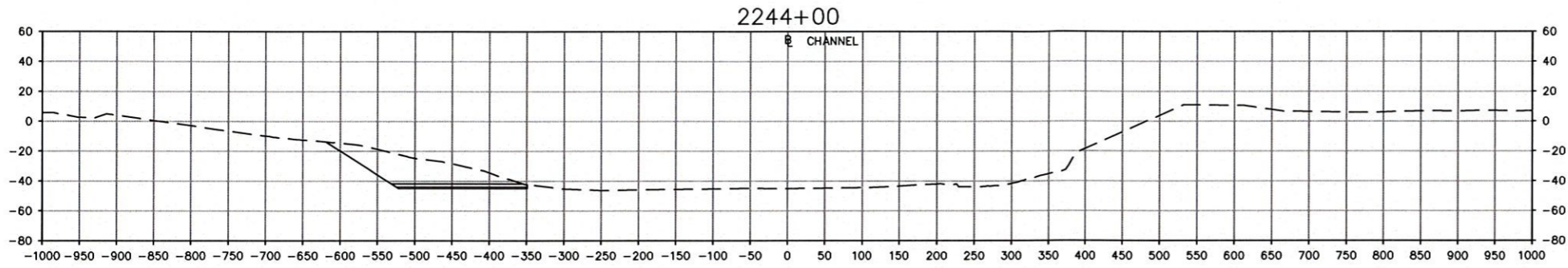


DATE: OCTOBER 2018

SHEET TITLE:
**CROSS SECTIONS
2 OF 12**



SHEET
5
OF
16

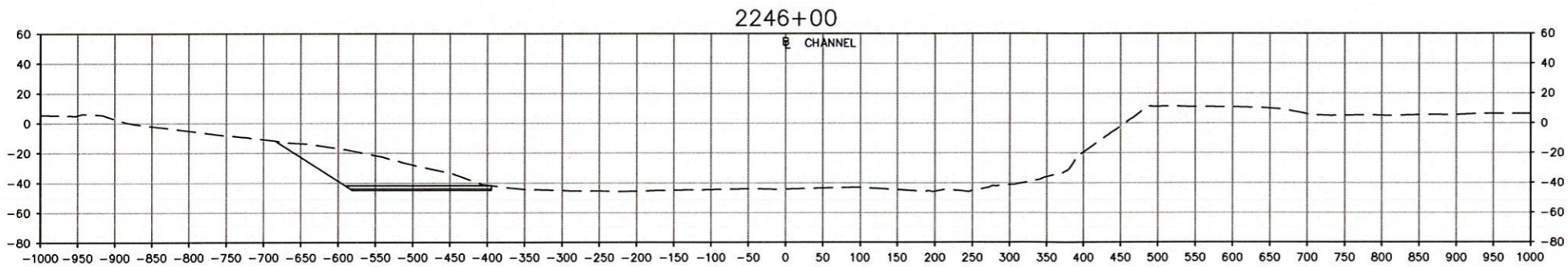
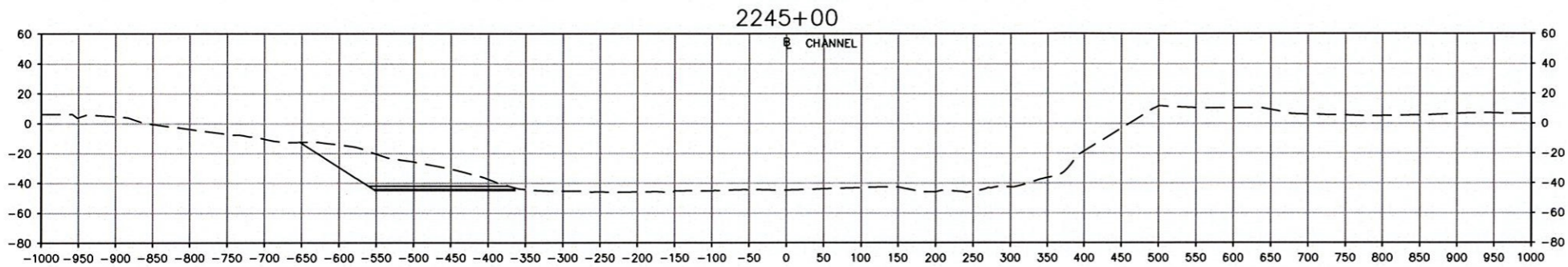


NOTES:

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LEGEND

- - - - - APPROXIMATE EXISTING GRADE
- PROPOSED DREDGING



PROJECT TITLE: **NORTH CAROLINA STATE PORTS AUTHORITY
WILMINGTON TERMINAL
TURNING BASIN EXPANSION**

DATUM: MLLW

PREPARED BY: MOFFATT & NICHOL

PREPARED FOR: **NORTH CAROLINA STATE PORTS AUTHORITY**

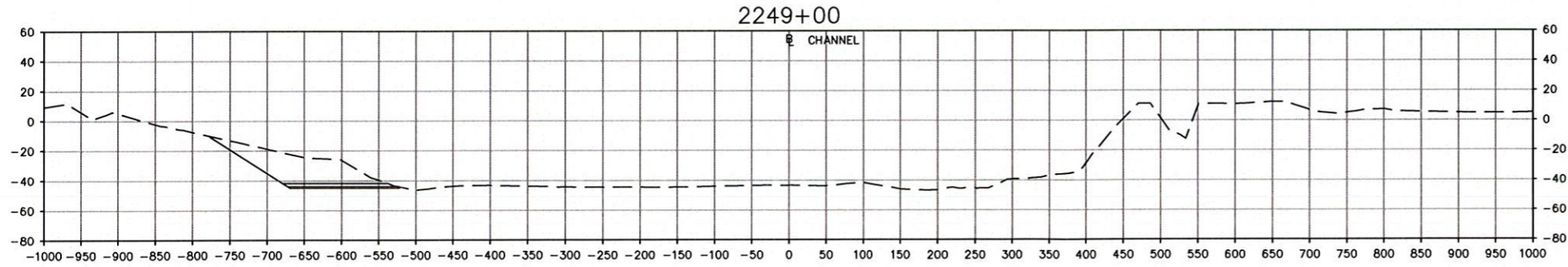
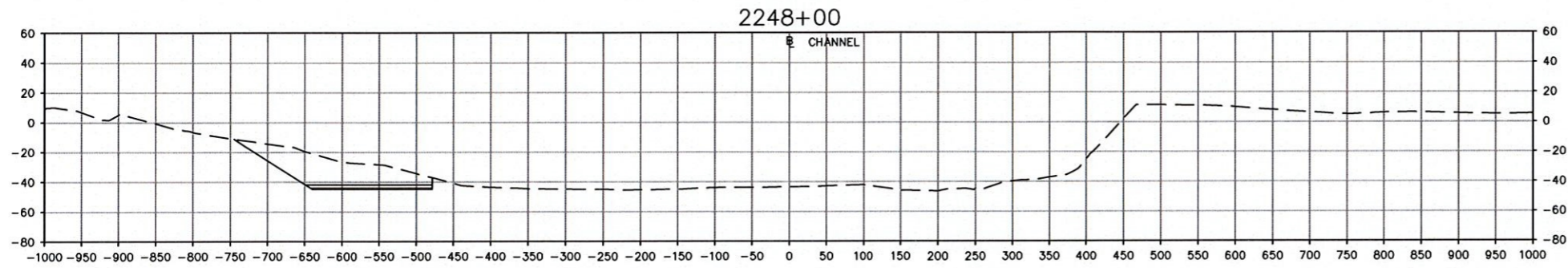
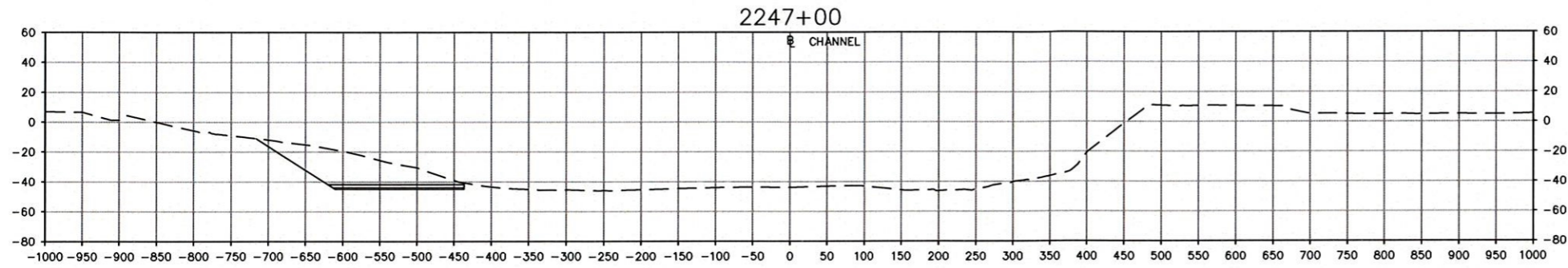


DATE: OCTOBER 2018

SHEET TITLE:
**CROSS SECTIONS
3 OF 12**



SHEET
**7
OF
16**



NOTES:

- BATHYMETRIC CONTOURS BASED ON USACE SURVEY DATED JANUARY 2017.
- ELEVATIONS ARE IN FEET BASED ON MLLW DATUM.

LEGEND

- APPROXIMATE EXISTING GRADE
- PROPOSED DREDGING

PROJECT TITLE: **NORTH CAROLINA STATE PORTS AUTHORITY
WILMINGTON TERMINAL
TURNING BASIN EXPANSION**

DATUM: MLLW

PREPARED BY: MOFFATT & NICHOL

PREPARED FOR: **NORTH CAROLINA STATE PORTS AUTHORITY**

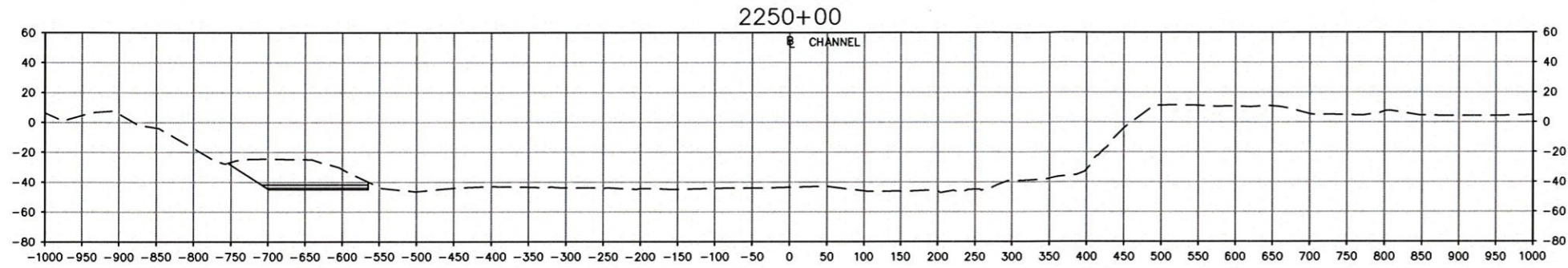


DATE: OCTOBER 2018

SHEET TITLE:
**CROSS SECTIONS
4 OF 12**



SHEET
8
OF
16

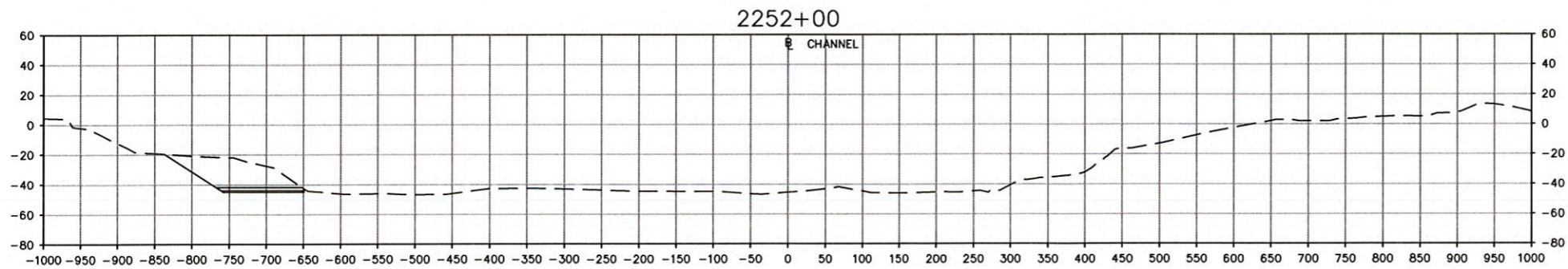
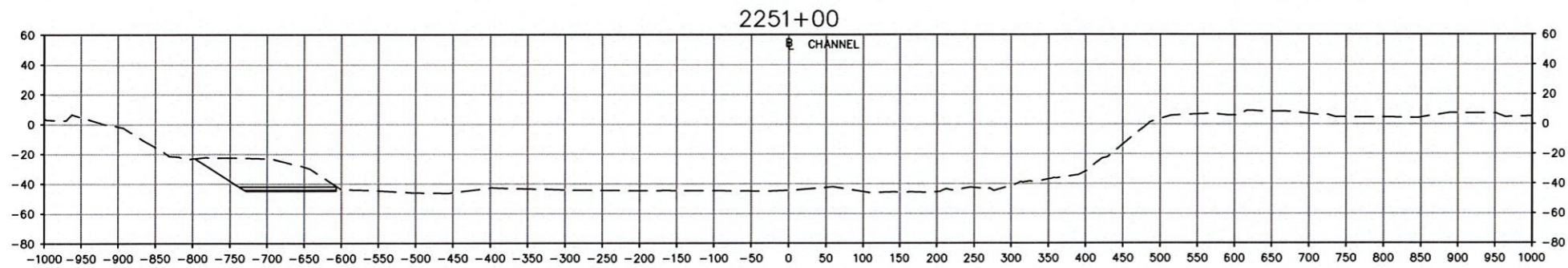


NOTES:

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LEGEND

- APPROXIMATE EXISTING GRADE
- PROPOSED DREDGING



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OCT 29 2018

PROJECT TITLE: **NORTH CAROLINA STATE PORTS AUTHORITY
WILMINGTON TERMINAL
TURNING BASIN EXPANSION**

DATUM: MLLW

PREPARED BY: MOFFATT & NICHOL

PREPARED FOR: **NORTH CAROLINA STATE PORTS AUTHORITY**

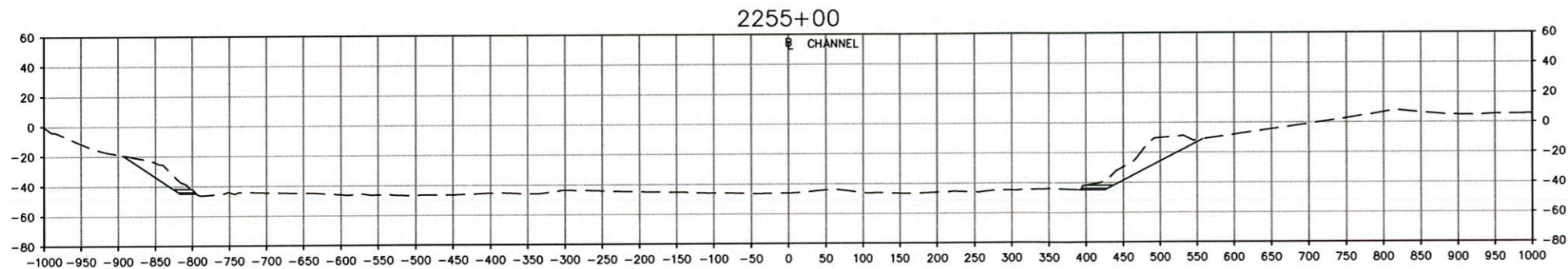
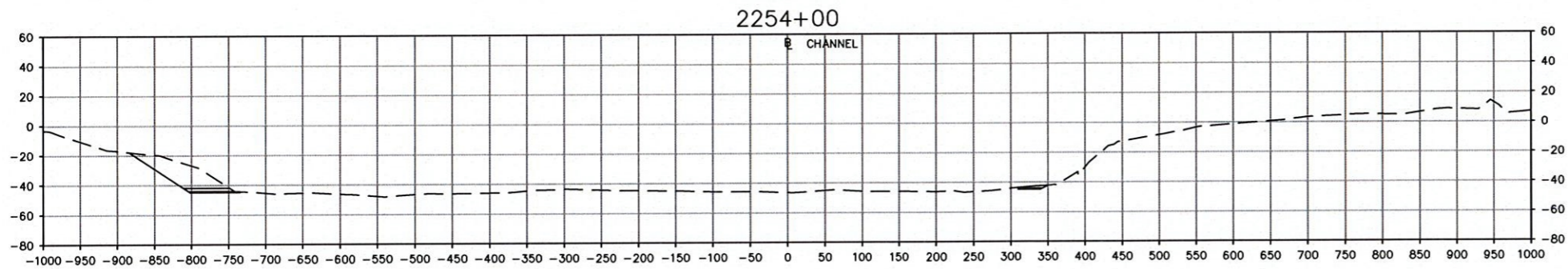
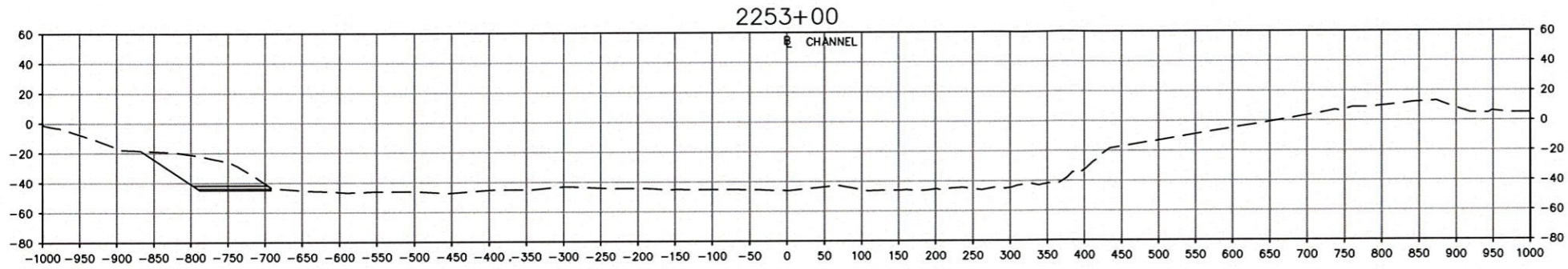


DATE: OCTOBER 2018

SHEET TITLE:
**CROSS SECTIONS
5 OF 12**



SHEET
9
OF
16



NOTES:

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LEGEND

- APPROXIMATE EXISTING GRADE
- PROPOSED DREDGING

RECEIVED
DCM WILMINGTON, NC

OCT 29 2018

PROJECT TITLE: NORTH CAROLINA STATE PORTS AUTHORITY
WILMINGTON TERMINAL
TURNING BASIN EXPANSION

DATUM: MLLW
PREPARED BY: MOFFATT & NICHOL

PREPARED FOR: NORTH CAROLINA STATE PORTS AUTHORITY

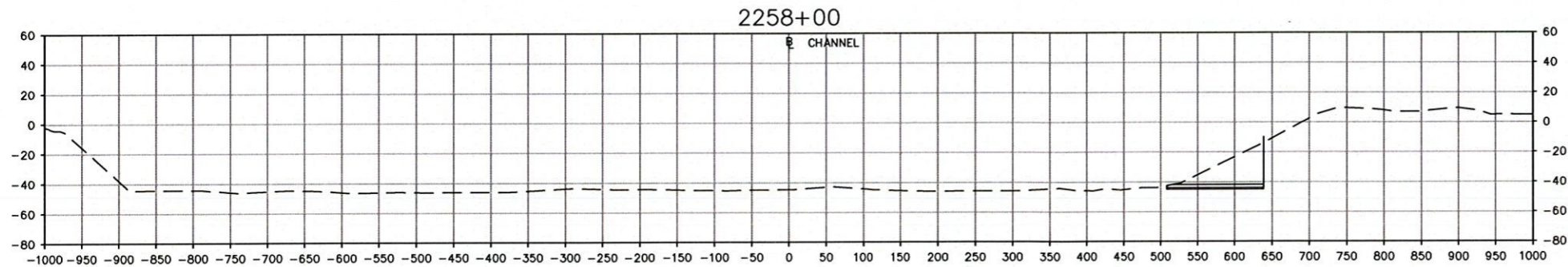
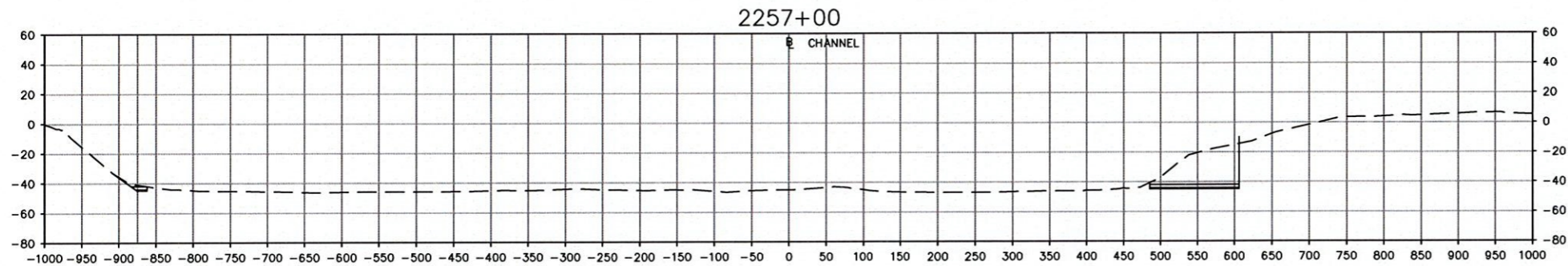
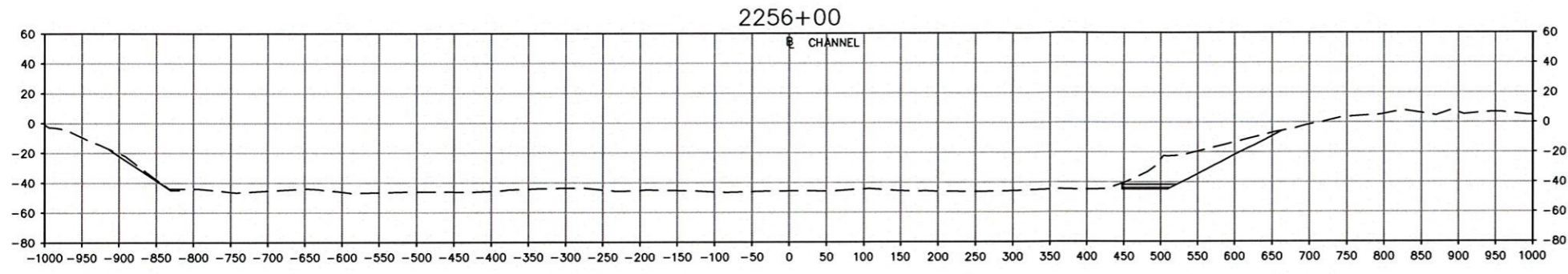


DATE: OCTOBER 2018

SHEET TITLE:
CROSS SECTIONS
6 OF 12



SHEET
10
OF
16



NOTES:

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LEGEND

- APPROXIMATE EXISTING GRADE
- PROPOSED DREDGING

RECEIVED
DCM WILMINGTON, NC

OCT 29 2018

PROJECT TITLE: **NORTH CAROLINA STATE PORTS AUTHORITY
WILMINGTON TERMINAL
TURNING BASIN EXPANSION**

DATUM: MLLW
PREPARED BY: MOFFATT & NICHOL

PREPARED FOR: **NORTH CAROLINA STATE PORTS AUTHORITY**

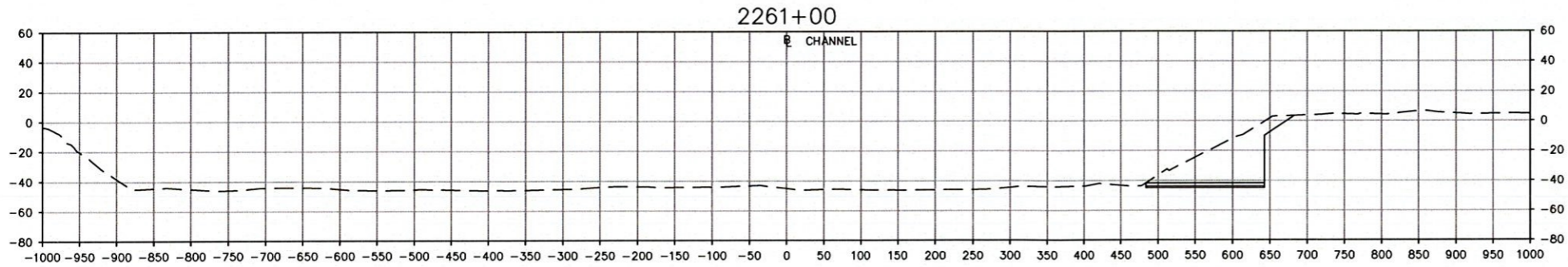
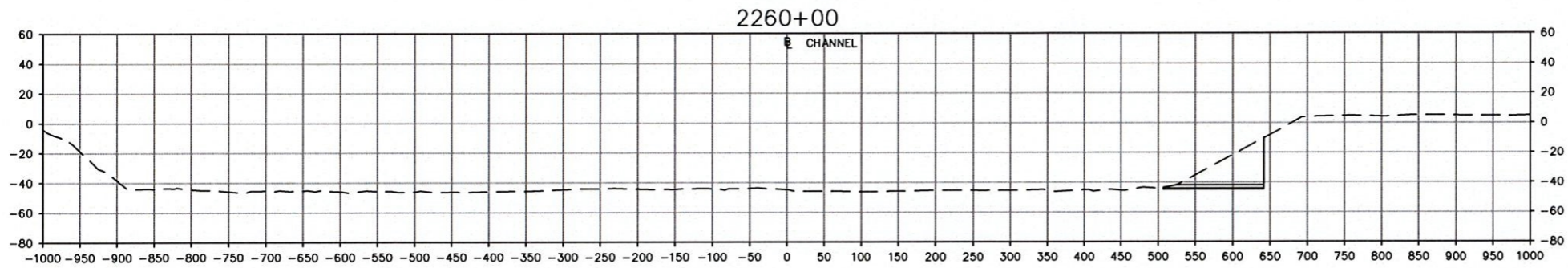
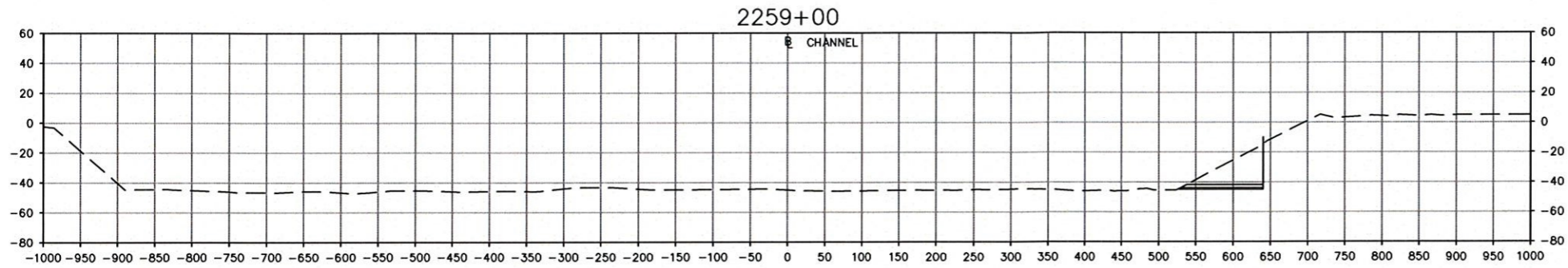


DATE: OCTOBER 2018

SHEET TITLE:
**CROSS SECTIONS
7 OF 12**



SHEET
11
OF
16



NOTES:

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LEGEND

- APPROXIMATE EXISTING GRADE
- PROPOSED DREDGING

RECEIVED
DCM WILMINGTON, NC

OCT 29 2018

PROJECT TITLE: NORTH CAROLINA STATE PORTS AUTHORITY
WILMINGTON TERMINAL
TURNING BASIN EXPANSION

DATUM: MLLW
PREPARED BY: MOFFATT & NICHOL

PREPARED FOR: NORTH CAROLINA STATE PORTS AUTHORITY

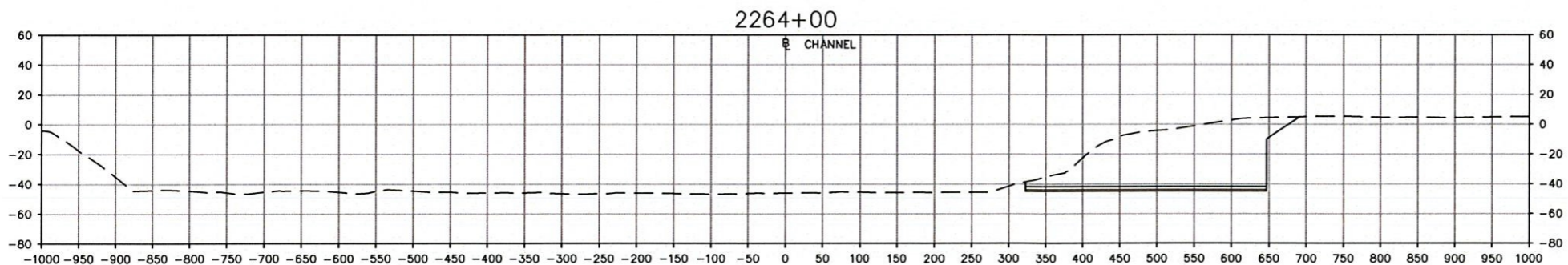
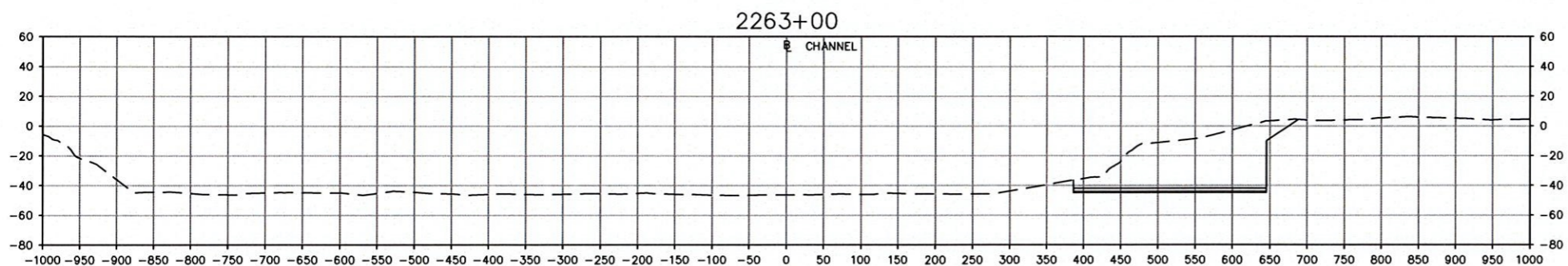
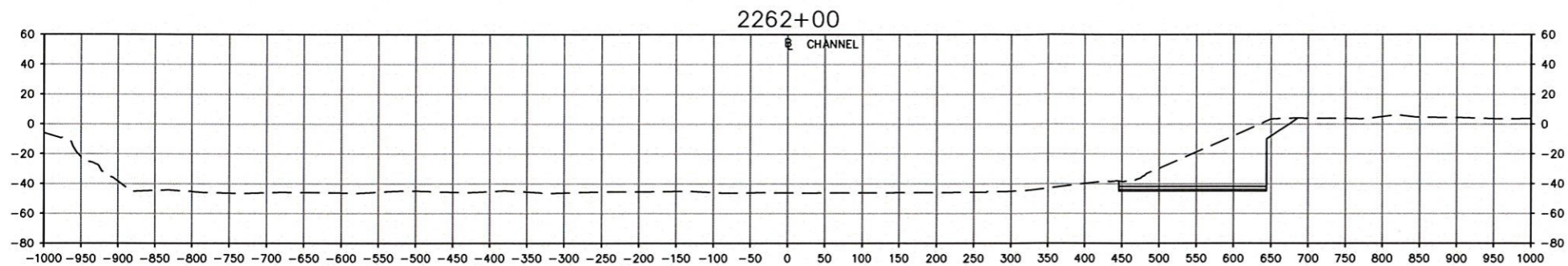


DATE: OCTOBER 2018

SHEET TITLE:
CROSS SECTIONS
8 OF 12



SHEET
12
OF
16



NOTES:

1. BATHYMETRIC CONTOURS BASED ON USACE SURVEY DATED JANUARY 2017.
2. ELEVATIONS ARE IN FEET BASED ON MLLW DATUM.

LEGEND

- - - - - APPROXIMATE EXISTING GRADE
- PROPOSED DREDGING

RECEIVED
DCM WILMINGTON, NC

OCT 29 2018

PROJECT TITLE: **NORTH CAROLINA STATE PORTS AUTHORITY
WILMINGTON TERMINAL
TURNING BASIN EXPANSION**

DATUM: MLLW
PREPARED BY: MOFFATT & NICHOL

PREPARED FOR: **NORTH CAROLINA STATE PORTS AUTHORITY**

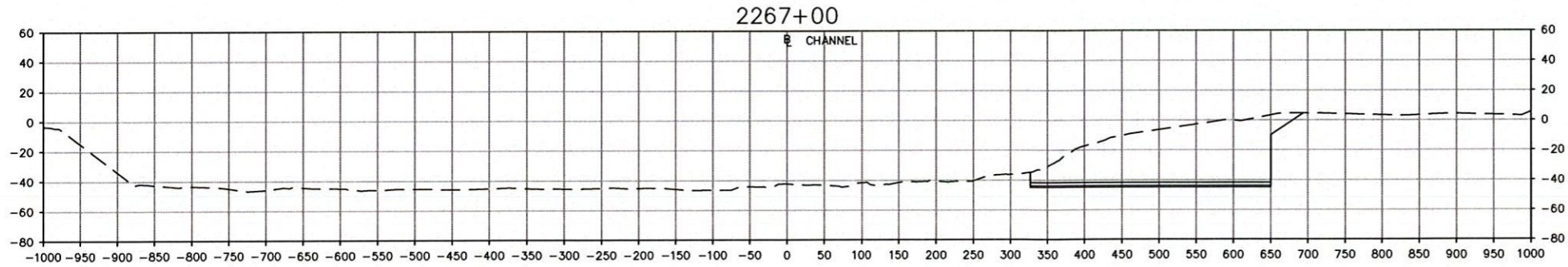
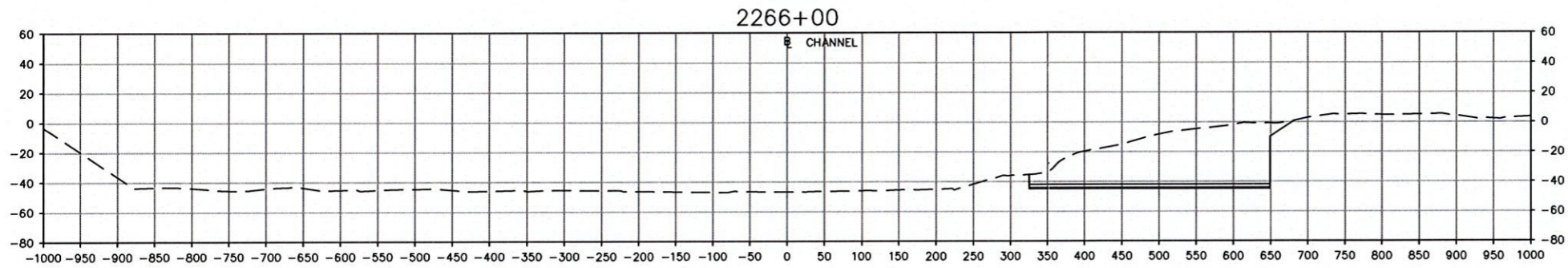
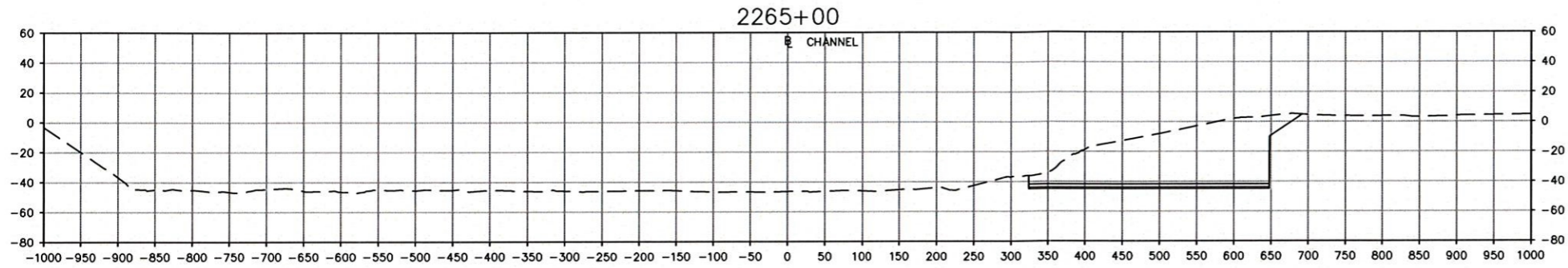


DATE: OCTOBER 2018

SHEET TITLE:
**CROSS SECTIONS
9 OF 12**



SHEET
13
OF
16



NOTES:

- BATHYMETRIC CONTOURS BASED ON USACE SURVEY DATED JANUARY 2017.
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LEGEND

- APPROXIMATE EXISTING GRADE
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DCM WILMINGTON, NC

OCT 29 2018

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WILMINGTON TERMINAL
TURNING BASIN EXPANSION**

DATUM: MLLW
PREPARED BY: MOFFATT & NICHOL

PREPARED FOR: **NORTH CAROLINA STATE PORTS AUTHORITY**

NORTH CAROLINA PORTS

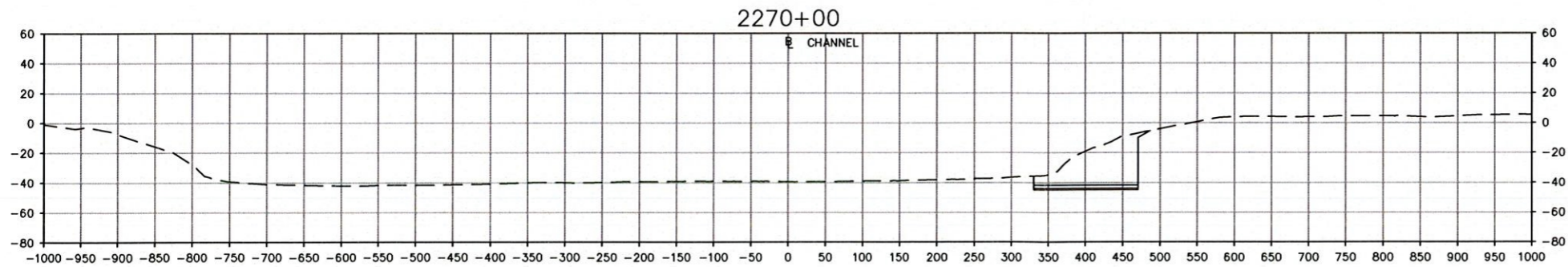
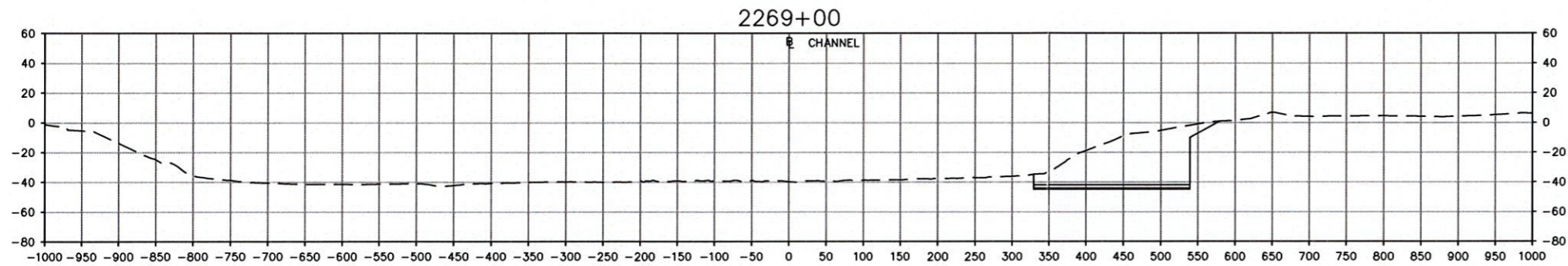
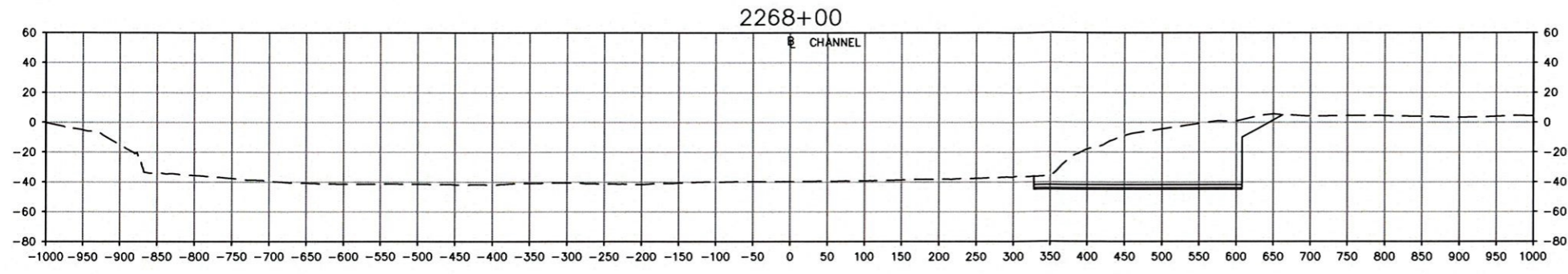
DATE: OCTOBER 2018

SHEET TITLE:
**CROSS SECTIONS
10 OF 12**

0 100' 200' 0 50' 100'

1"=200' HORIZONTAL 1"=100' VERTICAL

SHEET
14
OF
16



NOTES:

1. BATHYMETRIC CONTOURS BASED ON USACE SURVEY DATED JANUARY 2017.
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LEGEND

- - - - - APPROXIMATE EXISTING GRADE
- PROPOSED DREDGING

RECEIVED
DCM WILMINGTON, NC

OCT 29 2018

PROJECT TITLE: NORTH CAROLINA STATE PORTS AUTHORITY
WILMINGTON TERMINAL
TURNING BASIN EXPANSION

DATUM: MLLW
PREPARED BY: MOFFATT & NICHOL

PREPARED FOR: NORTH CAROLINA STATE PORTS AUTHORITY

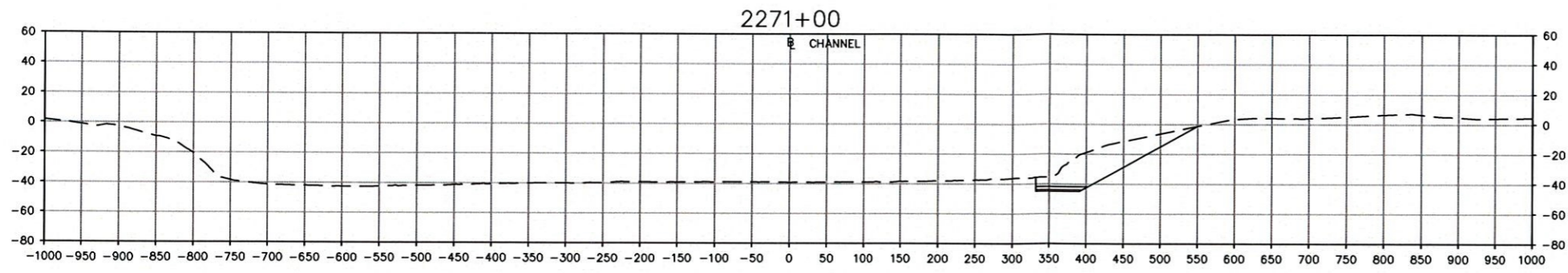


DATE: OCTOBER 2018

SHEET TITLE:
CROSS SECTIONS
11 OF 12



SHEET
15
OF
16

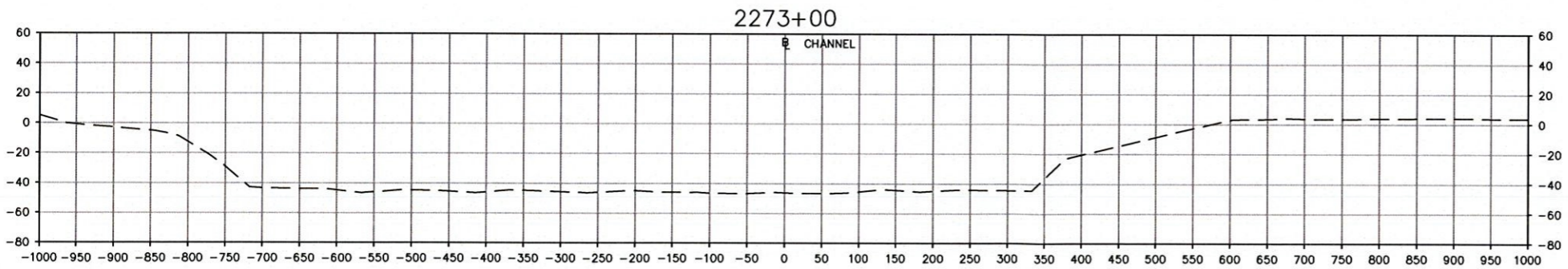
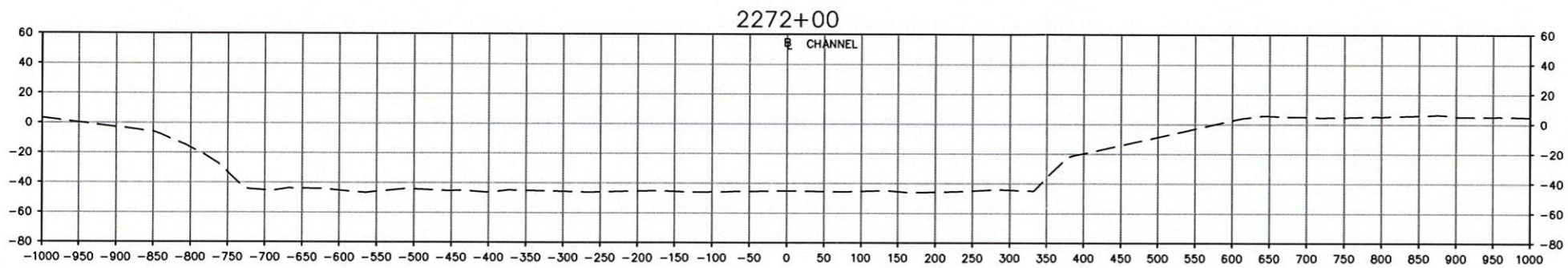


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LEGEND

- - - - - APPROXIMATE EXISTING GRADE
- PROPOSED DREDGING



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DCM WILMINGTON, NC

OCT 29 2018

PROJECT TITLE: NORTH CAROLINA STATE PORTS AUTHORITY
WILMINGTON TERMINAL
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DATUM: MLLW
PREPARED BY: MOFFATT & NICHOL

PREPARED FOR: NORTH CAROLINA STATE PORTS AUTHORITY



DATE: OCTOBER 2018

SHEET TITLE:
CROSS SECTIONS
12 OF 12



SHEET
16
OF
16



NORTH CAROLINA
Environmental Quality

ROY COOPER
Governor

MICHAEL S. REGAN
Secretary

BRAXTON DAVIS
*Director, Division of Coastal
Management*

November 15, 2018

MEMORANDUM:

FROM: Courtney Spears, Assistant Major Permits Coordinator
NCDEQ - Division of Coastal Management
127 Cardinal Drive Ext., Wilmington, NC 28405
Fax: 910-395-3964 (**Courier 04-16-33**)
courtney.spears@ncdenr.gov

SUBJECT: CAMA / Dredge & Fill Application Review

Applicant: N.C. State Ports Authority Major Mod. 47-87
Project Location: 1 Shipyard Blvd., adjacent to the Cape Fear River, in Wilm., New Hanover County

Proposed Project: To improve and expand an existing turning basin

Please indicate below your agency's position or viewpoint on the proposed project and **return this form to Courtney Spears** at the address above by **December 9, 2018**. If you have any questions regarding the proposed project, contact Tyler McGuire at (910) 796-7423 when appropriate, in-depth comments with supporting data is requested.

-
- REPLY:** _____ This agency has no objection to the project as proposed.
Additional comments may be attached
- _____ This agency has no comment on the proposed project.
- _____ This agency approves of the project only if the recommended changes are incorporated. See attached.
- _____ This agency objects to the project for reasons described in the attached comments.

PRINT NAME _____

AGENCY _____

SIGNATURE _____

DATE _____

**DIVISION OF COASTAL MANAGEMENT
FIELD INVESTIGATION REPORT**

1. **APPLICANT'S NAME:** North Carolina State Ports Authority (Turning Basin Expansion)
2. **LOCATION OF PROJECT SITE:** The project is located at 1 Shipyard Blvd., adjacent to the Cape Fear River, in Wilmington, New Hanover County.

Photo Index - 2006: 204-6656: A-H, 3-5 **Latitude:** 34°12'35.79"N **Longitude:** 77°57'17.34"W

3. **INVESTIGATION TYPE:** CAMA/ D & F
4. **INVESTIGATIVE PROCEDURE:** **Dates of Site Visit** – October 29, 2018
Was Applicant Present – No
5. **PROCESSING PROCEDURE:** **Application Received** – October 29, 2018
Application Completed – October 29, 2018
Office – Wilmington

6. **SITE DESCRIPTION:**
 - (A) **Local Land Use Plan** – City of Wilmington/New Hanover County
Land Classification From LUP – Conservation/Developed
 - (B) **AEC(s) Involved:** EW, ES, PTA, CW, PNA
Water Dependent: Yes
 - (D) **Intended Use:** Commercial/Industrial
 - (E) **Wastewater Treatment:** **Existing:** Municipal
Planned: None
 - (F) **Type of Structures:**
Existing – Wooden pier, storage tanks, office buildings, roads and rail line
Planned – Removal of an existing wooden pier, installation of a toe wall, and expansion of dredging limits to accommodate larger ships.
 - (G) **Estimated Annual Rate of Erosion:** N/A
Source - N/A

7. **HABITAT DESCRIPTION:**

	[AREA]	DREDGED	FILLED	OTHER
(A) Vegetated Wetlands	1.4 acres			
(B) Non-Vegetated Wetlands (Soft bottom)	17.76 acres			
(C) Other – Highground				

- (D) **Total Area Disturbed:** ~835,001 sq. ft. (~19.16 acres)
 - (E) **Primary Nursery Area:** Yes
 - (F) **Water Classification:** SC Open: No
8. **PROJECT SUMMARY:** The N.C. State Ports Authority proposes a **Major Modification** to State Permit No. 47-87 to allow for the removal of an existing wooden pier, installation of a toe wall, and expansion of dredging limits to accommodate larger ships.

9. **PROJECT DESCRIPTION**

The project site is located at the northern portion of the N.C. State Port Authority (NCSPA) property, adjacent to the Cape Fear River, in Wilmington, New Hanover County. To locate the property from College Road traveling south from Wilmington, turn right onto Shipyard Blvd. Travel west on Shipyard Blvd. until you reach Burnett Blvd. located on the right-hand side of the road, just before the main entrance to the NCSPA at 1 Shipyard Blvd. Merge right onto Burnett Blvd. and travel north until you reach the project site, which will be located on the left located at the NCSPA North Gate General Cargo facility entrance. Once you through security at the entrance continue until you reach the Kinder Morgan facility which currently leases the northern area from NCSPA. To access the northernmost project area, continue north on Burnett Street and merge left on to S. Front Street. Continue on S. Front Street and turn left on to Greenfield Street. Greenfield Street ends at the NCSPA north property. If you plan to do a site visit at the NCSPA property, please contact **Mr. Todd Walton at 910-251-5678** to arrange the site visit with security. Work is also proposed at the Eagle Island confined disposal facility (CDF) which lies directly west of the NCSPA on the opposite side of the Cape Fear River. Permission to access this site requires US Army Corps of Engineers approval.

Existing structures on the highground of the NCSPA owned properties consists of office buildings, gravel and asphalt roads, rail line, storage tanks, and conveyors for bulk liquid storage. There is an existing timber pier located at the northwest corner of the Kinder Morgan owned property (formerly Vopak) that measures approximately 6' wide and 316' long with a "T-Head" that measures approximately 40' wide by 40' long. Greenfield Creek is located between the NCSPA north property and the Kinder Morgan property and connects the Cape Fear River to Greenfield Lake. Water flow is controlled by a tidal gate located at the mouth of the creek. The NCSPA north property is vacant. The project site includes the existing NCSPA turning basin located adjacent to the Kinder Morgan leased and owned properties and adjacent to the USACE turning basin located adjacent to the USACE owned Eagle Island confined disposal facility. Eagle Island is vacant of any structures (**See Sheet 1 and 2 of 16**).

Vegetation along the east bank of the project site, landward of the upland berm, consists of Live Oak (*Quercus virginiana*), Coastal Red Cedar (*Juniperus silicicola*), Trumpet Vine (*Campis redicans*), Catbriar (*Smilax bona-nox*), and Poison Ivy (*Toxicodendron radicans*). The approximately 2,230' of shoreline along the Cape Fear River is bordered by an area of wetlands consisting of tidal and brackish marsh. Brackish marsh species include Big Cordgrass (*Spartina cynosuroides*), Narrow-leaf Cattail (*Typha angustifolia*), Salt Marsh Aster (*Symphyotrichum tenuifolium*), Bull-tongue Arrowhead (*Sagittaria lancifolia*), Water Primrose (*Ludwigia bonariensis*), and Common Reed (*Phragmites australis*). Coastal Wetlands in this area consist primarily of Smooth Cordgrass (*Spartina alterniflora*) (**See Sheets 2 and 3 of 16 and Preliminary Jurisdictional Determination**).

Permit History- The applicant currently maintains State Permit No. 47-87, which was originally issued on February 17, 1987 for hydraulic dredging of the NCSPA shipping berths and was modified via a variance through the Coastal Resources Commission (CRC) on September 6, 2000 for the use of a barge mounted agitation dredge to sweep accumulating fines from the berth area to avoid the creation of shoaled areas. The NCSPA received a Major Modification to State Permit No. 47-87 through a CRC-Final Order granted on January 7, 2016 and issued on January 13, 2016, to allow for the relocation of an existing liquid bulk pier, the expansion of the turning basin dredging footprint from 1,200' to 1,400' in diameter, and dredging depth limit of -44' mean lower low water (MLLW) to accommodate Post-Panamax ships. A Major Modification to State Permit No. 47-87 was issued on May 26, 2016 for a one-time emergency maintenance dredging of the western portion of the turning basin. State Permit No. 47-87 was last modified on June 21, 2018 authorizing the change in methodology to allow for water injection dredging to maintain water depths at the berths. State Permit No. 47-87 is due to expire on December 31, 2020.

The waters of the Cape Fear River (in the vicinity of the project) are classified SC, by the N.C. Division of Water Resources. The area is designated as a **Primary Nursery Area (PNA)**, by the N.C. Division of Marine Fisheries and these waters are **CLOSED** to the harvesting of shellfish. The Wilmington-New Hanover County Land Use Plan 2006

Update classifies the area as Conservation and Urban.

NCSPA- Turning Basin Expansion
Page Three

PROPOSED PROJECT

The N.C. State Ports Authority proposes a **Major Modification** to State Permit No. 47-87 to allow for the removal of an existing wooden pier, installation of a toe wall, and expansion of dredging limits to accommodate larger ships. The application states that the entirety of the existing timber pier and platform would be dismantled and removed before initiation of the proposed turning basin expansion.

The applicant proposes a new 1,416 linear foot toe wall that would be installed along the eastern perimeter of the proposed dredge footprint approximately 25' to 100' waterward of NHW. The applicant state that the toe wall would consist of interlocking sheet piles with protective coating and driven in to the marl layer. The tow wall would be constructed in one of two ways, using 160 sheet piles and 160 pipe piles or 310 sheet piles and 15 H-piles. **Sheet 4 of 16** shows that king piles would be approximately 105' long with the tip set -95' below MLLW and the top exposed +10' above MLLW. Sheet piles would be installed at -60' below MLLW and the top would be submerged at -10' below MLLW and match the new proposed grade of the river bottom on the landward side. An alternative sheet pile design on Sheet 4 of 16 shows a sheet pile wall that would be constructed with steel sheet piles set at -80' below MLLW and the top would be submerged at -10' below MLLW. The top of the steel sheet piles would match the new proposed grade of the river bottom on the landward side. Both designs show pile extensions at +10' above MLLW and would be fitted with self-contained solar powered navigation lights (**See Sheets 2,3, and 4 of 16**).

The applicant then proposes to excavate an area of approximately 19.16 acres to a final project depth of -42' @ MLLW + 2' overdredge + 1' advanced maintenance dredge, which would result in the removal of approximately 560,000 cubic yards (CY) of shallow and deep bottom material as well as tidal and Section 404 wetlands. The application states that prior to initiating dredging, the dredge contractor would install turbidity curtains around the dredge work area. The excavation would be accomplished by the use of barge-mounted crane equipped with an environmental bucket or a long reach excavator boom and bucket if rock is encountered. The application also states that the excavated material would be loaded into watertight barges or scows and transported across the river and then re-fluidize the sediment and hydraulically pump the material into the USACE Eagle Island confined disposal facility. On the east bank, the channel dredge limits would extend landward to the location of the proposed toe wall shown on **Sheet 2 and 3 of 16**. Dredge limits would extend landward of the proposed toe wall located approximately 25' to 100' waterward of NHW to maintain a shallow bottom grade towards the shoreline of approximately 3:1. Approximately 370,000 CY of material would be removed to expand the turning basin on the east bank of the Cape Fear River. Dredge limits for expanding the turning basin on the west bank adjacent to Eagle Island are shown on **Sheets 2 and 3 of 16** and would require excavation of approximately 190,000 CY of shallow and deep bottom material. The application states the proposed excavation would increase the existing turning basin from 1,400' to 1,524' in length at this location of the Cape Fear River and would meet with the USACE Federal Channel.

The applicant proposes mitigation for the stated unavoidable impacts to 17.76 acres of PNA habitat, and 1.4 acres of Coastal and Section 404 Wetlands. A marsh restoration plan is conveyed that would consist of 3 acres of newly planted *Spartina alterniflora* adjacent to Shellbed Island in the lower Cape Fear River. Staked oyster shell bags are proposed adjacent to the plantings if stabilization is needed. The wetland mitigation plan would add to an ongoing oyster restoration program lead by Audubon and funded by USFWS and NFWF. The applicant also proposes a payment of \$650,000 towards the Lock and Dam #1 Rock Ramp Fish Passage modification project on the Cape Fear River with the condition that the NMFS complete its Biological Opinion within 120 days following the submittal of this application. (**See Page 10 through 12 of the Project Narrative, and the Compensatory Wetland Mitigation Plan**).

10. ANTICIPATED IMPACTS

The proposed excavation would disturb approximately 835,001 sq. ft. of shallow and deep bottom, which is currently designated as a PNA, and would result in the removal of approximately 560,000 CY of material. The material would be hydraulically pumped to the existing USACE Eagle Island confined disposal area. According to the applicant, proposed excavation and grading would impact approximately 1.01 acres of Coastal Wetlands which appears to primarily consist of Smooth Cordgrass (*Spartina alterniflora*). Approximately 0.39 acres of Section 404 wetlands which appears to primarily consist of Common Reed (*Phragmites australis*) would be impacted as a result of this project. Results from the NC Wetland Assessment Method (NCWAM) calculated a "High" wetland rating for Coastal Wetlands on site within the impact area. Results from NCWAM calculated a "Low" wetland rating for non-Coastal Wetlands on site within the impact area. The 1.4 acres of Coastal and Section 404 wetlands would be permanently excavated and converted to subtidal soft bottom. The proposed excavation of the turning basin would result in an overall conversion of 1.68 acres of shallow bottom to deep bottom which would have permanent effects on foraging and nursing habitat in that area for federal and state protected species. Removal of sediment and deepening of the river bottom would have immediate impacts on benthic invertebrate communities that use shallow river bottom. 16.08 acres of existing deeper mud bottom would be dredged even deeper according to the applicant. Although not specifically addressed in the application, mechanical hammering or driving of 160 to 310 sheet piles could have an adverse impact to fish and marine mammal species in the work area. The applicant states that a turbidity curtain would be deployed prior to dredging to minimize suspended sediments from leaving the work area, however minor increases in turbidity from excavation and transportation should be expected during construction. Dredge operation are proposed to occur during falling tides to mimic normal sediment transport in the Cape Fear River. It is estimated that it will take 10 months to complete the turning basin expansion project.

Additional Supporting Information

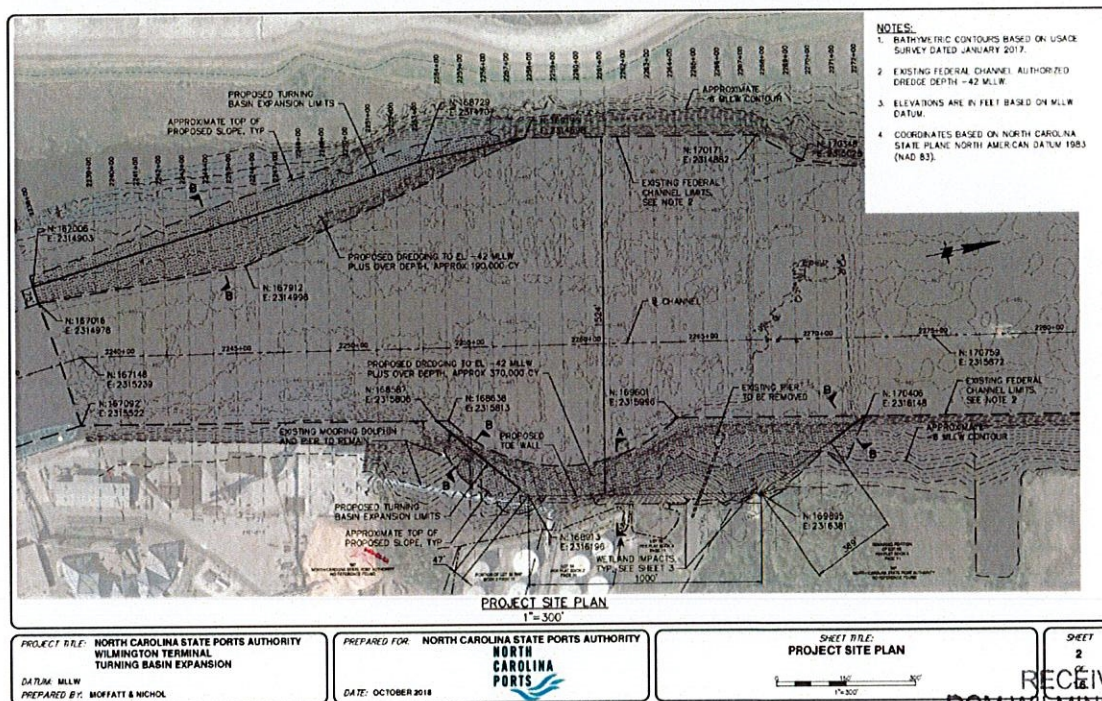
Project Narrative - Port of Wilmington Turning Basin Expansion Project – Modification to Permit #47-87

North Carolina State Ports Authority

Proposed Action

An analysis of alternative sites and design alternatives to avoid and or minimize impacts on coastal wetlands and the Eagle Island disposal facility is provided in the attached Section 404 b1 Assessment report. The preferred design is described below.

The proposed action by the North Carolina State Ports Authority (NCSPA) at the Port of Wilmington (POW) is to expand the turning basin by dredging the eastern and western sides of the present basin, widening and deepening approximately 17.76 acres of shallow and deep soft bottom habitat dredged to -45 feet (ft) MLLW (-42 ft +2 ft +1 ft) and installing a vertical submerged sheet pile toe wall along the eastern extents of the basin (Figure 1). In addition, 1.4 acres of tidal wetland located on or adjacent to the Kinder Morgan property would be impacted during construction of the expanded turning basin. Material would be placed in scow barges and hydraulically pumped to the Eagle Island confined disposal facility (CDF).



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Figure 1. Turning Basin Expansion Project Site Plan

OCT 29 2018

The international shipping community and clients that currently utilize the POW are expanding into a new class of freightliners to optimize shipping efficiency and global logistics. The new class of containerhips are capable of carrying 14,000 Twenty-foot Equivalent Units (TEU) with an overall length of 1200-ft and a beam of 159-ft. Once the NCSA's clients transition to this new class of vessel, they will be calling on ports that currently have the facilities and capabilities to safely handle turning, berthing, and unloading. To prevent the loss in clientele and subsequent revenue, the POW must adapt by expanding the current 1,400-ft turning basin to meet the needs of the new class of vessels. The proposed project includes a 1,524-ft wide turning basin in the Cape Fear River (CFR) with a 1,416-ft long toe wall along the eastern edge of the project to stabilize the shoreline and maintain the basin width and navigable depth (Figure 2). This toe wall would consist of an interlocking steel sheet pile with protective coatings that would be driven into the marl layer (Figure 3). This wall would be completely submerged, and additional H-piles would be installed in the recess of the sheet piles with solar powered navigation lights installed on top of the pile at EL+10-ft MLLW. This construction project requires dredging to -45 ft MLLW, which includes a two-ft over dredge to -44-ft MLLW and one-ft allowable for uncertainties. The depth will be maintained to -42 ft (+2 ft) MLLW. It is expected that total dredging quantities to be removed during this project would reach 560,000 cubic yards (CY), which includes 370,000 CY on the east side and 190,000 CY on the west side. A small portion of the eastern river bank on the Kinder Morgan property, including 1.4 acres of tidal wetland (Figure 2), would be removed during this proposed turning basin expansion. The existing wooden "Chevron" pier would need to be removed; however, the mooring dolphin for Berth 1 would remain (Figure 2). There would be no impacts to the existing slope on the Eagle Island dredge disposal facility berm or the channel side-slope and fringing tidal marsh located on the west side of the river.

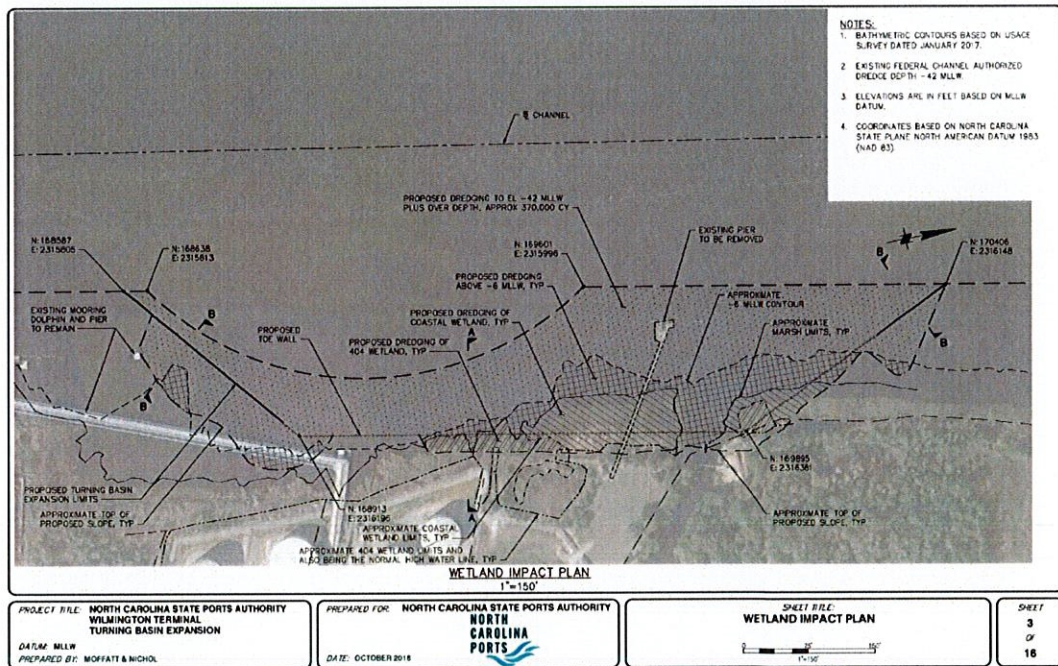


Figure 2. Proposed Project Eastern Boundary with Wetland Impact Zone

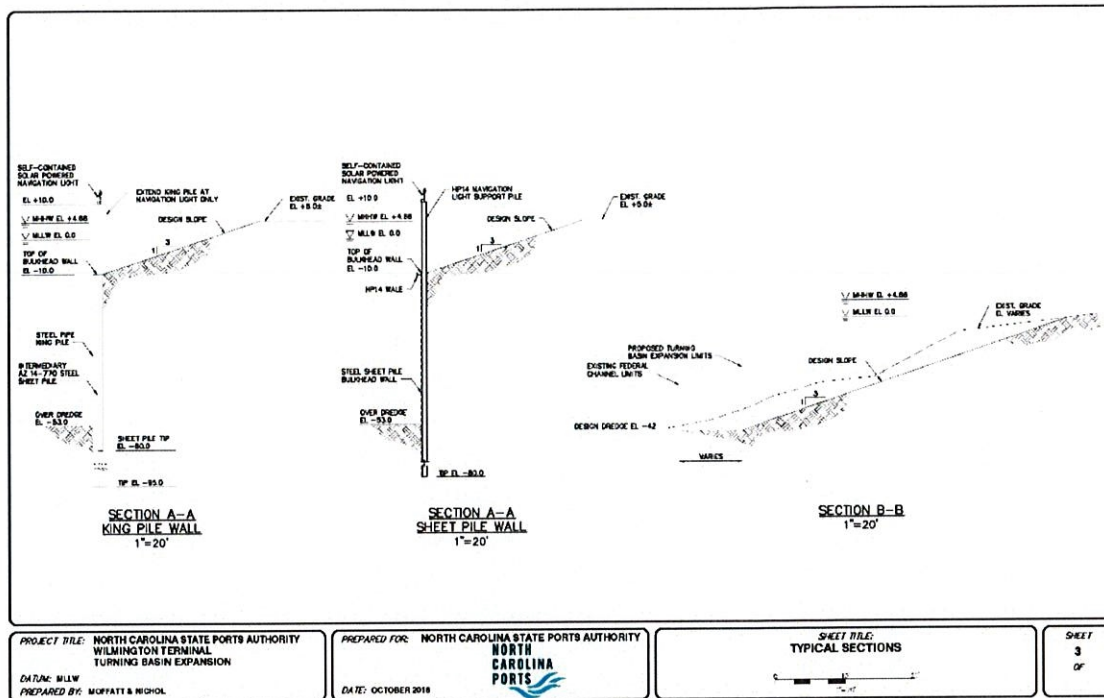


Figure 3. Proposed Pile Schematic for Toe Wall

Dredging

The selected dredging contractor would use a mechanical dredge to dredge the project area in stages. Prior to initiating dredging, the dredging contractor would install turbidity curtains around the dredge work area. The contractor would remove soil and sediments using either a barge-mounted crane equipped with an environmental bucket or a long reach excavator boom and bucket, if rock or heavy debris is encountered. The dredged material would be loaded into watertight barges or scows and transported across the Wilmington River where the dredging contractor would re-fluidize the sediments and hydraulically pump the dredged material to the Eagle Island CDF.

Existing Pier Removal

Prior to initiating dredging on the eastern project extent, the existing wooden structure (Chevron Pier) (Figure 2) would be removed. Containment booms would be installed around all structures to be removed and structures would be demolished using the barge mounted crane and then loaded into barges or scows for recycling or disposal. Piles would be extracted (to prevent any future hazards to navigation) and loaded for disposal in scow(s) or atop deck barge(s) surrounded with sediment barriers to preclude any adherent mud stuck to the pile from washing overboard into the waterway.

Upon completion of all removal, any remaining mounds of sediment beneath removed structures would be dredged and sediment transported to the Eagle Island facility.

Habitat in Action Area

Habitats within the action area include both shallow and deep soft mud bottom and tidal marsh. Shallow water habitat and tidal marsh would only be affected on the eastern side of the basin on or adjacent to the Kinder Morgan property. A description of these habitats is provided below. More detailed information is provided in the enclosed Wetland Mitigation Plan, Essential Fish Habitat Assessment (EFH) and the Biological Assessment (BA).

The CFR basin drains 9,164 square miles including all or part of 26 counties and 114 municipalities [North Carolina Department of Environmental Quality (NCDEQ) 2018]. The CFR is the only North Carolina major trunk estuary discharging directly into the Atlantic Ocean and transporting significant sediment loads of Piedmont clay soils. Sediment flocculation and the widening and slowing of the CFR in proximity of the POW results in the United States Army Corps of Engineers' (USACE's) annual removal of approximately 1.2 million CY of maintenance dredge material from the anchorage/turning basin and adjacent reaches near the POW.

Unvegetated mud bottoms, or soft bottom habitats, are characterized by variable salinities, water depths, hydrographic setting, sediment types, and geomorphology. Such soft bottoms can be further differentiated as freshwater (rivers, creeks, lake bottoms, and unvegetated shorelines) as well as estuarine (subtidal rivers, sounds, creek bottoms, and unvegetated shoreline/intertidal flats). The CFR's southern estuary contains approximately 37,800 acres of soft bottom habitat in waters <6 ft and 188,549 acres in waters >6 ft (Deaton et.al. 2010).

As described by Anamar (2010), POW sediments and adjacent Wilmington Harbor anchorage basin sediments were similar consisting of silts, clays, and small percentages of sands (Table 1). Sediment data from the proposed Turning Basin Expansion is limited, however, it is anticipated that grain-size distribution and the percent of fine fraction would be similar.

The POW sediments are relatively soft and unconsolidated. Of the sediment samples taken by Anamar, the POW material had the highest percentage of silt and clay at 54.7 percent and 41.0 percent, respectively, with 4.3 percent sand (Anamar 2010).

The primary factors affecting the estuarine benthic community species occurrence, distribution and abundance includes sediment grain-size and organic content, sediment depositional rates, dissolved oxygen and salinity. Mallin et.al. (2000) described the infaunal benthic diversity and richness as constant, as sampled over a four-year period downstream of downtown Wilmington and the POW. These samples were dominated by a variety of taxa, including oligochaetes and amphipods (*Gammarus*, *Lembos*, and *Monoculodes* spp.) and by polychaetes (*Maranzellaria*, *Mediomastus*, and *Streblospio* spp.). These taxa were considered relatively opportunistic species typical of oligohaline to mesohaline areas. These species are considered proficient at recovering from bottom disturbances. Epibenthic species living on the sediment generally include gastropods, amphipods, and some insect larvae. Other more motile epibenthic such as juvenile fish, crabs, and shrimp vertically migrate within the water column on a daily basis. The general condition of an area is reflected in the benthic community's health; whereas, the

Table 1. Sediment characterization for all marine terminals.

Sediment Type	Sediment Gradation (millimeters)	POW Sediment (%)
Gravel	Particles ≥ 4.75	0.0
Sand	Particles ≥ 0.075 but ≤ 4.75	4.3
Silt	Particles ≤ 0.075	54.7
Clay	Particles ≤ 0.075	41.0

epibenthic community present provides insight on the movement and timing of post-larvae and juvenile fish species important both commercially and recreationally (Mallin et.al. 2000).

Although no direct benthic sampling has been conducted directly within the anchorage or berth locations, it is highly likely that the benthic community includes species commonly preyed upon by sturgeons. Due to the consistent level of vessel activity and annual dredging at the NCSPA terminals, the benthic foraging habitat in these areas is probably significantly less diverse and abundant than reported by Mallin et al (2000) downstream of the POW, even when considering the rapid rate of recovery to disturbances by these opportunistic species common to this soft bottom habitat.

Water column properties such as salinity, temperature, and nutrients are essential to a managed species' long-term survival and success. The transient boundaries of this EFH are maintained by wind and tide driven inlet and ocean sea water mixing with upland freshwater sources and land surface runoff. Freshwater rivers and stream inflows provide estuarine areas organic matter, nutrients, and finer grained sediments; whereas, the ocean driven tides provide coarser sediments and a transport mechanism for estuarine using species. Salinity, temperature, dissolved organic matter, dissolved inorganic nitrogen, and oxygen are components normally used to describe the water column. The CFR is the major North Carolina source of direct river discharge into the Atlantic Ocean. March is known for large freshwater discharges affecting the water column's salinity and temperature (Deaton et. al. 2010). Even with elevated nutrient levels in the lower CFR, algal blooms are rare; as subject to turbidity and color restricting photosynthesis in concert with the river's high volume flushing (Mallin et. al. 2001). As reported by the Lower Cape Fear River Program from a CFR mainstem water quality monitoring station located downstream of downtown Wilmington and the POW, salinity was characterized as higher but more variable as compared to sites upstream of Wilmington. Salinity ranged from 0 parts per thousand (ppt) to 10 ppt averaging 5.2 ppt with higher salinity readings during summer low flows. Water temperatures ranged from 8.4 degrees Celsius ($^{\circ}\text{C}$) to 28.2 $^{\circ}\text{C}$ and dissolved oxygen (DO) averaged 8.9 parts per million (ppm) in the winter and 4.8 ppm in summer months (Mallin et. al 2000). Other descriptors such as adjacent structures (e.g. shoals, channels, marshes, outcrops), water depth, available wind distances or fetch, and turbidity are used to further describe the water column EFH habitats [South Atlantic Fishery Management Council (SAFMC) 1998a].

Riverine transport factors determining sediment spatial distribution include freshwater discharge volumes, channel cross-section and slope dimensions, tidal flow characteristics, the riverine/estuarine geometrics, as well as wind/wave effects. The EFH water column provides both migratory and residential species of varying life stages the opportunity to survive in a

productive, active, unpredictable, and at times strenuous environment. As the transport medium for nutrients and organisms between the ocean and estuarine systems, the water column is as essential a habitat as any marsh, seagrass bed, or reef.

North Carolina's state-designated Primary Nursery Areas (PNAs) for post larvae/juvenile and subadult white shrimp (*Litopenaeus setiferus*) and brown shrimp (*Farfantepenaeus aztecus*) are shown in Figure 4. North Carolina's tidal inlets, state-designated nursery areas, and submerged aquatic vegetation (SAV) are considered Habitat of Particular Concern (HAPCs) for red drum (*Sciaenops ocellatus*) [South Atlantic Region (SAR) 2008a]. Habitats of Particular Concern are EFH partitions of rare, ecologically important, highly susceptible to human degradation, or environmentally stressed areas. Habitats of Particular Concern frequently include habitats used for migration, spawning, and rearing of fish and shellfish; offshore areas of high habitat value or vertical relief; and high value intertidal and estuarine habitats (SAR 2008). The Magnuson-Stevens Act does not provide any additional regulatory protection to HAPCs; however, if HAPCs are potentially adversely affected, additional recommendations and conservation guidance may result during the National Marine Fisheries Service (NMFS) consultation (SAR 2008). The POW's location in the CFR's turbid riverine reaches lacks SAV and oyster/shell habitat (Deaton et.al. 2010).

Submerged aquatic vegetation, oyster/shell bottoms, and state-designated nursery areas are considered HAPCs for the snapper-grouper complex. Mud bottoms and riverine habitat considered HAPCs for developmental stages of the gray snapper (*Lutjanus griseus*) post larvae/juveniles and adults respectively (SAFMC 1998, SAR 2008). In 2008, the North Carolina Marine Fisheries Commission (NCMFC) and the North Carolina Water Resource Commission (NCWRC) jointly designated an Anadromous Fish Spawning Area including most of the CFR's mainstem as an Inland PNA (Figures 4 and 5) (Deaton et.al. 2010).

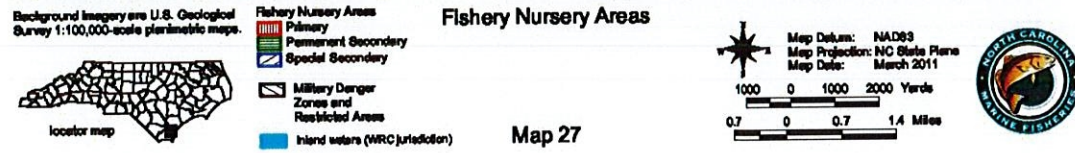
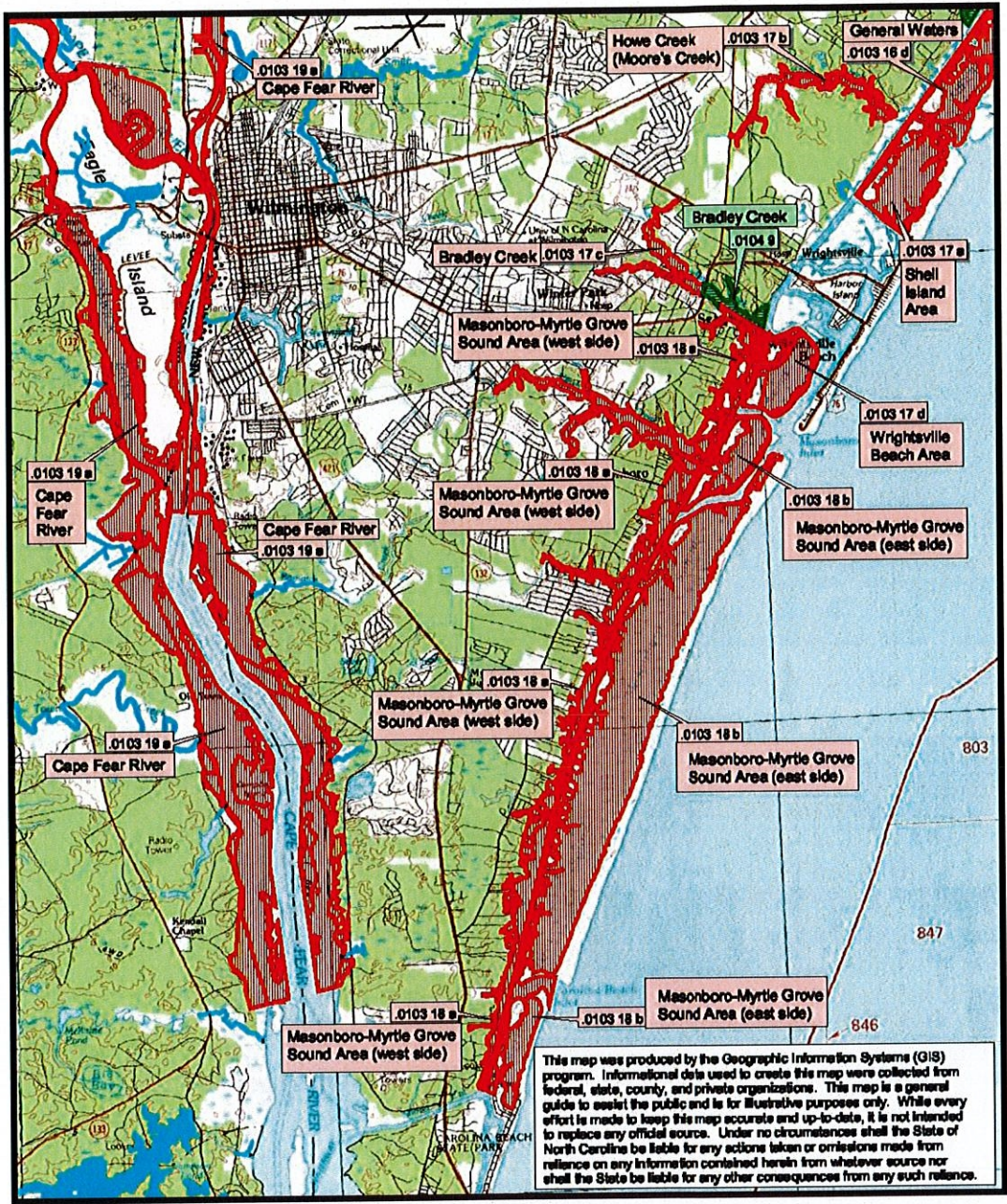


Figure 4. Cape Fear River Primary Nursery Areas

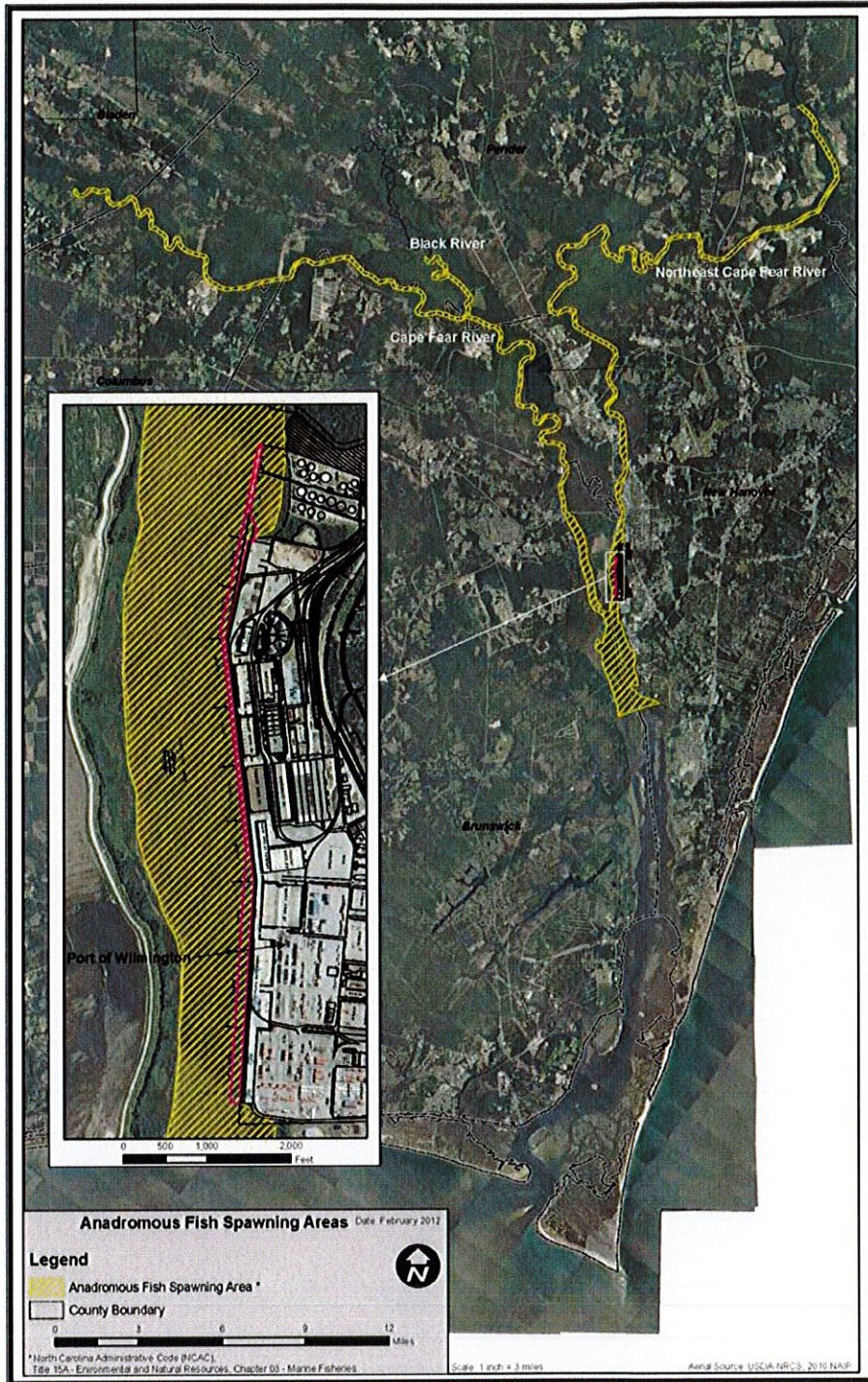


Figure 5. Anadromous Fish Spawning Areas

For the proposed dredging, it is expected that 1.4 acres of wetland would be impacted. A preliminary wetland delineation was conducted in October 2018 which delineated 2.92 acres of 404 wetlands and 1.55 acres of coastal wetlands (See attached plat and Sheet 3 of plans). A full review of the wetland habitats with graphics can be found in the attached Wetland Mitigation Plan.

The project area encompasses salt and brackish marshes on the contiguous tidal floodplain of the CFR. The tidal marshes form a continuous fringe along the project area river shoreline that is interrupted only by the mouth of Greenfield Creek. The landward boundary of tidal wetlands within the project area is marked by an existing man-made upland berm that extends continuously along the river shoreline and ties to a tidal gate across the mouth of Greenfield Creek. The berm functions as an artificial shoreline that has effectively reduced the width of the tidally influenced floodplain to approximately 100 ft. The normal high water mark and the Section 404 wetland-upland boundary are both located along the waterward toe of the berm. The tidal floodplain encompasses a mix of relatively natural salt/brackish marshes, disturbed brackish marshes consisting of dense common reed (*Phragmites australis*) stands on shallow fill deposits, and unvegetated tidal mud flats in shallow depressional areas. The entire area waterward of the berm toe, including the common reed stands, is inundated at high tide.

The natural tidal marshes consist predominantly of monospecific stands of smooth cordgrass (*Spartina alterniflora*). The smooth cordgrass marshes occur primarily on the relatively undisturbed lower portion of the tidal floodplain along the river. A few small areas of natural brackish marsh occur along the upper margins of the smooth cordgrass marshes. The brackish marshes are dominated by big cordgrass (*Spartina cynosuroides*) and other brackish species such as narrow-leaved cattail (*Typha angustifolia*), salt marsh aster (*Symphotrichum tenuifolium*), bull-tongue arrowhead (*Sagittaria lancifolia*), and water primrose (*Ludwigia bonariensis*). Large dense monospecific stands of common reed occur on shallow fill deposits that generally extend waterward onto the floodplain from the upland berm. The lower extent of the fill deposits and their associated common reed stands marks the boundary between Section 404 and Coastal Area Management Act (CAMA) coastal wetlands. Unvegetated tidal mud flats occur in very shallow linear depressions that appear to be natural features associated with tidal flow. Vegetation of the landward upland berm is a disturbed scrub-shrub assemblage consisting of live oak (*Quercus virginiana*), coastal red cedar (*Juniperus silicicola*), and dense woody vines such as trumpet vine (*Campsis radicans*), catbrier (*Smilax bona-nox*), and poison ivy (*Toxicodendron radicans*).

Estuarine/riverine marshes along the CFR provide habitat to a myriad of species. Most species utilize this habitat for only a portion of their life cycle. Species from the snapper-grouper complex along with crustaceans and other associated species, begin life offshore before being transported through inlets or river mouths to begin their juvenile life in the marsh. It is estimated that 50% of commercial fish and shellfish species in the southern United States rely on coastal wetlands. Along with providing habitat, estuarine/riverine emergent wetlands stabilize shorelines, trap sediments, provide storm surge protection, pollution buffering, and carbon sequestration. These habitats stabilize shorelines by reducing wave energy. The reduction in energy allows sediment in the water column to drop out of suspension within the marsh matrix. As sediment accumulates and buries pollutants, it allows the vegetation to continually grow vertically thus providing resilience to future changes in hydrology.

Project Effects

The Wetland Mitigation Plan, EFH and the BA reports provide a thorough review of known or probable effects of the dredging and toe wall construction on water quality, and the potential direct and temporal effects on marine resources including macroinvertebrates and managed fish and shellfish species which may occur within the PNA within the action area. The proposed action would result in dredging impacts of 17.76 acres to soft bottom habitat and to 1.4 acres of tidal wetlands, dominated by smooth cordgrass marsh. The applicant is aware that approval for dredging within PNAs requires approval from the Coastal Resources Commission and is prepared to support this request, as needed.

The proposed expansion of the existing turning basin via dredging would permanently impact a total of 1.4 acres of Section 404 jurisdictional salt/brackish marsh wetlands on the tidal floodplain of the CFR, including 1.01 acres of CAMA coastal wetlands (smooth cordgrass marsh) and 0.39 acre of non-coastal wetlands (common reed marsh). The 1.4 acres of wetlands would be excavated and permanently converted to subtidal soft bottom. In order to facilitate the determination of compensatory wetland mitigation requirements, a functional assessment of the affected project area wetlands was performed using the North Carolina Wetland Assessment Method (NCWAM) (North Carolina Functional Assessment Team 2016). The NCWAM is a rapid assessment method that is based on the evaluation of field indicators of wetland functions. The NCWAM ultimately generates an overall wetland rating of High, Medium, or Low. Separate NCWAM evaluations were completed for two assessment areas representing the principal wetland communities and conditions within the project area. Assessment Area 1 encompasses the natural smooth cordgrass marshes on the relatively undisturbed portion of the project area floodplain, and Assessment Area 2 encompasses the disturbed common reed marshes that occur on shallow fill deposits. Dial Cordy and Associates Inc. (DC&A) conducted the field assessment on 15 October 2018 in conjunction with the delineation of project area wetlands. The NCWAM Rating Calculator v5.0 (1) was used to complete the field assessment forms and wetland rating sheets. Assessment Area 1 received an overall wetland rating of "High" and Assessment Area 2 received an overall wetland rating of "Low." Based on the NCWAM evaluation, compensatory mitigation would be required to offset impacts to 1.01 acres of smooth cordgrass marsh with a "High" overall functional rating and 0.39 acre of common reed marsh with a "Low" overall functional rating. Although specific compensatory wetland mitigation requirements have yet to be determined through agency coordination, the applicant is proposing the creation of 3.0 acres of tidal smooth cordgrass marsh along the CFR shoreline south of the project area.

Estuarine marshes are normally nature's margins of bays and sounds and can include estuarine forests, estuarine shrub/scrub, and salt/brackish marsh. These riparian vegetated communities provide critical functions for various finfish life stages including: refuge, foraging, and development. However, most juvenile finfish found in the riparian marsh nurseries were spawned offshore and transported into the estuary through tidal inlets.

The affected estuarine/riverine marshes are along the eastern bank of the CFR adjacent to the shoreline owned by Kinder Morgan. Due to the historical industrial use over the last century, it is likely the ecology has been modified from its original state. The site is also adjacent to Berth 1 of the POW Terminal that routinely performs maintenance dredging and daily operations that

likely keeps the fauna in a constant state of flux between disturbance events. There are no SAV, hardbottom, or oyster rock within the proposed project boundary.

Federally protected species evaluated in accordance with Section 7 include the Atlantic and shortnose sturgeons. A BA for review and concurrence under Section 7 by the NMFS and NCDEQ is attached. Federally and state listed animal species which may occur or use the coastal and brackish wetlands on the Kinder Morgan property include the American alligator, rainbow snake, diamondback terrapin, West Indian manatee, northern long-eared bat, Florida yellow bat, Eastern Big-eared bat, magnificent rams-horn, greenfield rams-horn, least killifish, barrel floater coppery emerald, clearlake clubtail, rare skipper, dukes' skipper and black-necked stilt. Informal consultation with the United States Fish and Wildlife Service (USFWS) and NCWRC would be required for concurrence on no adverse effects to listed species which may use the wetland areas for foraging or resting

Mitigation Plan Summary

Compensatory mitigation options for unavoidable impacts to wetlands affected by the proposed project have been fully evaluated and included within the separate Wetland Mitigation Plan (DC&A 2018). The selected option for mitigating wetland loss is the creation of tidal marsh in the lower CFR on a large intertidal flat adjacent to Shellbed Island, in association with the Audubon North Carolina's (Audubon) ongoing oyster restoration project funded by the USFWS. In addition, the NCSPA would be donating funds to complete construction of the Lock and Dam #1 Fish Passage Modification project if NMFS can complete its BO within 120 days following submittal of this application (October 26,2018). A summary of each of these is provided below, with more information contained within the previously cited plan.

Tidal Wetland Creation

To compensate for the unavoidable loss of 1.4 acres of tidal wetlands on the Kinder Morgan property the applicant proposes to create three acres of marsh adjacent to Shellbed Island in the lower CFR. This site has been selected due to the high probability of success and as additional augmentation to ongoing oyster restoration in the same location by Audubon (funded by USFWS and NFWF). *Spartina alterniflora* marsh would be planted in 12 0.25 acre patches within the shallow intertidal flats adjacent to the island and within the patchwork of proposed new oyster reefs. Design would include planting 4-inch plugs of *S. alterniflora* two-foot on center within each of the 12 planting sites. In the event the oyster reef restoration project does not obtain approval by early next summer the wetland sites would be sited landward of the existing oyster reefs which would serve to dampen any wave activity. A total of 12 *S.alterniflora* planting areas would be installed within six months of receipt of required permits for the project. If stabilization is needed, bags of staked oyster shells would be placed along the windward side of the planting areas. A full description of the affected wetlands, NCWAM functional assessment, mitigation requirements, success criteria and a three-year monitoring plan proposed for the mitigation project are included in the separate Mitigation Plan document (DC&A 2018). Detailed plans and specifications would be submitted within 60 days of permit issuance for agency review and concurrence. Construction would be scheduled during the early summer of 2019.

Donation of Funds for Construction of Lock and Dam #1 Fish Passage Modification

The NCSPA will donate \$650,000 towards construction of the proposed modification to the Lock and Dam #1 Rock Ramp Fish Passage project if the NMFS can provide their Biological Opinion no later than 120 days from receipt of the application by the Wilmington District USACE. This amount would fulfill the total cost required to move forward with construction in 2019. The project redesign would enhance the rock structures and increase the success rate for striped bass and other anadromous species to move through the rock ramp and above the dam. Funds would be provided to the NCDEQ for their use in contracting the construction of the project.

Permit Conditions

The NCSPA at the POW and within the Wilmington Harbor federal channel has successfully managed maintenance dredging and new dredging for many years with strict adherence to environmental windows, permit conditions, use of best management practices, and at times permit required monitoring. In early 2016, the POW was granted approval for the widening of their turning basin and relocation of the Kinder Morgan pier and supply lines. No incidental takes of sturgeon species have occurred during any type of dredging operations performed by the NCSPA.

For this proposed Turning Basin Expansion project, the POW is asking for approval to dredge 17.76 acres of shallow unvegetated soft bottom habitat and 1.4 acres of tidal wetlands located with a PNA. This would result in the potential loss of shallow and deep water foraging habitat for juvenile and adult lifestages of sturgeon species. Indirect effects would be limited to altering fish movements during dredging, short-term effects due to generation of higher sediment loads and turbidity during dredging, and short-term impacts during construction of the submerged toe wall.

The NCSPA has offered the following conservation and or mitigation measures to compensate for unavoidable wetland effects, potential foraging habitat loss associated with the proposed project and to avoid or minimize effects on sturgeon species within PNA. Details are provided in the attached Wetland Mitigation Plan.

- The NCSPA will provide a payment of \$650,000 towards construction of the proposed modifications to the Lock and Dam #1 rock ramp fish passage would be made to the NCDEQ for their contracting to complete the project.
- The NCSPA will prepare plans and specifications for creating three acres of tidal marsh per the Wetland Mitigation Plan provided within 60 days of permit issuance
- The NCSPA will construct the three acres of tidal marsh within six months of permit issues, provide annual monitoring reports for three-years and meet the stated success criteria in the plan.

Conservation measures to avoid and or minimize additional effects on managed and associated species in the project area includes the following:

- Turbidity booms would be deployed around dredging and pumping operations at all times to minimize movement of suspended sediments and turbidity.

- Turbidity booms would be monitored by the POW to ensure compliance with the above requirement.
- Best management practices would be used throughout construction to minimize turbidity and any indirect effects on managed and associated species.
- Due to the performance of mechanical dredging during the higher activity and migration period of the year for sturgeon, the applicant agrees to place an observer on the clamshell barge to observe for sturgeon either entrained in the bucket dredge or injured/killed during dredging. Weekly reports would be provided to the North Carolina Department of Environment and Natural Resources and the NMFS as to weekly observations.
- Construction of the toe wall would serve to minimize future erosion and subsidence of sediment into the channel and mirrors the amount of material needing dredged.

APPLICATION for Major Development Permit

(last revised 12/27/06)



North Carolina DIVISION OF COASTAL MANAGEMENT

1. Primary Applicant/ Landowner Information			
Business Name North Carolina State Port Authority		Project Name (if applicable) Turning basin expansion	
Applicant 1: First Name Paul	MI J	Last Name Cozza	
Applicant 2: First Name	MI	Last Name	
<i>If additional applicants, please attach an additional page(s) with names listed.</i>			
Mailing Address P.O. Box 9002		PO Box 9002	City Wilmington
		State NC	
ZIP 28402	Country New Hanover	Phone No. 910 - 343 - 6484 ext.	FAX No. 910 - 343 - 6237
Street Address (if different from above) 2202 Burnett Blvd.		City Wilmington	State NC
		ZIP 28401-	
Email paul.cozza@ncports.com			

2. Agent/Contractor Information			
Business Name Dial Cordy And Associates			
Agent/ Contractor 1: First Name Steve	MI	Last Name Dial	
Agent/ Contractor 2: First Name James	MI M	Last Name Hargrove	
Mailing Address 201 North Front Street		PO Box	City Wilmington
		State NC	
ZIP 28401		Phone No. 1 910 - 251 - 9790 ext.	Phone No. 2 - - ext.
FAX No.	Contractor #		
Street Address (if different from above)		City	State
		ZIP -	
Email sdial@dialcordy.com, jhargrove@dialcordy.com			

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3. Project Location				
County (can be multiple) New Hanover		Street Address 1 Shipyard Blvd		State Rd. #
Subdivision Name N/A		City Wilmington	State NC	Zip 28401 -
Phone No. - - ext.		Lot No.(s) (if many, attach additional page with list)		
a. In which NC river basin is the project located? Cape Fear River		b. Name of body of water nearest to proposed project Cape Fear River		
c. Is the water body identified in (b) above, natural or manmade? <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Manmade <input type="checkbox"/> Unknown		d. Name the closest major water body to the proposed project site. Cape Fear River		
e. Is proposed work within city limits or planning jurisdiction? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		f. If applicable, list the planning jurisdiction or city limit the proposed work falls within. Wilmington		

4. Site Description	
a. Total length of shoreline on the tract (ft.) 2,600	b. Size of entire tract (sq.ft.) N/A
c. Size of individual lot(s) N/A, (if many lot sizes, please attach additional page with a list)	d. Approximate elevation of tract above NHW (normal high water) or NWL (normal water level) N/A <input type="checkbox"/> NHW or <input type="checkbox"/> NWL
e. Vegetation on tract Coastal wetlands, freshwater wetlands, and some upland vegetation where the western project boundary meets land. The majority of the project is located within the Cape Fear River. No known SAV present. The delineated Section 404 wetland-upland boundary is located along the toe of a man-made upland berm that runs the entire length of the property. The area waterward of the berm toe is positioned entirely on the tidal floodplain of the Cape Fear River (CFR). The floodplain encompasses a mix of relatively natural salt and brackish marshes, dense common reed (<i>Phragmites australis</i>) stands, and unvegetated mud flats. Salt marshes consisting of monospecific stands of smooth cordgrass (<i>Spartina alterniflora</i>) occur predominantly on the relatively undisturbed lower portion of the tidal floodplain along the river. Brackish marshes are restricted to a few small areas along the upper margins of the cordgrass marshes. The brackish marshes are dominated by big cordgrass and other brackish species such as salt marsh aster (<i>Symphotrichum tenuifolium</i>), bull-tongue arrowhead (<i>Sagittaria lancifolia</i>), and water primrose (<i>Ludwigia bonariensis</i>). Dense monospecific stands of common reed occur on shallow fill deposits that extend waterward onto to the floodplain from the upland berm. The lower extent of the fill deposits and their associated common reed stands marks the boundary between Section 404 and CAMA coastal wetlands. The entire area waterward of the berm toe, including the common reed stands, is inundated at high tide. Vegetation of the upland berm is a disturbed scrub-shrub assemblage consisting of live oak (<i>Quercus virginiana</i>), coastal red cedar (<i>Juniperus silicicola</i>), and dense woody vines such as trumpet vine (<i>Campsis radicans</i>), catbrier (<i>Smilax bona-nox</i>), and poison ivy (<i>Toxicodendron radicans</i>).	
f. Man-made features and uses now on tract Project located within and adjacent to the Wilmington Terminal Turning Basin and the Kinder Morgan Property, owned by the North Carolina State Ports Authority - Port of Wilmington, Wilmington NC. The only man-made feature in the proposed project area is a derelict pier (Chevron Pier) that will be removed prior to any dredging.	
g. Identify and describe the existing land uses adjacent to the proposed project site. The adjacent properties are highly industrialized facilities that deal with international commodities. Kinder Morgan and Apex Marine Terminal	
h. How does local government zone the tract? Industrial	i. Is the proposed project consistent with the applicable zoning? (Attach zoning compliance certificate, if applicable) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA

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j. Is the proposed activity part of an urban waterfront redevelopment proposal?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
k. Has a professional archaeological assessment been done for the tract? If yes, attach a copy. If yes, by whom?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
l. Is the proposed project located in a National Registered Historic District or does it involve a National Register listed or eligible property?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA

<Form continues on next page>

m. (i) Are there wetlands on the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
(ii) Are there coastal wetlands on the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
(iii) If yes to either (i) or (ii) above, has a delineation been conducted? <i>(Attach documentation, if available)</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
n. Describe existing wastewater treatment facilities. Port wastewater system operated by the Cape Fear Public Utility Authority	
o. Describe existing drinking water supply source. Port water supplied by Cape Fear Public Utility Authority. Port authority operates distribution system	
p. Describe existing storm water management or treatment systems. The port facility is subject to NPDES stormwater permit number NCS000174	

5. Activities and Impacts	
a. Will the project be for commercial, public, or private use?	<input checked="" type="checkbox"/> Commercial <input type="checkbox"/> Public/Government <input type="checkbox"/> Private/Community
b. Give a brief description of purpose, use, and daily operations of the project when complete. The proposed action is to expand the turning basin by dredging the eastern and western sides of the present basin, deepening approximately 17.76 acres of shallow and deep soft bottom habitat dredged to -45 feet (ft) Mean Low Low Water (MLLW) and installing a vertical submerged sheet pile toe wall along the eastern extents of the basin. The POW will facilitate 14,000 (TEU) vessel turning, berthing, and unloading when called upon to do so. Please see the attached project narrative for more information, as well as the Section 404b1 report prepared for the Corps of Engineers, which summarizes the purpose and need, alternatives considered and minimization measures taken during the design analysis.	
c. Describe the proposed construction methodology, types of construction equipment to be used during construction, the number of each type of equipment and where it is to be stored. While the turning basin is vacant, the dredge contractor will use a mechanical dredge to dredge the project area in stages. Prior to initiating dredging, the dredging contractor will install turbidity curtains around the proposed dredge area. The contractor will remove soil and sediments using either a barge-mounted crane equipped with an environmental bucket or a long reach excavator boom and bucket if rock or heavy debris is encountered. The dredged material will be loaded into watertight barges or scows and transported across the Wilmington River where the dredging contractor will re-fluidize the sediments and hydraulically pump the dredged material to the Eagle Island confined disposal facility. Dredges will be brought in on barges and staged along the river depending on the current phase of the project. Construction of the 1,416 ft toe wall will consist of AZ52-700 interlocking steel sheet piles with protective coatings that are 70-ft long and will be driven into the marl layer (see permit drawings). This wall will be completely submerged at -10-ft MLLW and additional H-piles will be installed in the recess of the sheet piles with solar powered navigation lights installed on top of the pile at EL+10-ft MLLW. The toe wall will consist of 310 sheet piles and 15 H-piles or 160 King-sheet piles and 160 pipe piles. Construction will be performed from a working barge with piling driving equipment standard to the industry.	
d. List all development activities you propose.	
1. Dredging 560,000 CY of material for expansion of the basin 2. Removal of existing (Chevron) pier and creating a toe wall along the eastern boundary 3. Installation of a 1,416 ft submerged toe wall on the eastern side of the channel off the Kinder Morgan property	

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e. Are the proposed activities maintenance of an existing project, new work, or both?	New
f. What is the approximate total disturbed land area resulting from the proposed project?	19.16 ac <input type="checkbox"/> Sq.Ft or <input checked="" type="checkbox"/> Acres
g. Will the proposed project encroach on any public easement, public accessway or other area that the public has established use of?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
h. Describe location and type of existing and proposed discharges to waters of the state. Existing stormwater runoff from the "Chevron" pier will be reduced when removed from the river. Discharge of dredged material will be in the Eagle Island confined disposal facility.	
i. Will wastewater or stormwater be discharged into a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
If yes, will this discharged water be of the same salinity as the receiving water?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
j. Is there any mitigation proposed? If yes, attach a mitigation proposal.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA

<Form continues on back>

6. Additional Information	
<i>In addition to this completed application form, (MP-1) the following items below, if applicable, must be submitted in order for the application package to be complete. Items (a) – (f) are always applicable to any major development application. Please consult the application instruction booklet on how to properly prepare the required items below.</i>	
a. A project narrative.	
b. An accurate, dated work plat (including plan view and cross-sectional drawings) drawn to scale. Please give the present status of the proposed project. Is any portion already complete? If previously authorized work, clearly indicate on maps, plats, drawings to distinguish between work completed and proposed.	
c. A site or location map that is sufficiently detailed to guide agency personnel unfamiliar with the area to the site.	
d. A copy of the deed (with state application only) or other instrument under which the applicant claims title to the affected properties.	
e. The appropriate application fee. Check or money order made payable to DENR.	
f. A list of the names and complete addresses of the adjacent waterfront (riparian) landowners and signed return receipts as proof that such owners have received a copy of the application and plats by certified mail. Such landowners must be advised that they have 30 days in which to submit comments on the proposed project to the Division of Coastal Management.	
Name Apex Oil Company, John Joyner	Phone No. 910-799-0030
Address P.O. Box 3127, Wilmington, NC 28406	
Name Kinder Morgan, Troy Sturtz	Phone No. 910-763-0104
Address 1710 Woodbine Street, Wilmington, NC 28401	
Name	Phone No.
Address	
g. A list of previous state or federal permits issued for work on the project tract. Include permit numbers, permittee, and issuing dates.	
CAMA permit 47-87	Air Quality Permit 4683R27
NPDES Permit NCS000174	Public Water Supply ID NO. 70-65-007
h. Signed consultant or agent authorization form, if applicable.	
i. Wetland delineation, if necessary.	
j. A signed AEC hazard notice for projects in oceanfront and inlet areas. (Must be signed by property owner)	
k. A statement of compliance with the N.C. Environmental Policy Act (N.C.G.S. 113A 1-10), if necessary. If the project involves expenditure of public funds or use of public lands, attach a statement documenting compliance with the North Carolina Environmental Policy Act	

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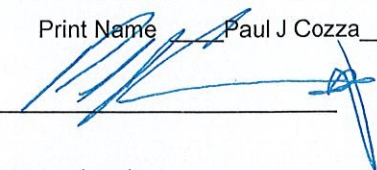
7. Certification and Permission to Enter on Land

I understand that any permit issued in response to this application will allow only the development described in the application. The project will be subject to the conditions and restrictions contained in the permit.

I certify that I am authorized to grant, and do in fact grant permission to representatives of state and federal review agencies to enter on the aforementioned lands in connection with evaluating information related to this permit application and follow-up monitoring of the project.

I further certify that the information provided in this application is truthful to the best of my knowledge.

Date 25 October 2018 Print Name Paul J Cozza

Signature 

Please indicate application attachments pertaining to your proposed project.

- DCM MP-2 Excavation and Fill Information
- DCM MP-3 Upland Development
- DCM MP-4 Structures Information
- DCM MP-5 Bridges and Culverts

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EXCAVATION and FILL

(Except for bridges and culverts)

Attach this form to Joint Application for CAMA Major Permit, Form DCM MP-1. Be sure to complete all other sections of the Joint Application that relate to this proposed project. Please include all supplemental information.

Describe below the purpose of proposed excavation and/or fill activities. All values should be given in feet.

	Access Channel (NLW or NWL)	Canal	Boat Basin	Boat Ramp	Rock Groin	Rock Breakwater	Other (excluding shoreline stabilization)
Length			1500				
Width			1524				
Avg. Existing Depth			20		NA	NA	
Final Project Depth			45'		NA	NA	

1. EXCAVATION This section not applicable

- a. Amount of material to be excavated from below NHW or NWL in cubic yards.
560,000 CY
- b. Type of material to be excavated.
Sand, mud, and woody debris
- c. (i) Does the area to be excavated include coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.
 CW 67518 SAV _____ SB _____
 WL 127195.2 None
- d. High-ground excavation in cubic yards.
N/A
- (ii) Describe the purpose of the excavation in these areas:
Widen Turning basin for safe turning of 14,000 TEU vessels

2. DISPOSAL OF EXCAVATED MATERIAL This section not applicable

- a. Location of disposal area.
USACE Eagle Island disposal site
- b. Dimensions of disposal area.
N/A
- c. (i) Do you claim title to disposal area?
 Yes No NA
- d. (i) Will a disposal area be available for future maintenance?
 Yes No NA
- (ii) If no, attach a letter granting permission from the owner.
same
- e. (i) Does the disposal area include any coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.
 CW _____ SAV _____ SB _____
 WL _____ None
- f. (i) Does the disposal include any area in the water?
 Yes No NA
- (ii) If yes, how much water area is affected?
- (ii) Describe the purpose of disposal in these areas:
The disposal site is a USACE designated disposal site

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3. SHORELINE STABILIZATION This section not applicable
 (If development is a wood groin, use MP-4 – Structures)

a. Type of shoreline stabilization:
 Bulkhead Riprap Breakwater/Sill Other: Toe-wall

b. Length: 1,416-ft
 Width: 5-ft

c. Average distance waterward of NHW or NWL: 25-ft

d. Maximum distance waterward of NHW or NWL: 100-ft

e. Type of stabilization material:
 Sheet pile, king pile, and H-pile

f. (i) Has there been shoreline erosion during preceding 12 months?
 Yes No NA
 (ii) If yes, state amount of erosion and source of erosion amount information.

g. Number of square feet of fill to be placed below water level.
 Bulkhead backfill N/A Riprap N/A
 Breakwater/Sill N/A Other N/A

h. Type of fill material.
N/A

i. Source of fill material.
N/A

4. OTHER FILL ACTIVITIES This section not applicable
 (Excluding Shoreline Stabilization)

a. (i) Will fill material be brought to the site? Yes No NA
 If yes,
 (ii) Amount of material to be placed in the water _____
 (iii) Dimensions of fill area _____
 (iv) Purpose of fill _____

b. (i) Will fill material be placed in coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.
 CW _____ SAV _____ SB _____
 WL _____ None _____
 (ii) Describe the purpose of the fill in these areas:

5. GENERAL

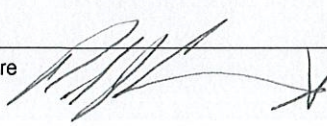
a. How will excavated or fill material be kept on site and erosion controlled?
N/A

b. What type of construction equipment will be used (e.g., dragline, backhoe, or hydraulic dredge)?
Clamshell dredge (Bucket to barge)

c. (i) Will navigational aids be required as a result of the project?
 Yes No NA
 (ii) If yes, explain what type and how they will be implemented.

d. (i) Will wetlands be crossed in transporting equipment to project site? Yes No NA
 (ii) If yes, explain steps that will be taken to avoid or minimize environmental impacts.

25 October 2018
 Date
 Turning Basin Expansion
 Project Name

North Carolina State Ports Authority
 Applicant Name
 Paul J Cozza
 Applicant Signature 

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Form DCM MP-4

STRUCTURES

(Construction within Public Trust Areas)

Attach this form to Joint Application for CAMA Major Permit, Form DCM MP-1. Be sure to complete all other sections of the Joint Application that relate to this proposed project. Please include all supplemental information.

1. DOCKING FACILITY/MARINA CHARACTERISTICS

This section not applicable

- a. (i) Is the docking facility/marina:
 Commercial Public/Government Private/Community
- b. (i) Will the facility be open to the general public?
 Yes No
- c. (i) Dock(s) and/or pier(s)
(ii) Number _____
(iii) Length _____
(iv) Width _____
(v) Floating Yes No
- d. (i) Are Finger Piers included? Yes No
If yes:
(ii) Number _____
(iii) Length _____
(iv) Width _____
(v) Floating Yes No
- e. (i) Are Platforms included? Yes No
If yes:
(ii) Number _____
(iii) Length _____
(iv) Width _____
(v) Floating Yes No
Note: Roofed areas are calculated from dripline dimensions.
- f. (i) Are Boatlifts included? Yes No
If yes:
(ii) Number _____
(iii) Length _____
(iv) Width _____
- g. (i) Number of slips proposed

(ii) Number of slips existing

- h. Check all the types of services to be provided.
 Full service, including travel lift and/or rail, repair or maintenance service
 Dockage, fuel, and marine supplies
 Dockage ("wet slips") only, number of slips: _____
 Dry storage; number of boats: _____
 Boat ramp(s); number of boat ramps: _____
 Other, please describe:

- i. Check the proposed type of siting:
 Land cut and access channel
 Open water; dredging for basin and/or channel
 Open water; no dredging required
 Other; please describe:

- j. Describe the typical boats to be served (e.g., open runabout, charter boats, sail boats, mixed types).

- k. Typical boat length: _____
- m. (i) Will the facility have tie pilings?
 Yes No
(ii) If yes number of tie pilings?

- (i) Will the facility be open to the general public?
 Yes No

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2. DOCKING FACILITY/MARINA OPERATIONS

This section not applicable

a. Check each of the following sanitary facilities that will be included in the proposed project.

Office Toilets

Toilets for patrons; Number: _____; Location: _____

Showers

Boatholding tank pumpout; Give type and location: _____

b. Describe treatment type and disposal location for all sanitary wastewater.

c. Describe the disposal of solid waste, fish offal and trash.

d. How will overboard discharge of sewage from boats be controlled?

e. (i) Give the location and number of "No Sewage Discharge" signs proposed.

(ii) Give the location and number of "Pumpout Available" signs proposed.

f. Describe the special design, if applicable, for containing industrial type pollutants, such as paint, sandblasting waste and petroleum products.

g. Where will residue from vessel maintenance be disposed of?

h. Give the number of channel markers and "No Wake" signs proposed. _____

i. Give the location of fuel-handling facilities, and describe the safety measures planned to protect area water quality.

j. What will be the marina policy on overnight and live-aboard dockage?

k. Describe design measures that promote boat basin flushing?

l. If this project is an expansion of an existing marina, what types of services are currently provided?

m. Is the marina/docking facility proposed within a primary or secondary nursery area?

Yes No

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n. Is the marina/docking facility proposed within or adjacent to any shellfish harvesting area?

Yes No

o. Is the marina/docking facility proposed within or adjacent to coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.

CW _____ SAV _____ SB _____
WL _____ None

p. Is the proposed marina/docking facility located within or within close proximity to any shellfish leases? Yes No

If yes, give the name and address of the leaseholder(s), and give the proximity to the lease.

3. BOATHOUSE (including covered lifts)

This section not applicable

a. (i) Is the boathouse structure(s):

Commercial Public/Government Private/Community

(ii) Number _____

(iii) Length _____

(iv) Width _____

Note: Roofed areas are calculated from dripline dimensions.

4. GROIN (e.g., wood, sheetpile, etc. If a rock groin, use MP-2, Excavation and Fill.)

This section not applicable

a. (i) Number _____

(ii) Length _____

(iii) Width _____

5. BREAKWATER (e.g., wood, sheetpile, etc.)

This section not applicable

a. Length _____

b. Average distance from NHW, NWL, or wetlands

c. Maximum distance beyond NHW, NWL or wetlands

6. MOORING PILINGS and BUOYS

This section not applicable

a. Is the structure(s):

Commercial Public/Government Private/Community

b. Number _____

c. Distance to be placed beyond shoreline _____

Note: This should be measured from marsh edge, if present.

d. Description of buoy (color, inscription, size, anchor, etc.)

e. Arc of the swing _____

7. GENERAL

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OCT 29 2018

a. Proximity of structure(s) to adjacent riparian property lines
25-ft

b. Proximity of structure(s) to adjacent docking facilities.
350-ft

Note: For buoy or mooring piling, use arc of swing including length of vessel.

c. Width of water body
1,600

d. Water depth at waterward end of structure at NLW or NWL
-42

e. (i) Will navigational aids be required as a result of the project?
 Yes No NA
(ii) If yes, explain what type and how they will be implemented.

8. OTHER

This section not applicable

a. Give complete description:

A toe wall 1,416-ft in length is proposed on the eastern portion of the project extent. The toe wall is proposed to be constructed one of two ways. The first option consists of 310 sheetpiles and 15 H-piles and the second option will consist of 160 sheetpiles and 160 pipe piles. The toe wall will be submerged on average to -10 ft MLW but will have pilings set behind the toe wall that will be exposed +10 ft MHHW with a self-contained solar powered navigation light. Please see wetland impact plan (Sheet 2 and 3 of the plans and Figures 2 and 3 in the project narrative associated with this permit application).

25 October 2018

Date

Turning Basin Expansion

Project Name

Paul J Cozza

Applicant Name

Applicant Signature

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OCT 29 2018

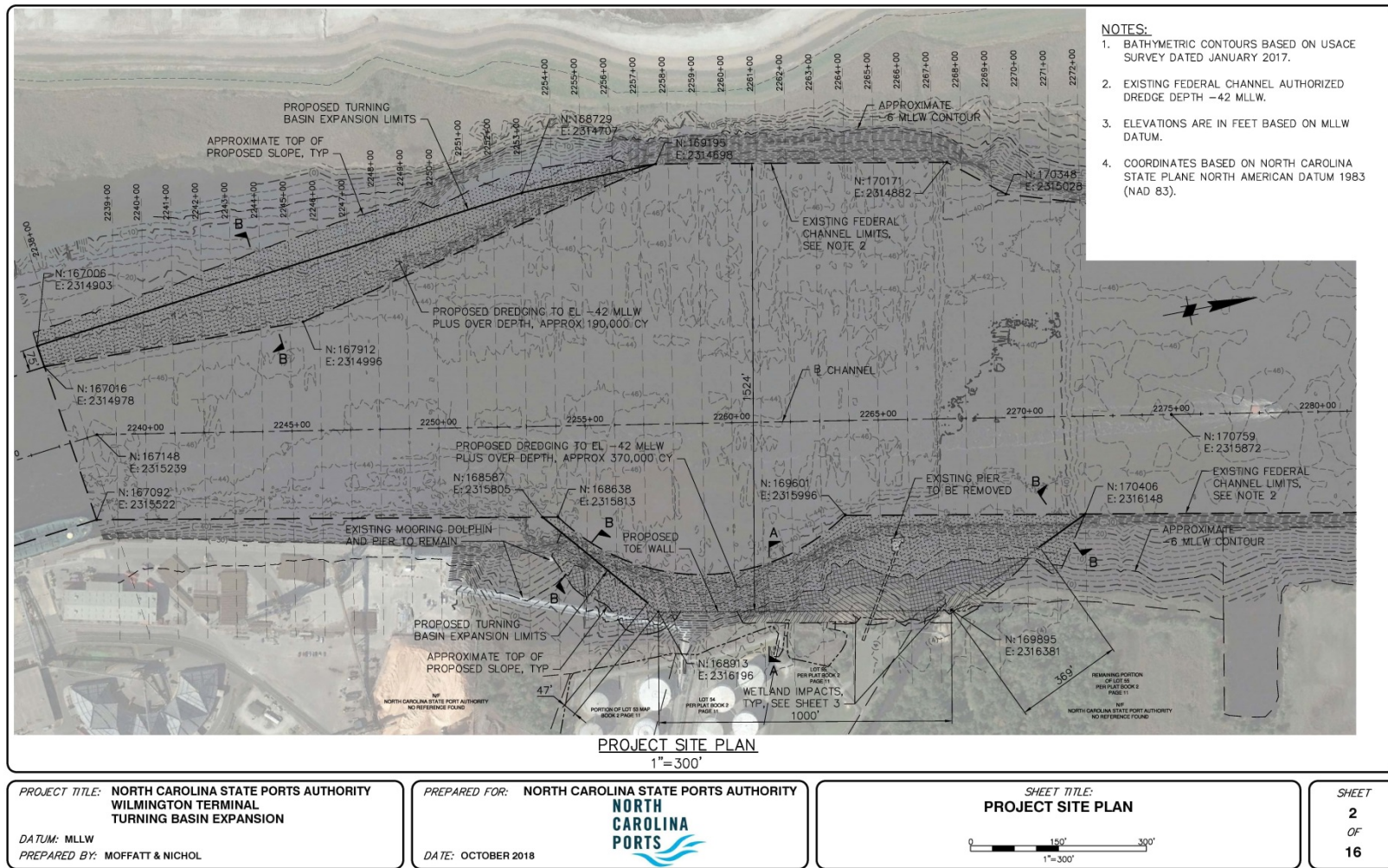


Figure 2. Project Site Plan for Turning Basin Expansion

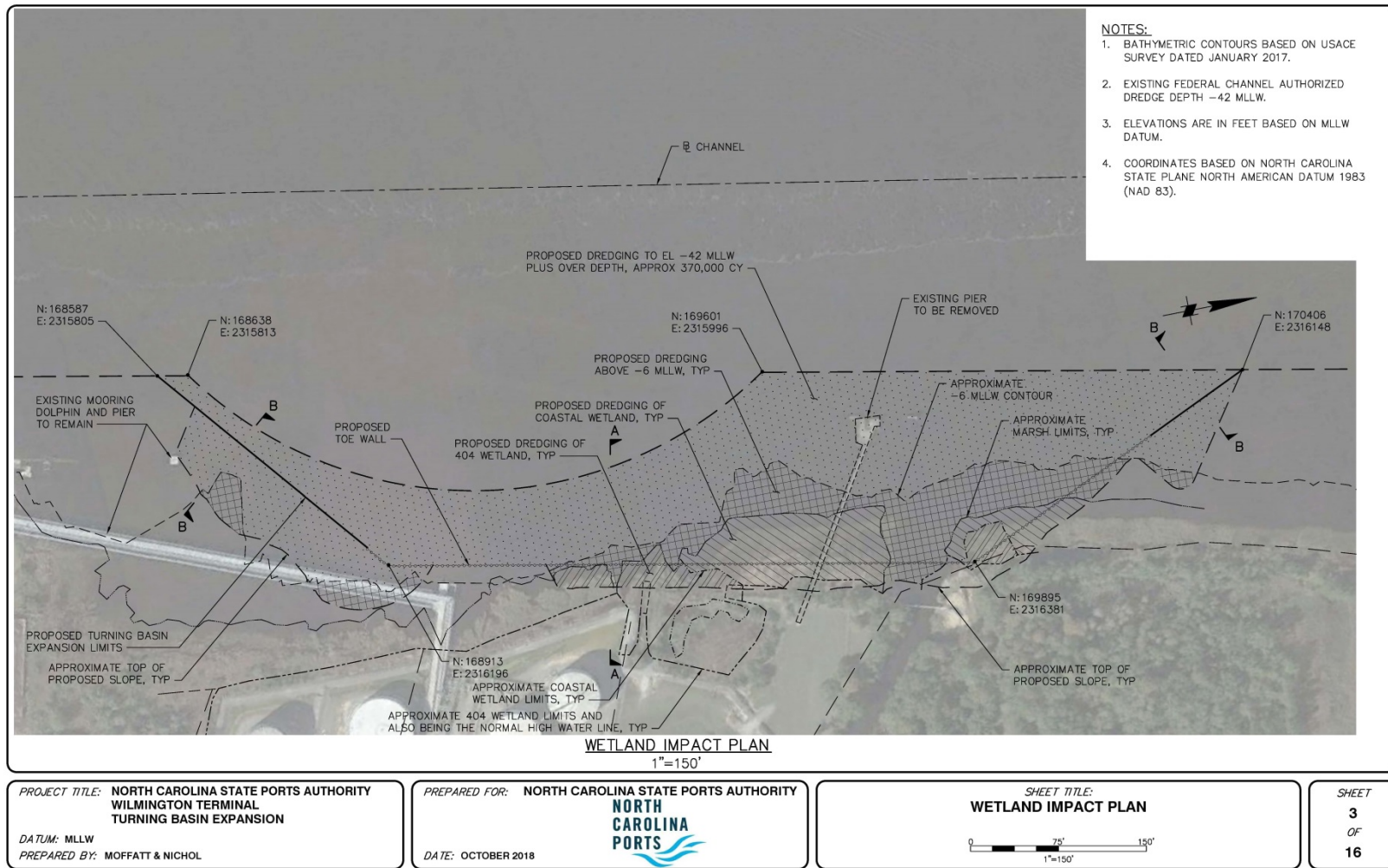


Figure 3. Wetland Impact Plan for Turning Basin Expansion

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Port of Wilmington Tuning Basin Expansion Project City/County: New Hanover Sampling Date: 10/12/18
 Applicant/Owner: Piedmont Natural Gas (PNG) State: NC Sampling Point: WC5-Wetland
 Investigator(s): Rahlff Ingle (Dial Cordy and Associates) Section, Township, Range: Wilmington
 Landform (hillslope, terrace, etc.): Tidal floodplain Local relief (concave, convex, none): None Slope (%): _____
 Subregion (LRR or MLRA): LRR T Lat: 34.211513° Long: -77.953708° Datum: _____
 Soil Map Unit Name: Tidal Marsh NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input checked="" type="checkbox"/> Surface Water (A1) _____ Aquatic Fauna (B13) <input checked="" type="checkbox"/> High Water Table (A2) _____ Marl Deposits (B15) (LRR U) <input checked="" type="checkbox"/> Saturation (A3) <input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1) _____ Water Marks (B1) _____ Oxidized Rhizospheres along Living Roots (C3) _____ Sediment Deposits (B2) _____ Presence of Reduced Iron (C4) <input checked="" type="checkbox"/> Drift Deposits (B3) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Algal Mat or Crust (B4) _____ Thin Muck Surface (C7) _____ Iron Deposits (B5) _____ Other (Explain in Remarks) _____ Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ FAC-Neutral Test (D5) _____ Sphagnum moss (D8) (LRR T, U)
Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>1</u> Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>0</u> Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: Tidal floodplain at low tide	

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WC5-Wetland

Tree Stratum (Plot size: <u>30-ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>0</u> = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling Stratum (Plot size: <u>30-ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>0</u> = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: <u>30-ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>0</u> = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: <u>30-ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Spartina alterniflora</u>	<u>35</u>	<u>Yes</u>	<u>OBL</u>
2. <u>Spartina cynosuroides</u>	<u>20</u>	<u>Yes</u>	<u>OBL</u>
3. <u>Symphotrichum tenuifolium</u>	<u>10</u>	<u>No</u>	<u>OBL</u>
4. <u>Ludwigia bonariensis</u>	<u>5</u>	<u>No</u>	<u>OBL</u>
5. <u>Typha angustifolia</u>	<u>5</u>	<u>No</u>	<u>OBL</u>
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
	<u>75</u> = Total Cover		

50% of total cover: 37.5 20% of total cover: 15

Woody Vine Stratum (Plot size: <u>30-ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	<u>0</u> = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: <u>0</u> (A)	<u>0</u> (B)

Prevalence Index = B/A = _____

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is >50%
 - 3 - Prevalence Index is ≤3.0¹
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WC5-Wetland

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-15	10 YR 2/1						Muck	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- | | | |
|--|---|---|
| <input checked="" type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S, T, U) | <input type="checkbox"/> 1 cm Muck (A9) (LRR O) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U) | <input type="checkbox"/> 2 cm Muck (A10) (LRR S) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O) | <input type="checkbox"/> Reduced Vertic (F18) (outside MLRA 150A,B) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (LRR P, S, T) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 153B) |
| <input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Muck Presence (A8) (LRR U) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR P, T) | <input type="checkbox"/> Marl (F10) (LRR U) | |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Ochric (F11) (MLRA 151) | |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T) | ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. |
| <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A) | <input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S) | <input type="checkbox"/> Delta Ochric (F17) (MLRA 151) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B) | |
| <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A) | |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) | |
| <input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U) | | |

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present?

Yes



No



Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Port of Wilmington Tuning Basin Expansion Project City/County: New Hanover Sampling Date: 10/12/18
 Applicant/Owner: NCSPA State: NC Sampling Point: WC5-Upland
 Investigator(s): Rahlff Ingle (Dial Cordy and Associates) Section, Township, Range: Wilmington
 Landform (hillslope, terrace, etc.): Artificial berm Local relief (concave, convex, none): Convex Slope (%): 2
 Subregion (LRR or MLRA): LRR T Lat: 34.211513° Long: -77.953708° Datum: _____
 Soil Map Unit Name: Urban NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: _____ _____ _____	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ Aquatic Fauna (B13) ___ High Water Table (A2) ___ Marl Deposits (B15) (LRR U) ___ Saturation (A3) ___ Hydrogen Sulfide Odor (C1) ___ Water Marks (B1) ___ Oxidized Rhizospheres along Living Roots (C3) ___ Sediment Deposits (B2) ___ Presence of Reduced Iron (C4) ___ Drift Deposits (B3) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Algal Mat or Crust (B4) ___ Thin Muck Surface (C7) ___ Iron Deposits (B5) ___ Other (Explain in Remarks) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ FAC-Neutral Test (D5) ___ Sphagnum moss (D8) (LRR T, U)
Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: _____ _____ _____	
Remarks: _____ _____ _____	

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WC5-Upland

Tree Stratum (Plot size: <u>30-ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>0</u> = Total Cover		
50% of total cover: _____	20% of total cover: _____		

Sapling Stratum (Plot size: <u>30-ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Quercus virginiana</u>	<u>35</u>	<u>Yes</u>	<u>FACU</u>
2. <u>Juniperus virginiana</u>	<u>25</u>	<u>Yes</u>	<u>FACU</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>60</u> = Total Cover		
50% of total cover: <u>30</u>	20% of total cover: <u>12</u>		

Shrub Stratum (Plot size: <u>30-ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>0</u> = Total Cover		
50% of total cover: _____	20% of total cover: _____		

Herb Stratum (Plot size: <u>30-ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
	<u>0</u> = Total Cover		
50% of total cover: _____	20% of total cover: _____		

Woody Vine Stratum (Plot size: <u>30-ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Smilax bona-nox</u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Toxicodendron radicans</u>	<u>5</u>	<u>No</u>	<u>FAC</u>
3. <u>Campsis radicans</u>	<u>5</u>	<u>No</u>	<u>FAC</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	<u>25</u> = Total Cover		
50% of total cover: <u>12.5</u>	20% of total cover: <u>5</u>		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: <u>0</u> (A)	<u>0</u> (B)

Prevalence Index = B/A = _____

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is >50%
 - 3 - Prevalence Index is ≤3.0¹
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?

Yes No

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WC5-Upland

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 6/1						sand	< 25% of grains are masked
2-15	10 YR 4/3						sand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- | | | |
|--|---|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S, T, U) | <input type="checkbox"/> 1 cm Muck (A9) (LRR O) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U) | <input type="checkbox"/> 2 cm Muck (A10) (LRR S) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O) | <input type="checkbox"/> Reduced Vertic (F18) (outside MLRA 150A,B) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (LRR P, S, T) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) |
| <input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U) | <input type="checkbox"/> Redox Dark Surface (F6) | (MLRA 153B) |
| <input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Muck Presence (A8) (LRR U) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR P, T) | <input type="checkbox"/> Marl (F10) (LRR U) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Ochric (F11) (MLRA 151) | |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T) | ³ Indicators of hydrophytic vegetation and |
| <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A) | <input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U) | wetland hydrology must be present, |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S) | <input type="checkbox"/> Delta Ochric (F17) (MLRA 151) | unless disturbed or problematic. |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B) | |
| <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A) | |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) | |
| <input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U) | | |

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

Disturbed soils of artificial berm



BRUNSWICK COUNTY

EAG

FEAR

Project Area

TM

Ur

Ur

DO

DO

DO

DO

SEABOARD

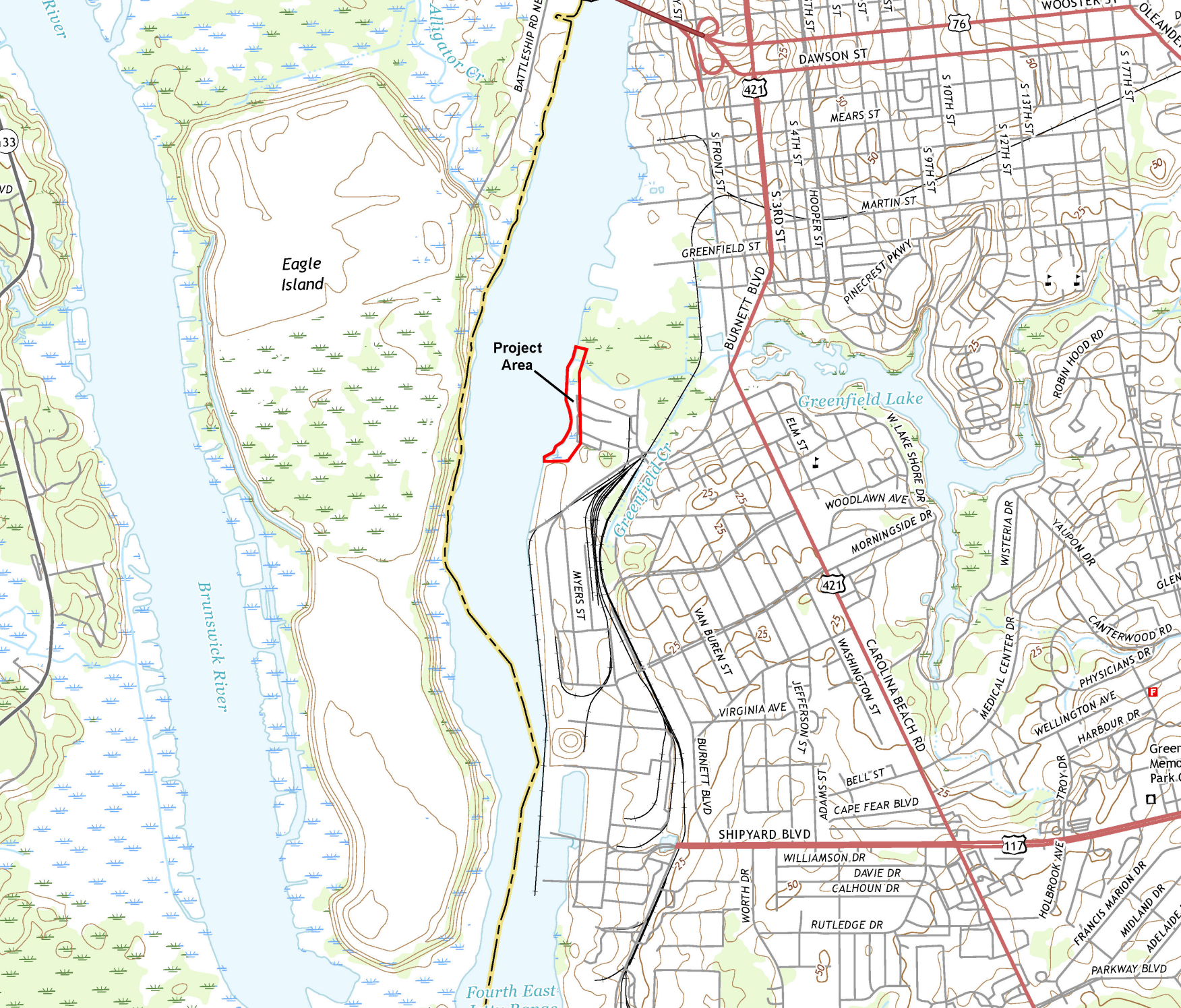
DO

DO

Bh

CAPE





Eagle Island

Project Area

Greenfield Lake

Brunswick River

Fourth East

Jurisdictional Determination Request



**US Army Corps
of Engineers**
Wilmington District

This form is intended for use by anyone requesting a jurisdictional determination (JD) from the U.S. Army Corps of Engineers, Wilmington District (Corps). Please include all supporting information, as described within each category, with your request. You may submit your request to the appropriate Corps Field Office (or project manager, if known) via mail, electronic mail, or facsimile. A current list of county assignments by Field Office and project manager can be found on-line at: <http://www.saw.usace.army.mil/Missions/RegulatoryPermitProgram.aspx> , by telephoning: 910-251-4633, or by contacting any of the field offices listed below:

ASHEVILLE REGULATORY FIELD OFFICE

US Army Corps of Engineers
151 Patton Avenue, Room 208
Asheville, North Carolina 28801-5006
General Number: (828) 271-7980
Fax Number: (828) 281-8120

WASHINGTON REGULATORY FIELD OFFICE

US Army Corps of Engineers
2407 West Fifth Street
Washington, North Carolina 27889
General Number: (910) 251-4610
Fax Number: (252) 975-1399

RALEIGH REGULATORY FIELD OFFICE

US Army Corps of Engineers
3331 Heritage Trade Drive, Suite 105
Wake Forest, North Carolina 27587
General Number: (919) 554-4884
Fax Number: (919) 562-0421

WILMINGTON REGULATORY FIELD OFFICE

US Army Corps of Engineers
69 Darlington Avenue
Wilmington, North Carolina 28403
General Number: 910-251-4633
Fax Number: (910) 251-4025

Jurisdictional Determination Request

A. PARCEL INFORMATION

Street Address: 2005 North Sixth Street
City, State: Wilmington, NC
County: New Hanover
Directions: Port of Wilmington

Parcel Index Number(s) (PIN): R05908-003-002-000
R05320-001-002-000

B. REQUESTOR INFORMATION

Name: Rahlff Ingle (Dial Cordy & Associates Inc.)
Mailing Address: 201 N. Front St., Suite 307, Wilmington, NC 28401
Telephone Number: (910) 228-0212
Electronic Mail Address¹: ringle@dialcordy.com

Select one:

- I am the current property owner.
- I am an Authorized Agent or Environmental Consultant²
- Interested Buyer or Under Contract to Purchase
- Other, please explain.

C. PROPERTY OWNER INFORMATION

Name: NC State Ports Authority
Mailing Address: 2202 Burnett Boulevard
Wilmington, NC 28401
Telephone Number: Todd Walton (910) 251-5678
Electronic Mail Address³:

Proof of Ownership Attached (e.g. a copy of Deed, County GIS/Parcel/Tax Record data)

¹ If available

² Must attach completed Agent Authorization Form

³ If available

Jurisdictional Determination Request

F. ALL REQUESTS

- Map of Property or Project Area (attached). This Map must clearly depict the boundaries of the area of evaluation.
- Size of Property or Project Area ~10 acres
- I verify that the property (or project) boundaries have recently been surveyed and marked by a licensed land surveyor OR are otherwise clearly marked or distinguishable.

G. JD REQUESTS FROM CONSULTANTS OR AGENCIES

(1) Preliminary JD Requests:

- Completed and signed Preliminary Jurisdictional Determination Form⁶.
- Project Coordinates: 34.210087° Latitude -77.953815° Longitude

Maps (no larger than 11x17) with Project Boundary Overlay:

- Large and small scale maps that depict, at minimum: streets, intersections, towns
- Aerial Photography of the project area
- USGS Topographic Map
- Soil Survey Map
- Other Maps, as appropriate (e.g. National Wetland Inventory Map, Proposed Site Plan, previous delineation maps, LIDAR maps, FEMA floodplain maps)

⁶ See Appendix A of this Form. From Regulatory Guidance Letter No. 08-02, dated June 26, 2008

Jurisdictional Determination Request

Delineation Information (when applicable):

Wetlands:

Wetland Data Sheets⁹

Upland Data Sheets

Landscape Photos, if taken

Field Sketch overlain on legible Map that includes:

- All aquatic resources (for sites with multiple resources, label and identify)
- Locations of wetland data points and/or tributary assessment reaches
- Locations of photo stations
- Approximate acreage/linear footage of aquatic resources

Tributaries:

USACE Assessment Forms

Other Assessment Forms
(when appropriate)

Supporting Jurisdictional Information (for Approved JDs only)

Approved Jurisdictional Determination Form(s) (also known as “Rapanos Form(s)”)

Map(s) depicting the potential (or lack of potential) hydrologic connection(s), adjacency, etc. to navigable waters.

⁹ Delineation information must include, at minimum, one wetland data sheet for each wetland/community type.

Jurisdictional Determination Request

- When tributaries are depicted:
 - Must include either a surveyed, approximate centerline of tributary with approximate width of tributary OR surveyed Ordinary High Water Marks (OHWM) of tributary
 - Must identify each tributary using an alphanumeric system
 - Must include linear footage of tributaries and calculated area (using approximate widths or surveyed OHWM)
 - Must include name of tributary (based on the most recent USGS topographic map) or, when no USGS name exists, identify as “unnamed tributary”

- all depicted WoUS (wetland polygons and tributary lines) must intersect or tie-to surveyed project/property boundaries

- Must include the location of wetland data points and/or tributary assessment reaches

- Must include, label accordingly, and depict acreage of all waters not currently subject to the requirements of the CWA (e.g. “isolated wetlands”, “non-jurisdictional waters”). NOTE: An approved JD must be conducted in order to make an official Corps determination that a particular waterbody or wetland is not jurisdictional.

- Must include and survey all existing conveyances (pipes, culverts, etc.) that transport WoUS

Jurisdictional Determination Request

(3) GPS SURVEYS

For Surveys prepared using a Global Positioning System (GPS), the Survey must include all of the above, as well as:

- be at sub-meter accuracy at each survey point.

- include an accuracy verification:
One or more known points (property corner, monument) shall be located with the GPS and cross-referenced with the existing traditional property survey (metes and bounds).

- include a brief description of the GPS equipment utilized.

WILMINGTON TERMINAL TURNING BASIN EXPANSION

SECTION 404(B)(1) GUIDELINES COMPLIANCE ASSESSMENT



October 26, 2018

Prepared for:
North Carolina State Ports Authority
PO Box 9002
Wilmington, NC 28402

Prepared by:
Dial Cordy and Associates Inc.
201 North Front Street, Suite 307
Wilmington, NC 28401

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1.0 ALTERNATIVES ANALYSIS

1.1 Overview

An analysis of the Section 404(b)(1) guidelines requirements for consideration of alternatives, as required by 40 CFR 230.10(a), is provided below for the proposed expansion of the Wilmington Terminal Turning Basin. Actions taken to minimize impacts to aquatic ecosystems are presented in Section 2.0 of this document, followed by a summary of compensatory measures.

The Section 404(b)(1) Guidelines' alternatives requirements provide that "no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences." [See 40 CFR 230.10(a)]. The record must contain "sufficient information to demonstrate that the proposed discharge complies with the requirements of Section 230.10(a) of the Guidelines. The amount of information needed to make such a determination and the level of scrutiny required by the Guidelines is commensurate with the severity of the environmental impact (as determined by the functions of the aquatic resource and the nature of the proposed activity) and the scope/cost of the project." [See Memorandum to the Field "Appropriate Level of Analysis Required for Evaluating Compliance with Section 404(b)(1) Guidelines Alternatives Requirements," p. 2, dated August 23, 1994, hereinafter the "Memorandum."]. As noted in the Memorandum at pages 3-4, the 404(b) (1) Guidelines "only prohibits discharges when a practicable alternative exists which would have less adverse impact on the aquatic ecosystem." [See Memorandum] "If an alleged alternative is unreasonably expensive to the applicant, the alternative is not 'practicable'." [See Guidelines Preamble, "Economic Factors," 45 Federal Register 85343 (December 24, 1980)].

Practicable alternatives for the Wilmington Terminal Turning Basin Expansion project are those alternatives that are "available and capable of being done after taking into consideration costs, existing technology, and logistics in light of overall project purposes." [See 40 CFR 230.10(a) (2)] Clarification is provided in the Preamble to the Guidelines on how cost is to be considered in the determination of practicability. Our intent is to consider those alternatives which are reasonable in terms of the overall scope/cost of the proposed project. The term economic [for which the term "costs" was substituted in the final rule] might be construed to include consideration of the applicant's financial standing, or investment, or market share, a cumbersome inquiry which is not necessarily material to the objectives of the Guidelines. [See Guidelines Preamble, "Alternatives," 45 Federal Register 85339 (December 24, 1980)].

1.2 Project Purpose and Need

The primary purpose and need of the North Carolina State Port Authority (NCSPA) at the Port of Wilmington (POW) is to expand the present turning basin to meet larger vessels calling on the port in late third quarter of 2019, including carriers from Yang Ming, Hapag Lloyd, Maersk, and

Zims. The international shipping community and clients that currently utilize the Port of Wilmington are expanding into a new class of freightliners to optimize shipping efficiency and global logistics. The new class of containerhips are expected to be capable of carrying 14,000 Twenty-foot Equivalent Units (TEU) with an overall length of 1200-ft and a beam of 159-ft. Once the NCSPA clients transition to this new class of vessel, they will be calling on ports that currently have the facilities and capabilities to safely handle turning, berthing and unloading. To prevent the loss in clientele and subsequent revenue, the POW must adapt by expanding the current 1,400-ft turning basin to meet the needs of the new class of vessels.

1.3 Avoidance Measures

1.3.1 Alternative Sites

During the design feasibility process it was concluded that there was no logical alternative location for the expanded turning basin that would not require much greater dredging and associated impacts to wetlands and the Eagle Island CDF. The Port of Wilmington has been operating for 70 years using the present turning basin north of the port berths. Operationally, turning basins need to be upriver of the berths to facilitate safe operations. Construction of a new turning basin south of the berths would not be economically feasible and would adversely impact vessel operations for large vessels.

1.3.2 Preferred Alternative Site

The preferred site location for expansion is the present turning basin located north of the ports berths. The present basin is maintained to -42 ft MLLW. This basin was last expanded in 2016 to its present dimensions.

1.4 Minimization of Impacts

During the course of the evaluation of design alternatives, a 12,400 TEU Container Ship was selected as the design vessel with the characteristics shown in Table 1. This vessel size is characteristic of the 14,000 TEU vessel class scheduled for calling on the port next fall.

In order to expand the basin to handle this design vessel, it has been determined that the turning basin, currently 1400' in diameter should be enlarged to allow such a vessel to safely turn and berth at the Port of Wilmington.

The purpose of the design evaluation was to develop several alternative turning basin configurations with their associated costs and potential impacts for consideration as to allow the design vessel to berth at the Port of Wilmington.

Two turning basin configurations were developed for consideration. These were selected because they both can provide the potential navigation improvements which can accommodate the design vessel under the desired operating conditions.

Table 1. Design vessel characteristics.

Name	Year Built	Beam (ft)	LOA (ft)	Design Draft (ft)	TEU	DWT
MSC Lauren	2011	159	1200	51	12,400	139,324

Alternative A - 1500' Turning Basin Centered with Toe Walls

Alternative A (see Figures 1 and 2) is basically an enlargement of the existing turning basin to 1500' in width and a 1000' channel elongation along the river with toe walls 1751' and 1438' in length along the west and east side, respectively. The 1500' dimension provides a ratio of 1.25 times the length of the design vessel which is a typical minimum for general operating conditions. This dimension was confirmed with the Wilmington Pilots as being acceptable. Additionally, vessel maneuvering simulations performed for the feasibility study confirmed that this layout is acceptable under the design operating conditions (15 Knot winds, spring currents). Figure 2 shows the envelope of vessel swept paths for the inbound port navigation simulations. The density of vessel traffic for the five inbound simulations is shown in Figure 3, illustrating the variability of channel use between transits.

The 1000' dimension along the length of the river provides adequate "drift" distance for the vessel due to current forces while it is being turned. This configuration also includes a widening taper on the southwest side of the turning basin, thereby allowing safe passage of the vessel past any moored vessels at Berths 1, 2, and 3 while the rotation of the vessel is being completed before it begins to move back downriver to be berthed. It should be noted that vessels were assumed docked at Berths 3, 5, and 9 for these simulations (but not Berth 1); hence the bias to the west of the channel for the transit into and from the turning basin confirming the need for this widening taper. The Berth 1 mooring dolphin may remain for this alternative, but the existing "Chevron" pier will need to be removed. Since this configuration is acceptable for the design vessel under the proposed operating conditions, it can be considered as an "ultimate" layout which would only require deepening in the future to the channel depth selected in the feasibility study.

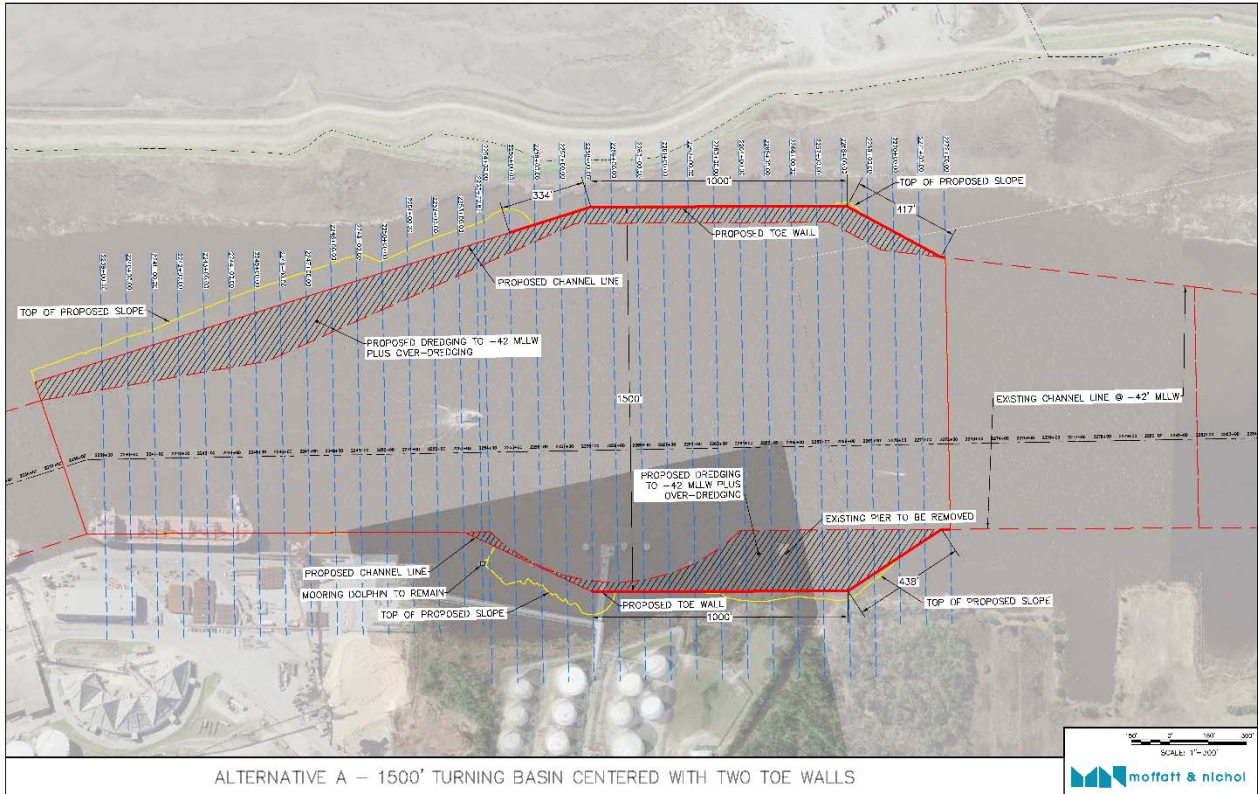


Figure 1. Alternative A Design

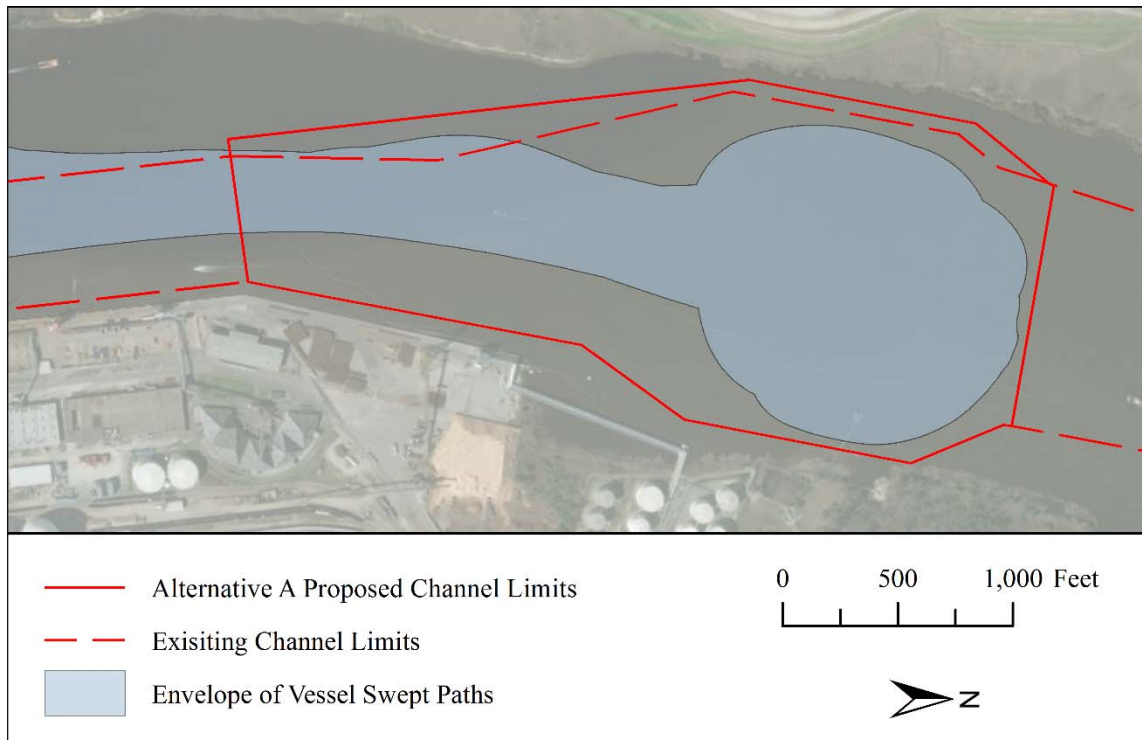


Figure 2. Alternative A - Composite of Vessel Swept Paths

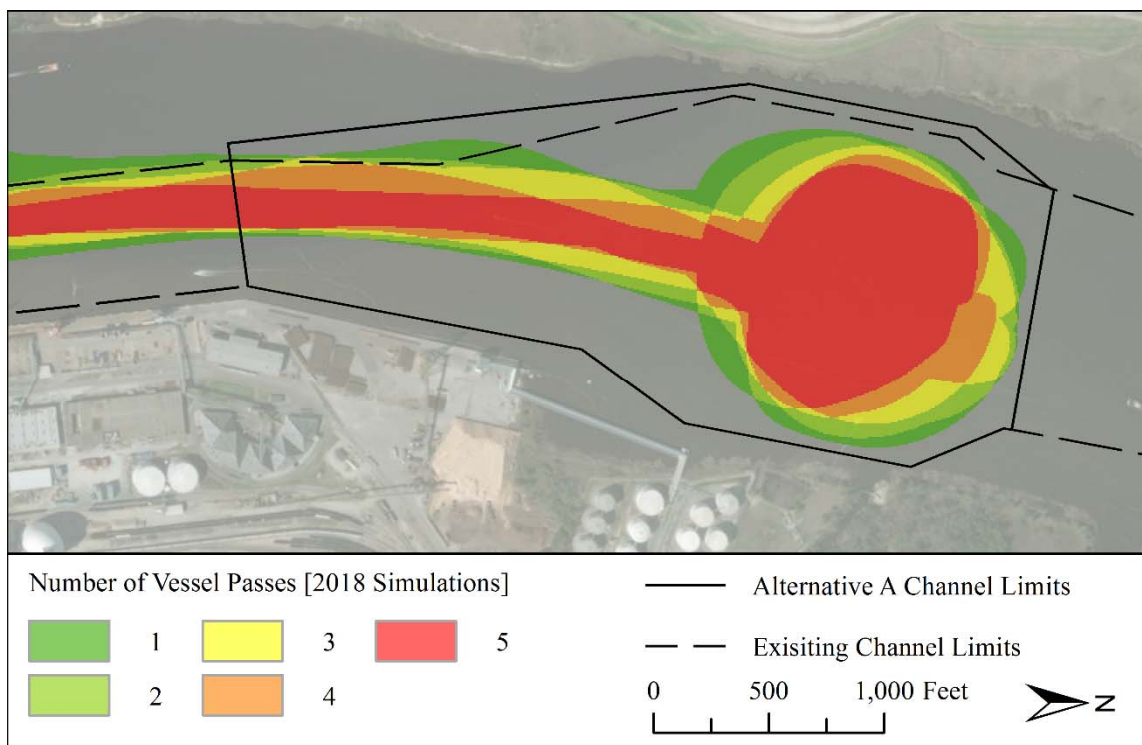


Figure 3. Density Map of Inbound Navigation Port Simulations for Alternative A

Alternative B - 1524' Turning Basin Shifted Eastward with One Toe Wall

Alternative B (Figure 4) is similar to Alternative A but shifts the turning basin to the east so that a toe wall is not required on the west side and there is no impact to the existing wetlands and slope along Eagle Island. It still provides a turning basin 1500' in width with a 1000' elongation along the river. However since initially this basin will only be dredged to -42' MLLW, the initial turning basin is actually 1524' wide, thereby providing 1500' if the west slope is carried down to an ultimate deepening of as much as -50' MLLW. A 1612' long toe wall is required on the east side. (Note – refinements during the design process reduced this length by almost 200').

While this alternative was not directly evaluated in the desktop navigation simulations, the alternative is feasible based on Figure 5 which shows that the envelope of vessel swept paths for the inbound port navigation simulations fits within the Alternative B geometry. This configuration also includes a widening taper on the southwest side of the turning basin thereby allowing safe passage of the vessel past any moored vessels at Berths 1, 2, and 3 while the rotation of the vessel is being completed before it begins to move back downriver to be berthed. It should be noted that vessels were assumed docked at Berths 3, 5, and 9 for these simulations (but not Berth 1); hence the bias to the west of the channel for the transit into and from the turning basin confirming the need for this widening taper. The Berth 1 mooring dolphin may remain for this alternative, but the existing "Chevron" pier will need to be removed.

As with Alternative A, since this configuration is acceptable for the design vessel under the proposed operating conditions, it can be considered as an "ultimate" layout which would only require deepening in the future to the channel depth selected in the feasibility study.

Comparison of Alternative Designs

As part of the design process for the proposed project, alternative configurations were assessed that could meet the minimum criteria of 1,500 ft in width to handle a 1,200 ft (LOA) and 159 ft beam for the design vessel. Two alternatives were evaluated as part of this study. The preferred plan – Alternative B, requires widening only on the east side of the channel, avoids impacts to wetlands and the Eagle Island facility on the west side of the channel, requires construction of a shorter toe wall and is the least cost alternative. Table 2 summarizes the aspects and effects of each alternative assessed.

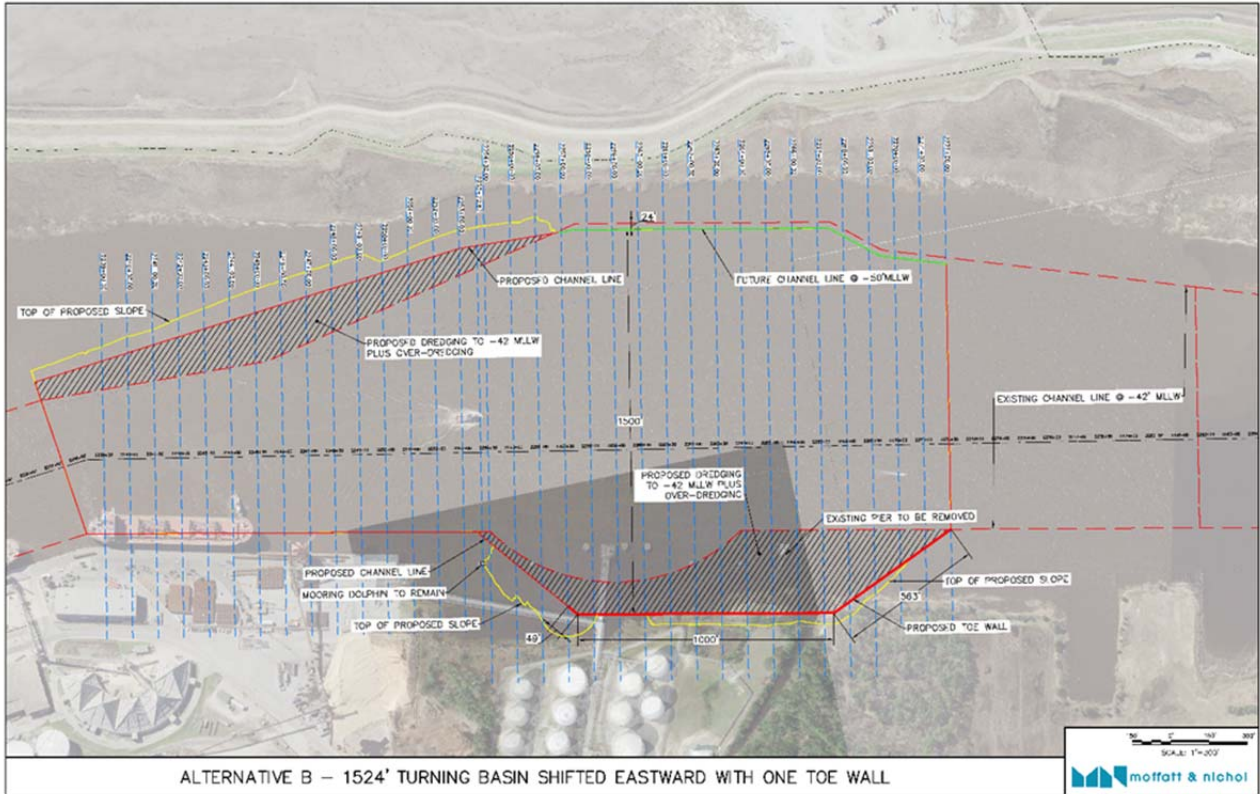


Figure 4. Alternative B Design

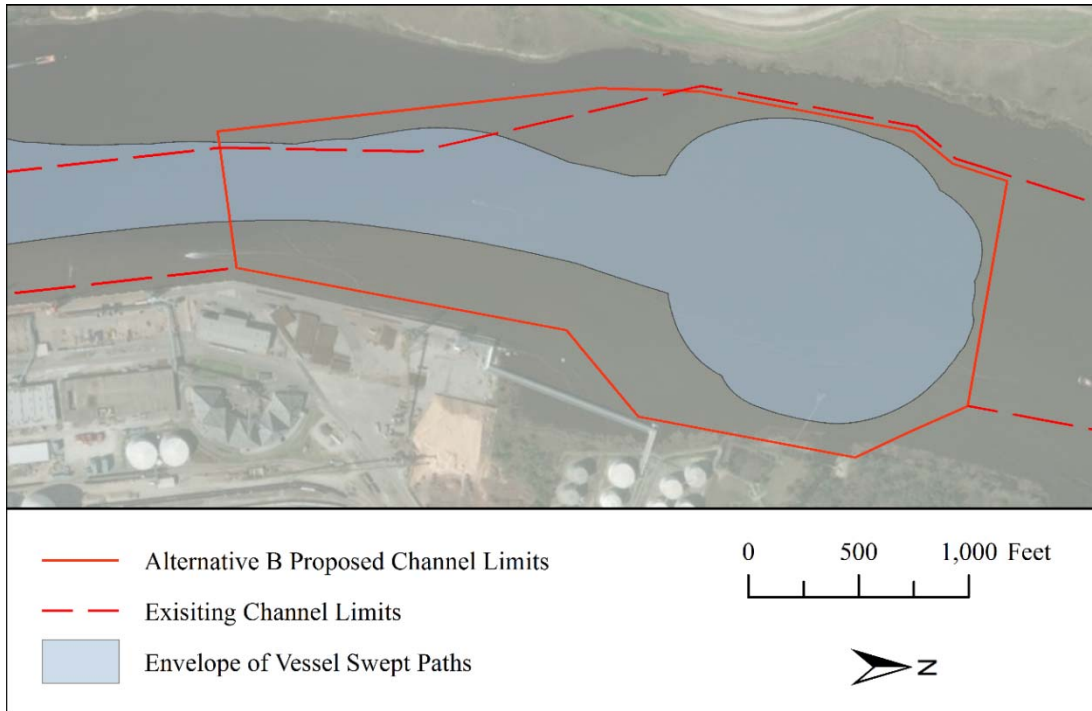


Figure 5. Alternative B - Composite of Vessel Swept Paths

Table 2. Comparison of design alternatives.

Alternative	Dimensions	Wetland Effects	Eagle Island CDF Effects	Dredging Quantity and Cost	Estimated Construction Cost	Operational Efficiency
Alternative A	1,500 ft centered with toe walls	West side affected, less on east side	Yes	Highest	Highest	High
Alternative B	1,524 ft shifted eastward with one toe wall	East side affected more and none on west side	No	Lowest	Lowest	High

1.5 Effects Analysis Summary of the Preferred Plan- Alternative B

The preferred alternative (Alternative B) includes dredging the eastern and western sides of the present basin, deepening approximately 17.76 acres of shallow and deep soft bottom habitat, dredging 1.4 acres of coastal wetland marsh along the Kinder Morgan property shoreline, and installation of a vertical submerged sheet pile toe wall along the eastern extents of the basin.

Dredging includes 1.68 ac of shallow water soft bottom habitat and 16.08 ac of deeper soft bottom habitat. Dredged material will be placed in scows and hydraulically pumped to the Eagle Island dredged material disposal facility.

Alternative B includes a 1,524-ft turning basin elongated to 500-ft along the eastern side of the Cape Fear River (CFR) with a 1612-ft long toe wall (Note – refinements during the design process reduced this length by almost 200') along the eastern edge of the project to stabilize the shoreline and maintain the basin width and navigable depth. The total dredging quantities to be removed during this project will reach 550,000 cubic yards (CY), which includes 370,000 CY on the east side and 190,000 CY on the west side. There will be no impacts to the existing slope on the Eagle Island dredge disposal facility berm or the fringing tidal marsh located on the west side of the river.

In accordance with the Section 404(b)(1) guidance, impacts defined for the preferred design are considered unavoidable. All efforts were taken during the planning and design of the project to evaluate alternative sites and minimize impacts through analysis of reasonable design alternatives that meet the operational criteria and requirements.

2.0 COMPENSATION PLAN

2.1 Overview

Compensatory mitigation options for unavoidable impacts to wetlands effected by the proposed project have been fully evaluated and included within the separate Mitigation Plan [Dial Cordy and Associates Inc. (DC&A) 2018]. The selected option for mitigating wetland loss is the creation of tidal marsh in the lower Cape Fear River on a large intertidal flat adjacent to Shellbed Island, in association with the Audubon's ongoing oyster restoration project funded by the USFWS. In addition, the NCSPA will be donating funds to complete construction of the Lock and Dam #1 Fish Passage Modification project. A summary of each of these is provided below, with more information contained within the previously cited plan.

2.2 Tidal Wetland Creation

To compensate for the unavoidable loss of 1.4 acres of tidal wetlands on the Kinder Morgan property the applicant proposes to create 3 acres of marsh adjacent to Shellbed Island in the lower CFR (Figure 6). This site has been selected due to the high probability of success and as additional augmentation to ongoing oyster restoration in the same location by Audubon (funded by USFWS and NFWF). As shown in Figure 7, *Spartina alterniflora* marsh will be planted in 12 0.25 ac patches within the shallow intertidal flats adjacent to the island and within the patchwork of proposed new oyster reefs. Design will include planting 4 inch plugs of *S. alterniflora* two-foot on center within each of the 12 planting sites. In the event the oyster reef restoration

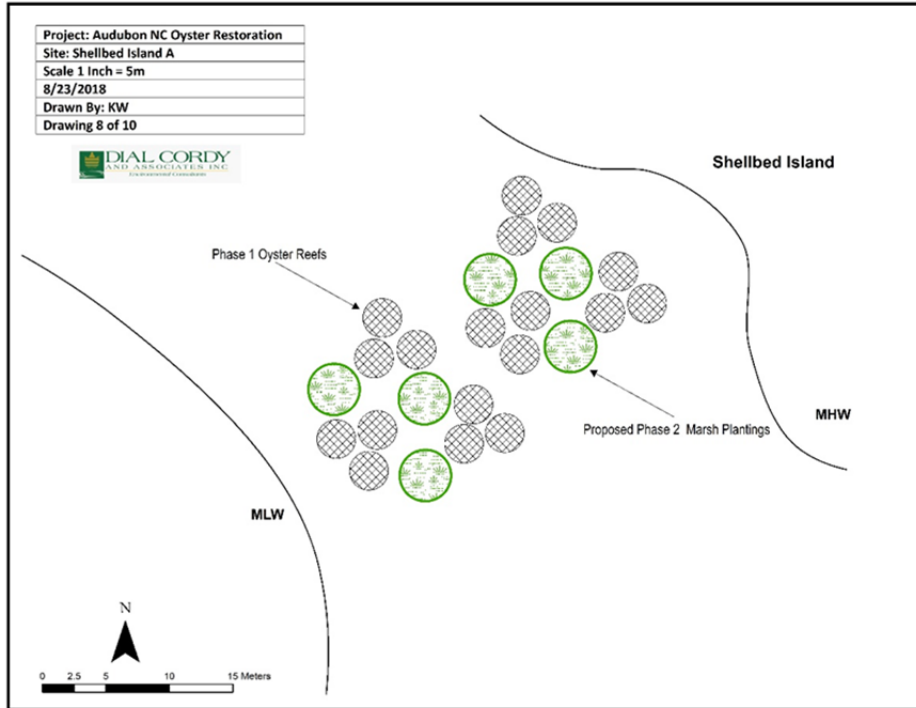


Figure 6. Conceptual Tidal Marsh Wetland Creation Plan View

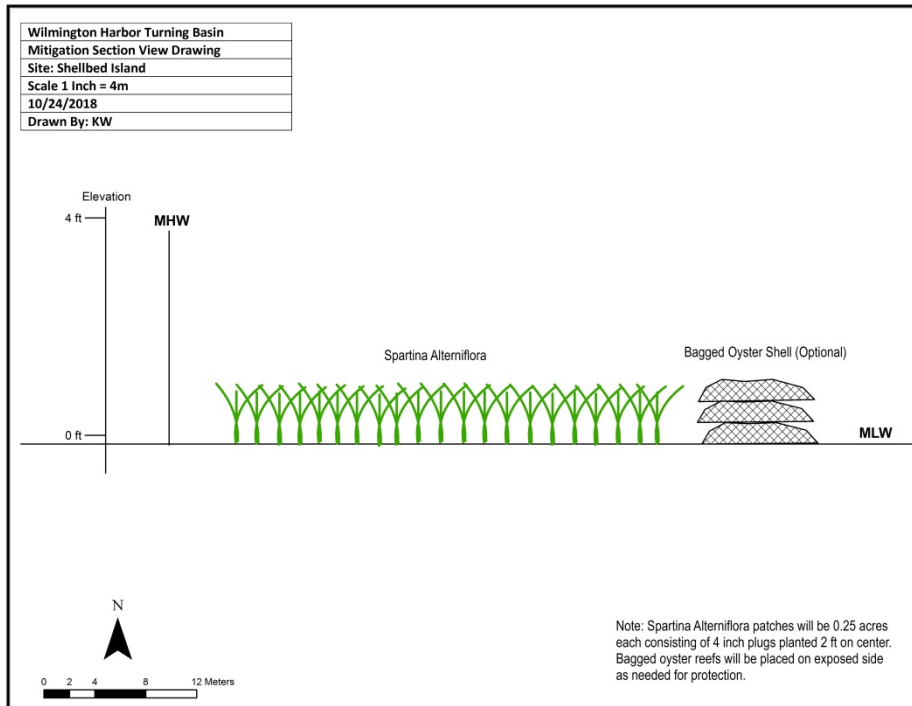


Figure 7. Conceptual Tidal Marsh Wetland Cross-Sectional View

project does not obtain approval by early next summer the wetland sites will be sited landward of the existing oyster reefs which will serve to dampen any wave activity. A total of 12 *S.alterniflora* planting areas will be installed within six months of receipt of required permits for the project. If stabilization is needed, bags of staked oyster shells will be placed along the windward side of the planting areas. A full description of the affected wetlands, NCWM functional assessment, mitigation requirements, success criteria and a three-year monitoring plan proposed for the mitigation project are included in the separate Mitigation Plan document (DC&A 2018).

2.3 Donation of Funds for Construction of Lock and Dam #1 Fish Passage Modification

The NCSPA will donate \$650,000 towards construction of the proposed modification to the Lock and Dam # 1 Rock Ramp Fish Passage project if the NMFS can provide their Biological Opinion no later than 120 days from receipt of the application by the Wilmington District Corps of Engineers. This amount will fulfill the total cost required to move forward with construction in 2019. The project redesign will enhance the rock structures and increase the success rate for striped bass and other anadromous species to move through the rock ramp and above the dam. Funds will be provided to the NCDEQ for their use in contracting the construction of the project.