CARTERET COUNTY, NC
BEACH MANAGEMENT PLAN

FINAL REPORT
June 2025



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Glossary

AIWW	Atlantic Intracoastal Waterway
BBBNMP	Bogue Banks Beach and Nearshore Mapping Program
BBMBNP	Bogue Banks Master Beach Nourishment Plan
BMP	Beach Management Plan
CAMA	Coastal Area Management Act
C.F.R.	Code of Federal Regulations
CRC	Coastal Resources Commission
CSDM	Coastal Storm Damage Mitigation [grant program]
cy	Cubic Yards
cy/ft	Cubic Yards per Linear Foot
DCM	Division of Coastal Management
DMMP	Dredged Material Management Plan
EIS	Environmental Impact Statement
FEMA	Federal Emergency Management Agency
IOP	Interim Operation Plan
LoP	Level of Protection
MCH	Morehead City Harbor
MLW	Mean Low Water
MOA	Memorandum of Agreement
NAVD88	North American Vertical Datum of 1988
NCAC	North Carolina Administrative Code
ODMDS	Ocean Dredged Material Disposal Site
ROT	Room Occupancy Tax
SBEACH	Storm-Induced BEAch CHange [numerical model]
SL	Session Law
TDA	Tourism Development Authority
USACE	United States Army Corps of Engineers
VL	Vegetation Line

1.0 PURPOSE

The North Carolina Coastal Resources Commission (CRC) recently amended Title 15A of North Carolina Administrative Code (NCAC) Subchapter 7H .0304;.0305; .0306; .0308; .0309; .0310 and Subchapter 7J.1200; .1202; .1203; .1204; .1205; .1206; and repealed Subchapter 7H .1301 through .1303 to replace and streamline the previously existing Development Line and Static Line Exception rules under the Ocean Hazard Areas of Environmental Concern. The amended code went into effect on August 1, 2022. Relevant procedural rules are presented in Appendix A.

The Towns of Emerald Isle, Indian Beach/Salter Path, Pine Knoll Shores, and Atlantic Beach (including the adjacent shoreline in Fort Macon), located along Bogue Banks in Carteret County (County), originally applied for and received an exception from the static line, which initially covered eastern Emerald Isle, the entirety of Indian Beach/Salter Path and Pine Knoll Shores, and all but the westernmost 2,500 feet of Atlantic Beach in accordance with procedures outlined in 15A NCAC 07J.1201 from the North Carolina CRC on March 24, 2010. The static vegetation line for eastern Emerald Isle was determined by North Carolina Division of Coastal Management (DCM) Staff through a ground survey in November 2002, which served as the pre-project condition for Phase II of the Bogue Banks Restoration Project, which was constructed in spring of 2003. The static vegetation line for Indian Beach/Salter Path and Pine Knoll Shores was determined by DCM staff through a ground survey in November 2001, which served as the pre-project condition for Phase I of the Bogue Banks Restoration Project which was constructed in spring of 2002. The static vegetation line for Atlantic Beach and Fort Macon was determined by DCM staff using 1984 aerial photographs, which served as the pre-project condition for the 1986 United States Army Corps of Engineers (USACE) Morehead City Harbor (MCH) disposal project. A second exception from the static line for these Towns was subsequently applied for and approved five years later on April 29, 2015. A third exception from the static line was then applied for and approved five years later on November 18, 2020 which included an additional area in western Emerald Isle and the remaining 2,500 feet in western Atlantic Beach as a result of the Post-*Florence* Phase II renourishment project. The static vegetation line for these areas was determined by a surveyor and approved by DCM using September 2019 aerial photography and digital elevation model analysis, which served as the pre-project condition for Phase II of the Post-*Florence* Renourishment Project which was constructed in spring of 2020. Since then, the 2021 Post-*Florence* Phase III renourishment project triggered a static vegetation line along the remainder of western Emerald Isle which was determined by a surveyor and approved by DCM through a December 2020 field survey, and which served as the pre-project condition for Phase III of the Post-*Florence* Renourishment Project which was constructed in spring of 2021.

Therefore, as of 2021, a static vegetation line has been established throughout the entirety of Bogue Banks from Emerald Isle through Atlantic Beach, including Fort Macon. The original static vegetation line established along eastern Emerald Isle, the entirety of Indian Beach/Salter Path and Pine Knoll Shores, and all but the westernmost 2,500 feet of Atlantic Beach was based on projects in these areas that exceeded the original static vegetation line criteria of greater than 200,000 cubic yards (cy) and with a fill density greater than 50 cy/ft. The more recent additional static vegetation line established along western Emerald Isle and the remaining 2,500 feet of Atlantic Beach were based on projects in these areas that exceeded the updated criteria of all projects over 300,000 cy.

The current average annual erosion setback factor for the affected area, as determined by DCM and approved by the CRC, is 2.0 feet per year.

The intent of the recently amended CRC rules is to provide an approach for local communities to utilize local and subregional Beach Management Plans to support delineation of the vegetation line (VL) that considers the communities long-term commitment to maintaining the beach through a managed beach nourishment plan. With an approved CRC Beach Management Plan in hand, communities can define oceanfront setbacks measured from the existing vegetation line rather than by the more restrictive pre-project vegetation line. In order to utilize the less restrictive existing vegetation line as a baseline for measuring oceanfront setbacks, Carteret County will need to develop a beach management plan (BMP) and have it approved by the CRC. The CRC's rules, specifically 15A NCAC 07J.1200, require the BMP to consist of a long-term (minimum of 30 years) maintenance plan that addresses the anticipated maintenance event volume triggers and schedules, long-term sand needs, and annual monitoring protocols, as well as identification of financial resources and/or funding sources necessary to fund these long-term nourishment activities.

This document has been created for submittal to the NC Division of Coastal Management for review and subsequent evaluation by the NC Coastal Resources Commission for approval of conditions as it relates to Carteret County's Beach Management Plan, encompassing the Towns of Emerald Isle, Indian Beach/Salter Path, Pine Knoll Shores, and Atlantic Beach located on Bogue Banks. It should be noted that the current static line exception for each municipality is valid until November 18, 2025. Note that the terminology of "static vegetation line" ("static line") has now evolved to be referred to as the "pre-project vegetation line." This report uses the terms interchangeably.

2.0 NOURISHMENT HISTORY AND PROJECT DESIGN

Carteret County has a rich history of beach nourishment along Bogue Banks dating back to the USACE maintenance dredging of MCH in 1978 with placement on Fort Macon. Subsequent events also used material pumped from Brandt Island and covered varying stretches of shoreline in Fort Macon and Atlantic Beach. In addition, the USACE has also performed beneficial placement of dredge material from the Bogue Inlet Atlantic Intracoastal Waterway (AIWW) crossing starting in 1984 with placement on the Point at the very western end of Emerald Isle adjacent to Bogue Inlet. These USACE maintenance events have continued to present day at varying frequency, with the current USACE Dredge Material Management Plan (DMMP) calling for MCH material to be placed along Fort Macon and/or Atlantic Beach every three years. Since 2006, placement in Atlantic Beach has been confined to east of the Circle due to dredge volumes and funding. However, the County has the chance to pursue a Memorandum of Agreement (MOA) to pay the delta cost to place material further west in Atlantic Beach if extra material is available.

In 2001, the County began its own locally sponsored project to maintain the remainder of Bogue Banks from Emerald Isle through Pine Knoll Shores, originally assuming the USACE disposal from MCH would cover the maintenance needs of all of Atlantic Beach. The Bogue Banks Restoration Project was constructed in three phases from 2001 to 2005, establishing nourishment triggers of either a minimum cross-sectional volume of 225 cy/ft or less than 50% remaining of the initial restoration project. Subsequent renourishment events were a combination of post-storm

renourishments and USACE Section 933 projects, taking place from 2004 to 2013. In 2015, the County adopted the Bogue Banks Master Beach Nourishment Plan (BBMBNP) which updated the methodology for triggering a nourishment event, transitioning to a volume based trigger established to maintain a 25-year level of protection (LoP) which varied along the oceanfront. The BBMBNP also incorporated Atlantic Beach, especially locations in western Atlantic Beach (west of the Circle) that have not been nourished under the USACE MCH disposal in recent years. Permits for the BBMBNP were obtained in 2018. The first nourishment actions under the BBMBNP were completed from 2019 to 2021 with Phases I, II, and III of the Post-*Florence* Renourishment Project.

Figure 2-1 presents and overview of the nourishment history, volumes, and extents along Bogue Banks from 1978 to 2024. The following sections detail the USACE and locally sponsored projects spanning from Emerald Isle to Fort Macon which have now triggered a static vegetation line along the entirety of the Bogue Banks oceanfront at different points in time.

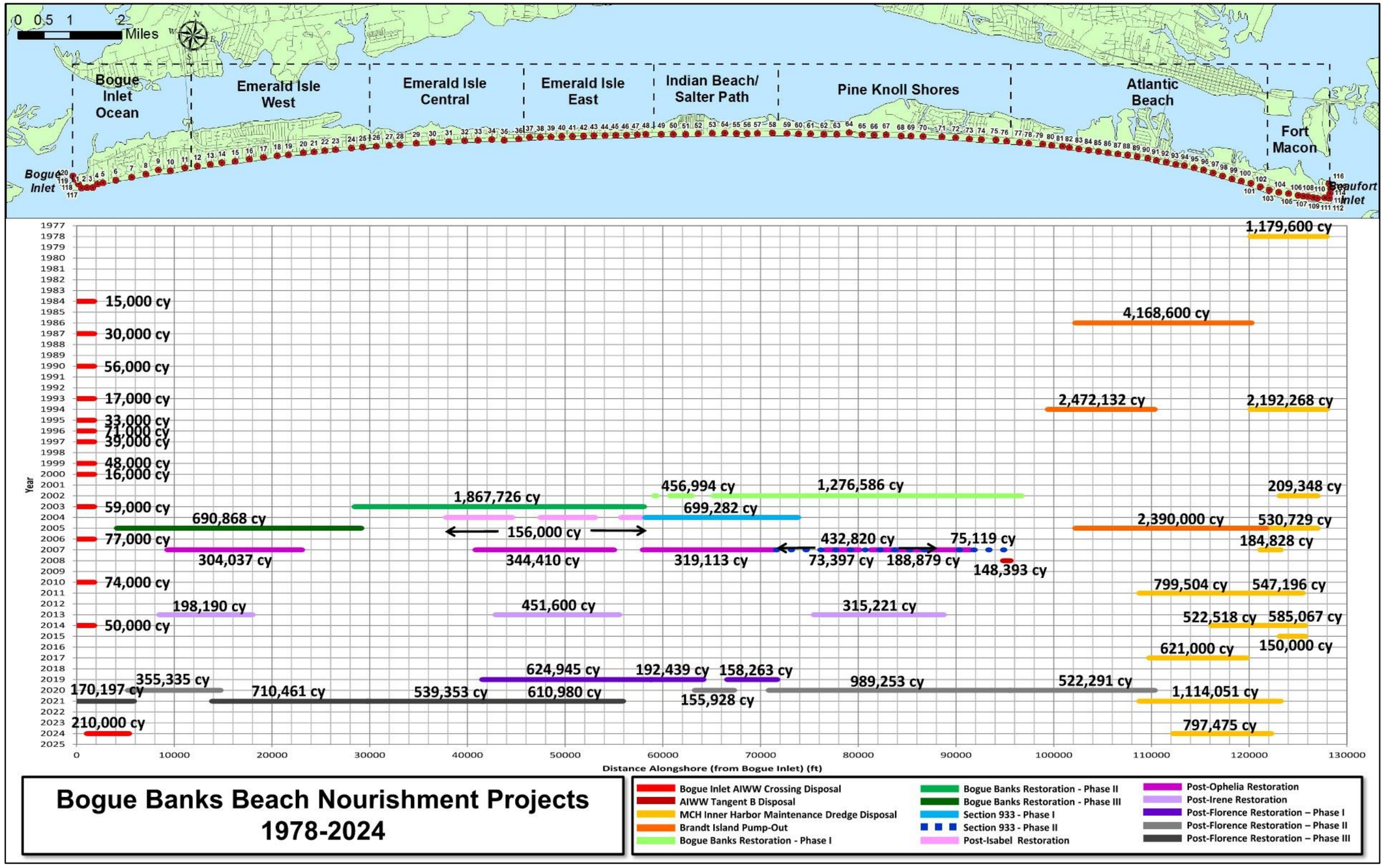


Figure 2-1. Bogue Banks Beach Nourishment History (1978 – 2024)

2.1 USACE Morehead City Harbor Disposal (1978 – 2024)

Historically, beach fill projects for the Town of Atlantic Beach were totally dependent on material deposited along its shoreline during construction and maintenance of the MCH federal navigation project. The USACE is congressionally mandated to maintain the Nation's navigational thoroughfares and conduct disposal practices "… in the least costly manner, at the least costly and most practicable location, and consistent with engineering and environmental requirements.", as specified in 33 C.F.R. § 335.4. This is often referred to as the "least-cost option" or the "Federal Standard", and has resulted in the partitioning of the MCH project into several reaches - Range A, the Cutoff, Range B, Range C, and the Turning Basin. Historically, the Cutoff and Range A (collectively known as the Outer Harbor) has been maintained by hopper dredging that collects sediment from the base of the channel and travels to one of two disposal areas located 1.0 to approximately 6.0 miles offshore to dispose the dredged material. More recently, the material has been placed onto Atlantic Beach and Fort Macon in some instances. Maintenance and construction of Range B, C and the Turning Basin (known as the Inner Harbor) has been conducted utilizing a pipeline dredge that carries sediment from these areas to the confined upland disposal site of Brandt Island, located north of Fort Macon State Park. This material has also historically been pumped onto Atlantic Beach from Brandt Island in some instances. A description of the nourishment events in Atlantic Beach and Fort Macon resulting from the MCH federal navigation project are presented in the following sections.

2.1.1 Historical Nourishments

1978 USACE Disposal

1,179,600 cy of material from the Turning Basin, Range C, and Range B were placed primarily along the Fort Macon shoreline during construction of the 40-foot MLW deepening project.

1986 USACE Disposal

The upland recycling facility of Brandt Island was excavated ("pumped-out") for the first time with 3,918,484 cy placed along Atlantic Beach and Fort Macon. An additional 250,116 cy of channel and basin material was pumped directly to the beach disposal area resulting in a total of 4,168,600 cy being placed on the beach.

1994 USACE Disposal

A total of 4,664,400 cy of material was placed along the least cost corridor of Atlantic Beach and Fort Macon, including; the second pump-out of Brandt Island (2,473,700 cy), Inner Harbor deepening material associated with the 45-foot MLW project (1,725,000 cy), and routine Inner Harbor maintenance (465,700 cy).

2002 USACE Disposal

209,348 cy of material maintained from Range B and a portion of Range C were directly placed along the beaches of Fort Macon.

2005 USACE Disposal
2,390,000 cy and 530,729 cy of material were placed along Atlantic Beach and Fort Macon, respectively (2,920,729 cy total) in association with the third Brandt Island pump-out and routine Inner Harbor maintenance.

2007 USACE Disposal
184,828 cy of material maintained from Range B and a portion of Range C were directly placed along the beaches of Fort Macon, discreetly along the bath house region of the State Park shoreline.

2011 USACE Disposal
A total of 1,346,700 cy of material was dredged from Range B, the Cutoff, and Range A and placed along Atlantic Beach and Fort Macon. Fort Macon received 547,196 cy while Atlantic Beach received 799,504 cy, extending from the Atlantic Beach/Fort Macon boundary west to the Circle.

2014 USACE Disposal
A total of 1,107,585 cy of material was dredged from Range B and Range A and placed along Atlantic Beach and Fort Macon. Fort Macon received 585,067 cy while Atlantic Beach received 522,518 cy, extending from the Atlantic Beach/Fort Macon boundary west to Freeman Lane.

2015 USACE Disposal
Approximately 150,000 cy of material was dredged from the Cutoff in order to excavate some pipeline previously left on the seafloor. The dredged shoal material was placed along 3,000 ft of shoreline on Fort Macon to the east of the Picnic Park Dr lot.

2017 USACE Disposal
A total of 621,000 cy of material was dredged from the Cutoff and placed along 9,500 ft of the Atlantic Beach shoreline from Seaspray to the Circle.

2021 USACE Disposal
Approximately 1,114,051 cy of material dredged from Range A, Range B, and the Cutoff was placed along 14,000 ft of shoreline beginning just east of the Picnic Park Dr parking lot in Fort Macon and ending on the western side of the Circle in Atlantic Beach.

2024 USACE Disposal
Approximately 797,475 cy of material was placed in Atlantic Beach from just east of the Picnic Park Dr parking lot in Fort Macon to just west of Oceanana Pier in Atlantic Beach, approximately 0.5 miles short of the Circle.

2.1.2 USACE Project Design

The design template for the disposal of the 1986 Brandt Island material along Atlantic Beach included a variable width horizontal berm at elevation +10 ft NAVD with the material allowed to assume its natural angle of repose seaward of the berm crest. Shortly after placement, vertical scarps became prevalent along the entire beach fill area. The formation of the vertical scarps was attributed to the +10 ft NAVD elevation of the berm which was about 4 feet above the elevation of normal wave run-up. Subsequent nourishment operations carried out lowered the berm elevation to +6 ft NAVD which allow normal wave and tide action to overtop the berm thus preventing the

formation of vertical scarps. Note that through the course of a year, tides and waves vary and can produce a natural crest elevation of the berm greater than +6 ft NAVD which in turn can result in the formation of scarps. However, by lowering the design elevation of the berm, the scarps that do form are normally less than a foot high and are short-lived. Figure 2-2 shows a comparative plot of typical profiles along eastern Atlantic Beach beginning in September 1981, prior to the first Brandt Island pump-out in 1986, through April 2024. The profile comparisons show that the beach continues to be maintained well seaward of the 1981 (pre-project) shoreline and the berm generally exists around +6 ft NAVD88 to +7 ft NAVD88.

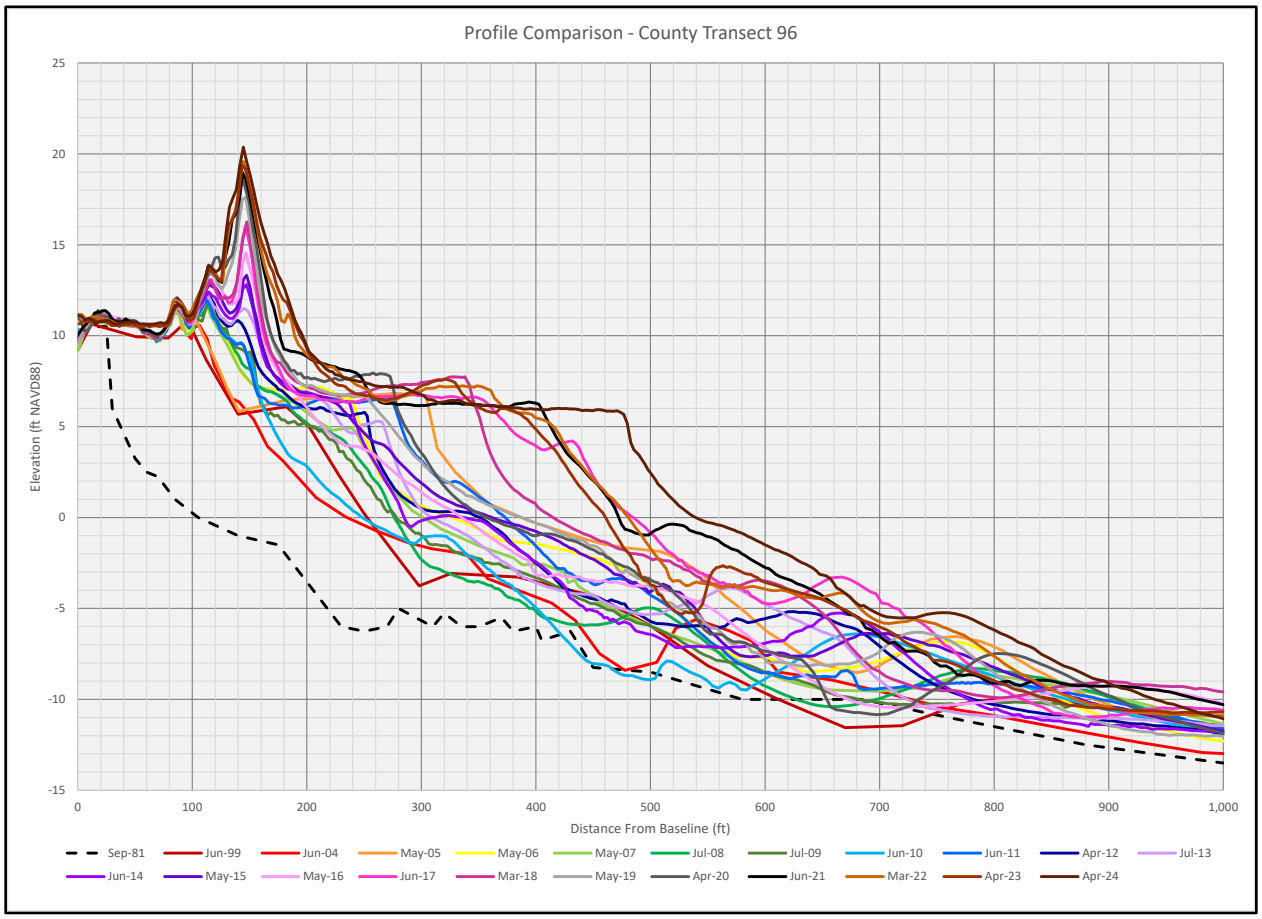


Figure 2-2. Profile Comparisons for County Transect 96

2.1.3 Establishment of Historical Static Vegetation Line (Atlantic Beach)

Disposal operations on Atlantic Beach in 1986 and 1994 triggered a static vegetation line which extended from near the Atlantic Beach/Pine Knoll Shores boundary east to the Fort Macon Terminal groin, encompassing County monitoring transects 80 to 112. Figures showing the location of the pre-project vegetation line in this area are presented in Appendix B (pg 34 - 41). The Atlantic Beach project differs from the traditional beach nourishment projects which have taken place along the remainder of Bogue Banks in that the material placed on the beach has mostly been derived from construction and maintenance activities associated with the MCH federal navigation project. As a matter of background, the original rules for the static vegetation line were formulated so as not to require the establishment of a static vegetation line for routine navigation

channel maintenance operations that involved disposal of beach quality dredged material on the beach. Generally, these operations involve material quantities less than 200,000 cy and result in minor widening of the beach over relative short lengths of shoreline. However, the beach disposal operations carried out for the MCH project far exceed the norm and result in substantial widening of the beach that can stretch over several miles. Consequently, the original static line rule included a disposal threshold that would have to be exceeded in order to invoke the static vegetation line. This threshold included a total volume equal to or greater than 200,000 cy and a fill density of 50 cy/ft or greater. While the static vegetation line threshold has now been changed to apply to beach fills equal to or greater than 300,000 cy, the existing rule still does not obviate the MCH disposal operations from the static line rule given that they often approach or exceed 1 million cy.

The static vegetation line was developed by DCM using aerial photography from September 7, 1984. The initial static line in Atlantic Beach and Fort Macon extends almost the entire length of Atlantic Beach from just west of Lee Drive to the Fort Macon Terminal Groin. The current erosion rate setback factor (developed by DCM and approved/adopted by the CRC in 2019) for the entire area of Atlantic Beach and Fort Macon which fall under the static line exception was determined to be 2.0. The affected area is highly developed with approximately 278 oceanfront lots, of which only eight are currently vacant.

2.2 USACE Bogue Inlet AIWW Disposal (1984 – 2024)

Historically, the USACE has utilized industry pipeline dredges to pump shoal material from the AIWW crossing to the westernmost oceanfront shoreline of Emerald Isle, located immediately adjacent to Bogue Inlet in an area known as the Point. The AIWW has an authorized depth of -12 ft mean low water (MLW) with varying widths along the N.C. corridor. Traditionally, the average dredged volume placed along the beach per event is has been approximately 45,000 cy and this scope of work is designated under the North Carolina AIWW line item within the USACE operation & maintenance account. More recently, the County paid to place additional material (approximately 210,000 cy) from the bend widener associated with the inlet crossing maintenance along a portion of Emerald Isle located east of the typical disposal area, extending approximately 5,000 ft from Coast Guard Road to Shipwreck Lane. Due to the small volume of the historical disposals on the western end of Emerald Isle, no static vegetation line has been triggered in association with this work.

2.3 Bogue Banks Restoration Project (2001 – 2005)

The Bogue Banks Restoration Project (or County Project) covers approximately 16.8 miles of the 25 mile long island and extends from the Atlantic Beach/Pine Knoll Shores town boundary west to approximately one mile east of Bogue Inlet (Figure 2-3). The island-wide project was implemented in three phases, as shown in Figure 2-3, with Phase I covering the extents of the Indian Beach/Salter Path and Pine Knoll Shores, Phase II covering the extents of eastern Emerald Isle, and Phase III covering the extents of western Emerald Isle.

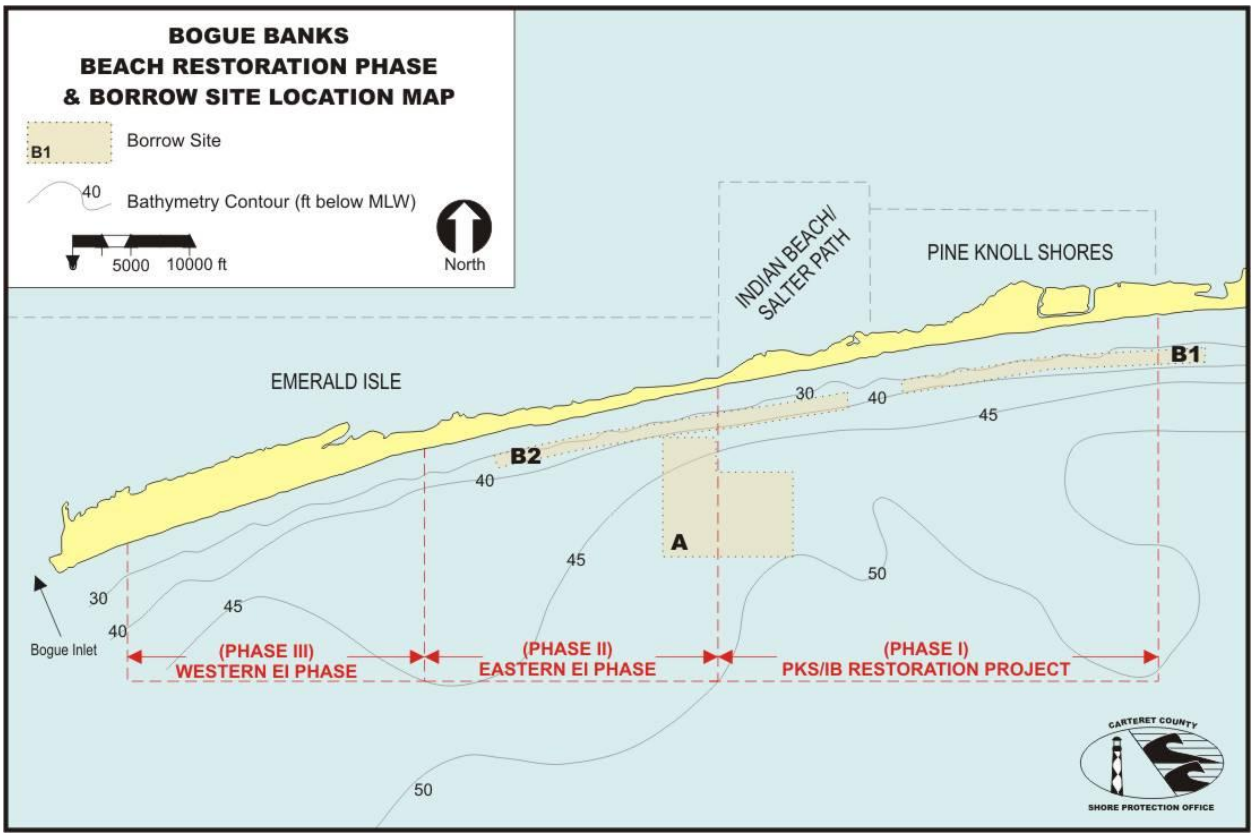


Figure 2-3. Bogue Banks Restoration Project (Carteret County Shore Protection Office)

2.3.1 Bogue Banks Restoration Project Phase I (2001 – 2002)

Phase I Overview

Phase I of the Bogue Banks Restoration Project was constructed between 2001 and 2002 and covered the 2.4 miles of ocean shoreline fronting the Town of Indian Beach and the Village of Salter Path and 4.5 miles along the shoreline segment that includes the Town of Pine Knoll Shores (Figure 2-4). This stretch of beach encompasses County monitoring transects 49 through 76 of the Bogue Banks Beach and Nearshore Mapping Program (BBBNMP) which essentially cover the entire Indian Beach/Salter Path (Transects 49 – 58) and Pine Knoll Shores (Transects 59 – 76) monitoring reaches. Material to construct Phase I of the Bogue Banks Restoration Project was obtained primarily from the offshore borrow areas designated as B1 and B2. Construction of Phase I of the Bogue Banks Restoration Project was halted prior to the April 30, 2002 permit deadline due to turtle takes, resulting in a reduction in the volume of material placed along both Indian Beach/Salter Path and Pine Knoll Shores. Based on post-construction profile surveys, the amount surveyed in place along the Indian Beach/Salter Path shorelines totaled 456,994 cy or about 41% less than the contract amount. The Town of Pine Knoll Shores received 1,276,586 cy or about 9% less than the original contract amount. The work stoppage resulted in two areas or "gaps" along the Indian Beach/Salter Path shoreline that did not receive any substantial fill volume. One gap was located approximately between County Transects 48 and 50 on the west end of Indian Beach and the other approximately between County Transects 51 and 53 in Salter Path. Part of the gap located between County Transects 51 and 53 lies within the Roosevelt State Park. Even though fill

material was not placed directly in these areas, the two gaps soon equilibrated with material moving into the gaps from the adjacent beach fill areas.

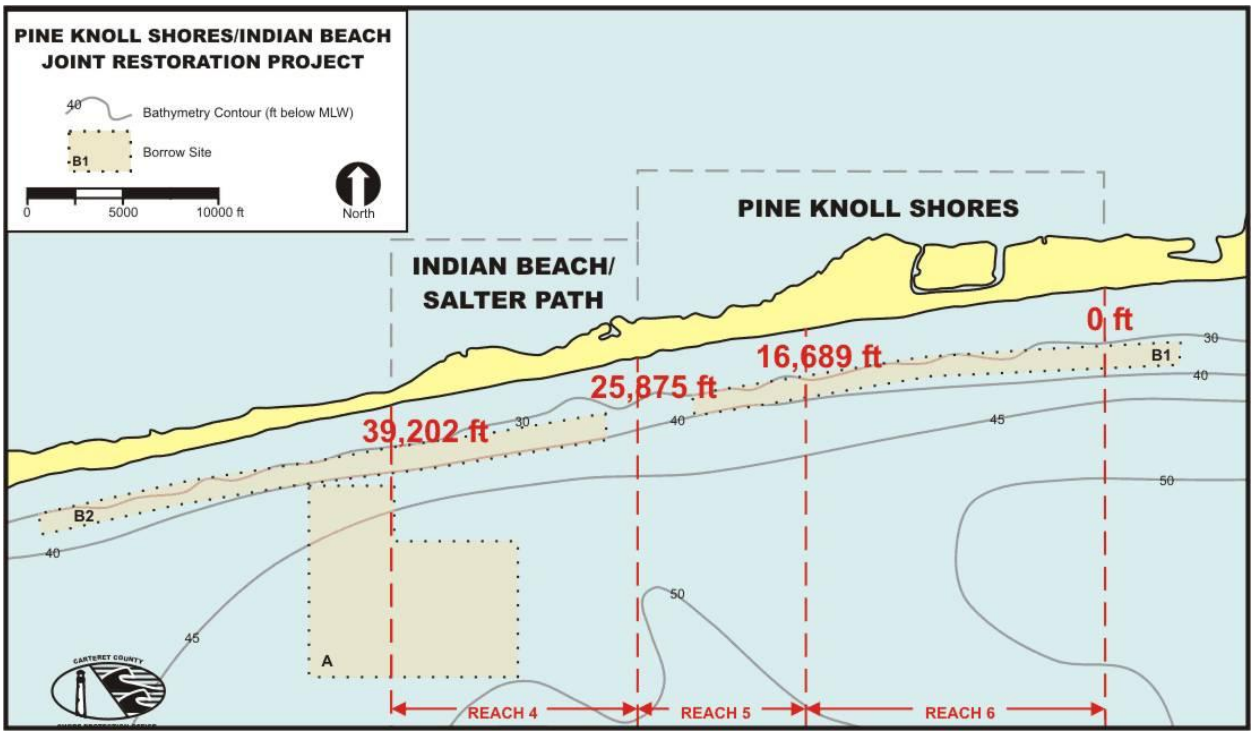


Figure 2-4. Phase I Restoration Project – Indian Beach/Salter Path and Pine Knoll Shores (Carteret County Shore Protection Office)

Phase I Design

Phase I of the Bogue Banks Restoration Project (Indian Beach/Salter Path and Pine Knoll Shores) was divided into three reaches (see Figure 2-4) with different design volumes in each reach based on the volume from the toe of the dune out to -12 ft NAVD88 needed to reach the design volume of 175 cy/ft and an advanced nourishment volume equal to expected volume losses in that zone over the next 10 years. The design profile volume for the Bogue Banks Restoration Project was subsequently increased to 225 cy/ft to account for the volume of material from the landward toe of the dune up to the peak of the dune.

The Indian Beach/Salter Path portion of the project (Reach 4) was designed as a variable width horizontal berm at elevation +6.0 feet NAVD. Figure 2-5 shows the plan view of the Indian Beach/Salter Path portion (Reach 4) of the Phase I beach fill project while Figure 2-6 shows a typical design cross-section from the Indian Beach/Salter Path reach of Phase I with an average fill volume of 54.5 cy/ft. Figure 2-7 and Figure 2-8 display some example pre- and post-nourishment profiles from the Phase I project.

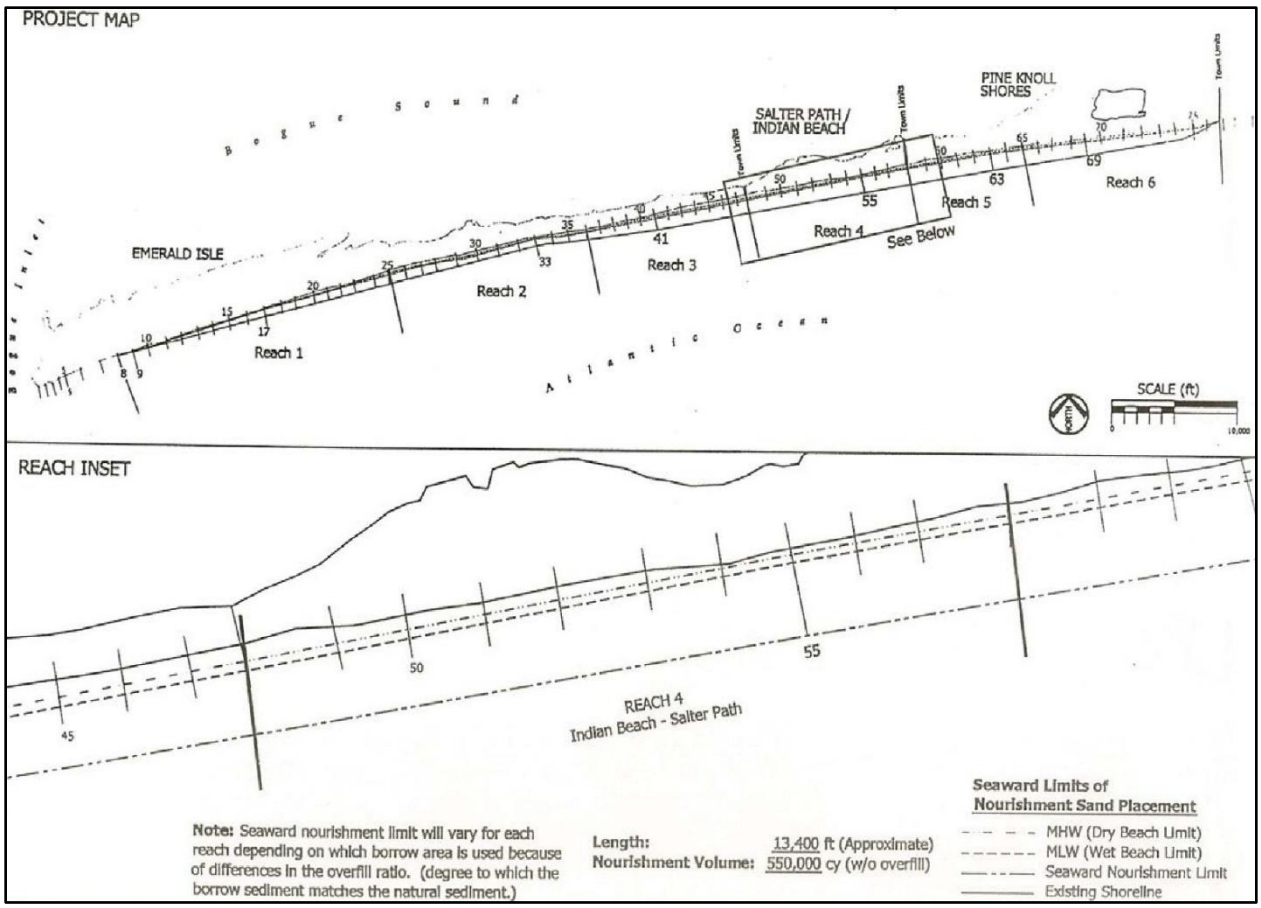


Figure 2-5. Phase I Plan View – Indian Beach/Salter Path Reach 4 (CPE 2010 Static Line Report)

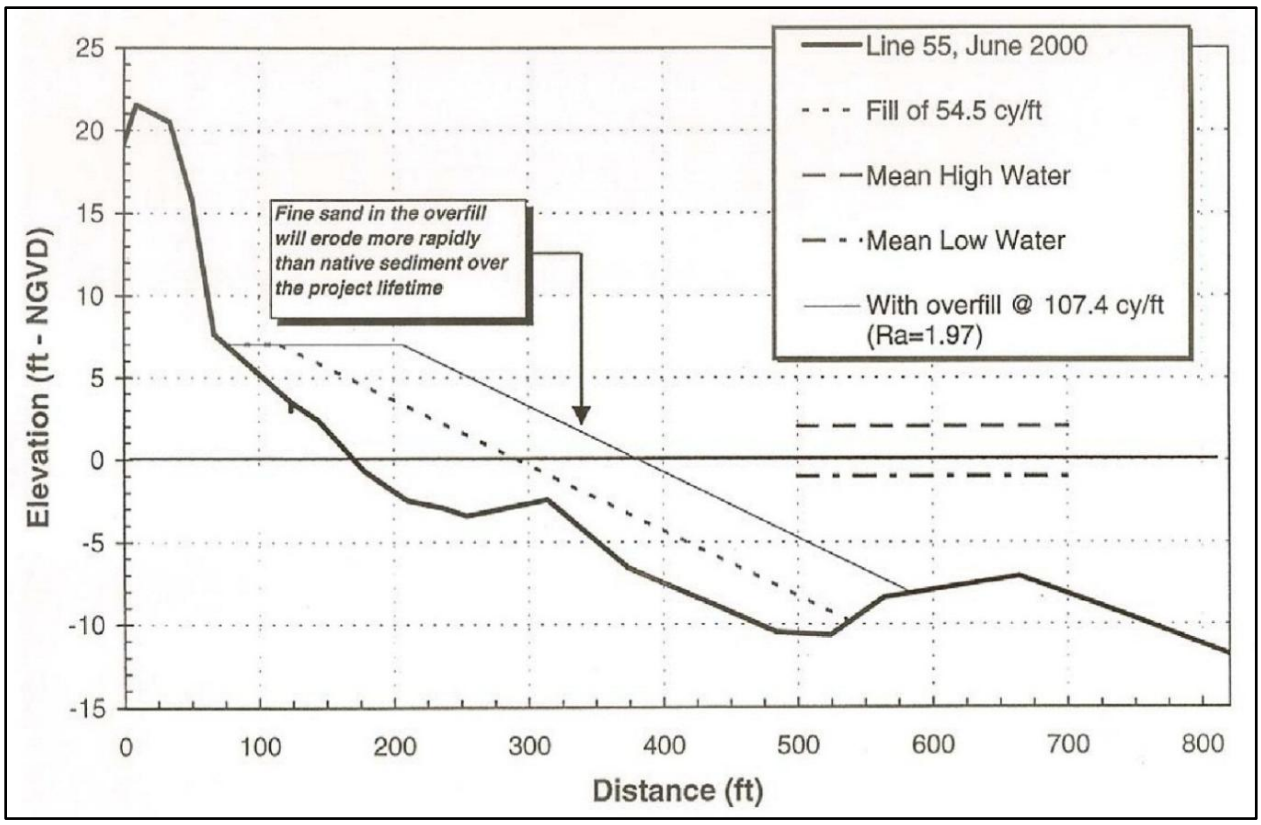


Figure 2-6. Indian Beach/Salter Path Phase I Example Cross-Section Graphic-Reach 4 (CPE 2010 Static Line Report)

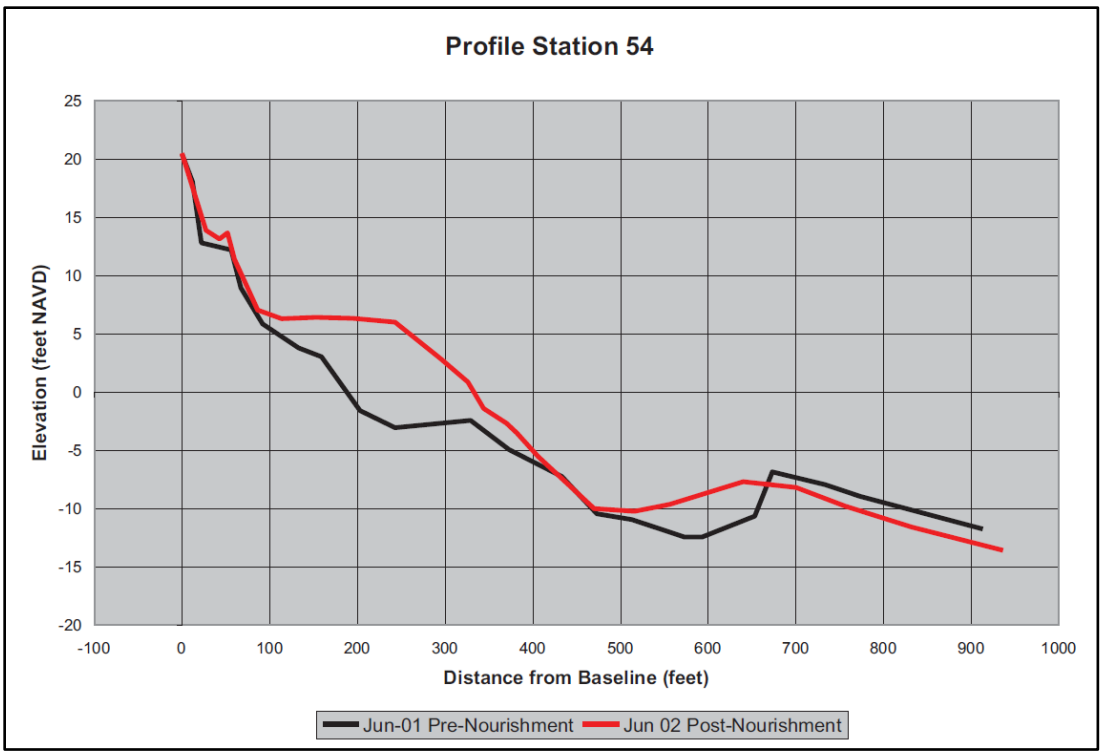


Figure 2-7. Profile Station 54 Pre- and Post-Nourishment Example (CPE 2010 Static Line Report)

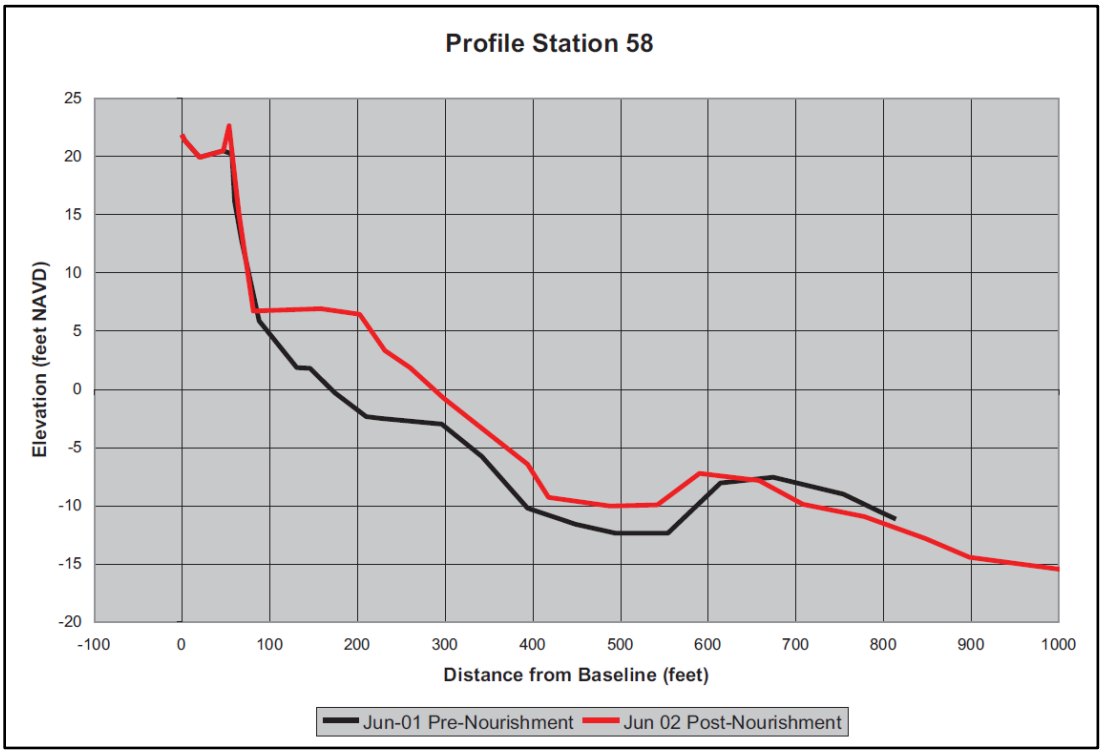


Figure 2-8. Profile Station 58 Pre- and Post-Nourishment Example (CPE 2010 Static Line Report)

The Pine Knoll Shores portion of the project was divided into two reaches (Reach 5 and 6). A 1,000-foot transition or taper section was provided on the east end of the fill. A taper section was not required on the west end of the fill as the project was constructed as a continuous fill through Indian Beach/Salter Path. The beach fill was designed as a variable width horizontal berm at elevation +6.0 feet NAVD with an average fill volume of 54.8 cy/ft in Reach 5 and 58.7 cy/ft in Reach 6. Figure 2-9 and Figure 2-10 show the plan view of the Pine Knoll Shores portion (reaches 5 and 6) of the Phase I beach fill project while typical design templates for Reach 5 (west) and 6 (east) are provided in Figure 2-11 and Figure 2-12, respectively. Figure 2-13 and Figure 2-14 display some example pre- and post-nourishment profiles from the Phase I project.

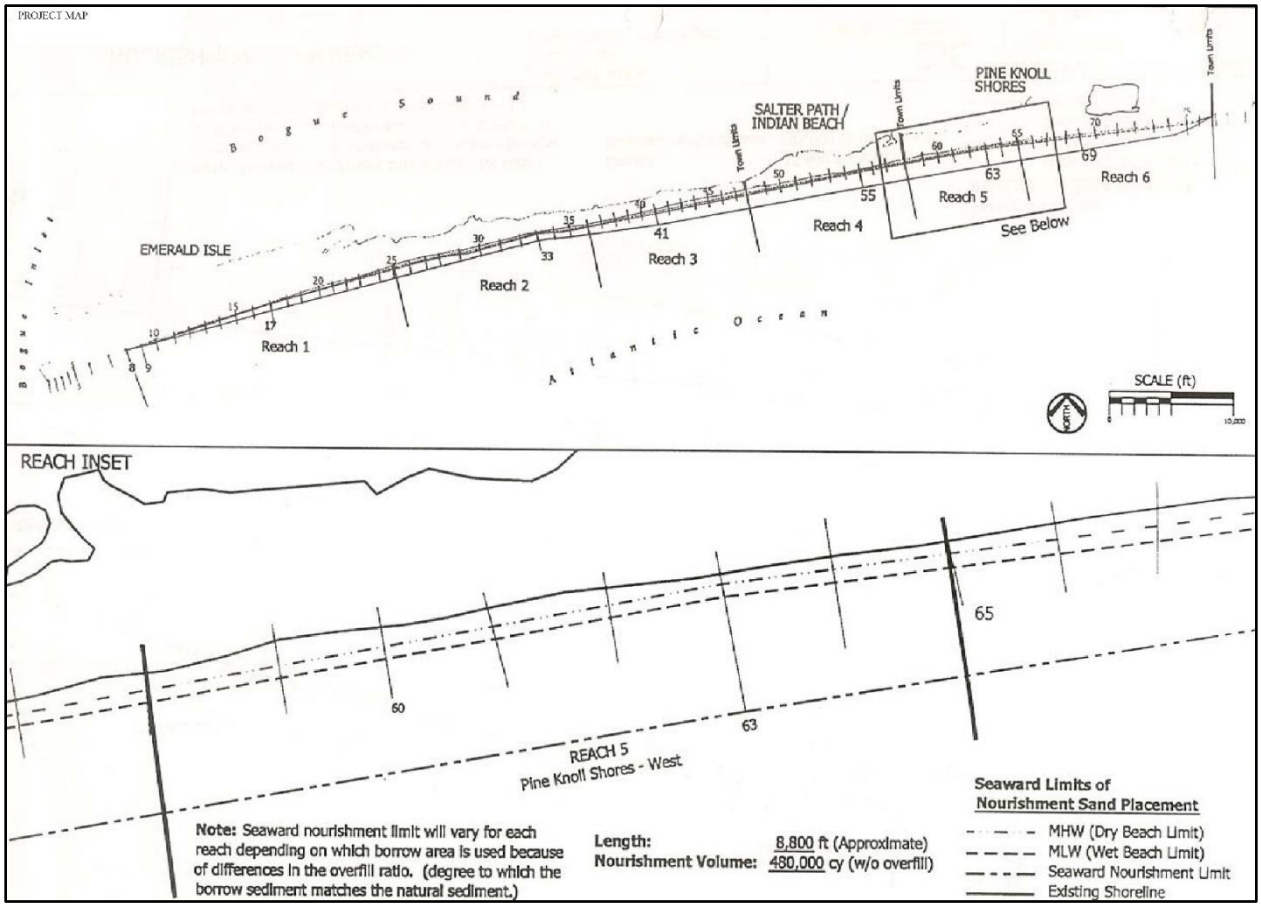


Figure 2-9. Phase I Plan View – Pine Knoll Shores Reach 5 (CPE 2010 Static Line Report)

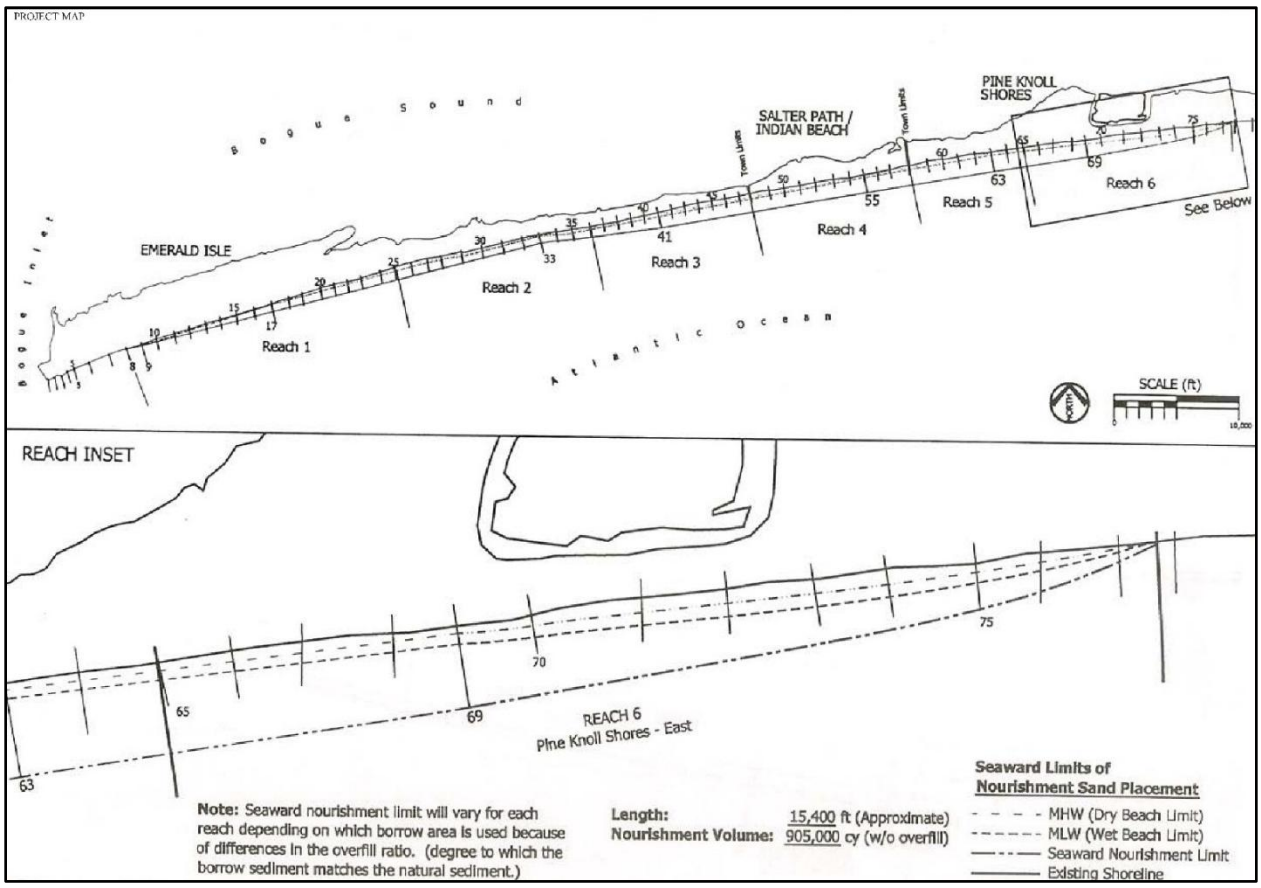


Figure 2-10. Phase I Plan View – Pine Knoll Shores Reach 6 (CPE 2010 Static Line Report)

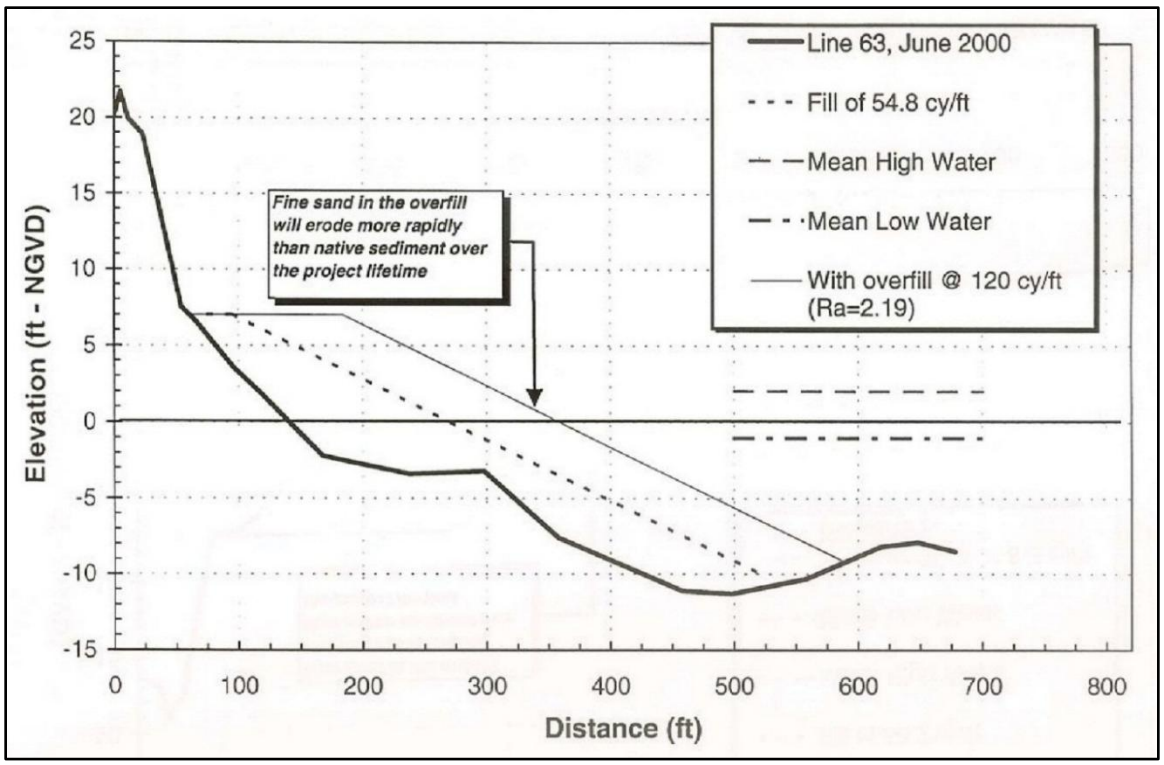


Figure 2-11. Pine Knoll Shores Phase I Example Cross-Section - Reach 5 (CPE 2010 Static Line Report)

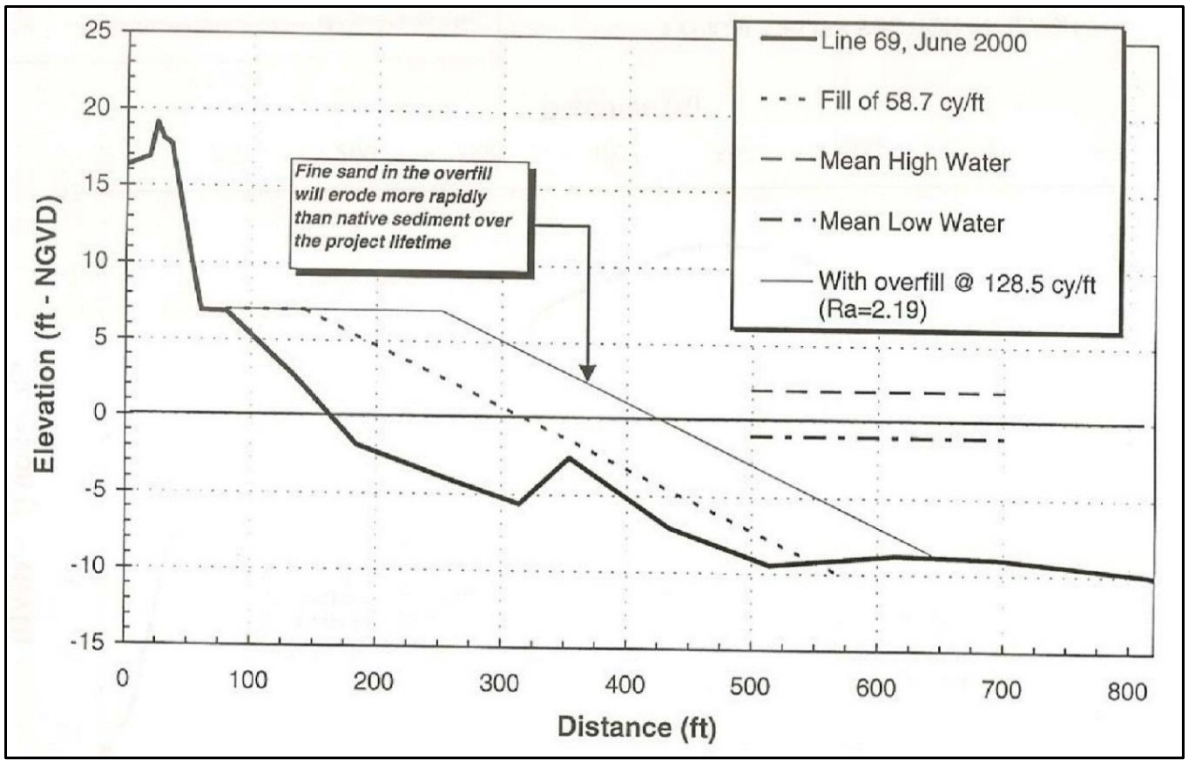


Figure 2-12. Pine Knoll Shores Phase I Example Cross-Section - Reach 6 (CPE 2010 Static Line Report)

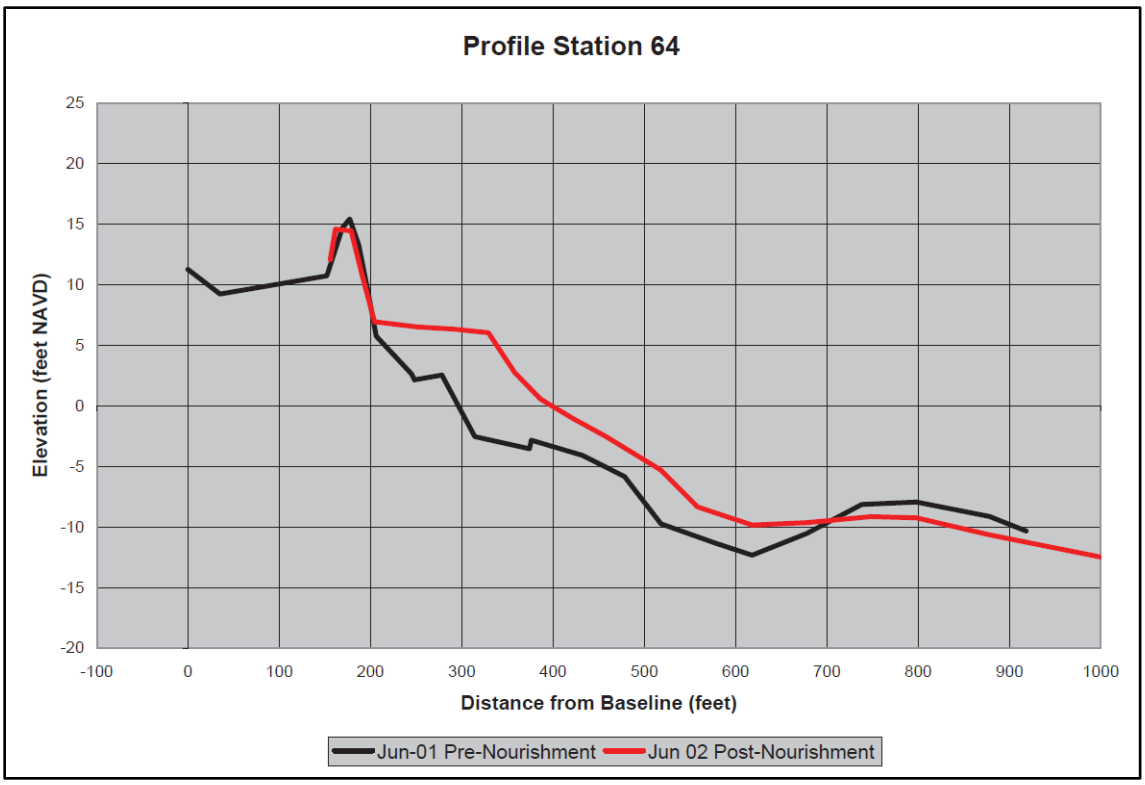


Figure 2-13. Profile Station 64 Pre- and Post-Nourishment Example (CPE 2010 Static Line Report)

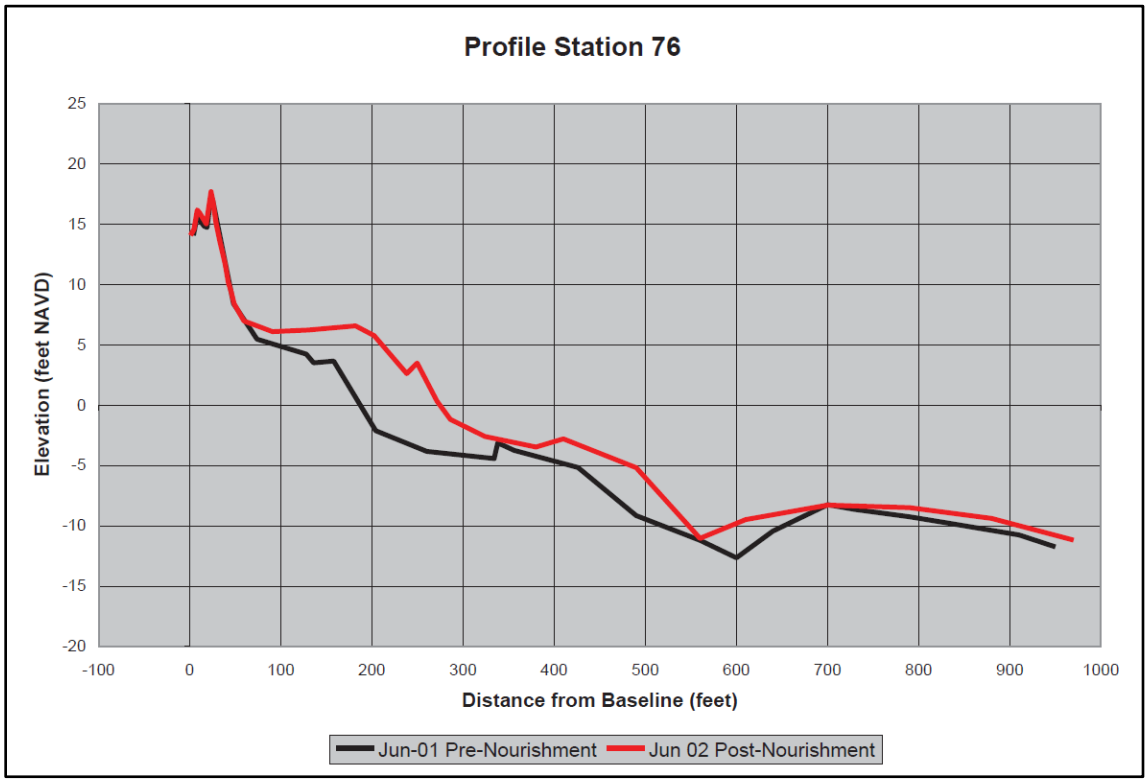


Figure 2-14. Profile Station 76 Pre- and Post-Nourishment Example (CPE 2010 Static Line Report)

2.3.2 Bogue Banks Restoration Project Phase II (2003)

Phase II Overview

Phase II of the Bogue Banks Restoration Project was constructed in 2003 and covered the eastern 5.9 miles of Emerald Isle, from the Indian Beach/Emerald Isle town boundary to Pinta Dr, a point approximately 1.5 miles east of the Bogue Inlet Fishing Pier (Figure 2-15). This stretch of beach encompasses County monitoring transects 24 through 48 of BBBNMP which essentially cover the Emerald Isle – Central (Transects 26 – 35) and Emerald Isle – East (Transects 36 – 48) monitoring reaches. Material for Phase II of the Bogue Banks Restoration Project was obtained from borrow areas B2 and A. The total volume placed on the 5.9 mile shoreline segment was 1,867,726 cy which is equivalent to 60.0 cy/ft. Of this total volume, 123,938 cy were used for construction of the dune and 85,282 cy were placed in the two taper sections with the balance of 1,658,506 cy used to construct the new beach seaward of the dune. Phase II of the Bogue Banks Restoration Project was divided into Eastern, Middle, and Western Zones as shown in Figure 2-15 with design volumes of 82 cy/ft, 58 cy/ft, and 35 cy/ft, respectively. Based on after dredging beach profile surveys, the actual volume of material placed in each of the three zones shown in Figure 2-15 was: 1,001,300 cy or 78.8 cy/ft in the Eastern Zone; 212,500 cy or 54.2 cy/ft in the Middle Zone; and 444,800 cy or 34.5 cy/ft in the Western Zone.

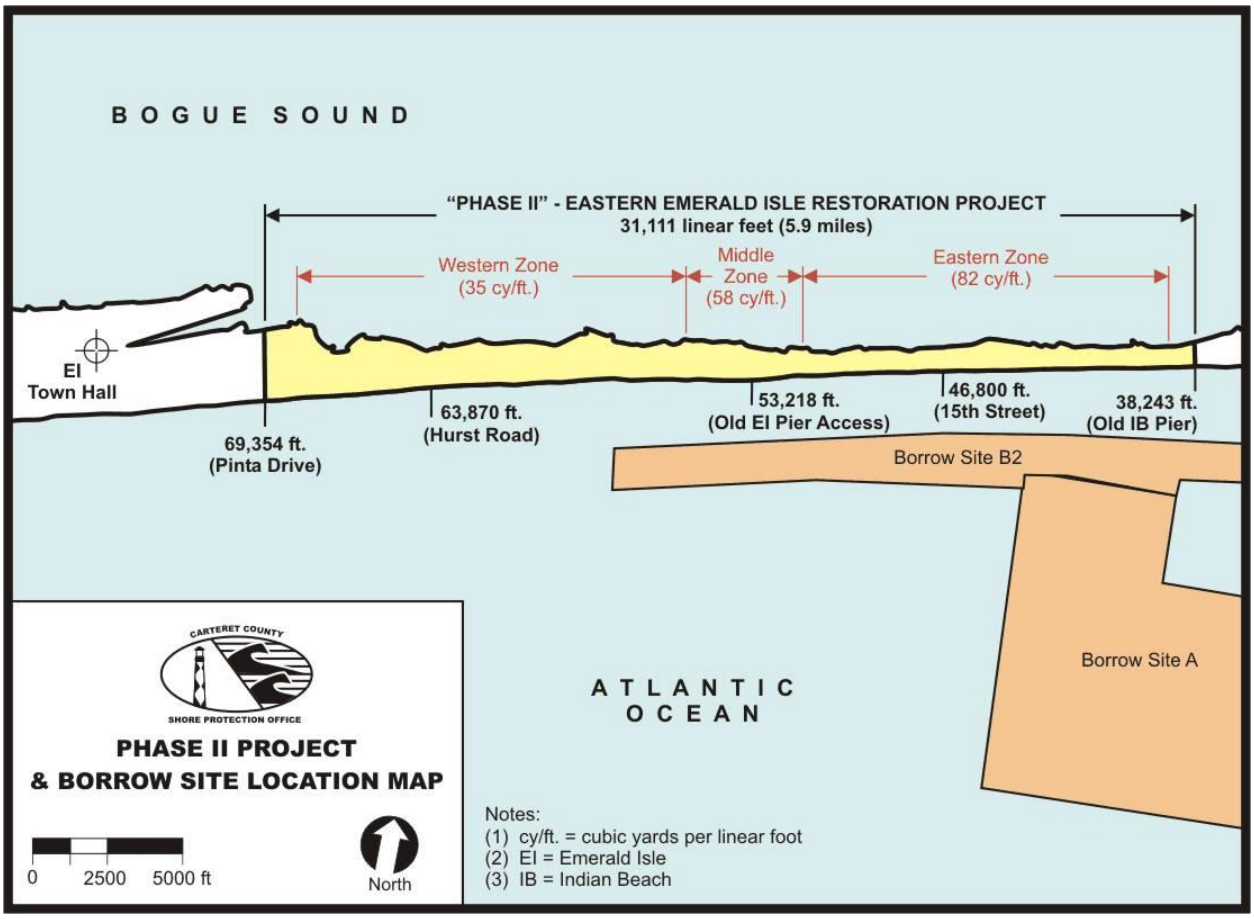


Figure 2-15. Phase II Restoration Project – Eastern Emerald Isle (Carteret County Shore Protection Office)

Phase II Design

The Bogue Banks Restoration Phase II (Eastern Emerald Isle) Project was divided into an Eastern, Middle, and Western Zone (see Figure 2-15) with different design volumes in each zone based on the volume from the toe of the dune out to -12 ft NAVD88 needed to reach the design volume of 175 cy/ft and an advanced nourishment volume equal to expected volume losses in that zone over the next 10 years. The design profile volume for the Bogue Banks Restoration Project was subsequently increased to 225 cy/ft to account for the volume of material from the landward toe of the dune up to the peak of the dune. The final design volume for each zone is also shown in Figure 2-15. The Phase II (Eastern Emerald Isle) portion of the project included a dune with a 10 foot wide crest at elevation +14 feet NAVD88 along the easternmost 2.2 miles of Emerald Isle within the eastern zone. The new dune was only provided in areas where the existing dune was deemed inadequate to provide the desired LoP. A 959 foot transition or taper section was provided on the east end of the fill and a 531 foot taper on the west end to help control losses of material off the ends of the fill. The beach fill was designed as a variable width horizontal berm at elevation +6.0 feet NAVD88. Figure 2-16 shows the plan view of the Phase II (Eastern Emerald Isle) beach fill project while Figure 2-17 shows some typical design cross-sections from each of the three zones. Figure 2-18 and Figure 2-19 display some example pre- and post-nourishment profiles from the Phase II project.

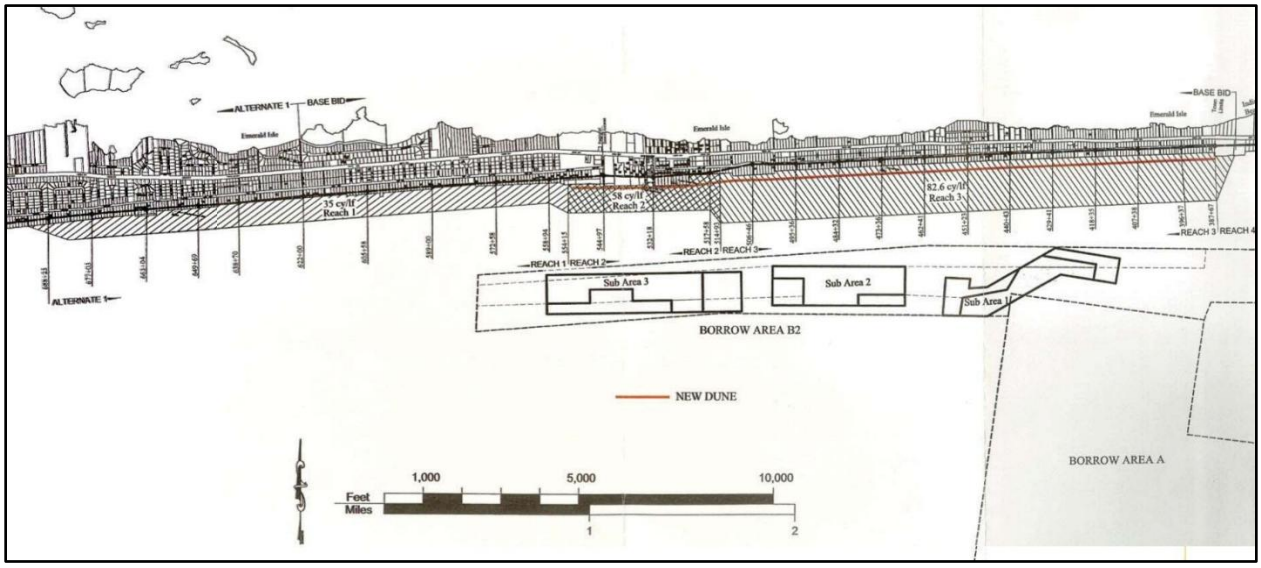


Figure 2-16. Phase II Plan View (CPE 2010 Static Line Report)

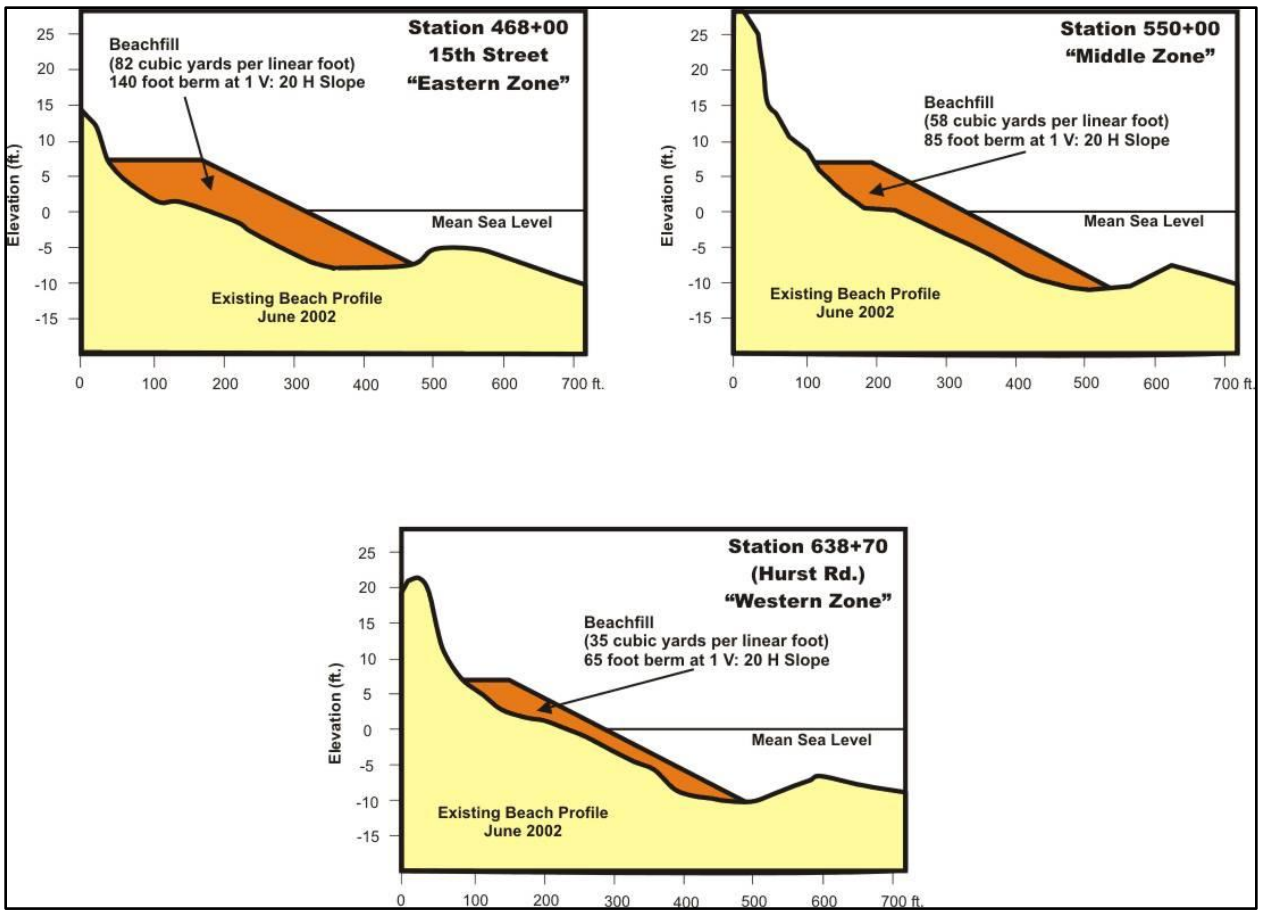


Figure 2-17. Phase II Example Design Cross-Section Graphic (Carteret County Shore Protection Office)

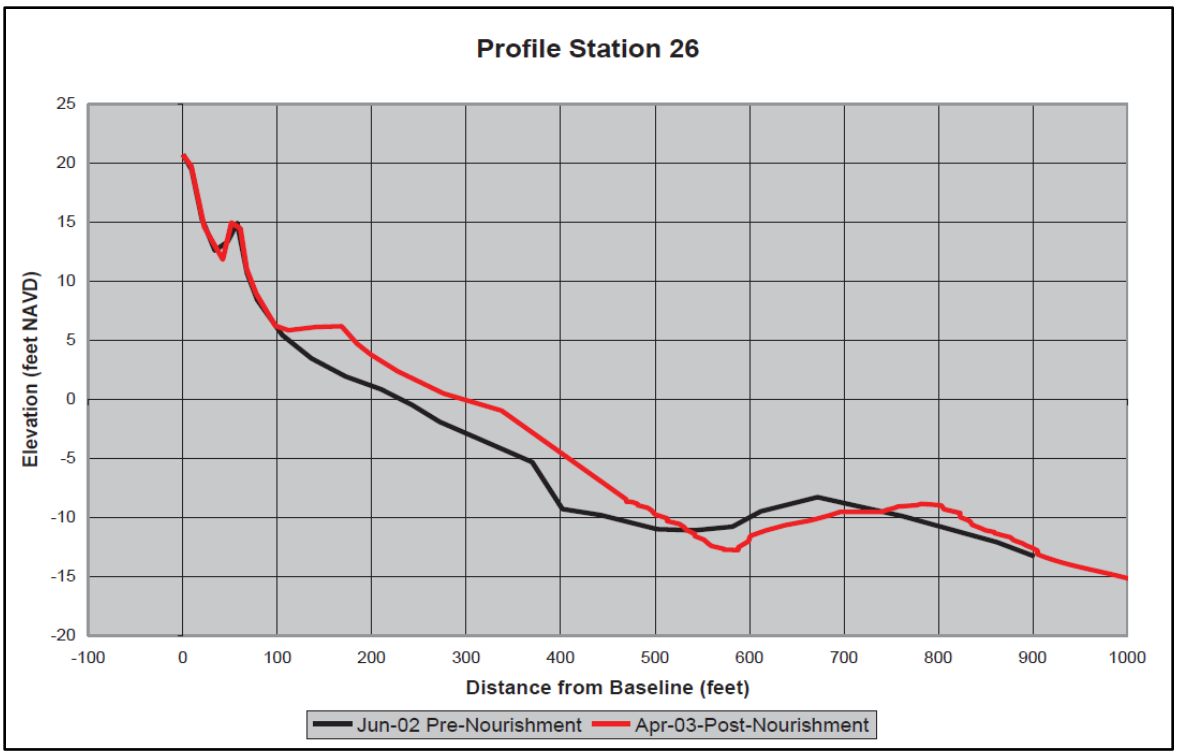


Figure 2-18. Profile Station 26 Pre- and Post-Nourishment Example (CPE 2010 Static Line Report)

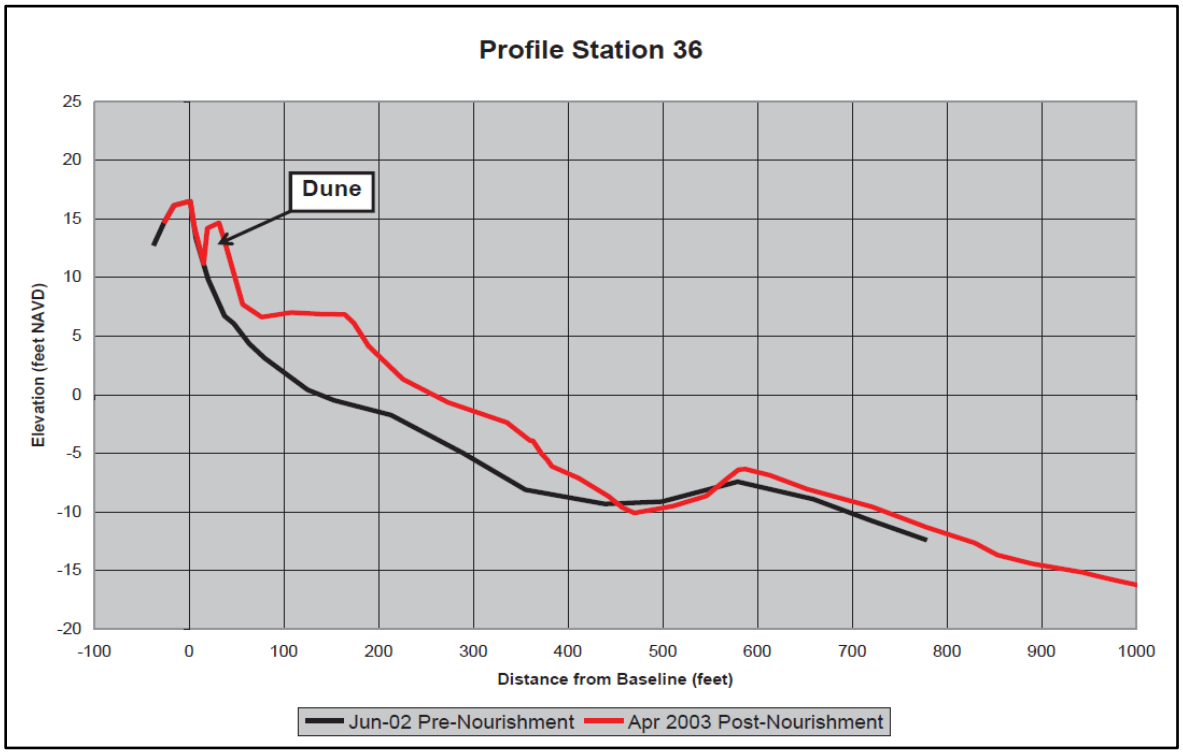


Figure 2-19. Profile Station 36 Pre- and Post-Nourishment Example (CPE 2010 Static Line Report)

2.3.3 Bogue Banks Restoration Project Phase III (2005)

Phase III Overview

Phase III of the Bogue Banks Restoration Project was constructed in 2005 and covered the western 4.5 miles of Emerald Isle, from Santa Maria Dr, a point approximately 1.5 miles east of the Bogue Inlet Fishing Pier, to the Lands End subdivision (Figure 2-20). This stretch of beach encompasses County monitoring Transects 6 through 24 of the BBBNMP which essentially cover a portion of the Bogue Inlet – Ocean (Transects 1 - 11) and the entirety of the Emerald Isle – West (Transects 12 – 25) monitoring reaches. Material for Phase III of the Bogue Banks Restoration Project was obtained from the realignment of Bogue Inlet Channel approximately 3,500 ft to the west (Figure 2-21). The total volume placed on the 4.5 mile shoreline segment was 690,868 cy which is equivalent to 30.0 cy/ft.

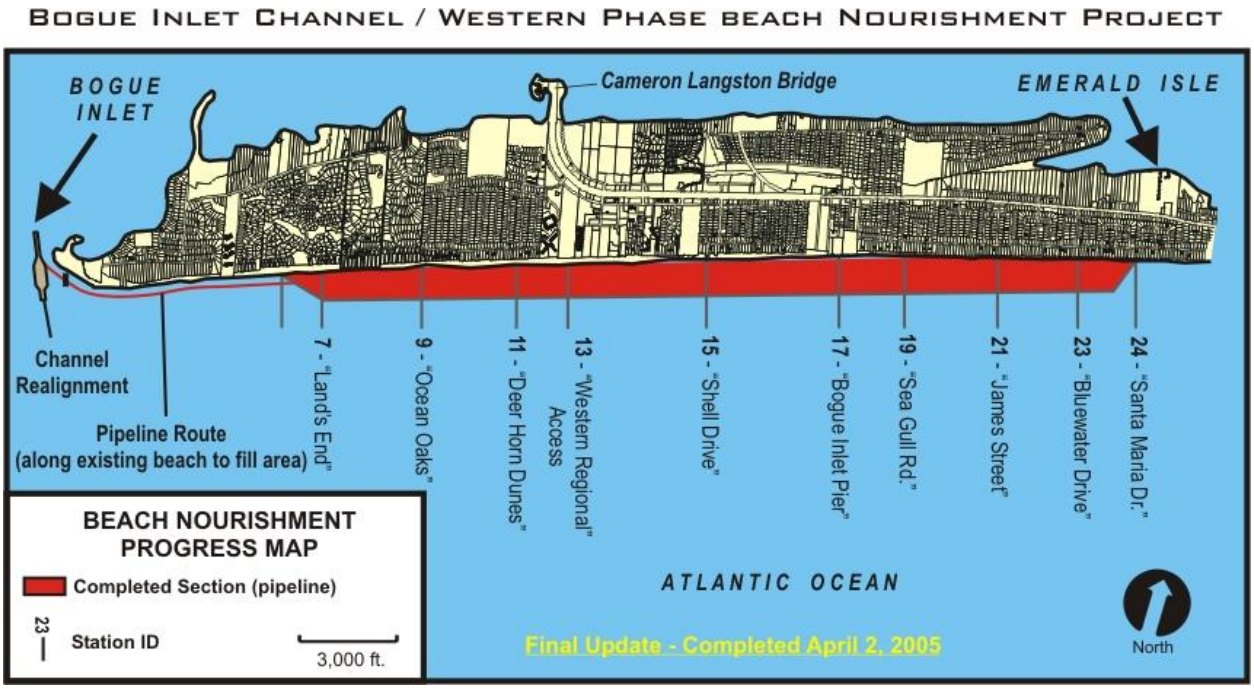


Figure 2-20. Phase III Restoration Project – Western Emerald Isle (Carteret County Shore Protection Office)

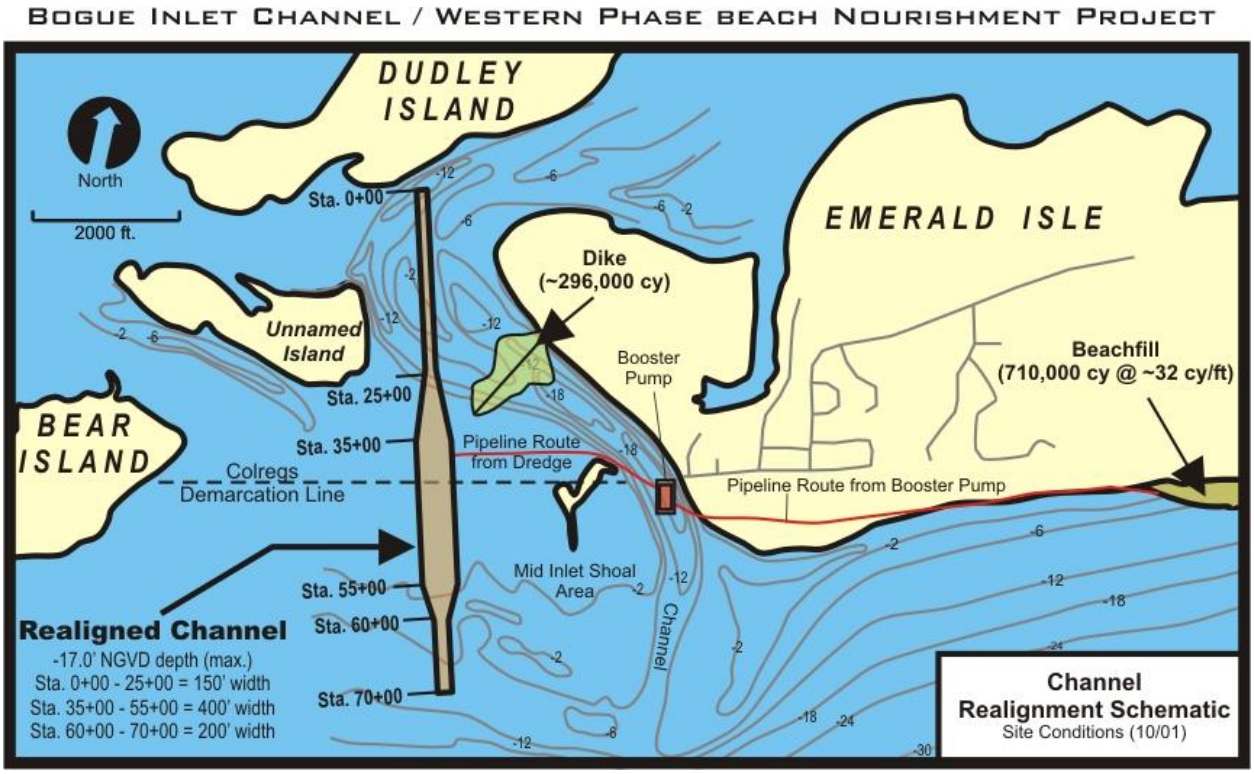


Figure 2-21. Bogue Inlet Channel Realignment (Carteret County Shore Protection Office)

Phase III Design

The Bogue Banks Restoration Phase III (Western Emerald Isle) Project was designed based on the volume of sand available from relocation of the Bogue Inlet Channel and the ability to cover the remainder of Emerald Isle which did not receive sand during the Phase II project, spreading sand fairly evenly throughout the project. Therefore, the beach fill was designed as a variable width horizontal berm at elevation +6.0 feet NAVD, ranging from 125 ft to 160 ft. Figure 2-22 and Figure 2-23 display some example pre- and post-nourishment profiles from the Phase III project.

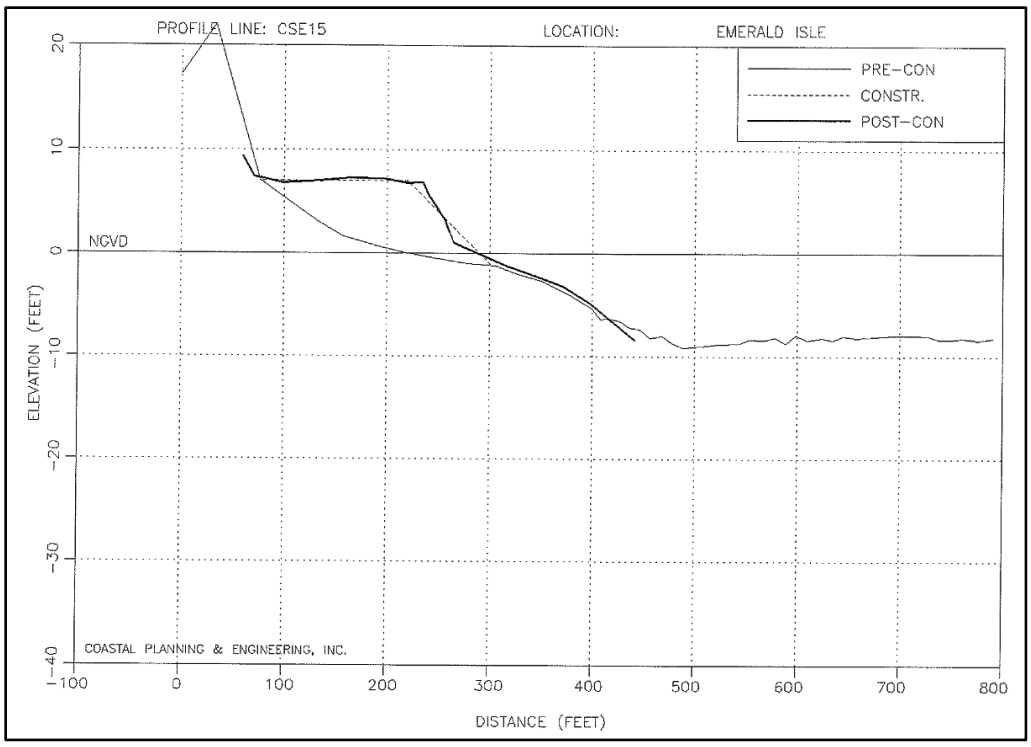


Figure 2-22. Profile Station 15 (Shell Drive) Pre- and Post-Nourishment Example (CPE 2005 Post-Construction Report)

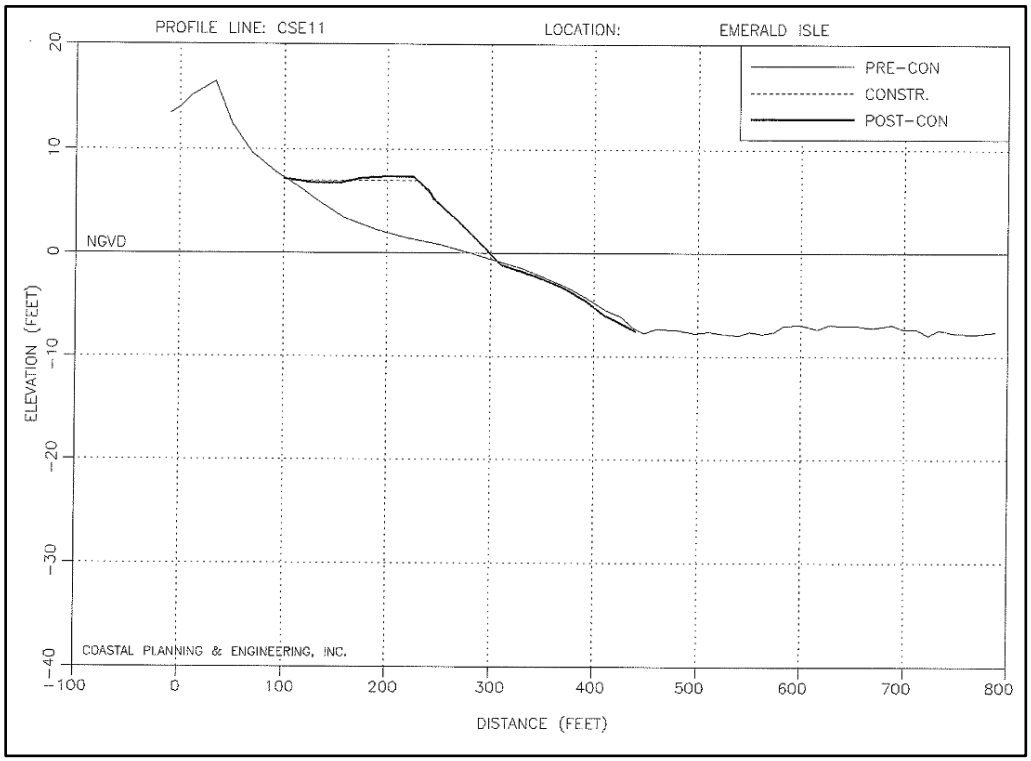


Figure 2-23. Profile Station 11 (Deer Horn Dunes) Pre- and Post-Nourishment Example (CPE 2005 Post-Construction Report)

2.3.4 Bogue Banks Restoration Project Renourishment Summary (2004 - 2013)

Following initial construction of the Bogue Banks Restoration Project, portions of the area covered by the project were renourished five times from 2004 to 2013 through a combination of post-storm nourishment events and USACE 933 projects including Phase I of the USACE Section 933 project (2004), the post-*Isabel* restoration (2004), Phase II of the USACE Section 933 Project (2007), the post-*Ophelia* restoration (2007), and the post-*Irene* restoration (2013). The following sections detail each of the renourishments. It should be noted that none of the renourishments triggered any new static vegetation lines.

USACE Section 933 – Phase I (2004)

Phase I of the USACE Section 933 associated with the USACE maintenance of the Morehead City Harbor federal navigation project took place in between February and March of 2004 along the entirety of Indian Beach/Salter Path and a small portion on the western end of Pine Knoll Shores. Section 933 of the Water Resources Development Act of 1986 allows the State and local sponsors to cost share with the federal government in the added cost of depositing material in areas other than the least cost disposal site. Under normal operating conditions, the material removed from the Beaufort Inlet bar channel would be deposited offshore in the Ocean Dredged Material Disposal Site (ODMDS) or in a nearshore disposal mound situated immediately west of the inlet's ebb tide delta. For the Section 933 project, Weeks Marine, the firm contracted by USACE to perform the work, used hopper dredges (*BE Lindholm* and the *RN Weeks*) to haul the material to mooring sites located immediately offshore of Indian Beach/Salter Path and Pine Knoll Shores. From the mooring sites the material was pumped to the beach via a submerged pipeline. Phase I of the Section 933 project placed 630,094 cy of material along the entire shoreline of Indian Beach/Salter Path and 69,189 cy on the western 2,500 feet of Pine Knoll Shores.

Post-Isabel Renourishment Project (2004)

Following the impact of Hurricane *Isabel*, the Town of Emerald Isle was able to demonstrate it met all of the FEMA Public Assistance Program requirements including an engineered beach, a nourishment plan, and monitoring program, and the Town was subsequently approved to receive funds to restore the beach to the pre-storm condition. Based on profiles of the beach surveyed before and after Hurricane *Isabel*, the Town of Emerald Isle was able to substantiate the loss of 121,000 cy of material from two sections of the Phase II project, one located between County Transects 30 and 36 and the other between County Transects 38 and 43. Emerald Isle obtained modifications to its original Bogue Banks Restoration Project permits from both the USACE and DCM, and completed the restoration of the project during March and April 2004. The final volume of material actually placed along the eroded sections totaled 156,000 cy. One hundred percent (100%) of the approximately $1.8 million cost of the restoration project was paid for by FEMA. In addition to obtaining a permit to restore the eroded material, the permit modification included the use of material from the northern sections of the Morehead City Harbor ODMDS located seaward of the Beaufort Inlet ocean bar.

USACE Section 933 – Phase II (2007)

Phase II of the USACE Section 933 associated with the USACE maintenance of the Morehead City Harbor federal navigation project took place in between January and March 2007. The work was also contracted to Weeks Marine by the USACE. All of the material removed from the bar channel during Phase II of the Section 933 project was deposited on the beach in two locations

within the town limits of Pine Knoll Shores. Approximately 507,939 cy of material was placed in these two reaches.

Post-Ophelia Renourishment Project (2007)

The post-Hurricane *Ophelia* restoration project occurred between January and March 2007 and was carried out to replace material lost during Hurricane *Ophelia* which struck the area in September 2005. Following the impact of Hurricane *Ophelia* in September 2005, Emerald Isle, Indian Beach/Salter Path, and Pine Knoll Shores applied to FEMA for funds to restore the material lost during *Ophelia* under Category G of FEMA's Public Assistance Program. The post-Hurricane *Ophelia* restoration placed a total of 1,229,836 cy along various sections of Bogue Banks. As was the case for the Hurricane *Isabel* restoration, the Hurricane *Ophelia* restoration used material from the ODMDS which was transported to the beach via hopper dredges.

In Emerald Isle, the restoration included fill between County Transects 33 and 45, located within the Bogue Banks Restoration Project Phase II project limits, and between County Transects 10 and 20 (not originally included in the static line exception process) located in the Phase III segment of the Bogue Banks Restoration Project (Western Emerald Isle). Approximately 344,410 cy of material was placed between County Transects 33 and 45 within the limits of the Phase II project and Eastern Emerald Isle static line extents while approximately 304,037 cy of material was placed between County Transects 10 and 20 within the limits of the Phase III project in western Emerald Isle.

In Indian Beach/Salter Path, the restoration included fill between County Transects 48 and 58, located within the Bogue Banks Restoration Project Phase I project limits. Approximately 319,113 cy of material was placed between County Transects 48 and 58 within the limits of the Phase I project.

In Pine Knoll Shores, the restoration fill occurred along two reaches between County Transects 62 to 65 and 66 to 74, located within the Bogue Banks Restoration Project Phase I limits. Approximately 262,276 cy of material was placed between County Transects 62 and 74 within the limits of the Phase I project with 73,387 cy placed between Transects 62 to 65 and 188,879 cy placed between Transects 66 to 74.

The total cost of the restoration was $13,773,800, all of which was provided by FEMA. Of this total restoration cost, $3,857,000 was allocated to the portion of the project within the Phase II (Eastern Emerald Isle) project limits with a total cost of $6,569,000 attributed to the entirety of Emerald Isle which also included restoration in the Western Emerald Isle (Phase III) portion. Approximately $3,893,200 was allocated to the Indian Beach/Salter Path portion of the restoration while $3,311,582 was allocated to the Pine Knoll Shores portion of the restoration, both part of the Phase I project.

Post-Irene Renourishment Project (2013)

The post-Hurricane *Irene* restoration project occurred between January and March 2013 and was carried out to replace material lost during Hurricane *Irene* which struck the area in August 2011. Following the advent of Hurricane *Irene* in August 2011 Emerald Isle and Pine Knoll Shores applied to FEMA for funds to restore the material lost during *Irene* under Category G of FEMA's

Public Assistance Program. The post-Hurricane *Irene* restoration placed a total of 965,011 cy of material along various sections of Bogue Banks. As was the case for the Hurricane *Isabel* and Hurricane *Ophelia* restoration, the Hurricane *Irene* restoration used material from the ODMDS which was transported to the beach via hopper dredges.

In Emerald Isle, the restoration included fill between County Transects 35 and 45, located within the Bogue Banks Restoration Project Phase II project limits, and between County Transects 10 and 16 (not originally included in the static line exception process) located in the Phase III segment of the Bogue Banks Restoration Project (Western Emerald Isle). Approximately 451,600 cy of material was placed between County Transects 35 and 45 within the limits of the Phase II project and Eastern Emerald Isle static line extents while approximately 198,190 cy of material was placed between County Transects 10 and 16 within the limits of the Phase III project in western Emerald Isle.

In Pine Knoll Shores, the restoration included fill between County Transects 62 and 71, located within the Bogue Banks Restoration Project Phase I project limits. Approximately 315,221 cy of material was placed between County Transects 62 and 71 within the limits of the Phase I project.

The total cost of the restoration was $14,951,965, $7,076,155 of which was provided by FEMA and the rest ($7,875,810) by the County ($5,920,405) and Towns of Emerald Isle and Pine Knoll Shores. The total local cost for the *Irene* restoration allocated to the Town of Emerald Isle was $1,443,607 while total local cost for the *Irene* restoration allocated to Pine Knoll Shores was $511,798.

2.3.5 Establishment of Historical Static Vegetation Line (Eastern Emerald Isle, Indian Beach/Salter Path, and Pine Knoll Shores)

Phase I, the Indian Beach/Salter Path and Pine Knoll Shores portion of the Bogue Banks Restoration Project that was constructed between November 2001 and April 2002, and Phase II, the Eastern Emerald Isle portion of the Bogue Banks Restoration Project that was constructed in January through March of 2003, included design specifications that triggered a static vegetation line and therefore satisfied a requirement of 15A NCAC 07J .1201, whereby an exception request could be made after 5 years. This request was initially approved and adopted on March 24, 2010. It was then followed, five years later, by a second exception request which was approved and adopted on April 29, 2015. Five years later, a third exception request was approved and adopted on November 18, 2020.

The static line rule in effect at the time the Phase I and Phase II projects required a static vegetation line be established for beach fills exceeding 200,000 cy and a fill density greater than 50 cy/ft. For Phase I, even with a reduction in the contracted placement, the fill density at Indian Beach/Salter Path was approximately 50 cy/ft and 54 cy/ft at Pine Knoll Shores. Therefore, the average Phase I project fill density of 53 cy/ft deemed the entire project area be subject to the static line requirement by DCM. For Phase II, although the fill density in the Western Zone was less than 50 cy/ft, the Phase II project was treated as one project, and since the average fill density over the 5.9 miles was 60.0 cy/ft, the entire project area was deemed subject to the static line requirement by DCM. It should be noted that Phase III, which covered the western portion of Emerald Isle, did not include design specifications that triggered a static vegetation line as the average fill density was only 30

cy/ft. However, a static vegetation line was triggered at a later date for this portion of Emerald Isle during the Post-*Florence* Renourishment Project (see Section 2.4).

The static vegetation line in Indian Beach/Salter Path extends the entire 2.4 mile oceanfront from County Transect 48, just east of 1st St, to just east of County Transect 58, at Ocean Glen Condominiums. The current erosion rate setback factor (developed by DCM and approved/adopted by the CRC in 2019) for the entire area of Indian Beach/Salter Path which falls under the static line exception was determined to be 2.0. The affected area is highly developed with approximately 98 oceanfront lots of which only nine are currently vacant.

The static vegetation line in Pine Knoll Shores extends the entire 4.5 mile oceanfront from County Transect 58, at Ocean Glen Condominiums, to County Transect 77, just west of the pier at the PKS/AB border. The current erosion rate setback factor (developed by DCM and approved/adopted by the CRC in 2019) for the entire area of Pine Knoll Shores which falls under the static line exception was determined to be 2.0. The affected area is highly developed with approximately 214 oceanfront lots of which only 21 are currently vacant.

The static vegetation line in Eastern Emerald Isle extends approximately 5.9 miles from just west of County Transect 25, between Periwinkle Dr and Scotch Bonnet Dr to County Transect 48 just east of 1st St. The current erosion rate setback factor (developed by DCM and approved/adopted by the CRC in 2019) for the entire area of Eastern Emerald Isle which falls under the static line exception was determined to be 2.0. The affected area is highly developed with approximately 366 oceanfront lots of which only seven are currently vacant.

The initial static vegetation line along eastern Emerald Isle, Indian Beach/Salter Path, and Pine Knoll Shores is presented in Appendix B (pg 21 - 33), overlain on 2024 aerials. The line was developed by DCM using pre-project aerial photography from November 13, 2001 for Phase I (Indian Beach/Salter Path, and Pine Knoll Shores) and pre-project aerial photography from November 26, 2002 for Phase II (Eastern Emerald Isle).

2.4 Post-Florence Renourishment Project (2019 - 2021)

In 2015, the County transitioned from the Bogue Banks Restoration Project to the Bogue Banks Master Beach Nourishment Plan (see Section 4.1 for details). With the passage of Hurricane *Florence* in 2018, the Post-*Florence* Renourishment Project became the first project completed under the BBMBNP. The post-Hurricane *Florence* restoration, which was partially funded by FEMA, was divided into three phases with Phase I occurring in March through April 2019, Phase II occurring in February through April 2020, and Phase III occurring January through April 2021.

The post-Hurricane *Florence* restoration placed a total of 5,029,445 cy of material along 21 miles of shoreline at a cost of $79,603,618. Appendix C contains construction plans for all three phases of the post-*Florence* Renourishment project as it is the most recently completed project.

2.4.1 Post-Florence Renourishment Project – Phase I (2019)

The post-*Florence* Phase I restoration placed a total of 975,647 cy of material along various sections of Bogue Banks within Emerald Isle and Indian Beach/Salter Path. As was the case for

the post-Hurricane *Isabel, Ophelia,* and *Irene* restorations, the post-*Florence* Phase I restoration used material from the ODMDS which was transported to the beach via hopper dredges.

In eastern Emerald Isle, the 2019 Post-*Florence* Renourishment Project - Phase I included approximately 624,945 cy of fill between County Transects 34 and 48, located within the Bogue Banks Restoration Project Phase II limits and Eastern Emerald Isle static line extents. This equated to an average fill density of 38.0 cy/ft.

In Indian Beach/Salter Path, the 2019 Post-*Florence* Renourishment Project - Phase I included two reaches of fill between County Transects 48 and 52 and County Transects 55 and 58, located within the Bogue Banks Restoration Project Phase I limits and Indian Beach/Salter Path static line extents. Approximately 350,702 cy of material was placed within the two reaches with 192,439 cy place between County Transects 48 and 52 and 158,263 cy of material placed between County Transects 55 and 58. This equated to an average fill density of 31.0 cy/ft

The total cost of the post-*Florence* Phase I restoration was $20,277,943, of which $5,000,000 was provided by the State (CSDM funds) and the rest by the County and Towns of Emerald Isle and Indian Beach. The total local cost for the post-*Florence* Phase I restoration allocated to the Town of Emerald Isle was $9,788,975 ($7,341,731 County reserve and $2,447,244 Town of Emerald Isle). The total local cost for the post-*Florence* Phase I restoration allocated to the Town of Indian Beach was $4,626,589 ($3,462,442 County reserve and $1,154,147 Town of Indian Beach). Note that Emerald Isle and Indian Beach had applied for FEMA funding as a result of damages from Hurricane *Florence* but were still awaiting award during the construction of Phase I, with plans for County and Town reimbursement if funding was approved. After completion of construction, FEMA funding was awarded, allowing for reimbursement to the County and Towns for all material lost during Hurricane *Florence*.

2.4.2 Post-Florence Renourishment Project – Phase II (2020)

The post-*Florence* Phase II restoration placed a total of 2,022,807 cy of material along various sections of Bogue Banks within Emerald Isle, Indian Beach/Salter Path, Pine Knoll Shores, and Atlantic Beach. As was the case for the post-Hurricane *Isabel, Ophelia,* and *Irene* restorations, the post-*Florence* Phase II restoration used material from the ODMDS which was transported to the beach via hopper dredges.

In western Emerald Isle, the 2020 Post-*Florence* Renourishment Project - Phase II included approximately 355,335 cy of fill between County Transects 7 and 14, located within the Bogue Banks Restoration Project Phase III limits and therefore not included in the original static line extents. This equated to an average fill density of 38.0 cy/ft and because of the size of the overall project, triggered a new static vegetation line.

In Indian Beach/Salter Path, the 2020 Post-*Florence* Renourishment Project - Phase II included approximately 155,928 cy of fill between County Transects 53 and 54 in Salter Path, located within the Bogue Banks Restoration Project Phase I limits and Indian Beach/Salter Path static line extents. This equated to an average fill density of 41.0 cy/ft.

In Pine Knoll Shores, the 2020 Post-*Florence* Renourishment Project - Phase II included approximately 989,253 cy of fill between County Transects 59 and 76, located within the Bogue Banks Restoration Project Phase I limits and Pine Knoll Shores static line extents. This equated to an average fill density of 40.0 cy/ft.

Finally, in western Atlantic Beach, the 2020 Post-*Florence* Renourishment Project - Phase II included approximately 522,291 cy of fill between County Transects 77 and 91, located outside of the original Bogue Banks Restoration Project and therefore not included in the original static line extents. This equated to an average fill density of 35.0 cy/ft and because of the size of the overall project, triggered a new static vegetation line in the small portion of Atlantic Beach that did not have one as a result of the USACE DMMP project.

The total cost of the post-*Florence* Phase II restoration was $28,068,085, of which FEMA Category G and State Coastal Storm Damage Mitigation (CSDM) funds ($11,105,767) were used in combination with funds from the County and Towns of Emerald Isle, Pine Knoll Shores, and Atlantic Beach. The total local cost for the post-*Florence* Phase II restoration allocated to the Town of Emerald Isle was $2,501,557 (County reserve). The total local cost for the post-*Florence* Phase II restoration allocated to the Village of Salter Path was $1,015,125 (County reserve). The total local cost for the post-*Florence* Phase II restoration allocated to the Town of Pine Knoll Shores was $3,818,623 (County reserve). The total local cost for the post-*Florence* Phase II restoration allocated to the Town of Atlantic Beach was $3,770,463 (County reserve).

2.4.3 Post-Florence Renourishment Project – Phase III (2021)

The post-*Florence* Phase III restoration placed a total of 2,030,991 cy of material along various sections of Bogue Banks, all within Emerald Isle. As was the case for the post-Hurricane *Isabel, Ophelia,* and *Irene* restorations, the post-*Florence* Phase III restoration used material from the ODMDS which was transported to the beach via hopper dredges.

The 2021 post-*Florence* Phase III restoration included approximately 170,197 cy of fill between County Transect 1 and 7, located outside of the original Bogue Banks Restoration Project and therefore not included in the original static line extents. This equated to an average fill density of 29.0 cy/ft and because of the size of the overall project, triggered a new static vegetation line.

Approximately 710,461 cy of fill was placed between County Transects 14 and 25, located within the Bogue Banks Restoration Project Phase III limits and therefore not included in the original static line extents. This equated to an average fill density of 45.0 cy/ft and because of the size of the overall project, triggered a new static vegetation line.

Approximately 539,353 cy of fill was placed between County Transects 26 and 33, located within the Bogue Banks Restoration Project Phase II limits and original Emerald Isle static line extents. This equated to an average fill density of 44.0 cy/ft.

Lastly, approximately 610,980 cy of fill was placed between County Transects 34 and 45, located within the Bogue Banks Restoration Project Phase II limits and original Emerald Isle static line extents. This equated to an average fill density of 43.0 cy/ft.

The total cost of the post-*Florence* Phase III restoration was $31,257,590. The cost breakdown consisted of $5,655,000 for mobilization/demobilization, $24,778,090 for sand placement, $451,500 for trawling, and $373,000 for dune planting. The project was paid for with a combination of Federal (FEMA Category G), State (N.C. Division of Emergency Management Hurricane *Florence* Disaster Recovery Funds for Coastal Storm Damage Mitigation), and local (County & Town) funds. Federal funds were used only to replace sand lost during Hurricane *Florence*. State and local funds were used to augment the project in certain areas to achieve a cost effective design template and also pay for material placement in areas which were not covered under FEMA Category G reimbursement funding.

2.4.4 Post-Florence Project Design

The Post-*Florence* Renourishment Project was ultimately divided into 10 reaches that were nourished over the course of three dredging windows, one of which was nourished twice. Figure 2-24 presents a breakdown of the reaches and nourishment volumes for each phase, showing material placement from County monitoring Transect 1 adjacent to Bogue Inlet all the way to County monitoring Transect 91, located at the Circle in Atlantic Beach.

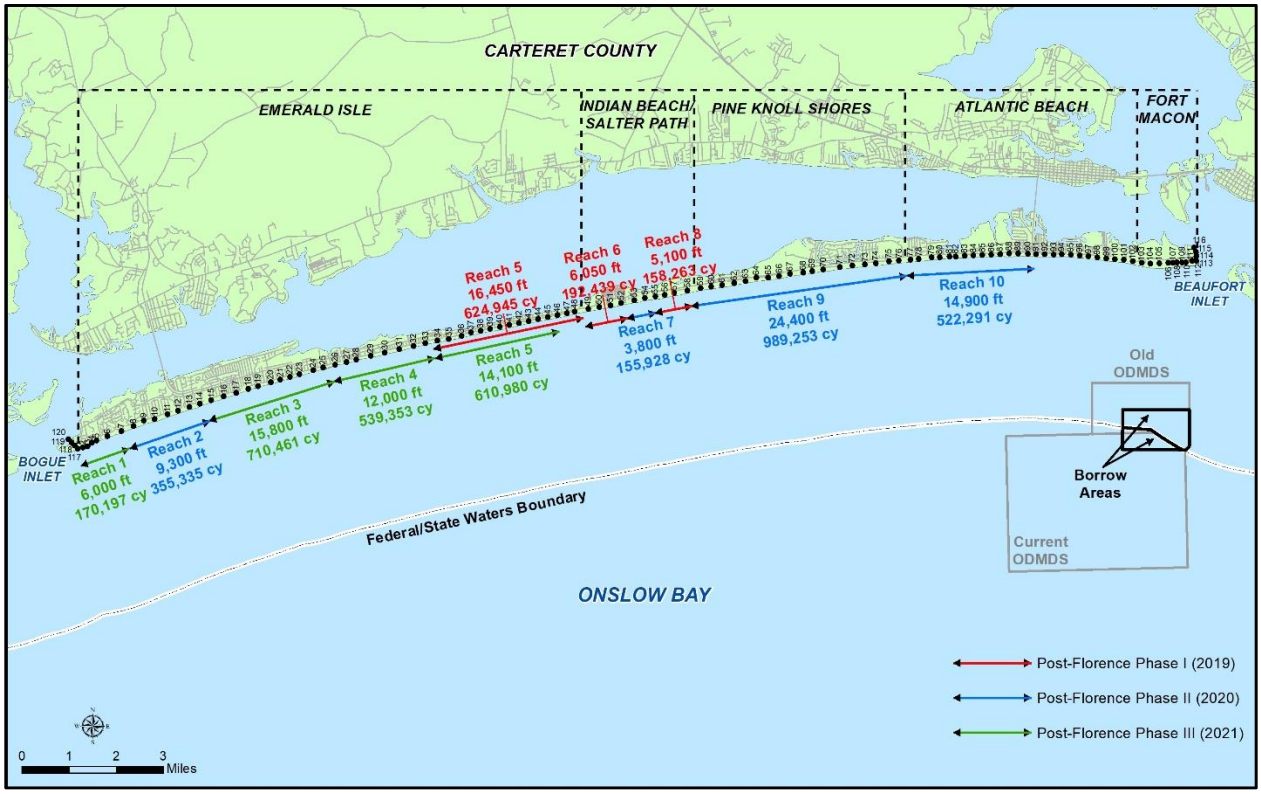


Figure 2-24. Post-Florence Renourishment Project Extents and Volumes

The project template consisted of a dune of variable width ranging from +10 ft NAVD88 to +14 ft NAVD88 with a 1:5 slope down to a berm of variable width ranging from +6 ft NAVD88 to +6.5 ft NAVD88 and then a flatter slope of 1:20 out to the existing ground, landward of the prominent offshore bar. Figure 2-25 and Figure 2-26 present typical cross sections for the project template. Where possible, a direct tie-in to the primary dune at grade was preferred (Figure 2-25).

However, in cases where this would result in covering existing vegetation, a small dune backslope at 1:5 was constructed down to the existing ground (Figure 2-26).

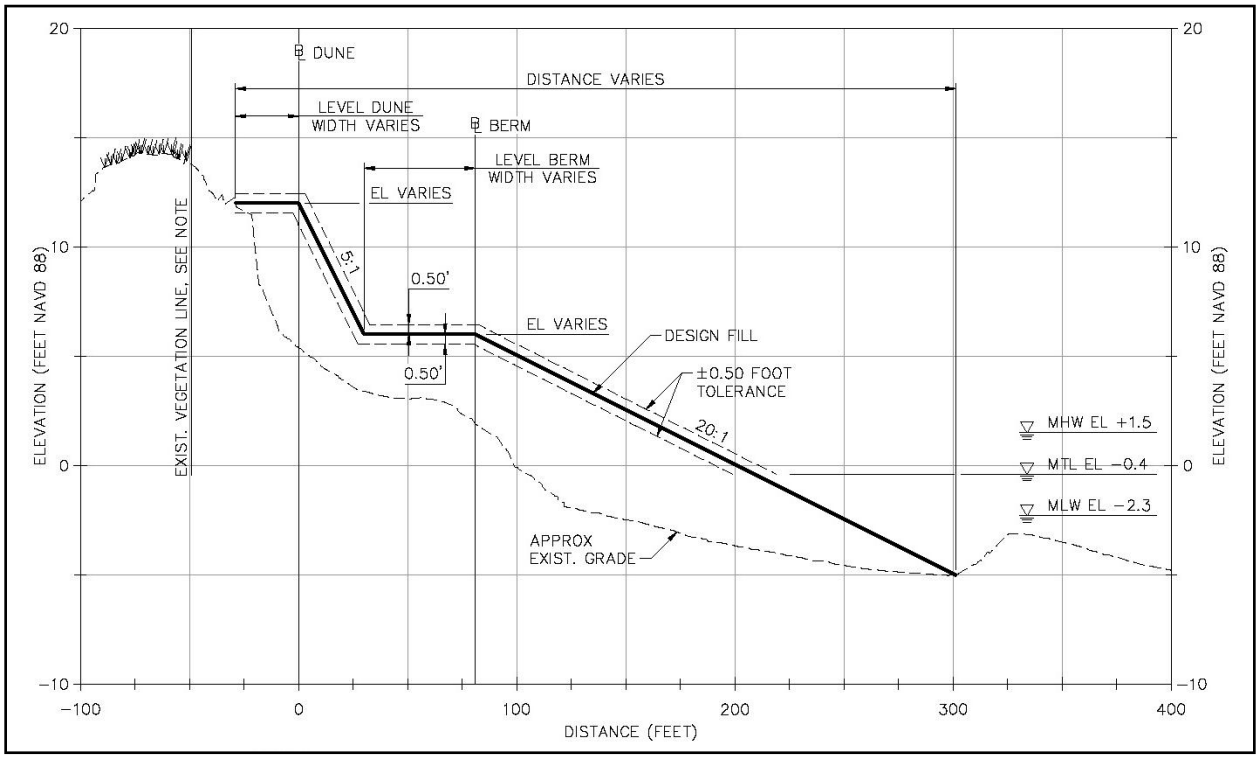


Figure 2-25. Beach Renourishment Typical Cross Section – Direct Tie-In

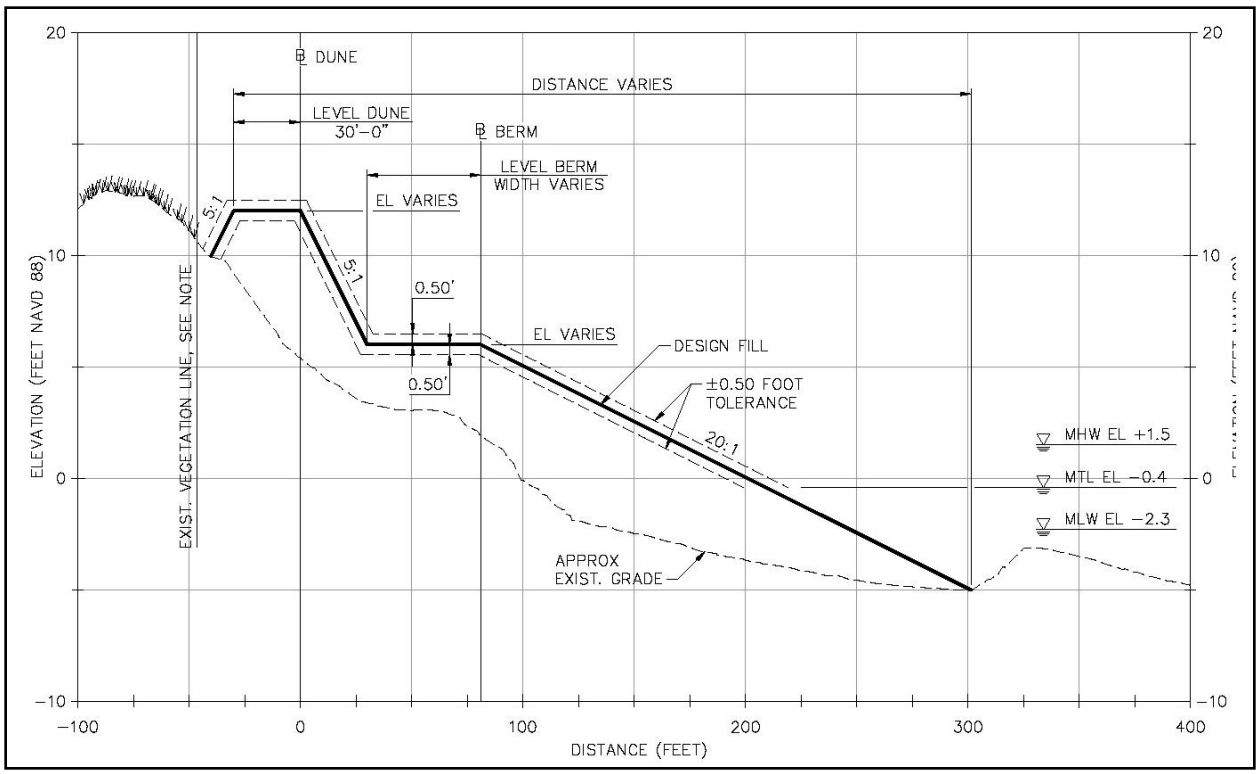


Figure 2-26. Beach Renourishment Typical Cross Section – Backslope Tie-In

Figure 2-27 and Figure 2-28 display some example pre- and post-nourishment profiles from the Post-*Florence* Renourishment Project.

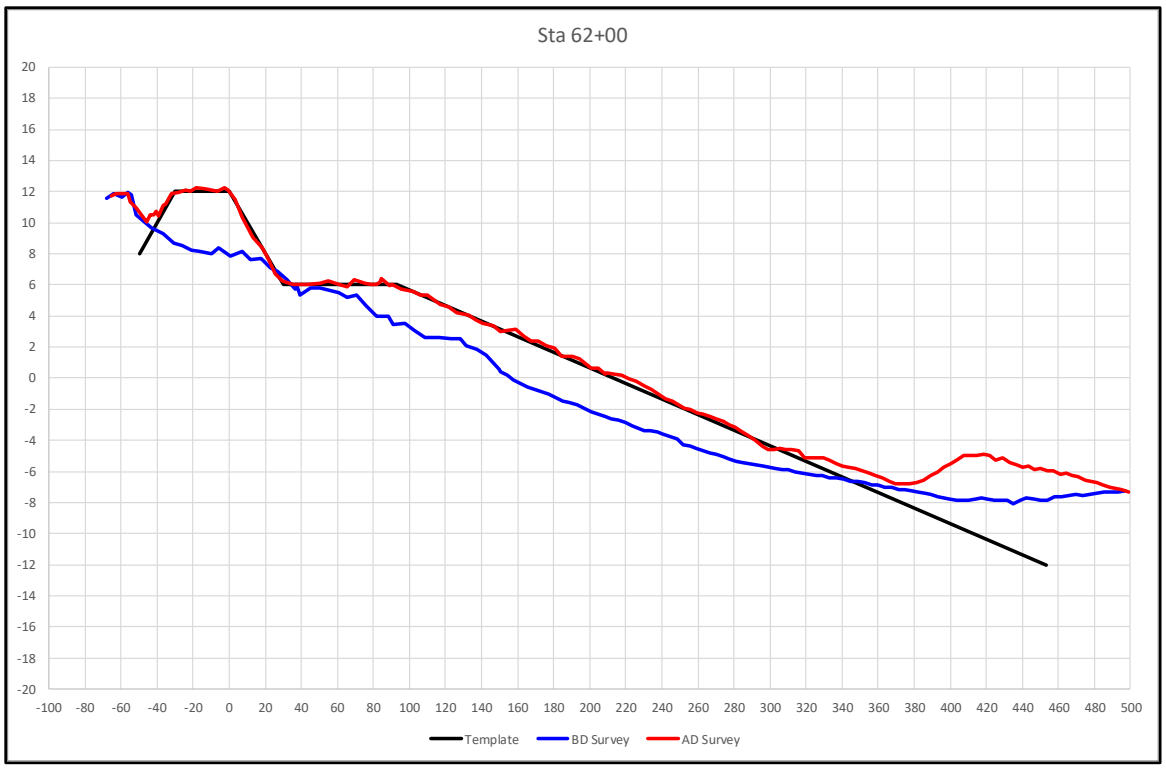


Figure 2-27. Profile Station 62 Pre- and Post-Nourishment Example

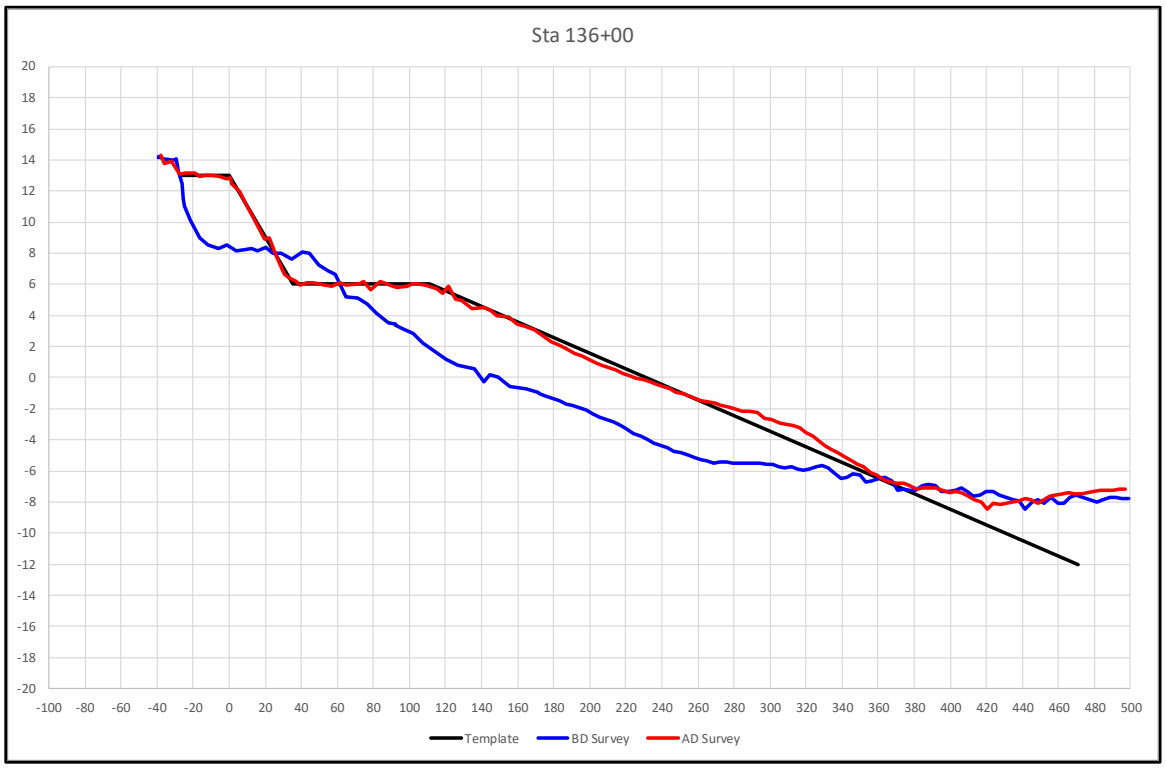


Figure 2-28. Profile Station 136 Pre- and Post-Nourishment Example

2.4.5 Establishment of Additional Static Vegetation Line (Western Emerald Isle and Atlantic Beach)

Phases II and III of the post-*Florence* renourishment project triggered several additions to the static vegetation line previously established along Bogue Banks in eastern Emerald Isle, Indian Beach/Salter Path, and Pine Knoll Shores as a result of the Bogue Banks Restoration Project and a majority of Atlantic Beach as a result of the USACE MCH project. A static line requirement was triggered between Transects 1 and 24 in western Emerald Isle and Transects 77 to 80 in western Atlantic Beach. Western Emerald Isle was originally included in Phase III of the Bogue Banks Restoration Project which was constructed in 2005. However, the project did not trigger a static vegetation line based on the initial criteria established (200,000 cy and 50 cy/ft) because it did not meet the fill density of 50 cy/ft. The small portion of Atlantic Beach had not received any previous nourishment from the USACE MCH project, the Bogue Banks Restoration Project, or any of the renourishments. The additional static vegetation line along western Emerald Isle and western Atlantic Beach is presented in Appendix B (pg 1 - 10 and pg 33 - 34, respectively).

The new static vegetation line in the above referenced portion of western Emerald Isle extends approximately 5.3 miles from County Transect 1, at Bogue Court, to County Transect 24, at Scotch Bonnet Drive. This area spans a portion of two County monitoring reaches: Bogue Inlet (Transects 1 – 11) and Emerald Isle - West (Transects 12 – 25). The static vegetation line for the 1.76 miles from Transect 7 to Transect 14 was established prior to construction of the Post-*Florence* Restoration Project – Phase II using post-Dorian survey data and aerial imagery from September 2019. The static vegetation line for the 1.0 mile from Transect 1 to Transect 7 and the 2.3 miles from Transect 15 to Transect 24 was established prior to the construction of the Post-*Florence* Restoration Project – Phase III using a field survey completed prior to construction. The current erosion rate setback factor (developed by the Division of Coastal Management and approved/adopted by the Coastal Resources Commission in 2019) for this portion of Western Emerald Isle which falls under the new static line extents was determined to be 2.0. The affected area is highly developed with approximately 362 oceanfront lots of which only 17 are currently vacant.

The static vegetation line in the above referenced portion of western Atlantic Beach extends approximately 2,500 ft between County Transect 77, at the Double Tree Hotel, to County Transect 80, at Smugglers Cove. This area makes up a small portion of the Atlantic Beach monitoring reach (Transects 77 – 102). The vegetation line was established prior to construction of the Post-*Florence* Restoration Project – Phase II using post-Dorian survey data and aerial imagery from September 2019. The current erosion rate setback factor (developed by DCM and approved/adopted by the CRC in 2019) for this portion of western Atlantic Beach which falls under the new static line extents was determined to be 2.0. The affected area is highly developed with approximately six oceanfront lots of which none are currently vacant.

3.0 PROJECT MONITORING AND PERFORMANCE

The BBBNMP, established in 2004, monitors the entire island each Spring on an annual basis as well as after large storm events (FEMA Category G). Each year, 122 profiles (see Figure 3-1) are analyzed along the entirety of Bogue Banks to determine annual shoreline changes and gains and losses in material to the system, long-term erosion rates, and an assessment of current beach conditions as compared to previously established nourishment triggers. This annual monitoring is

the basis for determining the health of the beach and when to start planning the next renourishment event. After large storm events, it also provides the County with storm induced damages for use in planning restoration, typically through a post-storm project in part funded by FEMA.

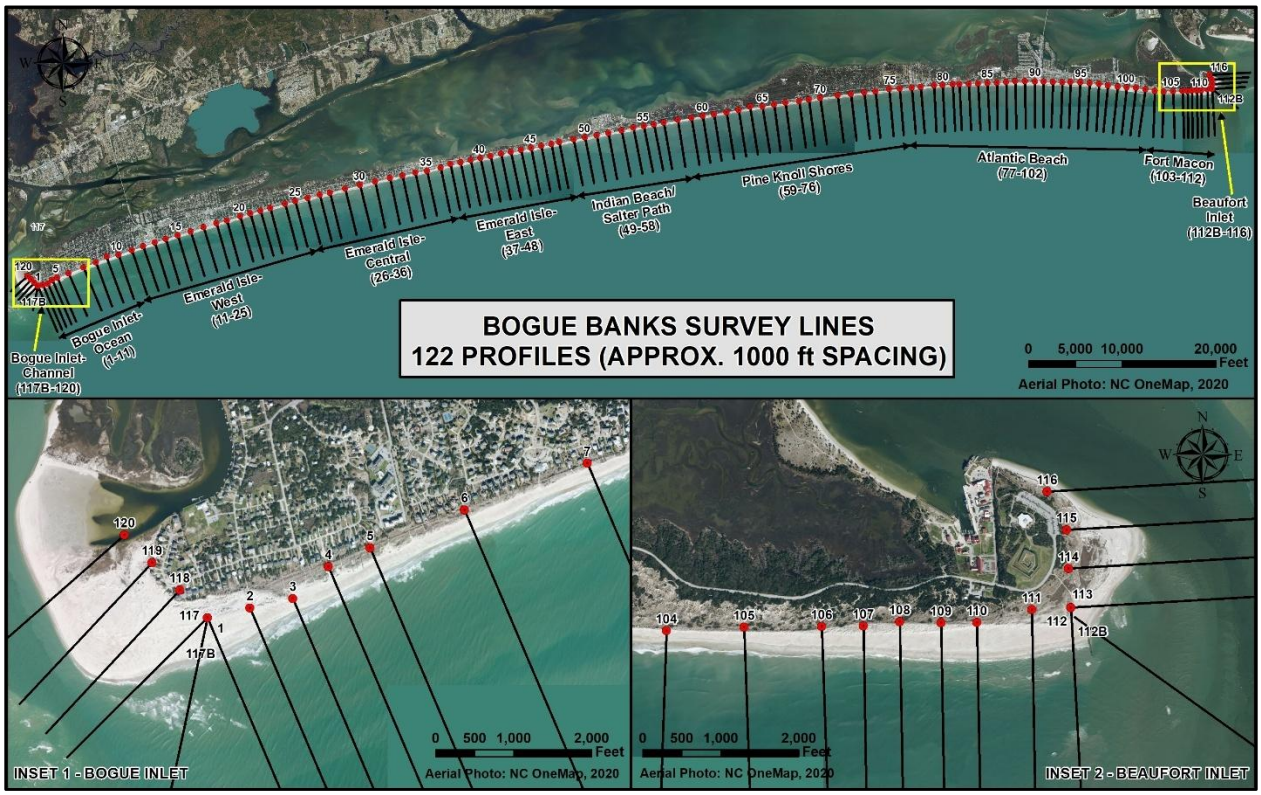


Figure 3-1. Bogue Banks Beach and Nearshore Mapping Program

The following sections detail an explanation of the historical and current nourishment triggers as well as a summary of the annual monitoring in comparison to the triggers along Emerald Isle, Indian Beach/Salter Path, Pine Knoll Shores, and Atlantic Beach, each of which contain a pre-project vegetation line (formerly static vegetation line).

3.1 Development of Nourishment Triggers

For Phase I, Phase II, and Phase III of the Bogue Banks Restoration Project the original periodic nourishment plan adopted by the County, dictated that nourishment would be performed under two conditions. First, when one-half of the initial fill volume was lost to erosion, this would prompt a nourishment event. Therefore, Indian Beach/Salter Path originally intended to schedule maintenance of the Phase I shoreline when 228,497 cy was lost from the initial fill, Pine Knoll Shores originally intended to schedule maintenance of the Phase I shoreline when 638,293 cy was lost from the initial fill, Eastern Emerald Isle originally intended to schedule maintenance of the Phase II shoreline when 829,253 cy was lost from the initial fill, and western Emerald Isle originally intended to schedule maintenance of the Phase III shoreline when 345,434 cy was lost from the initial fill. Second, a target minimum volume for each profile from the foredune (landward most crest of the primary dune) to the outer bar (above -12 ft NAVD88) was established at 225 cy/ft during the formulation of the Bogue Banks Restoration Project. This was determined to be an adequate amount of material to protect from storms based on the superior condition of Atlantic

Beach, which had historically been nourished by the federal USACE project, after the hurricanes of the 1990s. Therefore, if profiles in a monitoring reach, on average, fell below the 225 cy/ft above -12 ft NAVD88, it would prompt a nourishment event. These periodic nourishment strategies were represented in the Town's original FEMA Monitoring & Maintenance Plan that enabled the Towns to remain eligible for the cost reimbursement of replacing the volume of sand lost during a federally declared disaster.

In 2015, the County transitioned to the Bogue Banks Master Beach Nourishment Plan (BBMBNP, see Section 4.1 for details). Under the BBMBNP, the nourishment triggers were revised and nourishment operations and timing reformulated. Through SBEACH modeling, it was determined that a 25-year return period storm LoP for the entire island was feasible, both from a construction/sand availability standpoint and financial position. Therefore, the island was divided into various reaches based on similar profiles characteristics and historical erosion rates were used to determine the volume of material required to protect infrastructure in each reach from the 25-year storm event. This volume differed slightly across the oceanfront based on existing dune configurations. Table 3-1 shows the calculated 25-year triggers for the LoP for the various monitoring reaches of Bogue Banks. The new triggers developed for the BBMBNP have replaced the previous methods of determining the need for nourishment (i.e. 50% erosion of the original Phase II project and 225 cy/ft above -12 ft NAVD88). Therefore, the County will initiate nourishment actions as these triggers are approached.

Table 3-1. Master Plan Nourishment Triggers

Reach	-12 ft Trigger
Bogue Inlet (1-11)	235
Emerald Isle West (12-25)	266
Emerald Isle Central (26-36)	211
Emerald Isle East (37-48)	221
Indian Beach/Salter Path (49-58)	224
Pine Knoll Shores (59-76)	211
Atlantic Beach (77-102)	254
Fort Macon (103-112)	N/A
Weighted Average	233

3.2 Emerald Isle

Table 3-2 shows the amount of fill, by percent of original placement, that existed in the Bogue Banks Restoration Project Phase II and Phase III project areas each year of the monitoring from 2004 - 2014. As can be seen, through the efforts of the three post-storm nourishment projects that took place during this time period, there was more sand in the western portion of the Phase II project (Emerald Isle - Central monitoring reach) in 2014 than there was after the project was constructed. The eastern portion of the Phase II project (Emerald Isle - East monitoring reach) contained slightly less material in 2014 than was originally placed but was well above the nourishment trigger of 50% remaining. This portion of Emerald Isle has proven to be a hotspot in the past and is carefully monitored each year. Both Bogue Inlet and Emerald Isle West contained more material in 2014 than after the Phase III project was constructed.

Table 3-2. Percent Fill Remaining From Initial Construction: 2004 – 2014 (Bogue Banks Restoration Project Phase II – Eastern Emerald Isle)

	Percent Fill Remaining										
Reach	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Emerald Isle Central	98.3	98.5	63.5	75.0	178.0	161.6	147.3	148.8	135.1	165.3	165.0
Emerald Isle East	85.1	85.0	62.8	79.0	84.8	60.9	48.0	50.4	35.1	83.6	89.1
Emerald Isle-Phase II	92.0	92.1	63.2	76.9	133.5	113.5	99.9	101.8	87.3	126.3	128.8
	Percent Fill Remaining										
Reach	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Bogue Inlet	N/A	N/A	59.2	63.8	115.7	167.8	137.8	169.7	87.1	168	160.7
Emerald Isle West	N/A	N/A	61.3	78.8	224.7	195.6	177.1	184.5	152.5	218.9	240.9
Emerald Isle-Phase III	N/A	N/A	61.2	77.8	217.4	193.7	174.5	183.5	148.1	215.5	235.5

Figure 3-2 shows the average profile volume calculated above -12 ft NAVD88 for the Bogue Inlet, Emerald Isle – West, Emerald Isle – Central, and Emerald Isle - East reaches during each year of monitoring from 2004 - 2014. As can be seen from this figure, the profile volumes were also maintained well above the historic trigger of 225 cy/ft.

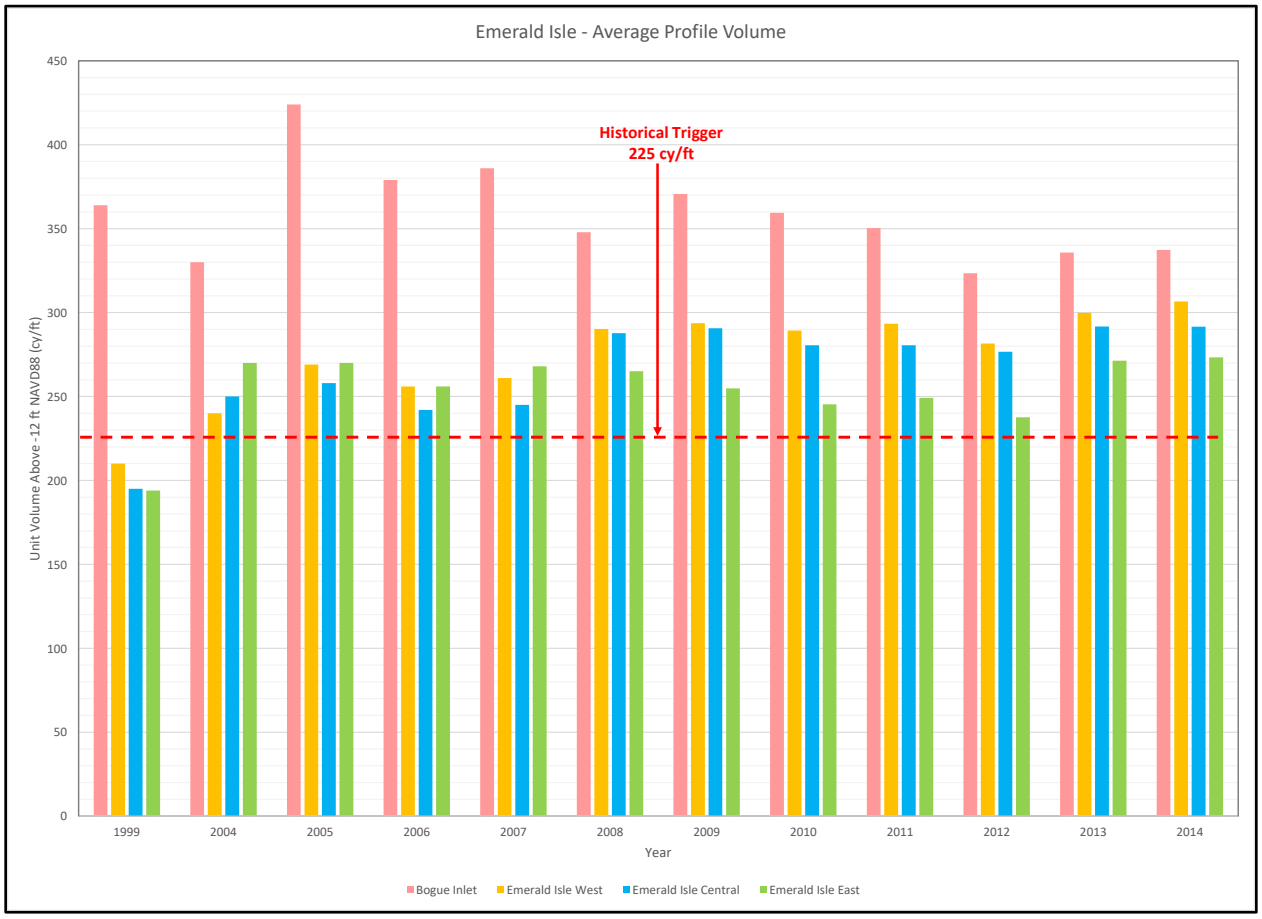


Figure 3-2. Average Profile Volume Above -12 ft NAVD88: 2004 – 2014 (Bogue Banks Restoration Project Phase II & Phase III – Emerald Isle)

Following completion of the engineering report in 2014, which was developed to provide insight into the future sand needs and availability for the programmatic EIS upon which the USACE 50-yr permit was based, the BBBNMP shifted to the new methodology in 2015 for tracking project

performance and determining the status of the beach as stated in the Bogue Banks Master Beach Nourishment Plan which solely uses 25-year LoP nourishment triggers (see Table 3-1) to determine the need for nourishment. Figure 3-3 shows the average profile volume calculated above -12 ft NAVD88 for the Bogue Inlet, Emerald Isle – West, Emerald Isle – Central, and Emerald Isle - East monitoring reaches during each year of monitoring from 2015 - 2024. As can be seen from this figure, the profile volumes have been maintained above the Master Beach Nourishment Plan triggers of 235 cy/ft for Bogue Inlet, 266 cy/ft for Emerald Isle – West, 211 cy/ft for Emerald Isle – Central, and 221 cy/ft for Emerald Isle – East.

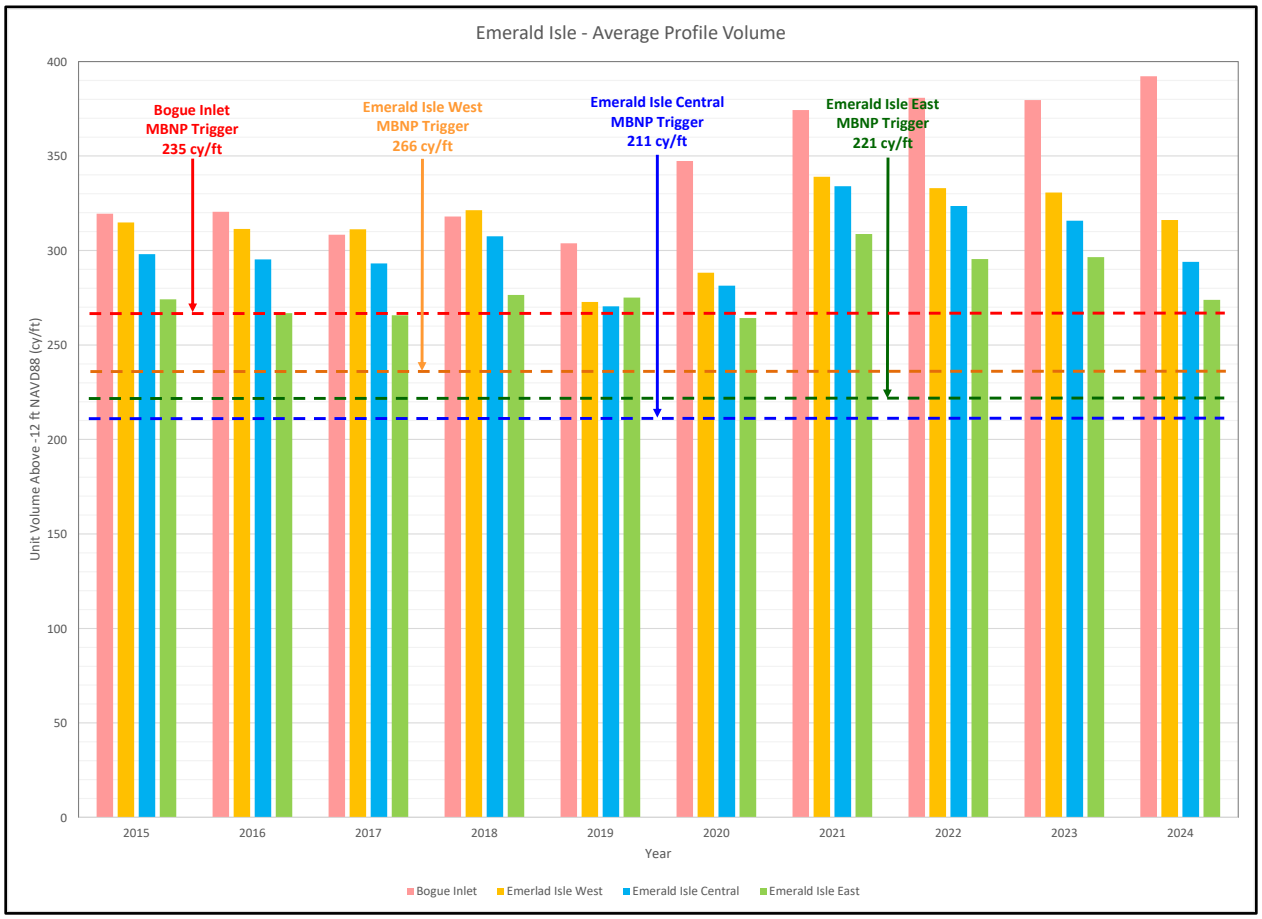


Figure 3-3. Average Profile Volume Above -12 ft NAVD88: 2015 - 2024 (Bogue Banks Restoration Project Phase II & Phase III – Emerald Isle)

3.3 Indian Beach/Salter Path

Table 3-2 shows the amount of fill, by percent of original placement, that existed in the Indian Beach/Salter Path portion of the Bogue Banks Restoration Project Phase I area each year of the monitoring from 2004 – 2014. Please note that the result in 2004 was greatly influenced by the Section 933 project that was completed at the same time as the first monitoring survey. As can be seen, through the efforts of the Section 933 and post-*Ophelia* nourishment projects, there was more sand in the Indian Beach/Salter Path Phase I project area in 2014 than there was after the initial project was constructed.

Table 3-3. Percent Fill Remaining From Initial Construction: 2004 - 2014 (Indian Beach/Salter Path Phase I)

	Percent Fill Remaining										
Reach	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Indian Beach/Salter Path-Phase I	232.6	214	162.6	188.8	232.4	213.2	193.6	207.4	170.4	174.1	176.7

Figure 3-4 shows the average profile volume calculated above -12 ft NAVD88 for the Indian Beach/Salter Path reach during each year of monitoring from 2004 - 2014. As can be seen from this figure, the profile volumes were all maintained well above the historic trigger of 225 cy/ft.

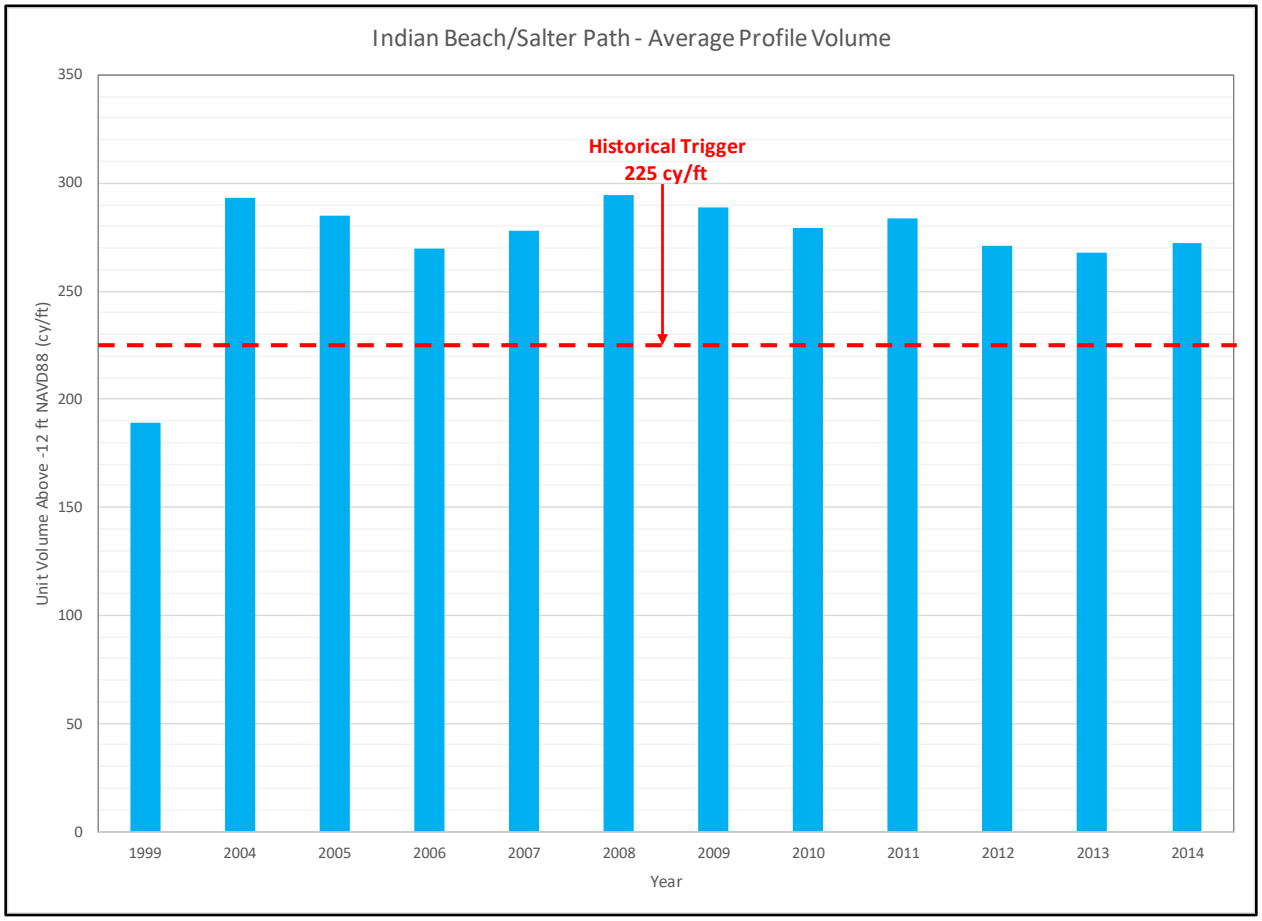


Figure 3-4. Average Profile Volume Above -12 ft NAVD88: 2004 - 2014 (Indian Beach/Salter Path - Phase I)

Following completion of the engineering report in 2014, which was developed to provide insight into the future sand needs and availability for the programmatic EIS upon which the USACE 50-yr permit was based, the BBBNMP and Nearshore Mapping Program shifted to the new methodology in 2015 for tracking project performance and determining the status of the beach as stated in the Bogue Banks Master Beach Nourishment Plan which solely uses 25-year LoP nourishment triggers (see Table 3-1) to determine the need for nourishment. Figure 3-5 shows the average profile volume calculated above -12 ft NAVD88 for the Indian Beach/Salter Path monitoring reach during each year of monitoring from 2015 - 2024. As can be seen from this figure, the average profile volumes have been maintained above the BBMBNP trigger of 224 cy/ft

for the Indian Beach/Salter Path monitoring reach within the Bogue Banks Restoration Project Phase I area and Indian Beach/Salter Path static line exception extents.

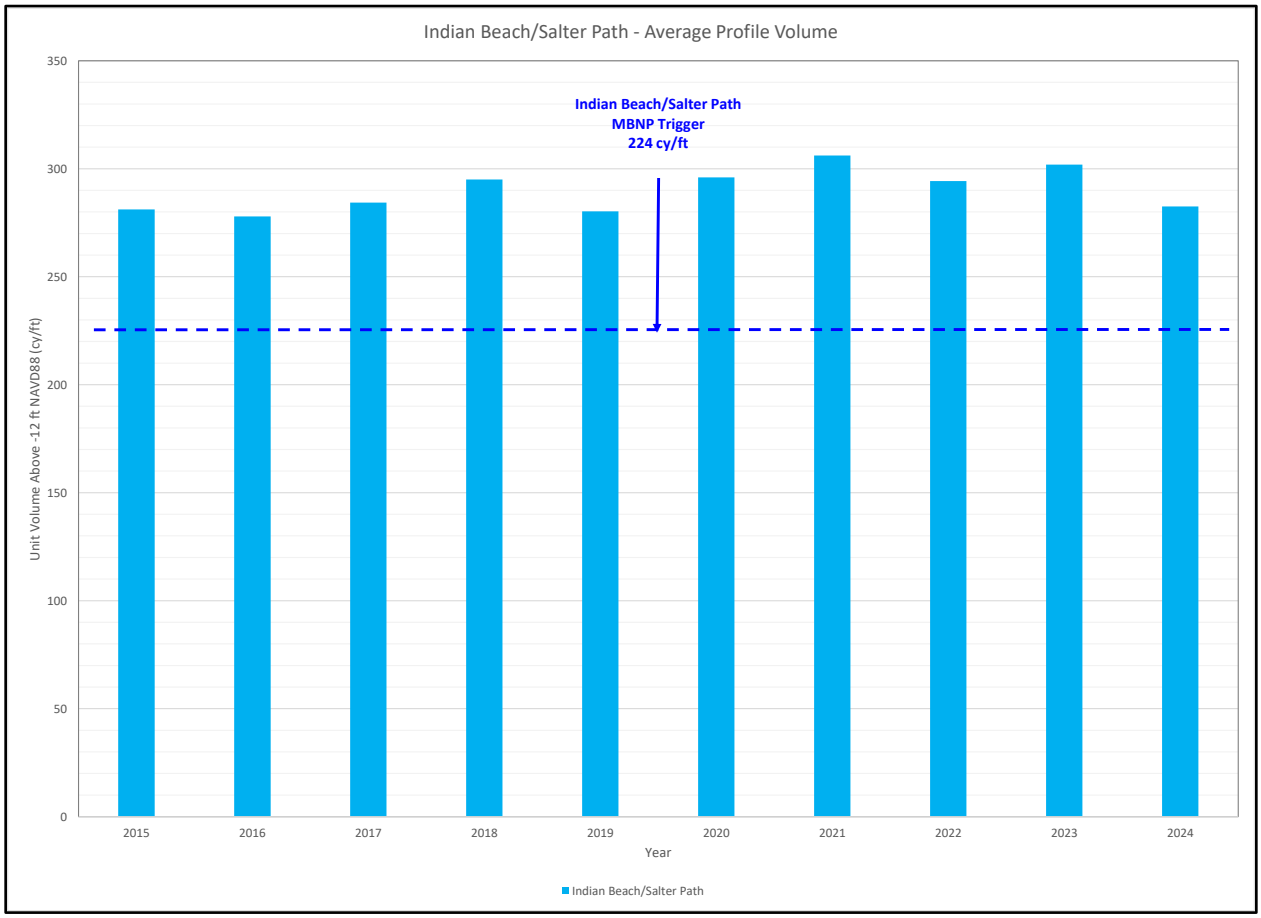


Figure 3-5. Average Profile Volume Above -12 ft NAVD88: 2015 - 2024 (Indian Beach/Salter Path - Phase I)

3.4 Pine Knoll Shores

Table 3-2 shows the amount of fill, by percent of original placement, that existed in the Pine Knoll Shores portion of the Bogue Banks Restoration Project Phase I area each year of the monitoring from 2004 - 2014. As can be seen, through the efforts of the Section 933 and post-storm nourishment projects, there was more sand in the Pine Knoll Shores portion of the Phase I project overall in 2014 than there was only 2 years after the project was constructed (see 2004 results in Table 3-2). While the eastern portion of the Phase I project (Pine Knoll Shores East reach) contained slightly less material in 2014 than was originally placed, it was well above the nourishment trigger of 50% remaining.

Table 3-4. Percent Fill Remaining From Initial Construction (Pine Knoll Shores Phase I)

	Percent Fill Remaining										
Reach	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Pine Knoll Shores-West	92.5	122.4	91.7	157.8	168.8	165.0	150.0	145.2	128.5	136.0	137.6
Pine Knoll Shores-East	65.8	59.4	34.4	119.8	125.7	107.7	99.7	94.5	64.7	103.8	95.8
Pine Knoll Shores-Phase I	76.0	83.5	56.4	134.4	142.2	129.7	119.0	113.9	89.1	116.1	111.8

Figure 3-6 shows the average profile volume calculated above -12 ft NAVD88 for the Pine Knoll Shores West and Pine Knoll Shores East reaches during each year of monitoring from 2004 - 2014. As can be seen from this figure, the profile volumes have been maintained above the historic trigger of 225 cy/ft.

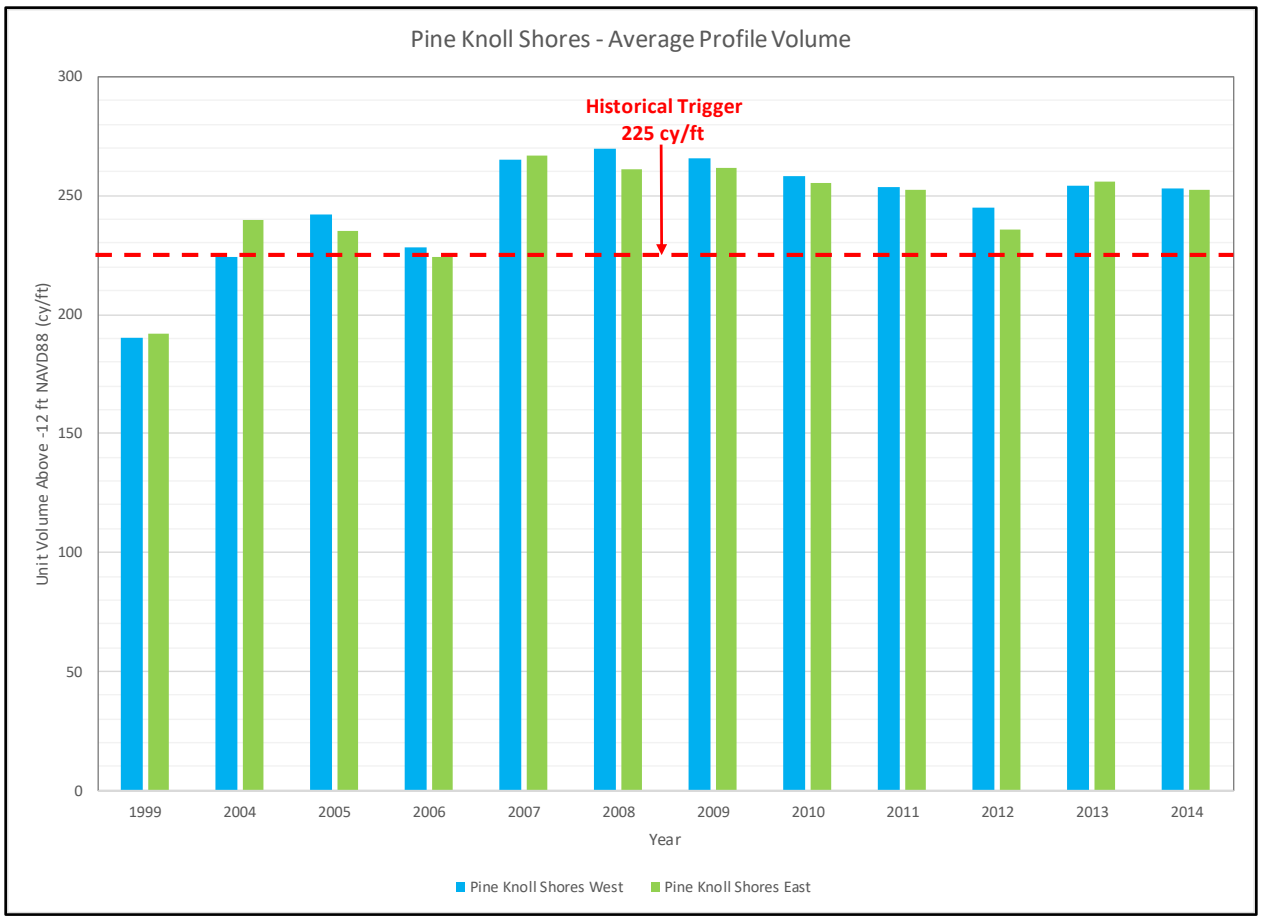


Figure 3-6. Average Profile Volume Above -12 ft NAVD88: 2004 - 2014 (Pine Knoll Shores - Phase I)

Following completion of the engineering report in 2014, which was developed to provide insight into the future sand needs and availability for the programmatic EIS upon which the USACE 50-yr permit was based, the BBBNMP shifted to the new methodology in 2015 for tracking project performance and determining the status of the beach as stated in the Master Beach Nourishment Plan which solely uses 25-year LoP nourishment triggers (see Table 3-1) to determine the need for nourishment. Figure 3-7 shows the average profile volume calculated above -12 ft NAVD88 for the Pine Knoll Shores monitoring reach during each year of monitoring from 2015 - 2024. As can be seen from this figure, the average profile volumes have been maintained above the Master Beach Nourishment Plan trigger of 211 cy/ft for the Pine Knoll Shores monitoring reach within the Bogue Banks Restoration Project Phase I area and Pine Knoll Shores static line exception extents.

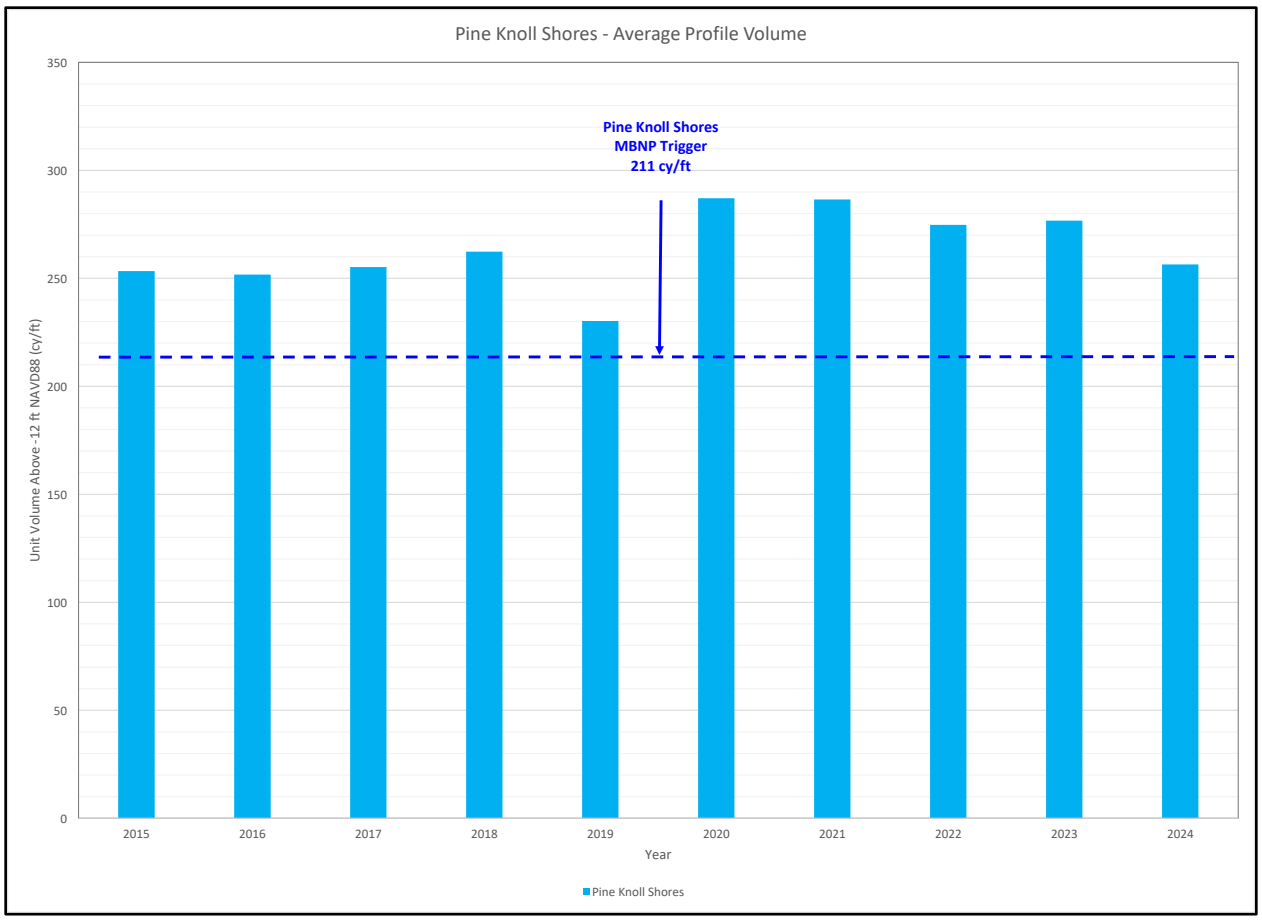


Figure 3-7. Average Profile Volume Above -12 ft NAVD88: 2015 - 2024 (Pine Knoll Shores - Phase I)

3.5 Atlantic Beach

Although Atlantic Beach has historically been maintained through a different process (Federal USACE project) than the remainder of Bogue Banks (local projects), the initial oceanfront nourishment trigger set up as part of the Bogue Banks Restoration Project (Phases I, II, and III) of 225 cy/ft from the peak of the dune to the outer bar at -12 ft NAVD88 has historically been monitored in Atlantic Beach as well. Figure 3-8 shows the average profile volume from each year of monitoring from 2004 – 2014 in addition to an initial survey which was taken in 1999 to assess the state of the beach after the hurricanes of the 1990's in preparation for planning of the Bogue Banks Restoration Project. As can be seen, through the early efforts of the MCH Federal navigation project, Atlantic Beach maintained a significant amount of material, well above the historic island wide trigger of 225 cy/ft.

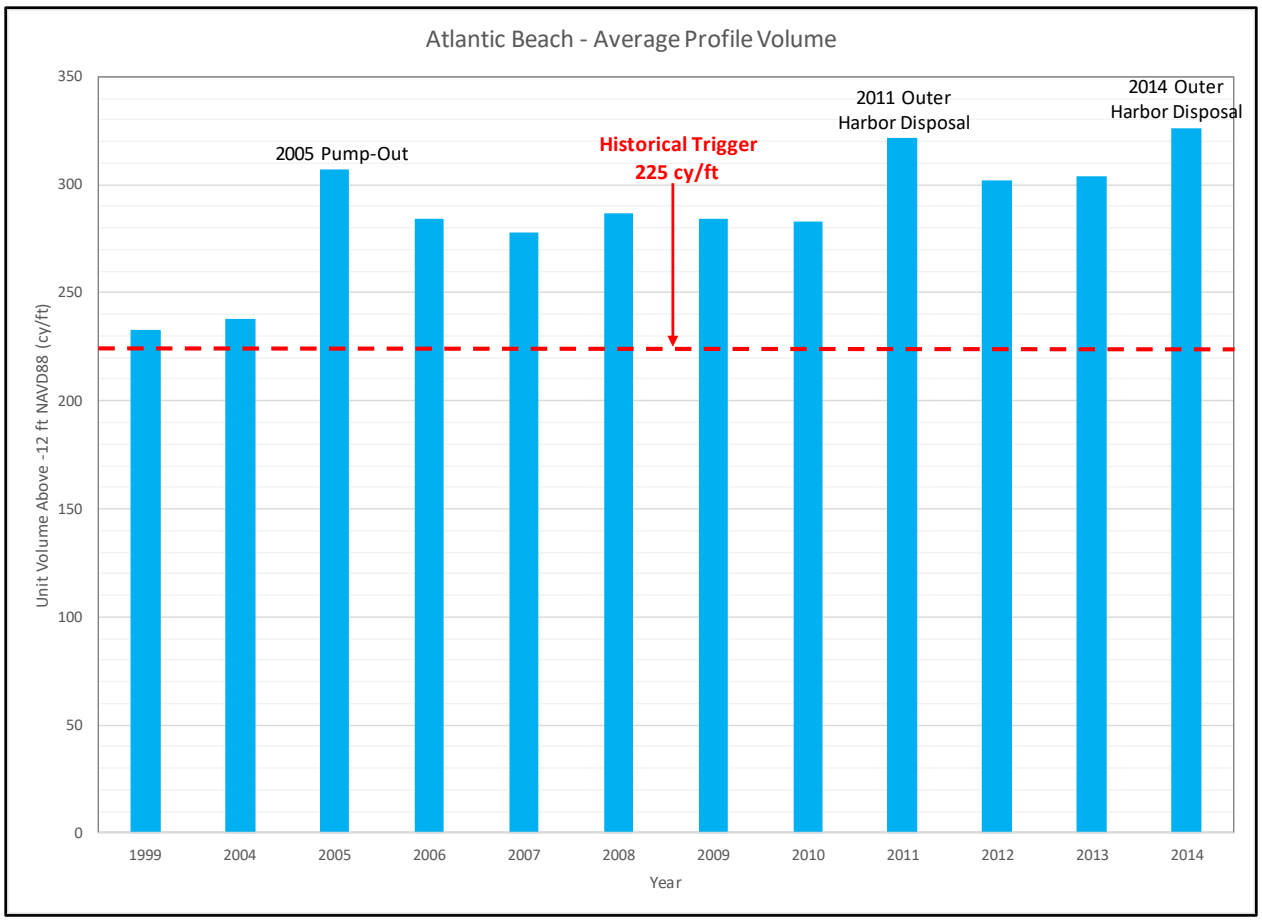


Figure 3-8. Atlantic Beach Average Profile Volume Above -12 ft NAVD88: 2004 – 2014

Following completion of the engineering report in 2014, which was developed to provide insight into the future sand needs and availability for the programmatic EIS upon which the USACE 50-yr permit was based, the BBBNMP shifted to the new methodology in 2015 for tracking project performance and determining the status of the beach as stated in the BBMBNP which solely uses 25 year LoP nourishment triggers (see Table 3-1) to determine the need for nourishment. Similar to previous efforts, although Atlantic Beach has historically been maintained through a different process (Federal USACE project) than the remainder of Bogue Banks (local projects), the new nourishment triggers set up by the BBMBNP have been monitored as well. Figure 3-9 shows the average profile volume calculated above -12 ft NAVD88 for the Atlantic Beach monitoring reach during each year of monitoring from 2015 - 2024. As can be seen from this figure, the average profile volumes have been maintained above the BBMBNP trigger of 254 cy/ft for the Atlantic Beach monitoring reach.

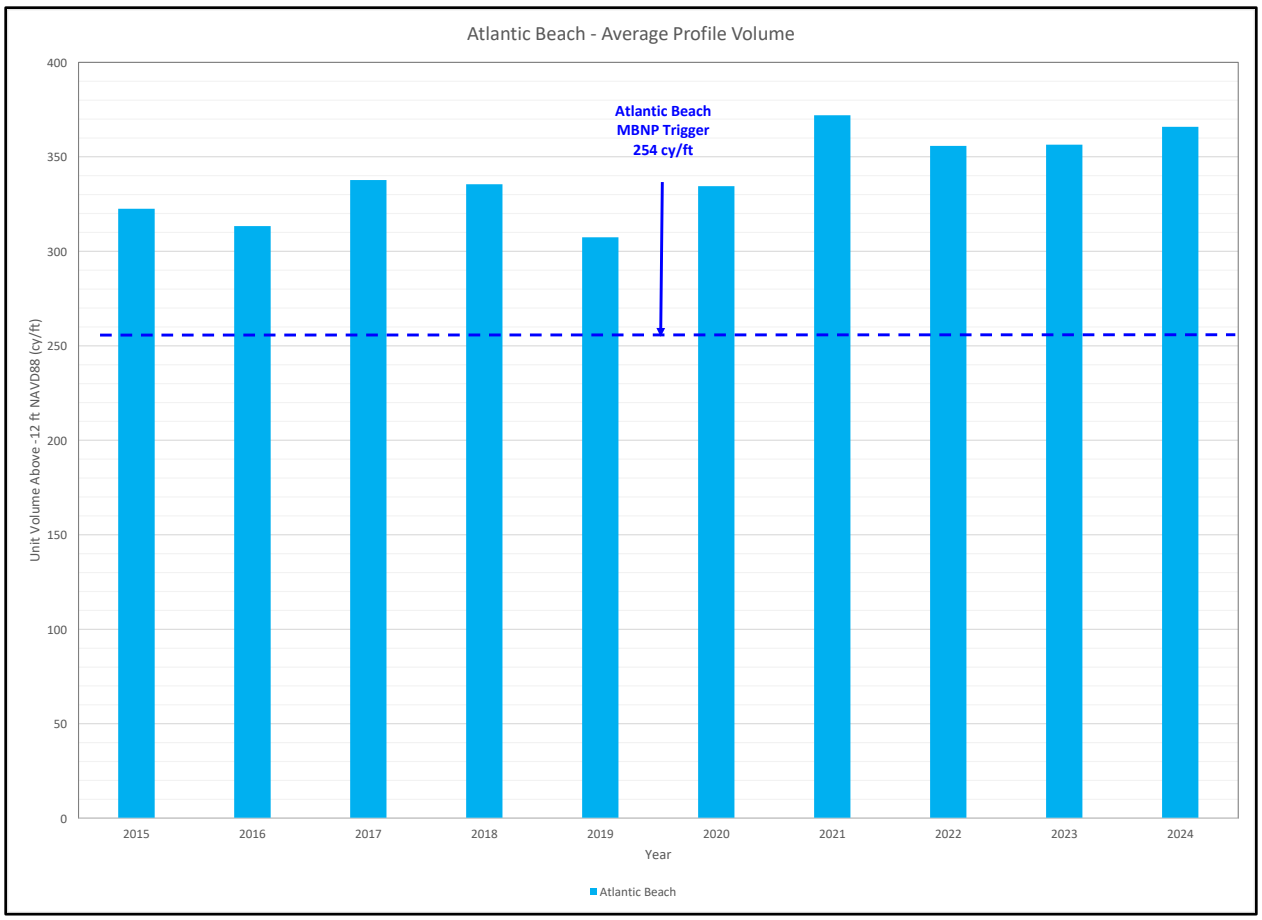


Figure 3-9. Atlantic Beach Average Profile Volume Above -12 ft NAVD88: 2015 – 2024

4.0 FUTURE NOURISHMENT PLANS

4.1 Bogue Banks Master Beach Nourishment Plan

The BBMBNP was developed to provide long-term shoreline stabilization and equivalent LoP along Bogue Banks 25 mile oceanfront. Development of a 50-year programmatic Environmental Impact Statement (EIS) was completed and a 50-year USACE permit was issued on November 8, 2018, which covered Phases I, II, and III of the Post-*Florence* Renourishment Project and will apply to nourishment operations through 2068 (50 years). As part of the EIS, an engineering report was completed in 2014 to provide insight into the future sand needs and availability. A combination of analytical analysis and cross-shore and longshore modeling was used to determine historical loss rates (both background erosion and storm erosion), volumetric requirements to provide equal protection to all portions of the island, and future nourishment quantities and timing cycles.

As a reminder, through SBEACH modeling, it was determined that a 25-year return period storm LoP for the entire island was feasible, both from a construction/sand availability standpoint and financial position. Therefore, the island was divided into various reaches based on similar profiles characteristics and historical erosion rates were used to determine the volume of material required to protect infrastructure in each reach from the 25-year storm event. This volume differed slightly

across the oceanfront based on existing dune configurations. Table 4-1 shows the calculated 25-year triggers for the LoP for the various monitoring reaches of Bogue Banks. The new triggers developed for the Master Beach Nourishment Plan have replaced the previous methods of determining the need for nourishment (i.e. 50% erosion of the original project and 225 cy/ft above -12 ft NAVD88). Therefore, the Towns will initiate nourishment actions as these triggers are approached.

Table 4-1. Master Plan Nourishment Triggers

Reach	-12 ft Trigger
Bogue Inlet (1-11)	235
Emerald Isle West (12-25)	266
Emerald Isle Central (26-36)	211
Emerald Isle East (37-48)	221
Indian Beach/Salter Path (49-58)	224
Pine Knoll Shores (59-76)	211
Atlantic Beach (77-102)	254
Fort Macon (103-112)	N/A
Weighted Average	233

Since erosion rates across the island differ drastically, an analytical analysis was performed to determine the expected quantity and timing of future nourishments to maintain the 25-year LoP in each reach for the next 50 years. Based on the analytical analysis of historical profile volume change performed using the Crystal Ball software (a Microsoft Excel Add-in program), it was determined that the overall annual loss along Bogue Banks was roughly 450,000 cy with a 50 year nourishment need of 22.6 Mcy just to keep up with historical erosion patterns. This value was based on the 50% probability results, as Crystal Ball reports results for various probabilities of exceedance. Table 4-2 shows the volume loss based on 50% exceedance for various monitoring sub-reaches of Bogue Banks.

Table 4-2. Crystal Ball Analysis For Annual Volume Change and 50 Year Need

Sub-Reach (Transects)	Reach Length (ft)	-12 ft Annual Loss 50% Exceedance (cy)	-12 ft Annual Loss Density 50% Exceedance (cy/ft)
Bogue Inlet (1-8)	7,432	39,468	-5.3
Emerald Isle West - West (9-11)	4,056	5,384	-1.3
Emerald Isle West - Central (12-22)	14,283	4,768	-0.3
Emerald Isle West - East (23-25)	4,005	1,566	-0.4
Emerald Isle Central - West (26-32)	10,428	14,093	-1.4
Emerald Isle Central - East (33-36)	5,374	10,890	-2.0
Emerald Isle East - West (37-44)	8,814	40,472	-4.6
Emerald Isle East - East (45-48)	4,406	23,272	-5.3
Indian Beach/Salter Path - West (49-52)	5,275	54,380	-10.3
Indian Beach/Salter Path - East (53-58)	7,575	8,187	-1.1
Pine Knoll Shores West (59-65)	9,063	13,726	-1.5
Pine Knoll Shores East-West (66-70)	6,564	24,709	-3.8
Pine Knoll Shores East-East (71-76)	8,251	46,360	-5.6
Atlantic Beach - West (77-81)	5,388	5,881	-1.1
Atlantic Beach - Central (82-89, 91-96)	13,771	96,718	-7.0
Atlantic Beach - Circle (90)	1,006	12,948	-12.9
Atlantic Beach - East (97-102)	6,011	49,398	-8.2
Total Annual Volume Change		**452,220**	**-3.7**
50-yr Nourishment Need		**22,611,000**	

A separate Crystal Ball analysis of individual storm impacts was performed to gauge the amount of erosion that could occur from storm activity in addition to the historical background losses. Based on the results, it is expected that the losses for a given storm may range between 1.4 – 1.7 Mcy. Table 4-3 shows the results for storm induced losses above -12 ft NAVD88 and -16 ft NAVD88. Given that storms have occurred once every three years or so, the storm need over 50 years may range between 22.4 – 27.2 Mcy. Therefore, the overall background and storm sediment need over the 50 year planning horizon based on the analytical/empirical analysis is between 45.0 and 49.8 Mcy.

Table 4-3. Crystal Ball Estimate of Individual Storm Volume Loss

Probability	Storm Loss Above -12 ft NAVD88 (cy)	Storm Loss Above -16 ft NAVD88 (cy)
85%	1,644,909	1,847,667
84%	1,636,034	1,839,681
80%	1,602,871	1,809,816
75%	1,567,196	1,776,197
70%	1,534,995	1,747,197
65%	1,506,039	1,719,307
60%	1,477,667	1,693,397
55%	1,450,894	1,668,206
50%	1,424,153	1,644,355

Taking into account possible sea level change, SBEACH was used to determine the impact on beach profiles based on a rise in water level. The intermediate rate of sea level change determined by the USACE indicates a rise of 1.01 ft over the next 50 years. Based on this, SBEACH results showed an additional 1.8 Mcy of loss could be expected due to sea level rise. **This brings the overall total 50 year need to 46.8 – 51.6 Mcy.**

Figure 4-1 shows the conceptual future nourishment plan for Bogue Banks, indicating 3, 6, and 9 year nourishment intervals. However, the annual monitoring efforts will decide the exact timing and extents of future nourishment projects by tracking the average profile volume in each management reach as compared to nourishment triggers that define the minimum profile volumes required to provide an equal LoP along the Bogue Banks shoreline for a 25-yr storm event. Theseproject intervals are likely to vary from the 3, 6, and 9 year nourishment intervals used for planning due to storm events, atypical annual erosion, the status of funding streams, and dredging market forces (i.e. dredge availability and price).

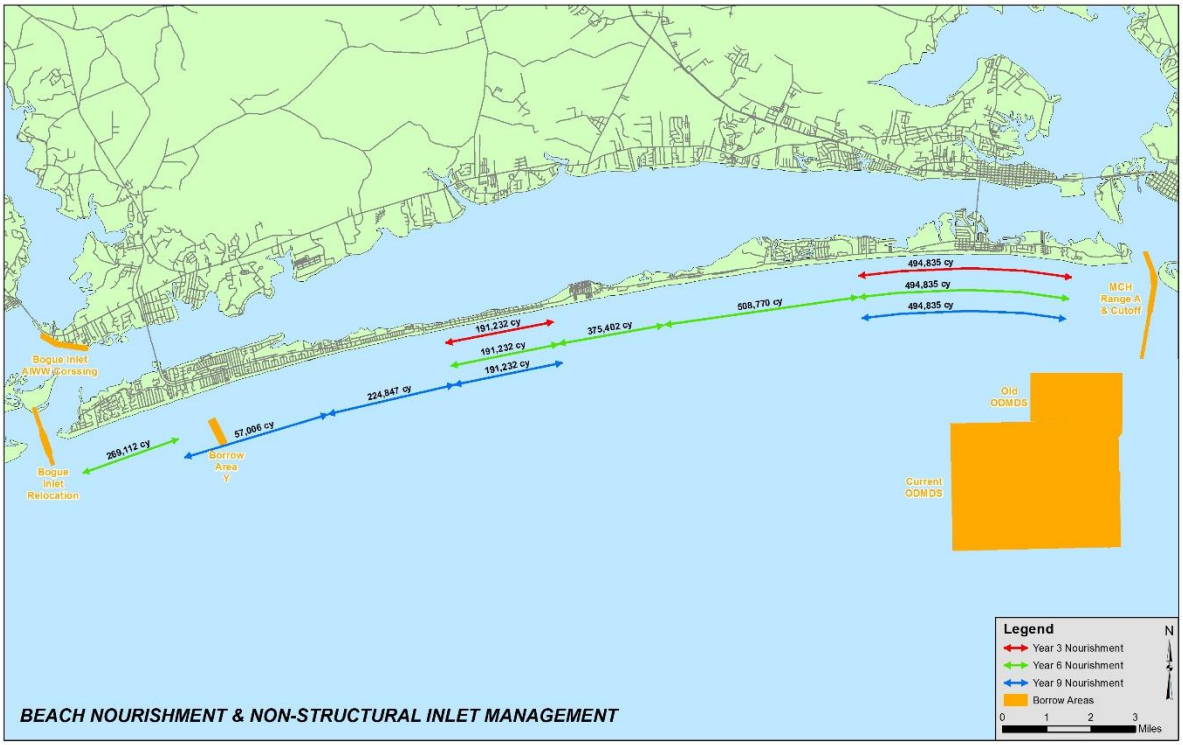


Figure 4-1. BBMBNP Potential Nourishment Cycles

4.2 USACE Morehead City Harbor Dredge Material Management Plan

Beginning in Federal Fiscal Year 2011 (October 1, 2010 – September 30, 2011) the USACE began implementing a rotating 3-year cycle Interim Operation Plan (IOP) that was developed in order to adequately maintain (dredge) the MCH Federal Navigation Project. Year 1 of the three year cycle of the IOP included dredging maintenance of the "beach quality" zone of the harbor near Beaufort Inlet with concurrent nourishment to the beaches of Fort Macon and Atlantic Beach. The DMMP was officially approved in 2017 and continues the 3-year cycle proposed during the IOP. Therefore, it is intended that material from MCH will be placed on Atlantic Beach every 3 years with the extents and volume to be determined by channel dredging needs and funding. The County plans to pursue an MOA to provide additional funding, when possible, to extend the placement as far west into Atlantic Beach as possible given that recent efforts typically stop placement around the Circle.

5.0 SEDIMENT RESOURCES

The material from borrow areas B2 and A used for initial construction of the Bogue Banks Restoration Project had a composite mean grain size of 0.44 mm which was much coarser than the native sand mean grain size of 0.30 mm. In that regard, the borrow material seemed ideal for beach nourishment purposes as material coarser than the native is known to provide a more stable beach fill. However, the coarseness of the material in these two borrow areas was primarily due to relatively high shell or $CaCO_3$ content which averaged 44% based on post-placement samples of the material. In order to avoid placing additional large amounts of shell or $CaCO_3$ along the town's shoreline, the Town of Emerald Isle opted to use the ODMDS for the subsequent FEMA funded

nourishment events. The ODMDS is expected to have compatible material as most of the sediment in the disposal site was derived from maintenance of the Beaufort Inlet ocean bar channel; particularly the landward portions of the channel which is known to accumulate littoral material directly off the adjacent shorelines of Bogue and Shackleford Banks. Limited sampling was performed in accordance with post-*Isabel* and post-*Ophelia* restoration projects confirming the quality of the material, with an average grain size of approximately 0.31 mm.

As part of the BBMBNP, an extensive sediment sampling program was implemented in 2012, just prior to the 2013 post-*Irene* project, to verify the compatibility and quantity of existing sediment sources in the ODMDS, which had been used previously during the post-*Isabel* and post-*Ophelia* restoration projects, as well as possibly locate some new sources for use in the 50 year plan. This was part of the permitting requirements to show the quantity and quality of potential sediment sources for the next 50 years. The 2014 engineering report identified and quantified the amount of material in upland sources (sand mines), AIWW disposal areas, offshore sources (ODMDS and Area Y), and inlets (Beaufort and Bogue). The findings indicate that possible upland sources exist in the amount of 1.4 Mcy while AIWW disposal areas possibly contain up to 1.3 Mcy. Offshore sources consist of the new and old ODMDS as well as some small pockets of material off of Emerald Isle, known as Area Y. Together, they contain approximately 22.4 Mcy of compatible material. In addition, both Beaufort Inlet and Bogue Inlet could provide a steady supply of nourishment material from dredging operations over the next fifty years. The periodic dredging of Morehead City Harbor by the USACE could provide approximately 20 Mcy over the next 50 years. The dredging/relocation of Bogue Inlet (approximately every 10 years) and dredging of the AIWW crossing could provide approximately 5.1 Mcy over the next 50 yrs. Therefore, approximately 50.2 Mcy of material has been identified which is considered enough material to meet the 50 year need of 46.8-51.6 Mcy determined in the Bogue Banks Master Beach Nourishment Plan. Figure 5-1 shows a summary of the potential sediment sources identified for use over the next 50 years.

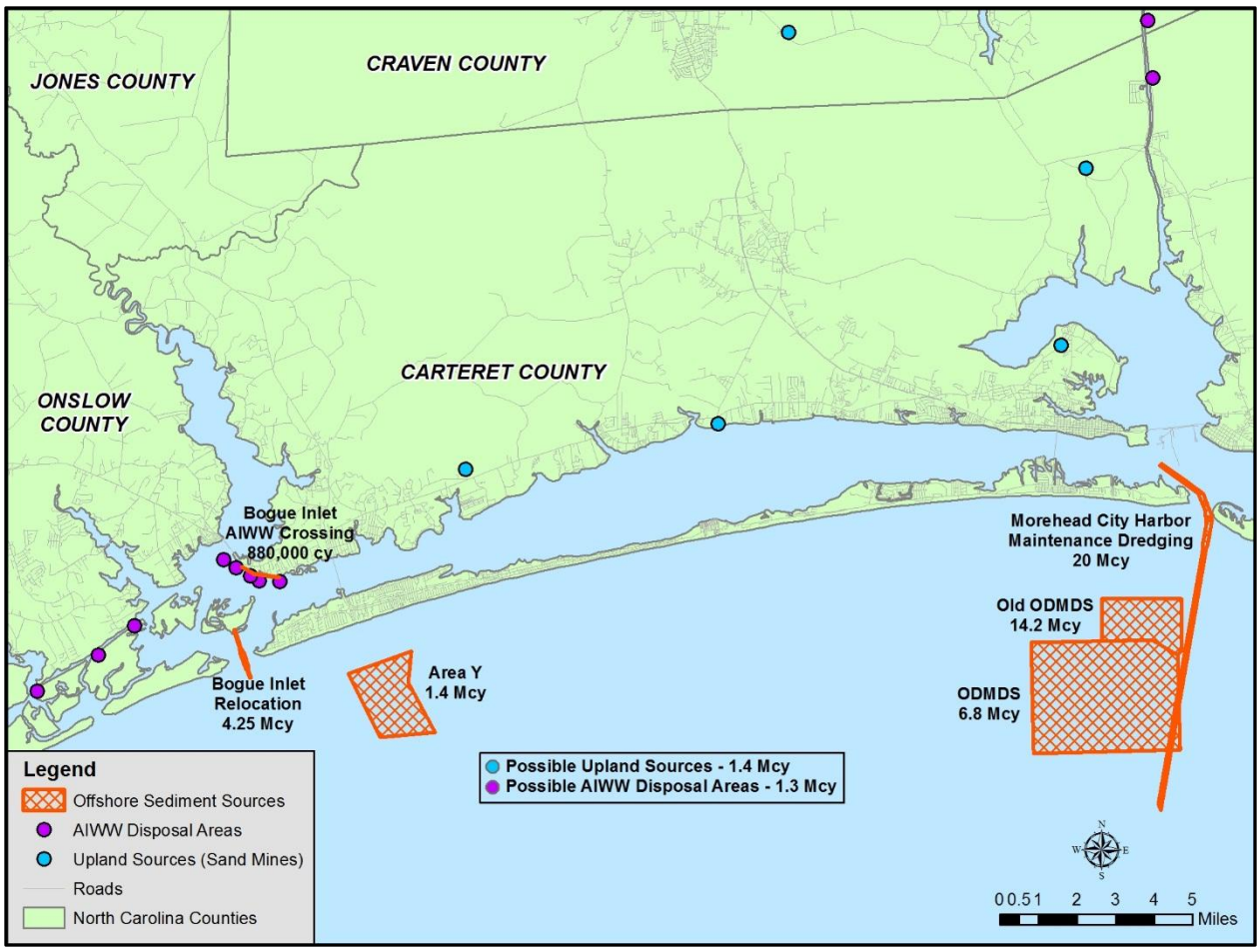


Figure 5-1. Master Beach Nourishment Plan Potential Sediment Sources

While more analysis will need to be done on the potential upland sources and AIWW disposal areas before being utilized, the majority of material will be coming from offshore sources and inlets. A detailed analysis of these areas from the 2012 sampling effort, in comparison to the native beach, is provided in the following sections. The vibracoring was performed by Alpine Ocean Seismic Survey, Inc (Alpine) while the sediment analysis was performed by Coastal Technology Corporation (Coastal Tech).

5.1 Native Beach

Before the series of nourishment projects which took place along Bogue Banks in the 2000's, native beach data was collected by the USACE as well as CSE. These data indicate a native grain size ranging from 0.2 mm to 0.3 mm. For the Bogue Banks Master Beach Nourishment Plan, a median grain size of 0.3 mm was selected as the best representation of the native beach based upon the 64 samples analyzed by CSE in 2001.

The native beach characteristics and parameters identified by the North Carolina Administrative Code "Technical Standards for Beach Fill Projects" (15A NCAC 07H .0312) are presented in Table 5-1.

Table 5-1. Native Beach Characteristics and Rule Parameters

Characteristic	2001 Native	NCAC Requirements	Required Borrow Site Parameters
Fines (<#230)	Reported: 0%, Assumed: <1%	<1% +5%	≤ 6%
Sand (>#230 & <#10)	Reported at 98.68%	-	-
Granular (>#10 & <#4)	Reported combined at 1.32%, Assumed 0.7% each	0.7% + 10%	≤ 11%
Gravel (>#4)		0.7% + 5%	≤ 6%
Calcium Carbonate	Reported at 15-20%	20% + 15%	≤ 35%

The material in the proposed borrow areas must meet the characteristics prescribed by 15A NCAC 07H .0312.

5.2 Old ODMDS

This site is located directly north of the Current ODMDS in State waters. The Old ODMDS was split into two sections, designated Old ODMDS 1 and Old ODMDS 2, to maximize the potential borrow area volume as shown in Figure 5-2.

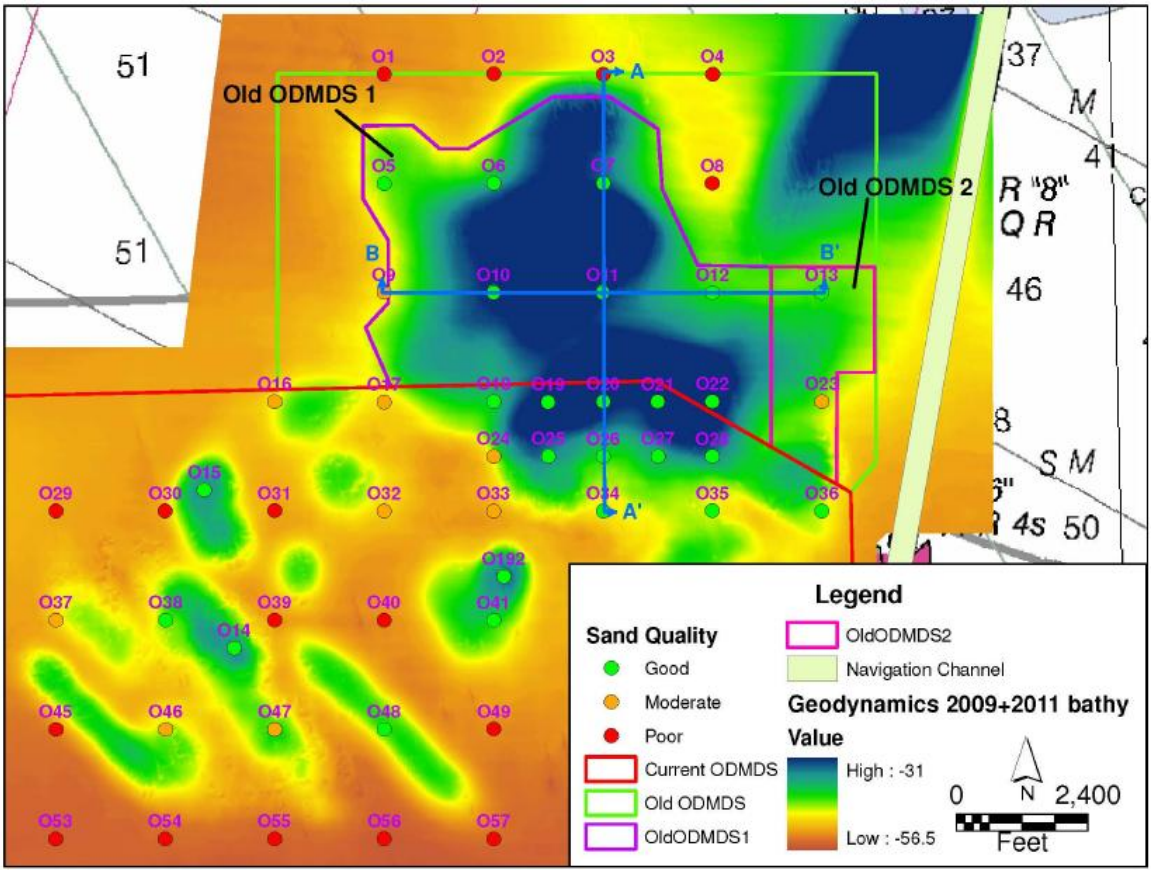


Figure 5-2. Old ODMDS Site and Vibracore Locations (Coastal Tech, 2013)

5.2.1 Old ODMDS 1

Old ODMDS 1 borrow area is location on the boarder of Current ODMDS. This area consists of fine grained, poorly sorted quartz sand with a mean grain size of 0.30 millimeters (mm) and an

overfill factor of 1.30. This area is estimated to contain 13.1 Million cy (Mcy) of beach compatible sand. The characteristics of this material are compliant with the parameters defined by the NCAC as shown in Table 5-2.

Table 5-2. Old ODMDS 1 Characteristics and NCAC Parameters (Coastal Tech, 2013)

Characteristic	Required Borrow Site Parameters	Old ODMDS 1
Fines (<#230)	≤ 6%	**0.53%**
Sand (>#230 & <#10)	-	**96.00%**
Granular (>#10 & <#4)	≤ 11%	**2.14%**
Gravel (>#4)	≤ 6%	**1.33%**
Calcium Carbonate	≤ 35%	**13.55%**

5.2.2 Old ODMDS 2

Old ODMDS 2 borrow area is similar to Old ODMDS 1 with a slightly larger mean grain size of 0.32 mm and an overfill factor of 1.25. This area is estimated to contain 1.1 Mcy of beach compatible sand that meet the NCAC criteria as listed in Table 5-3.

Table 5-3. Old ODMDS 2 Characteristics and NCAC Parameters (Coastal Tech, 2013)

Characteristic	Required Borrow Site Parameters	Old ODMDS 2
Fines (<#230)	≤ 6%	**0.20%**
Sand (>#230 & <#10)	-	**96.30%**
Granular (>#10 & <#4)	≤ 11%	**2.49%**
Gravel (>#4)	≤ 6%	**1.01%**
Calcium Carbonate	≤ 35%	**13.57%**

5.3 Current ODMDS

The Current ODMDS is located south of the Old ODMDS just outside of the 3-mile jurisdictional line in Federal waters. This area was divided into eight potential borrow areas consisting of one large mound and seven smaller disposal mounds within this location. The seven small disposal mounds were then grouped according to the level of confidence in the granularmetric data.

5.3.1 Current ODMDS 1

Current ODMDS 1 is an extension of the large mound located in Old ODMDS 1 as shown in Figure 5-3; therefore, they have very similar sediment properties. The mean grain size is 0.30 mm and an overfill factor of 1.25 and meet all of the NCAC compatibility requirements as listed in Table 5-4. This site contains approximately 3.27 Mcy of beach compatible material.

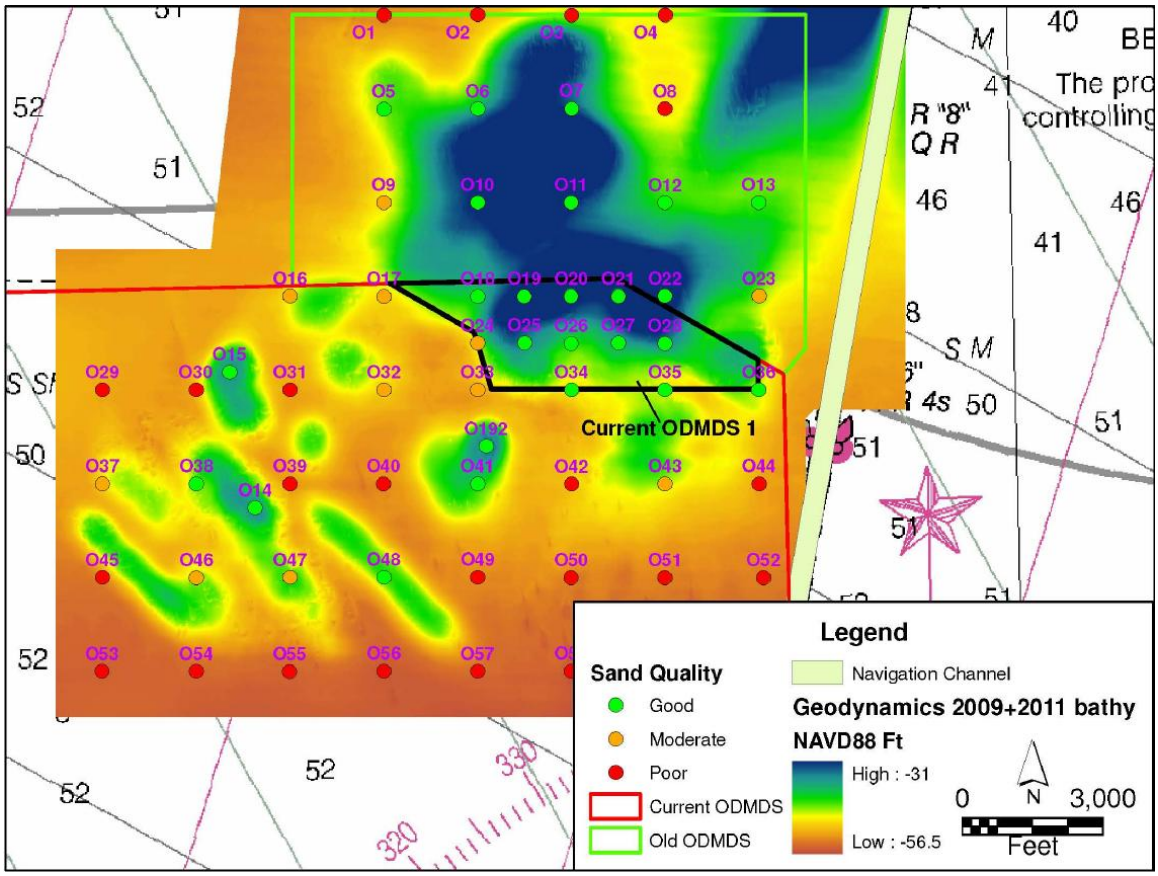


Figure 5-3. Current ODMDS 1 Site and Vibracore Locations (Coastal Tech, 2013)

Table 5-4. Current ODMDS 1 Characteristics and NCAC Parameters (Coastal Tech, 2013)

Characteristic	Required Borrow Site Parameters	Current ODMDS 1
Fines (<#230)	≤ 6%	**0.52%**
Sand (>#230 & <#10)	-	**96.06%**
Granular (>#10 & <#4)	≤ 11%	**2.06%**
Gravel (>#4)	≤ 6%	**1.36%**
Calcium Carbonate	≤ 35%	**13.29%**

5.3.2 Higher Confidence Mounds

The higher confidence mounds include mounds where at least one vibracore penetrates the thickest portion of the mound. This allows for more accurate representation of the stratigraphy to be defined. The higher confidence mounds include Mounds O-15, O-192, O-48, O14, and O-47, which are shown in Figure 5-4.

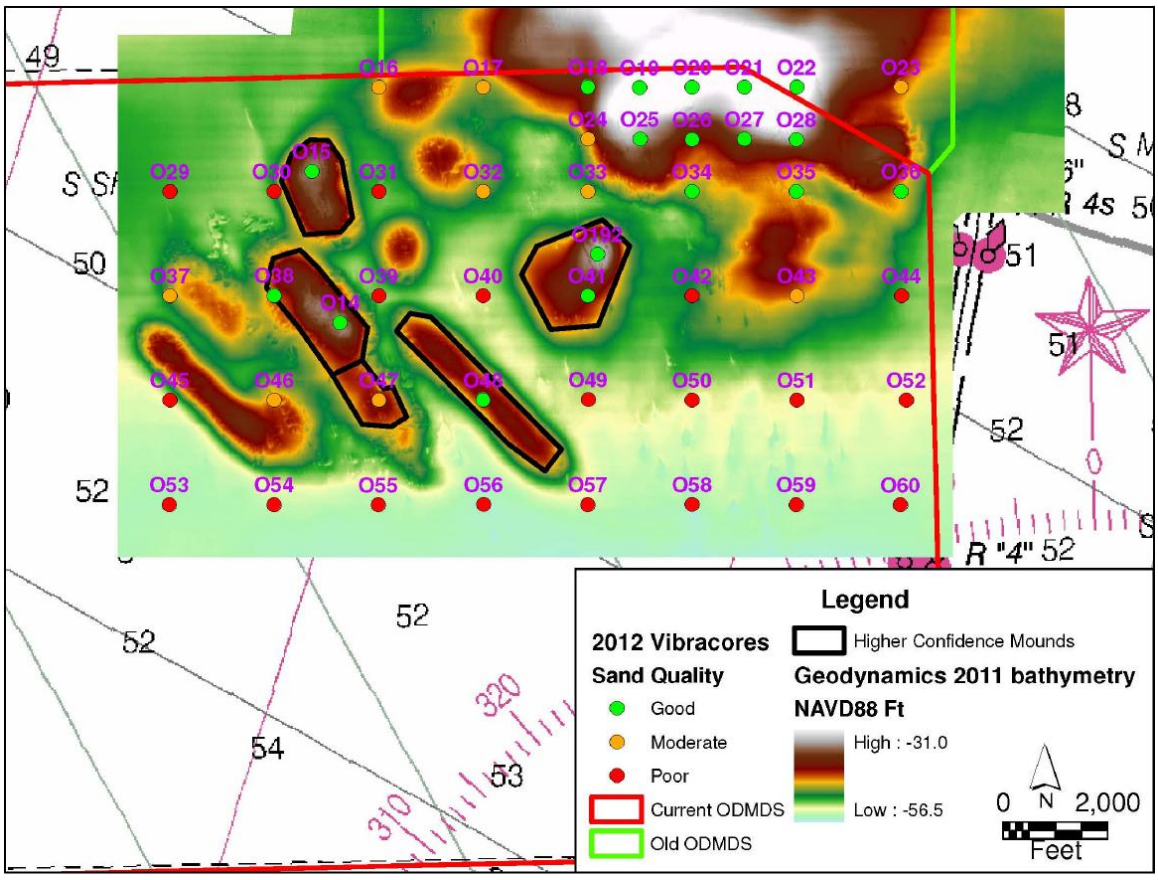


Figure 5-4. Higher Confidence Mound Sites and Vibracore Locations (Coastal Tech, 2013)

Mound O-15

Mound O-15 is located west of Current ODMDS 1 and has vibracore O-15 passing directly through the thickest section of the mound. This potential borrow area consists of fine grained, moderately sorted quartz sand and has a mean grain size of 0.24 mm, which is smaller than the native mean grain size. This results in a larger overfill factor of 1.60. All parameters defined by NCAC were met, as shown in Table 5-5; therefore, the material is considered beach compatible. The total amount of beach compatible material in this mound is approximately 356,000 cy.

Table 5-5. Mound O-15 Characteristics and NCAC Parameters (Coastal Tech, 2013)

Characteristic	Required Borrow Site Parameters	Mound O-15
Fines (<#230)	≤ 6%	**0.07%**
Sand (>#230 & <#10)	-	**99.23%**
Granular (>#10 & <#4)	≤ 11%	**0.54%**
Gravel (>#4)	≤ 6%	**0.16%**
Calcium Carbonate	≤ 35%	**10.10%**

Mound O-192

Mound O-192 is located southwest of Current ODMDS 1 and has vibracore O-192 and O-41 passing through this mound with O-192 passing through the thickest section of the mound. This potential borrow area consists of fine grained, poorly sorted quartz sand and has a mean grain size

of 0.36 mm, which is coarser than the previous mound. This results in a smaller overfill factor of 1.25. All parameters defined by NCAC were met, as shown in Table 5-6; therefore, the material is considered beach compatible. The total amount of beach compatible material in this mound is approximately 785,270 cy.

Table 5-6. Mound O-192 Characteristics and NCAC Parameters (Coastal Tech, 2013)

Characteristic	Required Borrow Site Parameters	Mound O-192
Fines (<#230)	≤ 6%	**0.13%**
Sand (>#230 & <#10)	-	**93.07%**
Granular (>#10 & <#4)	≤ 11%	**3.43%**
Gravel (>#4)	≤ 6%	**3.37%**
Calcium Carbonate	≤ 35%	**19.59%**

Mound O-48

Mound O-48 is located southwest of Current ODMDS 1 and has vibracore O-48 passing through the middle of the mound. This potential borrow area consists of fine grained, moderately sorted quartz sand and has a mean grain size of 0.2 mm, which is significantly finer than the native sediment. This results in a larger overfill factor of 2.25. All parameters defined by NCAC were met, as shown in Table 5-7; therefore, the material is considered beach compatible. The total amount of beach compatible material in this mound is approximately 468,740 cy.

Table 5-7. Mound O-48 Characteristics and NCAC Parameters (Coastal Tech, 2013)

Characteristic	Required Borrow Site Parameters	Mound O-48
Fines (<#230)	≤ 6%	**5.91%**
Sand (>#230 & <#10)	-	**92.83%**
Granular (>#10 & <#4)	≤ 11%	**1.11%**
Gravel (>#4)	≤ 6%	**0.15%**
Calcium Carbonate	≤ 35%	**7.76%**

Mound O-14/O-47

Mound O-14/O-47 is located west of Mound O-48 and has vibracore O-14, O-47, and O-38 passing through the mound. This mound was split because it was assigned two different cut depths to maximize beach quality material being removed. Even though this area was split, the sediment properties were analyzed and recorded as one site. This potential borrow area consists of fine grained, poorly sorted quartz sand and has a mean grain size of 0.38 mm, which is coarser than the native sediment. This results in a smaller overfill factor of 1.20. All parameters defined by NCAC were met, as shown in Table 5-8; therefore, the material is considered beach compatible. The total amount of beach compatible material in this mound is approximately 566,028 cy.

Table 5-8. Mound O-14/O-47 Characteristics and NCAC Parameters (Coastal Tech, 2013)

Characteristic	Required Borrow Site Parameters	Mound O-14 / O-47
Fines (<#230)	≤ 6%	**0.23%**
Sand (>#230 & <#10)	-	**93.43%**
Granular (>#10 & <#4)	≤ 11%	**4.71%**
Gravel (>#4)	≤ 6%	**1.63%**
Calcium Carbonate	≤ 35%	**19.80%**

5.3.3 Lower Confidence Mounds

The lower confidence mounds include mounds where the vibracore is located along the edge and none that penetrate the thickest portion of the mound. This prevents an accurate representation of the stratigraphy from being defined. The lower confidence mounds include Mounds O-35 and O-46, which are shown in Figure 5-5.

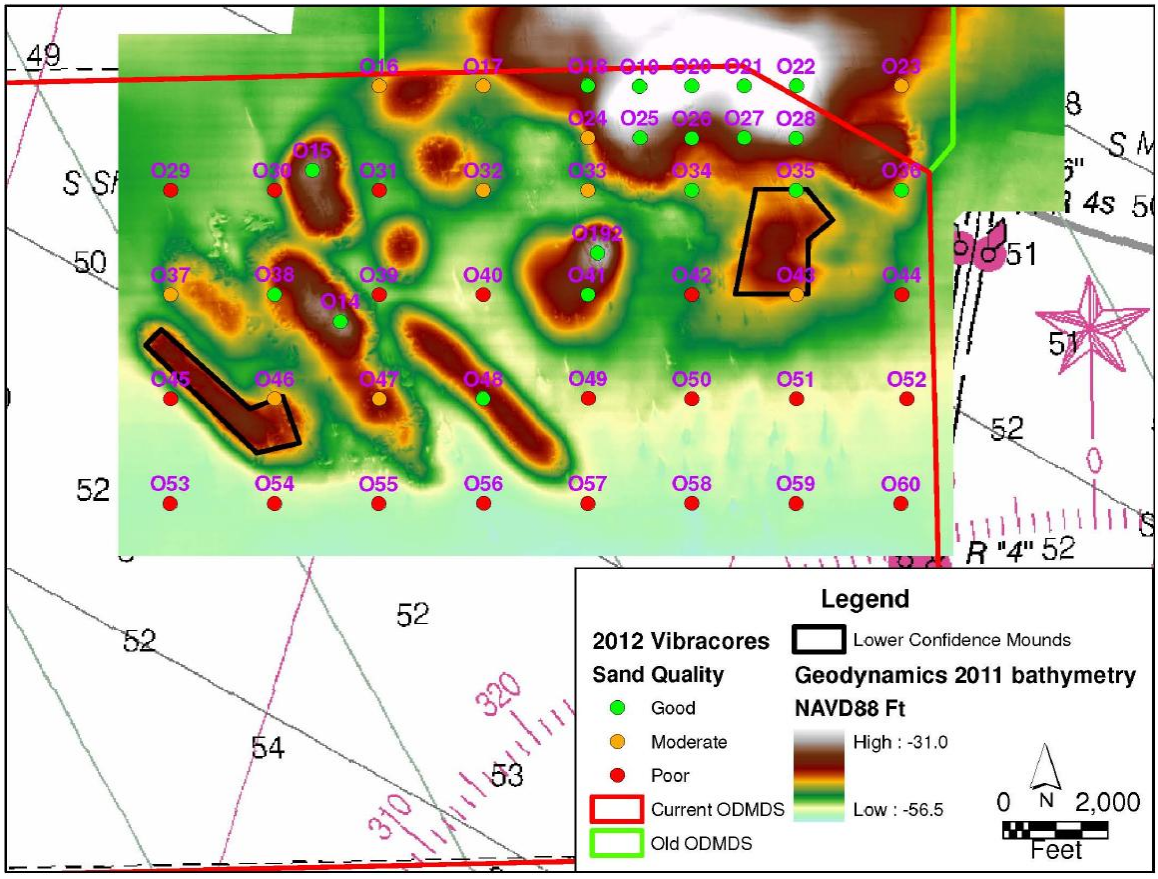


Figure 5-5. Lower Confidence Mound Sites and Vibracore Locations (Coastal Tech, 2013)

<u>Mound O-35</u>

Mound O-35 is located south of Current ODMDS 1 and shares data from vibracore O-35 which was used in the analysis of Current ODMDS 1. Vibracore O-43 passes through the southern edge of this mound. These vibracores were weighted equally when the mound composite was created.

This potential borrow area consists of fine grained, poorly sorted quartz sand. An overfill factor of 1.3 was calculated. All parameters defined by NCAC were met, as shown in Table 5-9; therefore, the material is considered beach compatible. The total amount of beach compatible material in this mound is approximately 499,500 cy.

Table 5-9. Mound O-35 Characteristics and NCAC Parameters (Coastal Tech, 2013)

Characteristic	Required Borrow Site Parameters	Mound O-35
Fines (<#230)	≤ 6%	**0.31%**
Sand (>#230 & <#10)	-	**96.08%**
Granular (>#10 & <#4)	≤ 11%	**2.65%**
Gravel (>#4)	≤ 6%	**0.96%**
Calcium Carbonate	≤ 35%	**15.20%**

Mound O-46

Mound O-46 is located southwest of Current ODMDS 1 and only has vibracore O-46 passing through the edge of the mound. This potential borrow area consists of fine grained, poorly sorted quartz sand and has a mean grain size of 0.4 mm, which is coarser than the native sediment. An overfill factor of 1.25 was calculated. All parameters defined by NCAC were met, as shown in Table 5-10, therefore, the material is considered beach compatible. The total amount of potential beach compatible material in this mound is approximately 493,564 cy.

Table 5-10. Mound O-46 Characteristics and NCAC Parameters (Coastal Tech, 2013)

Characteristic	Required Borrow Site Parameters	Mound O-35
Fines (<#230)	≤ 6%	**0.37%**
Sand (>#230 & <#10)	-	**90.60%**
Granular (>#10 & <#4)	≤ 11%	**6.27%**
Gravel (>#4)	≤ 6%	**2.76%**
Calcium Carbonate	≤ 35%	**18.17%**

5.3.4 Contingency Mounds

The remaining mounds in the Current ODMDS lack a vibracore within the boundary of the mound, as shown in Figure 5-6. Conceptual cut depths were assumed from the surrounding vibracores and potential volumes were calculated. These mounds do not have sediment characteristics defined. The potential volumes these mounds contain are shown in Table 5-11 with a total volume of approximately 320,000 cy.

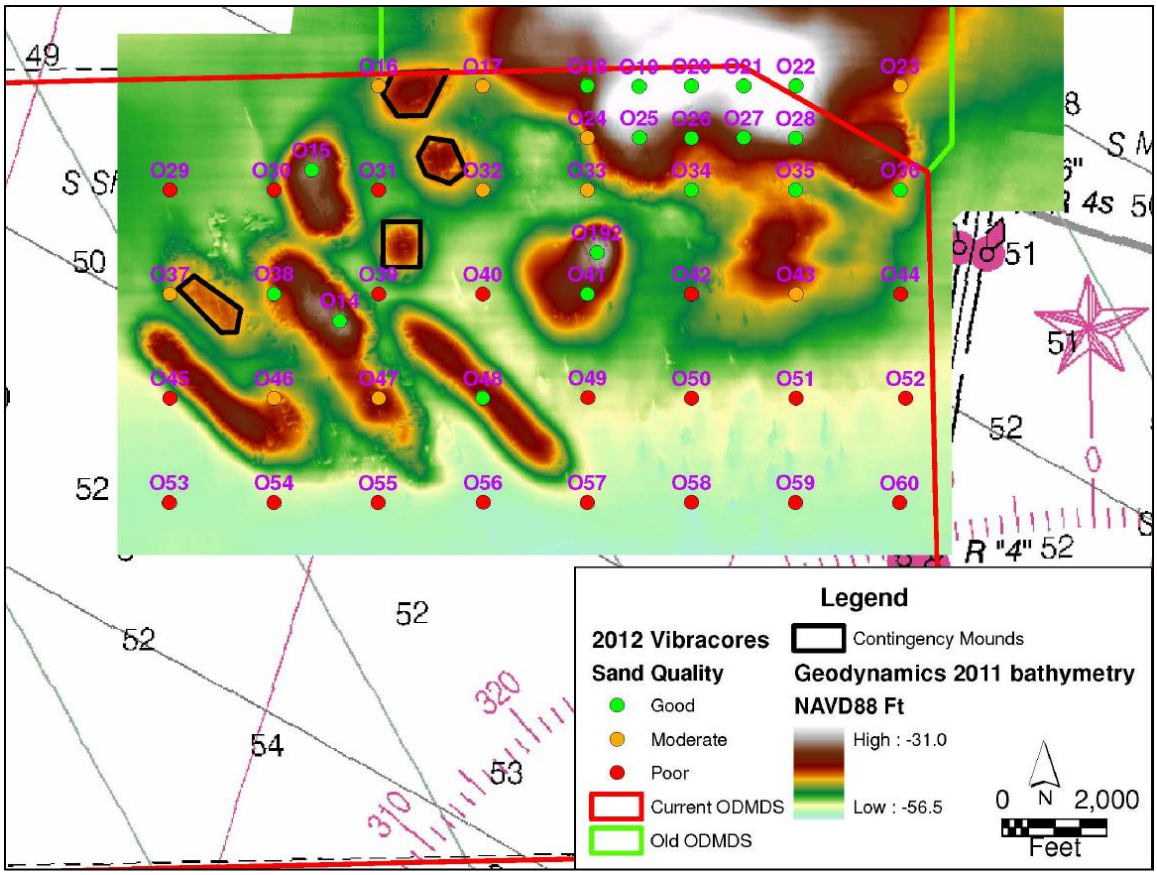


Figure 5-6. Contingency Mound Sites and Vibracores (Coastal Tech, 2013)

Table 5-11. Contingency Mound Potential Volumes (Coastal Tech, 2013)

Mound	Cut Elevation NAVD88	Volume (cy)
O-16	-50 ft	95,326
O-39	-52 ft	94.352
O-37/O-38	-51 ft	71.233
O-32	-50 ft	58,543
	Total	**319,454**

5.4 Area Y

Area Y is located off of Emerald Isle within State waters where fifty-five vibracores were taken. Vibracores were initially taken on a 1000 foot by 1000 foot grid; however, a significant amount of fines were found in the surficial layer. The spacing was then increased to a 2000 foot grid spacing and two areas were identified as potential sites as shown in Figure 5-7.

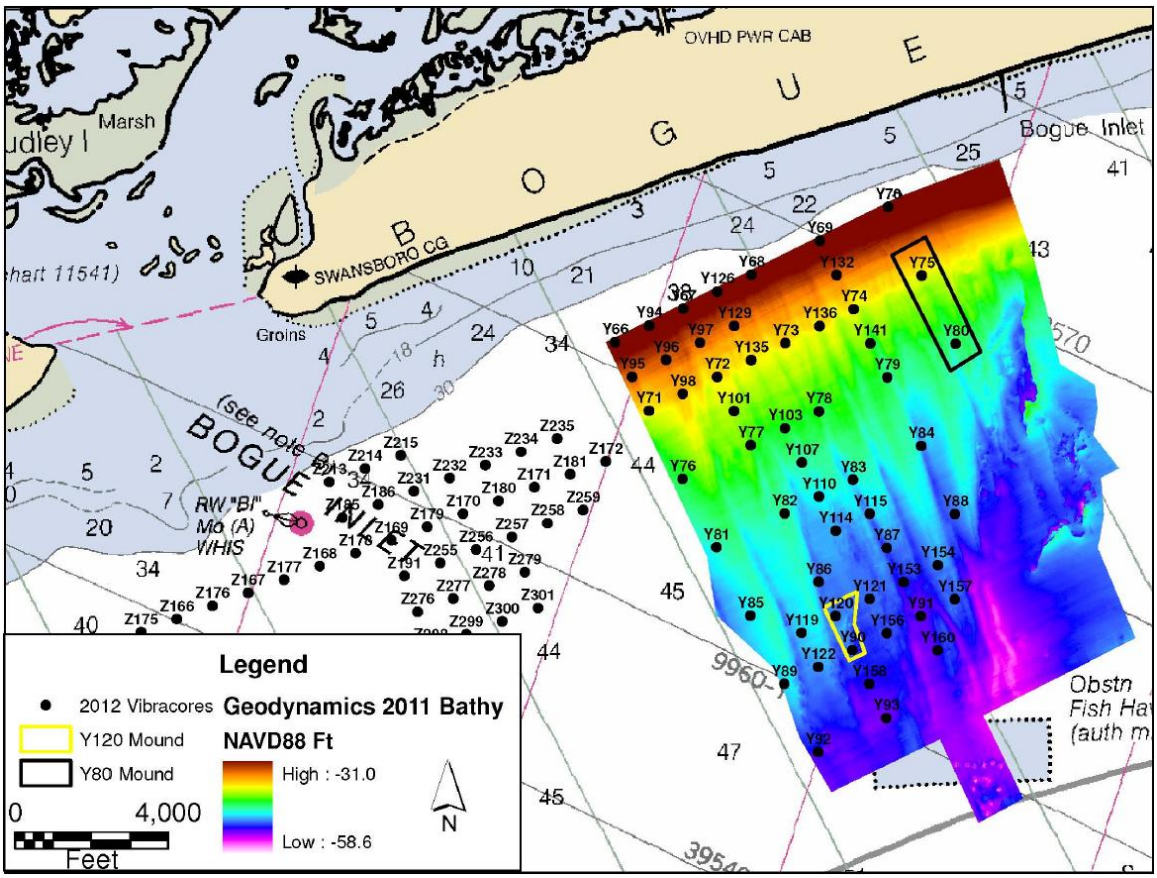


Figure 5-7. Area Y Site and Vibracore Locations (Coastal Tech, 2013)

Vibracores Y-80/Y-75

Vibracores Y-80 and Y-75 are 2000 feet apart and, due to the hardbottom buffer to the east, no vibracores were taken on that side. The vibracores taken to the west of Y-80 and Y-75 are not beach compatible. This potential borrow area consists of fine grained, moderately well sorted quartz sand and has a mean grain size of 0.23 mm, which is finer than the native sediment. All parameters defined by NCAC were met as shown below in Table 5-12. Although the parameters are met, the area should be considered a low priority due to insufficient vibracores to designate a reliable borrow area and poor quality of sediment. The potential volume is estimated at 1.08 Mcy; however, the rectangular area defined is purely conceptual and not based on the vibracores.

Table 5-12. Vibracores Y-80 & Y-75 Characteristics and NCAC Parameters (Coastal Tech, 2013)

Characteristic	Required Borrow Site Parameters	Vibracores Y-80 / Y-75
Fines (<#230)	≤ 6%	**2.37%**
Sand (>#230 & <#10)	-	**97.55%**
Granular (>#10 & <#4)	≤ 11%	**0.08%**
Gravel (>#4)	≤ 6%	**0.00%**
Calcium Carbonate	≤ 35%	**1.85%**

5.5 Bogue Inlet Channel

Five vibracores were taken within the template of the 2005 Bogue Inlet relocation project shown in Figure 5-8. This area shoals with transport of sand from the surrounding beaches. The mean grain size is 0.33 mm and an overfill factor of 1.15 was computed. This sediment meets all of the NCAC compatibility requirements as listed in Table 5-13. This site contains approximately 850,000 cy to 1 Mcy of beach compatible material and is expected to provide this volume each time the inlet is relocated.

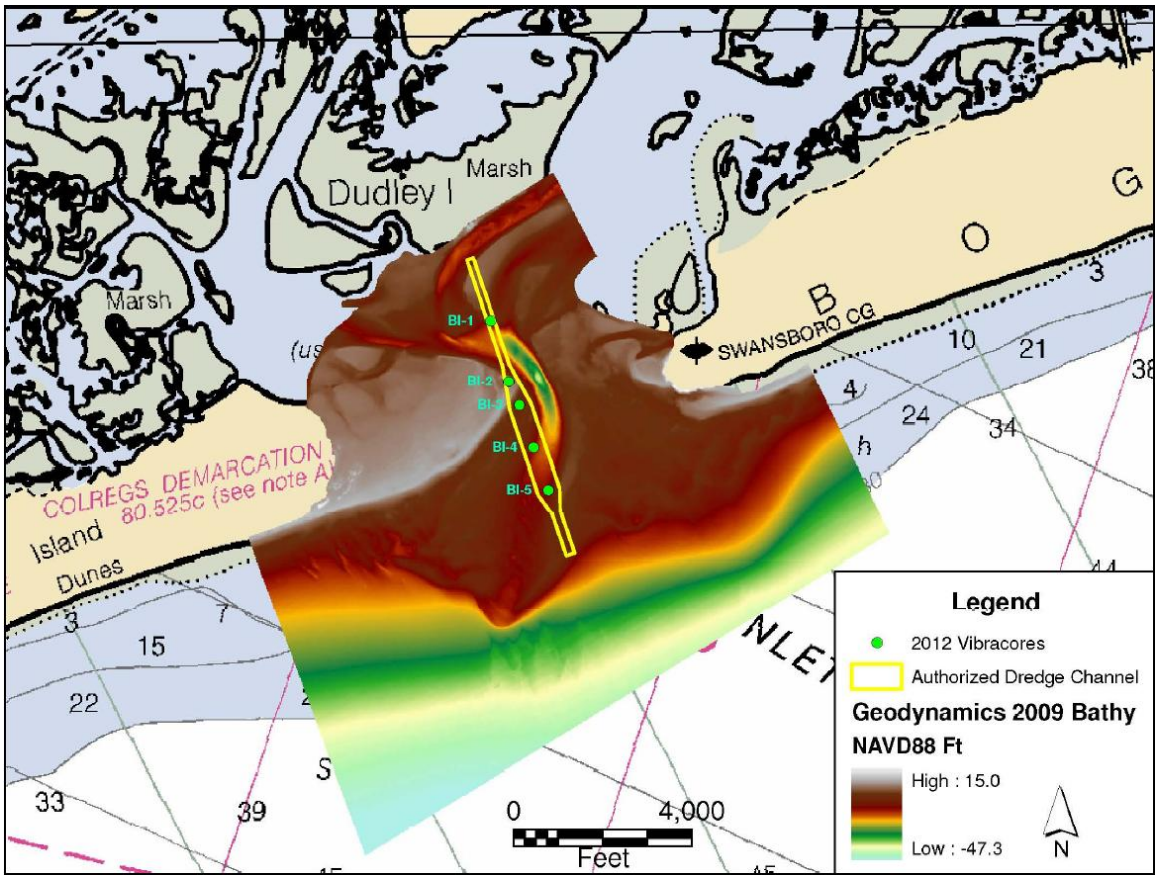


Figure 5-8. Bogue Inlet Channel Site, Vibracores, and Authorized Channel Location (Coastal Tech, 2013)

Table 5-13. Bogue Inlet Channel Characteristics and NCAC Parameters (Coastal Tech, 2013)

Characteristic	Required Borrow Site Parameters	Vibracore Z-174
Fines (<#230)	≤ 6%	**0.15%**
Sand (>#230 & <#10)	-	**96.61%**
Granular (>#10 & <#4)	≤ 11%	**2.40%**
Gravel (>#4)	≤ 6%	**0.84%**
Calcium Carbonate	≤ 35%	**14.96%**

5.6 Morehead City Harbor

The Outer Harbor consists of the Cutoff and Range A out to Station 110+00 as shown in Figure 5-9. Since this is a federal navigation project, the requirements for beach compatibility only limit the silt content to less than 10%. The characteristics of the sediment in this area meet that requirement and are listed in Table 5-14. The USACE Morehead City Harbor DMMP estimates that the Outer Harbor is shoaling at a rate of 1.2 Mcy per year (2012). Depending on the shoaling rates, there could be between 228,000-635,000 cy of sand available for beach placement annually. A mid-range amount of 400,000 cy/yr is assumed to be available from this source.

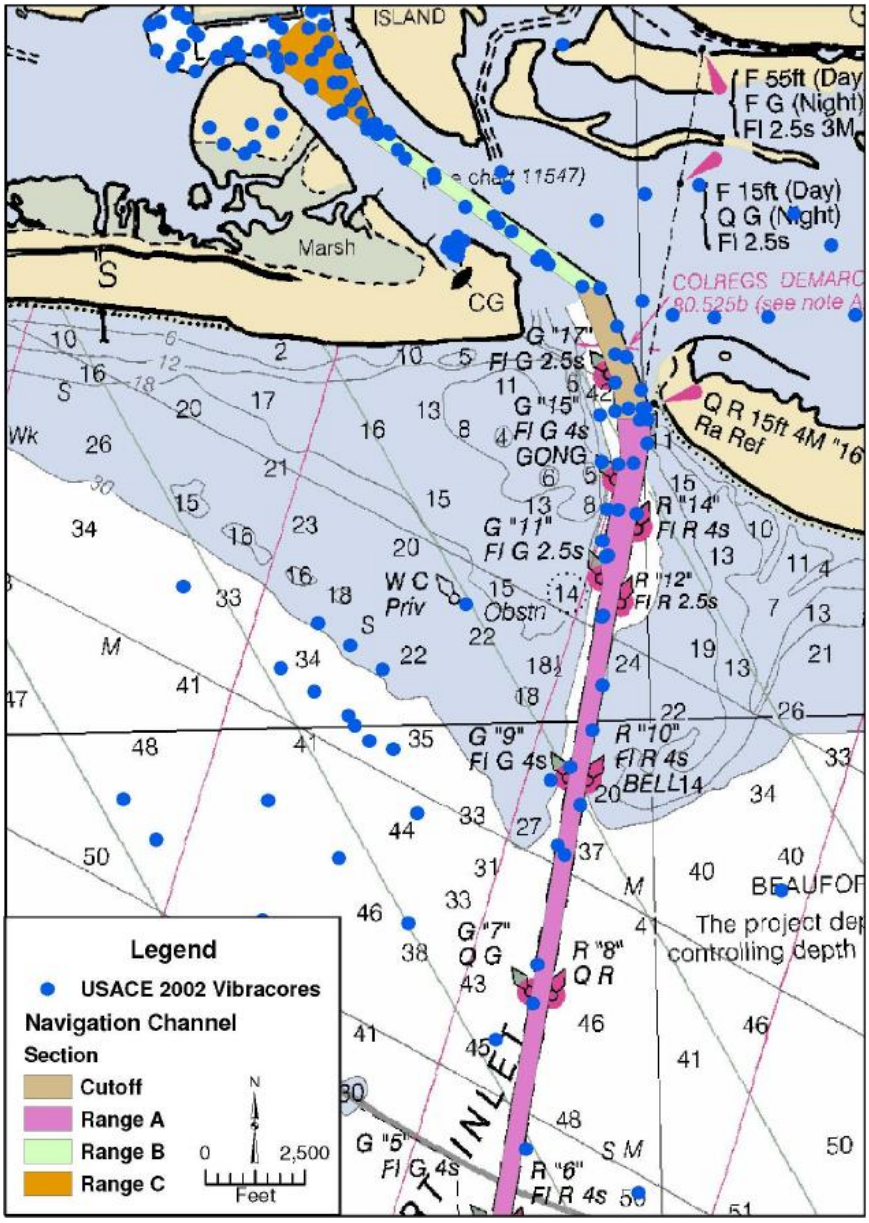


Figure 5-9. Morehead City Channel Vibracore and Reach Locations (Coastal Tech, 2013)

Table 5-14. Morehead City Outer Harbor Characteristics and NCAC Parameters (Coastal Tech, 2013)

Characteristic	Required Borrow Site Parameters	Morehead City Outer Harbor
Fines (<#230)	≤ 6%	**<1%**
Sand (>#230 & <#10)	-	**Not Reported**
Granular (>#10 & <#4)	≤ 11%	**Not Reported**
Gravel (>#4)	≤ 6%	**6.40%**
Calcium Carbonate	≤ 35%	**15.70%**

5.7 Summary of Existing Borrow Areas

The total volume available when the upland sources (sand mines), AIWW disposal areas, and the offshore sources are combined is presented in Table 5-15. The total non-renewable volume available from these sources is 25,123,057 cy.

Table 5-15. Summary of Non-renewable Potential Borrow Areas (Coastal Tech, 2013)

Area	Total Volume (cy)
Sand Mines	1,380,700
AIWW Disposal Areas	1,288,800
Offshore Sources	22,453,557
TOTAL	**25,123,057**

In addition to the upland, AIWW, and offshore borrow sources, Bogue and Beaufort Inlets could also provide material on a cyclical basis as they regularly shoal and have to be dredged for navigation purposes. These renewable borrow areas could potentially provide approximately 25,130,000 cy over 50 years, as shown in Table 5-16.

Table 5-16. Volume of Renewable Potential Borrow Areas (Coastal Tech, 2013)

Area	Section	Volume	Dredging Frequency	50 yr Total
MHC Outer Harbor	Cutoff+Range A to STA 110	400,000 cy (assumed)	1 years	20,000,000
Bogue Inlet	Inlet Relocation	850,000 cy	10 years	4,250,000
	AIWW Crossing	44,000 cy	2.5 years	880,000
			Totals:	**25,130,000**

Therefore, if all mentioned sources are incorporated (upland, AIWW, offshore, and inlets) approximately 50,253,057 cy of material could be available and would meet, or come very close to meeting, the 50 year sediment need of 46.8 to 51.6 Mcy which includes background erosion, storm erosion, and potential sea level change. The total volume available when the renewable and non-renewable sources are combined is tabulated in Table 5-17.

Table 5-17. Total Volume Available

Source	50-Yr Total Volume (cy)
Renewable	25,130,000
Non-Renewable	25,123,057
TOTAL	**50,253,057**

5.8 Current Status of Existing Borrow Areas

Since the sediment analysis for the BBMBNP was completed in 2012, the Post-*Irene* (2013) and Post-*Florence* Phase I (2019), Phase II (2020), and Phase III (2021) projects have occurred which used the new and old ODMDS as sediment sources. Therefore, given a post-*Irene* placement volume of 965,011 cy, a post-*Florence* Phase I placement volume of 975,647 cy, a post-*Florence* Phase II placement volume of 2,022,807 cy, and a post-*Florence* Phase III placement volume of 2,030,991 cy it is estimated that approximately 16,459,101 cy of the original 22,453,557 cy of offshore material remains available for future projects, with a total volume availability of 46,289,592 cy amongst all potential sediment sources.

5.9 Nearshore Berm West

While the initial BBMBNP identified sand resources that could potentially meet the 50-yr project volume needs, the practicality, both from a dredging technology limitation and economic feasibility perspective, and timeliness of using some of the resources (i.e. inlets) is a concern. Therefore, in order to take a proactive approach, Carteret County has elected to extend the sand search with the aim of locating additional sand resources for inclusion in the BBMBNP. After an extensive search within Onslow Bay which included multibeam bathymetry, side scan sonar, and sub-bottom profiler data collection, it was decided to pursue more detailed exploration of the nearshore berm west, located adjacent to the MCH entrance channel, offshore of Fort Macon. Since the USACE began placing sand in this area in 1995, approximately 11 Mcy of material has been placed within the original extents. The USACE has had to recently expand the footprint of the nearshore berm disposal area to the northwest due to reaching capacity within the original extents. High resolution multibeam bathymetry, geophysical data (side scan sonar & sub-bottom profiler), and geological data (vibracores) were collected and analyzed for compatibility within the original extents. The County is currently in the process of pursuing a modification of the 50-year USACE and Coastal Area Management Act (CAMA) permits to include the nearshore berm west in the potential borrow sources. It is hoped that this area will be self replenishing in that removal of material by the County will free up additional space for USACE disposal. Figure 5-10 presents an overview of the location and data collection efforts for the nearshore berm west. It should be noted that it is expected that material from the nearshore berm west will be limited to use within Pine Knoll Shores and Atlantic Beach to keep it within the Beaufort Inlet sediment system.

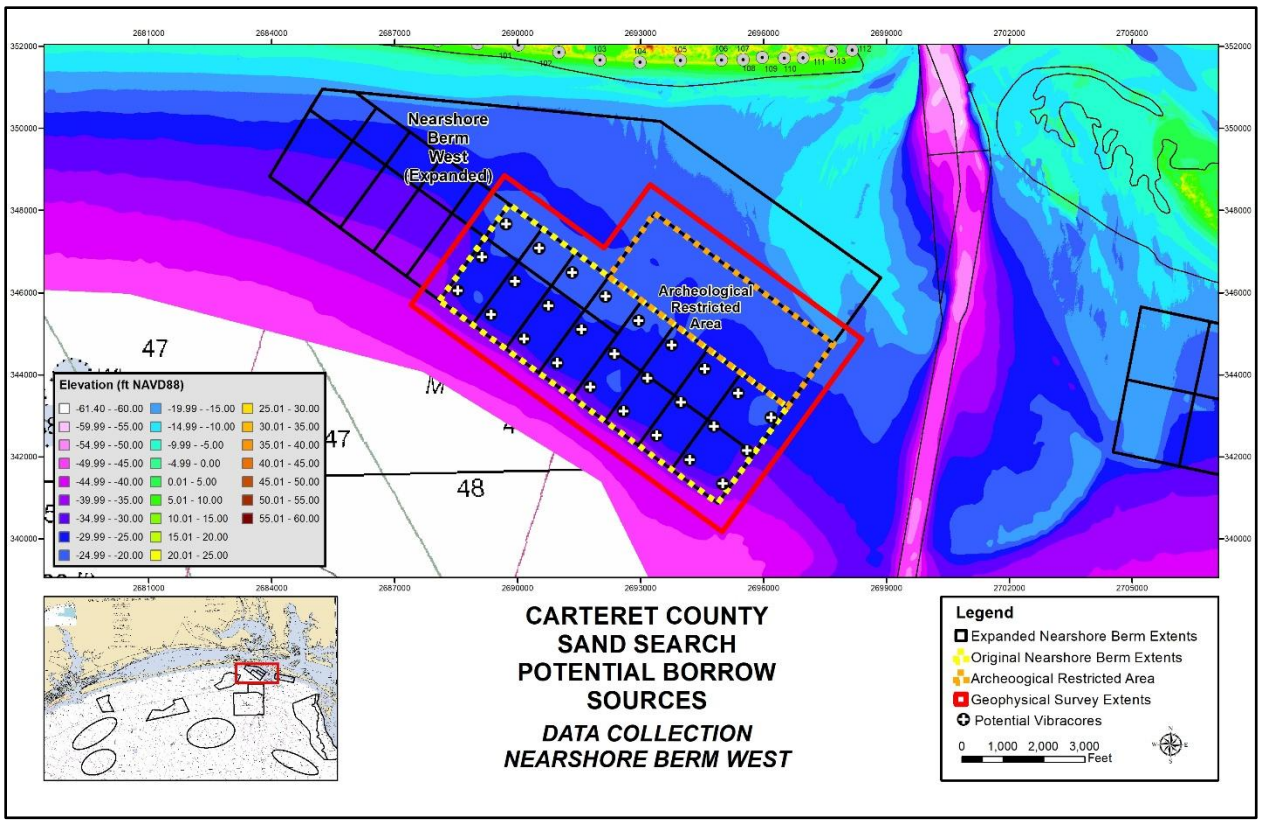


Figure 5-10. Nearshore Berm West Data Collection

6.0 FINANCIAL RESOURCES

The purpose of this section is to document the history and distribution of the Carteret County occupancy tax as it relates to the Bogue Banks municipalities along with an explanation of local municipal taxes and how these funds (both County and local) are to be used and are sufficient for the BBMBNP to maintain the project.

6.1 County Occupancy Tax

6.1.1 Occupancy Tax History

The Shore Protection Office is funded 100% by the portion of the County's occupancy tax legislatively mandated for beach nourishment, which was instituted in 2001 via SL 2001-381 and after several changes related to a proposed convention center (SL 2005-120, SL 2007-112), is now codified as SL 2013-223. The remaining fund balance at the conclusion of each fiscal year is permitted to accrue in a reserve account, commonly referred as the "Beach Fund" in an effort to finance some of the large-scale shore protection projects and efforts. The County's occupancy tax rate was established at 5% overall rate via the enacting legislation (SL 2001-381) and the revenues were previously split 50-50 between beach nourishment and the Tourism Development Authority (TDA), representing a 2.5% overall collection rate for both the TDA and beach nourishment. The collection rate was 3% prior to SL 2001-381. Beginning in FY 2010-11 as stipulated in SL 2007-112, the TDA begun receiving 3% of the 5% collection and the beach nourishment fund received 2%, which effectively changed the cost share from 50%-50% to 60%-40%. Several years later, new changes in the occupancy tax law were codified in SL 2013-223, which amended SL 2007-

112 to allow the collection of an additional 1% (6% total) with the total proceeds being split 50-50 again between the TDA and beach nourishment (or 3% a piece). The effective date of this change was January 1, 2014. This law also raised the cap of the beach nourishment fund from $15 M to $30 M. Most recently, in 2024, the cap of the beach nourishment fund was increased again from $30 M to $60 M. A summary of the important legislation and occupancy tax rate changes is shown in Table 6-1.

Table 6-1. Summary of Occupancy Tax Collection Rate Changes

Legislation	Collection Rate (TDA - Beach)	Effective Date
S.L. 2013-223	6% (3% - 3%) or (50/50)	1-Jan-14
S.L. 2007-112	5% (3% - 2%) or (40/60)	1-Jul-10
S.L. 2007-112	5% (2.5% - 2.5%) or (50/50)	1-Jul-07
S.L. 2001-381	5% (2.5% - 2.5%) or (50/50)	1-Jan-02

6.1.2 Occupancy Tax Distribution

The occupancy tax collection is reported in two predominant categories - hotel/motel stays and condo/cottage rentals. Condo and cottage rentals dominate the market on Bogue Banks and both categories show peak collections during the summer months, which is expected. Figure 6-1 shows the combined occupancy tax (hotel/motel and condo/cottage), generated each year, from 1993 - 2024. Of course, when reviewing the data, one can see the effects of the economic downturn of 2008 - 2009, the effect of the closing of the Sheraton for an extended period of time after Hurricane *Irene* in 2011, economic growth from 2013 to 2018, and the effect of closures in 2019 due to Hurricane *Florence*. However, the onset of COVID, an increase in remote working, and inflation has caused annual ROT collections to break records each year since 2020. It is expected that trends should remain stable or increase into the future.

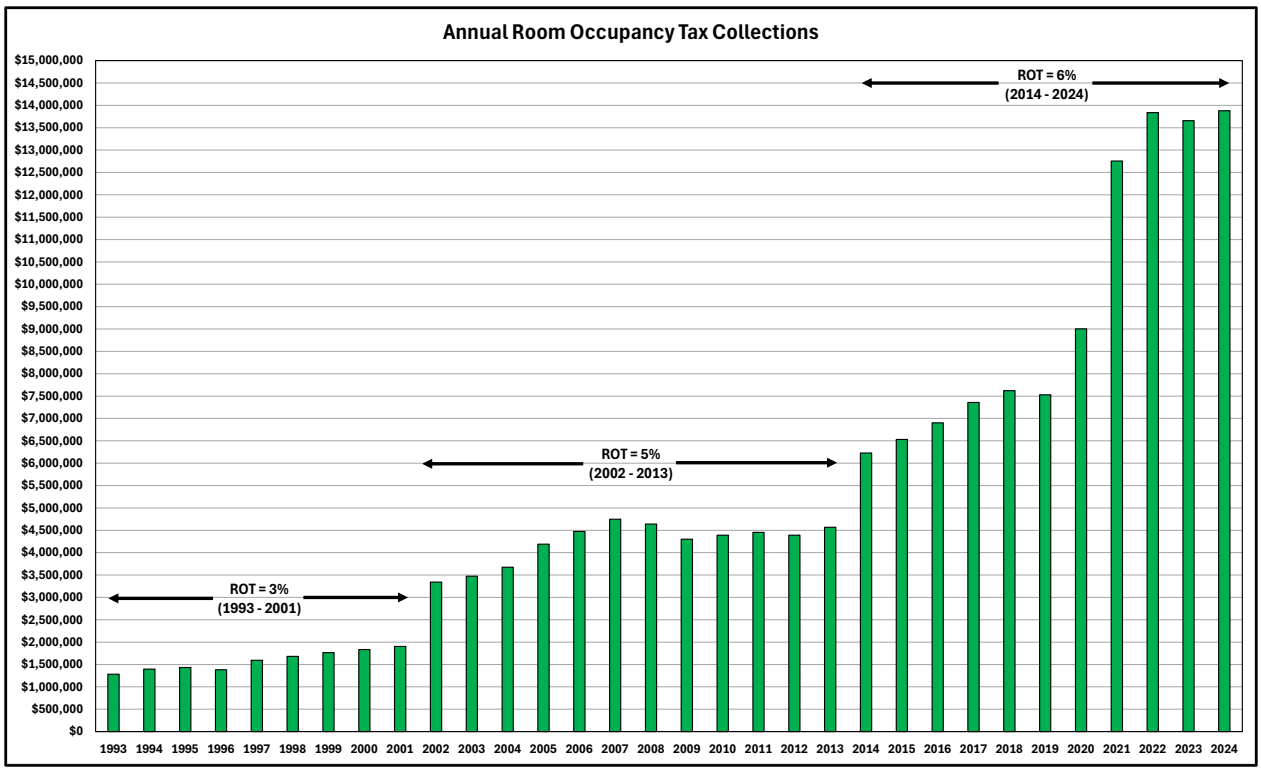


Figure 6-1. Total Annual Occupancy Tax (1993 - 2024)

With annual ROT collections currently averaging around $13.8M (see Figure 6-1), this equates to an annual allocation to the County beach fund of around $6.9M. It should be noted that average annual expenditures since 2014, with the exception of nourishment projects, equate to approximately $885,000 per year. Therefore, the current average annual revenue from the ROT of $6.9M per year far exceeds expenditures on an annual basis, allowing the beach fund to grow in between nourishment projects at a rate of approximately $6M per year. It should be noted that the County currently has approximately $36M in reserve.

6.2 Local Municipal Taxes For Beach Nourishment Projects

While the Shore Protection Office generates 100% of its funds for the beach nourishment fund from the County Occupancy Tax, the local municipalities generate revenue from which they contribute to beach nourishment through their local property taxes. Property taxes are divided into two sectors; oceanfront and non-oceanfront properties with the non-oceanfront properties paying less tax. Table 6-2 shows the current distribution of property tax rates and the associated revenue for the previous fiscal year 2023-2024. As can be seen, the annual revenue was approximately $1.6M. It should be noted that annual revenue from local property taxes has remained fairly consistent, ranging from $1.2M to $1.6M over the last 10 years. The slight increase is mostly due to the addition of a dedicated funding source from Atlantic Beach which commenced during fiscal year 2020-2021 and an overall increase in collections due to rising property values.

Table 6-2. Local Property Tax Rates (FY 2023-2024)

Municipality	FY 2023-2024 Oceanfront rate (per $100 valuation)	Non-oceanfront rate (per $100 valuation)	Tax Revenue	Transfers from General Fund/Other	Estimated total revenue
Atlantic Beach	$0.0150	$0.0150	$279,742	$0	$279,742
Pine Knoll Shores	$0.0550	$0.0150	$338,114	$235,000	$573,114
Indian Beach	$0.0300	$0.0100	$100,570	$0	$100,570
Salter Path (county)	$0.0550	NA	$4,907	$0	$4,907
Emerald Isle	$0.0400	$0.0000	$315,619	$309,000	$624,619
Average or Total	$0.04	$0.01	$1,038,952	$544,000	$1,582,952

6.3 Use Of Funds (County & Local) For Master Plan Projects

With the individual Towns and County funding streams, various scenarios were investigated to determine the long-term financial sustainability of the BBMBNP. First, dredging/placement unit costs were developed from past projects (rates include mob/demob).

- Emerald Isle – Combination of Pipeline and Hopper - $12 - $18/ cy – Avg. = $15/cy
- Indian Beach /Salter Path – All Hopper - $13/cy
- Pine Knoll Shores – All Hopper - $12.25/cy
- Atlantic Beach – Combination of Hopper and Pipeline - $11.50 cy – USACE Project Good To Circle – 60% - Prorated Unit Rate for Entire Volume = $4/cy

Utilizing the annualized volume needs estimated as part of the preferred option from the Master Beach Nourishment Plan (see Table 4-2) and the above unit rates, an annualized estimate of funding need was developed. Two scenarios were analyzed for the Town/County cost share: 1) 25% Town and 75% County and 2) 33% Town and 67% County. Table 6-3 presents the results for both funding scenarios. Given the current annually generated local taxes for beach nourishment are equivalent to $1.6M (see Table 6-2) and the current annual County tax generated for beach nourishment is $6.9M (50% of total occupancy tax collections, see Figure 6-1), it seems as though the 25% Town and 75% County cost share would be most reasonable at this point in time to ensure the ability of Town contributions to remain sustainable long-term. While Town funding streams have remained fairly consistent since inception of the BBMBNP in 2015, currently generating almost $1.6M annually, the County funding stream has increased significantly since 2020. The current funding streams allocate approximately $8.5M per year ($6.9M County and $1.6M local) to beach related projects. The interlocal agreement signed by all the Towns and County also requires them to meet the funding needs even if new taxes or one-time loans are required. The interlocal agreement can be seen in Appendix D.

Table 6-3. Annualized Estimate of Funding

				25% Town/75% County Cost Share			33% Town/67% County Cost Share		
Town	Annual Volume Loss (cy)	% of Total Annual Volume Loss	Avg. Placement Unit Cost Per Town	Annual Town Cost ($)	Annual County Cost ($)	% of Total Annual County Cost	Annual Town Cost ($)	Annual County Cost ($)	% of Total Annual County Cost
Emerald Isle	139,913	31%	$15.00	$524,674	$1,574,021	46%	$692,569	$1,406,126	46%
Indian Beach/Salter Path	62,567	14%	$13.00	$203,343	$610,028	18%	$268,412	$544,959	18%
Pine Knoll Shores	84,795	19%	$12.25	$259,685	$779,054	23%	$342,784	$695,955	23%
Atlantic Beach	164,945	36%	$4.00	$164,945	$494,835	14%	$217,727	$442,053	14%
TOTAL	452,220	-	-	$1,152,646	$3,457,939	-	$1,521,493	$3,089,092	-

If the above results were then just multiplied out over the next 50 years, the preferred plan needs are currently much less than the estimated revenue. The current funding levels at the 25% Town/75% County split are summarized below:

- Annual Total Cost = $4.61 M/yr * 50 yr = $230.5 M
- Annual Total Revenue = $8.5 M/yr * 50 yr = $425 M

Thus, there is some flexibility for the escalation of dredging/placement costs (potentially up to 75%) and/or some small decreases in tax revenue, as have been seen in the past, due to the state of the economy, natural disasters, etc. Even though the preferred plan currently appears sustainable, County and Local officials will continue to track expenditures over next 5-10 years and adjust as needed. **Finally, it should be noted that all the above analyses does not include any State or Federal funding above that which is expected for the MCH Project. Any additional funds from these sources would extend the long-term sustainability of the project. Again, the interlocal agreement signed by all the Towns and County (see Appendix D) also requires them to meet the funding needs even if new taxes or one-time loans are required.**

7.0 PUBLIC INVOLVEMENT PROCESS

15A NCAC 07J 1201(e) requires that the County provide the opportunity for public comment on this Beach Management Plan. On May 19, 2025, a public information and comment session was held at the Emerald Isle Board of Commissioners Meeting Room during the regularly scheduled monthly Carteret County Beach Commission meeting. This public information and comment session was advertised on the Carteret County website on May 1, 2025 and a copy of the draft report was posted for download. Proof of advertisement is presented in Appendix E. The public comment period began at the date of first notice on May 1, 2025 and ran through the public hearing meeting on May 19, 2025 with an option for written or electronic comments to be received at any time by the County or in person comments to be received at the public hearing on May 19, 2025. No written and/or electronic comments were received throughout the public comment period. Five in-person comments were received at the public hearing on May 19, 2025. These comments are summarized in Appendix E. Following this discussion, the Beach Commission voted to approve the Beach Management Plan.

8.0 SUMMARY

By virtue of this report, Carteret County and the Towns of Emerald Isle, Indian Beach/Salter Path, Pine Knoll Shores, and Atlantic Beach have provided information satisfying the requirements for review of the beach management plan stipulated in 15A NCAC 07J .1200. The present Beach Management Plan document is structured to address the plan elements as required by the State to obtain a State-approved plan for Carteret County, which include:

- Review of Beach Fill Projects/Background
- Review of Design and Monitoring
- Review of Future Nourishment Plans
- Review of Sediment Sources
- Review of Financial Plan

- Review of Public Comments

This report documents the historical fill projects (initial construction and renourishment) along Bogue Banks, including the USACE Morehead City Harbor disposal, the USACE Bogue Inlet AIWW crossing maintenance, the initial Bogue Banks Restoration project and its subsequent post-storm and USACE Section 933 renourishments, and the most recent Post-Florence renourishment project (Phases I, II, and III) performed under the BBMBNP. As a results of these projects, a pre-project vegetation line has been established along the entirety of Bogue Banks from Bogue Inlet to Beaufort Inlet. It is anticipated that the County will continue to operate under the BBMBNP, which is permitted through 2068, with a 6 to 9 year nourishment cycle. The County is currently planning their next maintenance event for the 2026/2027 dredging window.

The USACE Morehead City Harbor disposal consists of a variable width horizontal berm at elevation +6 ft NAVD with the material allowed to assume its natural angle of repose seaward of the berm crest. The Bogue Banks Restoration Project was designed as a variable width horizontal berm at elevation +6.0 feet NAVD with a dune with a 10 foot wide crest at elevation +14 feet NAVD, where needed, and an offshore slope of 1:20 out to the existing ground. Subsequent renourishments through 2013 followed this design. The Post-Florence Renourishment Project consisted of a dune of variable width ranging from +10 ft NAVD88 to +14 ft NAVD88 with a 1:5 slope down to a berm of variable width ranging from +6 ft NAVD88 to +6.5 ft NAVD88 and then a flatter slope of 1:20 out to the existing ground, landward of the prominent offshore bar. It is expected that subsequent renourishment projects will follow this design.

Project monitoring has been performed on an annual basis through the BBBNMP which began in 2004. From 2004 to 2014, project monitoring was based on evaluating the amount of fill remaining from the original project to ensure it was greater than 50% as well as a minimum 225 cy/ft volumetric trigger. Starting in 2015, monitoring under the BBMBNP evaluated revised volume triggers, based on providing protection form a 25 year storm event, which vary along the oceanfront. Through post-storm and maintenance renourishment projects, all nourishment triggers have been satisfied to date.

Compatible sediment sources for the future that exhibit long-term sustainability for the project were identified in the development of the BBMBNP. It is expected that the sediment need for the next 50 years of 46.8 – 51.6 Mcy can be met with identified sediment sources totaling 50.2 Mcy, primarily consisting of the ODMDS, Beaufort Inlet, and Bogue Inlet but also including the AIWW, Area Y, and upland sources. However, the County is currently in the process of expanding the permitted sediment sources to include the nearshore berm west in order to ensure physically and economically sustainable sand resources for the entirety of the 50 year plan.

Using current funding practices, it is expected that the project will be fully funded for the next 50 years with the interlocal agreement requiring action in the form of new taxes or one time loans if funds were to ever fall short. Current funding streams allocate approximately $8.1 M/yr to beach nourishment with an average annual cost anticipated of $4.6 M/yr, allowing for some flexibility for the escalation of dredging/placement costs (potentially up to 50%) and/or some small decreases in tax revenue, as have been seen in the past, due to the state of the economy, natural disasters, etc.

The County held a public information and comment session on May 19, 2025, where comments were recorded. These comments are included in Appendix E in accordance with 15A NCAC 07J 1201(e).

9.0 REFERENCES

Carteret County Shore Protection Office Preservation Plan. Retrieved from http://www.carteretcountync.gov/313/Preservation-Plan.

Coastal Tech 2013, Carteret County, North Carolina Sand Search Investigation, Prepared for Moffatt & Nichol by Coastal Technology Corporation, Melbourne, Florida.

CSE 2003, Bogue Banks Nourishment Project - 2001 Phase I: Towns of Pine Knoll Shores and Indian Beach, Coastal Science & Engineering, April 2003.

CSE 2003, Bogue Banks Nourishment Project - 2002 Phase II: Town of Emerald Isle, Coastal Science & Engineering, September 2003.

CSE 2004, Survey Report 2004, Bogue Banks, North Carolina, Prepared for Carteret County Shore Protection Office by Coastal Science & Engineering, Columbia, South Carolina.

CSE 2005, Survey Report 2005, Bogue Banks, North Carolina, Prepared for Carteret County Shore Protection Office by Coastal Science & Engineering, Columbia, South Carolina.

CSE 2006, Survey Report 2006, Bogue Banks, North Carolina, Prepared for Carteret County Shore Protection Office by Coastal Science & Engineering, Columbia, South Carolina.

CSE 2007, Survey Report 2007, Bogue Banks, North Carolina, Prepared for Carteret County Shore Protection Office by Coastal Science & Engineering, Columbia, South Carolina.

CPE 2005, Emerald Isle: Post Construction Documentation Report, Coastal Planning. & Engineering, June 2005.

CPE 2010, Town of Emerald Isle, NC Static Line Exception Application Report, Prepared for the Town of Emerald Isle by Coastal Planning & Engineering, Wilmington, North Carolina.

CPE 2010, Town of Indian Beach/Salter Path, NC Static Line Exception Application Report, Prepared for the Town of Emerald Isle by Coastal Planning & Engineering, Wilmington, North Carolina.

CPE 2010, Town of Pine Knoll Shores, NC Static Line Exception Application Report, Prepared for the Town of Emerald Isle by Coastal Planning & Engineering, Wilmington, North Carolina.

CPE 2010, Town of Atlantic Beach, NC Static Line Exception Application Report, Prepared for the Town of Emerald Isle by Coastal Planning & Engineering, Wilmington, North Carolina.

M&N 2008 - 2024, Bogue Banks Beach and Nearshore Mapping Program Periodic Survey Evaluation, Prepared for Carteret County Shore Protection Office by Moffatt & Nichol, Raleigh, North Carolina.

M&N 2014, Bogue Banks Master Beach Nourishment Plan, Prepared for Carteret County Shore Protection Office by Moffatt & Nichol, Raleigh, North Carolina.

M&N 2019, Post-Florence Renourishment Project – Phase I Report, Prepared for Town of Emerald Isle and Town of Indian Beach by Moffatt & Nichol, Raleigh, North Carolina.

M&N 2020, Post-Florence Renourishment Project – Phase II Report, Prepared for Town of Emerald Isle, Town of Pine Knoll Shores, and Town of Atlantic Beach by Moffatt & Nichol, Raleigh, North Carolina.

M&N 2021, Post-Florence Renourishment Project – Phase III Report, Prepared for Town of Emerald Isle by Moffatt & Nichol, Raleigh, North Carolina.

APPENDIX A

Procedural Rules

a) 15A NCAC 07H
b) 15A NCAC 07J

a) 15A NCAC 07H

SUBCHAPTER 07H - STATE GUIDELINES FOR AREAS OF ENVIRONMENTAL CONCERN

SECTION .0100 - INTRODUCTION AND GENERAL COMMENTS

15A NCAC 07H .0101 INTRODUCTION
15A NCAC 07H .0102 CAMA PROVISIONS FOR AECS
15A NCAC 07H .0103 SELECTION OF PROPOSED AREAS FOR AEC DESIGNATION

History Note: *Authority G.S. 113A-101; 113A-102; 113A-102(a); 113A-106; 113A-107; 113A-113(a); 113A-118; 113A-124; 113A-124(c)(5);*
Eff. September 9, 1977;
Amended Eff. December 1, 1985;
Expired Eff. April 1, 2018 pursuant to G.S. 150B-21.3A.

15A NCAC 07H .0104 APPLICATION OF EROSION RATE SETBACK FACTORS

History Note: *Authority G.S. 113A-107; 113A-113; 113A-124;*
Eff. September 15, 1979;
Amended Eff. August 1, 2010; April 1, 2004; April 1, 1997; April 1, 1995; May 1, 1990; November 1, 1988; September 1, 1988;
Readopted Eff. July 1, 2020;
Repealed Eff. August 1, 2022.

15A NCAC 07H .0105 EFFECTIVE DATE OF RULE AMENDMENTS
Unless explicitly stated otherwise, the Coastal Resources Commission guidelines for Areas of Environmental Concern and local land use plans in effect at the time of permit decision shall be applied to all development proposals covered by this Subchapter.

History Note: *Authority G.S. 113A-107; 113A-124;*
Eff. December 1, 1982;
Readopted Eff. July 1, 2020.

15A NCAC 07H .0106 GENERAL DEFINITIONS
The following definitions apply whenever these terms are used in this Chapter:

(1) "Normal High Water" is the ordinary extent of high tide based on site conditions such as presence and location of vegetation which has its distribution influenced by tidal action, and the location of the apparent high tide line.

(2) "Normal Water Level" is the level of water bodies with less than six inches of lunar tide during periods of little or no wind. It can be determined by the presence of such physical and biological indicators as erosion escarpments, trash lines, water lines, marsh grasses, and barnacles.

(3) Unless specifically limited, the term "structures" includes, but is not limited to, buildings, bridges, roads, piers wharves and docks (supported on piles), bulkheads, breakwaters, jetties, mooring pilings and buoys, pile clusters (dolphins), navigational aids, and elevated boat ramps.

(4) "Mining" is defined as:
   (a) the breaking of the surface soil in order to facilitate or accomplish the extraction or removal of mineral, ores, or other solid matter;
   (b) any activity or process constituting all or part of a process for the extraction or removal of minerals, ores, soils, and other solid matter from their original Location; or
   (c) the preparation, washing, cleaning, or other treatment of minerals, ores, or other solid matter so as to make them suitable for commercial, industrial, or construction use.

   This definition applies regardless of whether the mining activity is for a commercial or noncommercial purpose, and regardless of the size of the affected area. Activities such as vibracoring, box coring, surface grab sampling, and other drilling and sampling for geotechnical testing, mineral resource investigations, or geological research are not considered mining. Excavation of mineral resources associated with the construction or maintenance of an approved

navigation project in accordance with 15A NCAC 7B .0200 of this Chapter is not considered mining.

(5) "Wind Energy Facility" means the turbines, accessory buildings, transmission facilities, and any other equipment necessary for the operation of the facility that cumulatively, with any other wind energy facility whose turbines are located within one-half mile of one another, have a rated capacity of three megawatts or more of energy.

History Note: *Authority G.S. 113A-102; 113A-107;*
Eff. June 1, 1995;
Amended Eff. February 1, 2011; August 1, 1998; October 1, 1996;
Readopted Eff. July 1, 2020.

SECTION .0200 – THE ESTUARINE AND OCEAN SYSTEMS

15A NCAC 07H .0201 ESTUARINE AND OCEAN SYSTEM CATEGORIES

Included within the estuarine and ocean system are the following AEC categories:

(a) estuarine waters;
(b) coastal wetlands;
(c) public trust areas; and
(d) estuarine and public trust shorelines.

Each of the AECs is either geographically within the estuary or, because of its location and nature, may affect the estuarine and ocean system.

History Note: *Authority G.S. 113A-113(b)(1); 113A-113(b)(2); 113A-113(b)(5); 113A-113(b)(6)b; 113A-124;*
Eff. September 9, 1977;
Amended Eff August 1, 2000; August 1, 1998;
Readopted Eff. July 1, 2020.

15A NCAC 07H .0202 SIGNIFICANCE OF THE SYSTEMS APPROACH IN ESTUARIES

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-124;*
Eff. September 9, 1977;
Amended Eff. August 1, 1998;
Expired Eff. April 1, 2018 pursuant to G.S. 150B-21.3A.

15A NCAC 07H .0203 MANAGEMENT OBJECTIVE OF THE ESTUARINE AND OCEAN SYSTEM

It is the objective of the Coastal Resources Commission to conserve and manage estuarine waters, coastal wetlands, public trust areas, and estuarine and public trust shorelines, as an interrelated group of AECs, so as to safeguard and perpetuate their biological, social, economic, and aesthetic values and to ensure that development occurring within these AECs is compatible with natural characteristics so as to minimize the likelihood of significant loss of private property and public resources. Furthermore, it is the objective of the Coastal Resources Commission to protect present common-law and statutory public rights of access to the lands and waters of the coastal area.

History Note: *Authority G.S. 113A-102(b)(1); 113A-102(b)(4); 113A-107(a); 113A-107(b); 113A-124;*
Eff. September 9, 1977;
Amended Eff. August 1, 2000; October 1, 1993; September 1, 1985;
Readopted Eff. July 1, 2020.

15A NCAC 07H .0204 AECS WITHIN THE ESTUARINE AND OCEAN SYSTEM

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-124;*
Eff. September 9, 1977;
Amended Eff. August 1, 1998;
Expired Eff. April 1, 2018 pursuant to G.S. 150B-21.3A.

15A NCAC 07H .0205 COASTAL WETLANDS

(a) Definition. "Coastal Wetlands" are defined as any salt marsh or other marsh subject to regular or occasional flooding by tides, including wind tides, that reach the marshland areas through natural or artificial watercourses, provided this does not include hurricane or tropical storm tides. Regular or occasional flooding shall be established through field indicators, including the observation of tidal water on the site, changes in elevation, presence of periwinkle (littoraria spp.), presence of crab burrows, staining, or wrack lines. Coastal wetlands may contain one or more of the following marsh plant species:

(1) Cord Grass (Spartina alterniflora);
(2) Black Needlerush (Juncus roemerianus);
(3) Glasswort (Salicornia spp.);
(4) Salt Grass (Distichlis spicata);
(5) Sea Lavender (Limonium spp.);
(6) Bulrush (Scirpus spp.);
(7) Saw Grass (Cladium jamaicense);
(8) Cat-tail (Typha spp.);
(9) Salt Meadow Grass (Spartina patens);or
(10) Salt Reed Grass (Spartina cynosuroides).

The coastal wetlands AEC includes any contiguous lands designated by the Secretary of DEQ pursuant to G.S. 113-230(a).

(b) Significance. The unique productivity of the estuarine and ocean system is supported by detritus (decayed plant material) and nutrients that are exported from the coastal wetlands. Without the wetlands, the high productivity levels and complex food chains typically found in the estuaries could not be maintained. Additionally, coastal wetlands serve as barriers against flood damage and control erosion between the estuary and the uplands.

(c) Management Objective. It is the objective of the Coastal Resources Commission to conserve and manage coastal wetlands so as to safeguard and perpetuate their biological, social, economic and aesthetic values, and to coordinate and establish a management system capable of conserving and utilizing coastal wetlands as a natural resource necessary to the functioning of the entire estuarine system.

(d) Use Standards. Suitable land uses are those consistent with the management objective in this Rule. First priority of use shall be allocated to the conservation of existing coastal wetlands. Secondary priority of coastal wetland use shall be given to those types of development activities that require water access and cannot function elsewhere.

Unacceptable land uses include restaurants, businesses, residences, apartments, motels, hotels, trailer parks, parking lots, private roads, highways, and factories. Acceptable land uses include utility easements, fishing piers, docks, wildlife habitat management activities, and agricultural uses such as farming and forestry drainage as permitted under North Carolina's Dredge and Fill Law, G.S. 113-229, or applicable local, state, and federal laws.

In every instance, the particular location, use, and design characteristics shall be in accord with the general use standards for coastal wetlands, estuarine waters, and public trust areas described in Rule .0208 of this Section.

(e) Alteration of Coastal Wetlands. Alteration of coastal wetlands includes mowing or cutting of coastal wetlands vegetation whether by mechanized equipment or manual means. Alteration of coastal wetlands by federal or state resource management agencies as a part of planned resource management activities is exempt from the requirements of this Paragraph. Alteration of coastal wetlands shall be governed according to the following provisions:

(1) Alteration of coastal wetlands shall be exempt from the permit requirements of the Coastal Area Management Act (CAMA) when conducted in accordance with the following criteria:
    (A) Coastal wetlands may be mowed or cut to a height of no less than two feet, as measured from the coastal wetland substrate, at any time and at any frequency throughout the year;
    (B) Coastal wetlands may be mowed or cut to a height of no less than six inches, as measured from the coastal wetland substrate, once between each December 1 and March 31;
    (C) Alteration of the substrate is not allowed;
    (D) All cuttings or clippings shall remain in place as they fall;
    (E) Coastal wetlands may be mowed or cut to a height of no less than six inches, as measured from the coastal wetland substrate, to create an access path four feet wide or less on waterfront lots without a pier access; and
    (F) Coastal wetlands may be mowed or cut by utility companies as necessary to maintain utility easements.
(2) Coastal wetland alteration not meeting the exemption criteria of this Rule shall require a CAMA permit. CAMA permit applications for coastal wetland alterations are subject to review by the North Carolina Wildlife Commission, North Carolina Division of Marine Fisheries, U.S. Fish and

Wildlife Service, and National Marine Fisheries Service in order to determine whether or not the proposed activity will have a significant adverse impact on the habitat or fisheries resources.

History Note: *Authority G.S. 113A-107; 113A-113(b)(1); 113A-124;*
Eff. September 9, 1977;
Amended Eff. September 1, 2016; November 1, 2009; August 1, 1998; October 1, 1993; May 1, 1990; January 24, 1978;
Readopted Eff. July 1, 2020.

15A NCAC 07H .0206 ESTUARINE WATERS

(a) Definition. "Estuarine Waters" are defined in G.S. 113A-113(b)(2) to include all the waters of the Atlantic Ocean within the boundary of North Carolina and all the waters of the bays, sounds, rivers and tributaries thereto seaward of the dividing line between coastal fishing waters and inland fishing waters. The boundaries between inland and coastal fishing waters are set forth in an agreement adopted by the Wildlife Resources Commission and the Department of Environment and Natural Resources and in the most current revision of the North Carolina Marine Fisheries Regulations for Coastal Waters, codified at 15A NCAC 3Q .0200.

(b) Significance. Estuarine waters are the dominant component and bonding element of the entire estuarine and ocean system, integrating aquatic influences from both the land and the sea. Estuaries are among the most productive natural environments of North Carolina. They support the valuable commercial and sports fisheries of the coastal area which are comprised of estuarine dependent species such as menhaden, flounder, shrimp, crabs, and oysters. These species must spend all or some part of their life cycle within the estuarine waters to mature and reproduce. Of the 10 leading species in the commercial catch, all but one are dependent on the estuary.

This high productivity associated with the estuary results from its unique circulation patterns caused by tidal energy, fresh water flow, and shallow depth; nutrient trapping mechanisms; and protection to the many organisms. The circulation of estuarine waters transports nutrients, propels plankton, spreads seed stages of fish and shellfish, flushes wastes from animal and plant life, cleanses the system of pollutants, controls salinity, shifts sediments, and mixes the water to create a multitude of habitats. Some important features of the estuary include mud and sand flats, eel grass beds, salt marshes, submerged vegetation flats, clam and oyster beds, and important nursery areas.

Secondary benefits include the stimulation of the coastal economy from the spin off operations required to service commercial and sports fisheries, waterfowl hunting, marinas, boatyards, repairs and supplies, processing operations, and tourist related industries. In addition, there is considerable nonmonetary value associated with aesthetics, recreation, and education.

(c) Management Objective. To conserve and manage the important features of estuarine waters so as to safeguard and perpetuate their biological, social, aesthetic, and economic values; to coordinate and establish a management system capable of conserving and utilizing estuarine waters so as to maximize their benefits to man and the estuarine and ocean system.

(d) Use Standards. Suitable land and water uses shall be those consistent with the management objectives in this Rule. Highest priority of use shall be allocated to the conservation of estuarine waters and their vital components. Second priority of estuarine waters use shall be given to those types of development activities that require water access and use which cannot function elsewhere such as simple access channels; structures to prevent erosion; navigation channels; boat docks, marinas, piers, wharfs, and mooring pilings.

In every instance, the particular location, use, and design characteristics shall be in accord with the general use standards for coastal wetlands, estuarine waters, and public trust areas described in Rule .0208 of this Section.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b)(2); 113A-124;*
Eff. September 9, 1977;
Amended Eff. August 1, 1998; October 1, 1993; November 1, 1991; May 1, 1990; October 1, 1988;
Readopted Eff. July 1, 2020.

15A NCAC 07H .0207 PUBLIC TRUST AREAS

(a) Definition. "Public trust areas" are all waters of the Atlantic Ocean and the lands thereunder from the mean high water mark to the seaward limit of state jurisdiction; all natural bodies of water subject to measurable lunar tides and lands thereunder to the normal high water or normal water level; all navigable natural bodies of water and lands thereunder to the normal high water or normal water level as the case may be, except privately-owned lakes to which the public has no right of access; all water in artificially created bodies of water containing public fishing

resources or other public resources which are accessible to the public by navigation from bodies of water in which the public has rights of navigation; and all waters in artificially created bodies of water in which the public has acquired rights by prescription, custom, usage, dedication, or any other means. In determining whether the public has acquired rights in artificially created bodies of water, the following factors shall be considered:

(1) the use of the body of water by the public;
(2) the length of time the public has used the area;
(3) the value of public resources in the body of water;
(4) whether the public resources in the body of water are mobile to the extent that they can move into natural bodies of water;
(5) whether the creation of the artificial body of water required permission from the state; and
(6) the value of the body of water to the public for navigation from one public area to another public area.

(b) Significance. The public has rights in these areas, including navigation and recreation. In addition, these areas support commercial and sports fisheries, have aesthetic value, and are important resources for economic development.

(c) Management Objective. To protect public rights for navigation and recreation and to conserve and manage the public trust areas so as to safeguard and perpetuate their biological, economic and aesthetic value.

(d) Use Standards. Acceptable uses shall be those consistent with the management objectives in Paragraph (c) of this Rule. In the absence of overriding public benefit, any use which jeopardizes the capability of the waters to be used by the public for navigation or other public trust rights which the public may be found to have in these areas shall not be allowed. The development of navigational channels or drainage ditches, the use of bulkheads to prevent erosion, and the building of piers, wharfs, or marinas are examples of uses that may be acceptable within public trust areas, provided that such uses shall not be detrimental to the public trust rights and the biological and physical functions of the estuary. Projects which would directly or indirectly block or impair existing navigation channels, increase shoreline erosion, deposit spoils below normal high water, cause adverse water circulation patterns, violate water quality standards, or cause degradation of shellfish waters are considered incompatible with the management policies of public trust areas. In every instance, the particular location, use, and design characteristics shall be in accord with the general use standards for coastal wetlands, estuarine waters, and public trust areas described in Rule .0208 of this Section.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b)(5); 113A-124;*
Eff. September 9, 1977;
Amended Eff. February 1, 2006; October 1, 1993;
Readopted Eff. July 1, 2020.

15A NCAC 07H .0208 USE STANDARDS

(a) General Use Standards

(1) Uses that are not water dependent shall not be permitted in coastal wetlands, estuarine waters, and public trust areas. Restaurants, residences, apartments, motels, hotels, trailer parks, private roads, factories, and parking lots are examples of uses that are not water dependent. Uses that are water dependent include: utility crossings, wind energy facilities, docks, wharves, boat ramps, dredging, bridges and bridge approaches, revetments, bulkheads, culverts, groins, navigational aids, mooring pilings, navigational channels, access channels and drainage ditches;
(2) Before being granted a permit, the CRC or local permitting authority shall find that the applicant has complied with the following standards:
    (A) The location, design, and need for development, as well as the construction activities involved shall be consistent with the management objective of the Estuarine and Ocean System AEC (Rule .0203 of this subchapter) and shall be sited and designed to avoid significant adverse impacts upon the productivity and biologic integrity of coastal wetlands, shellfish beds, submerged aquatic vegetation as defined by the Marine Fisheries Commission, and spawning and nursery areas;
    (B) Development shall comply with State and federal water and air quality rules, statutes and regulations;
    (C) Development shall not cause irreversible damage to documented archaeological or historic resources as identified by the N.C. Department of Cultural resources;
    (D) Development shall not increase siltation;

(E) Development shall not create stagnant water bodies;
(F) Development shall be timed to avoid significant adverse impacts on life cycles of estuarine and ocean resources; and
(G) Development shall not jeopardize the use of the waters for navigation or for other public trust rights in public trust areas including estuarine waters.

(3) When the proposed development is in conflict with the general or specific use standards set forth in this Rule, the CRC may approve the development if the applicant can demonstrate that the activity associated with the proposed project will have public benefits as identified in the findings and goals of the Coastal Area Management Act, that the public benefits outweigh the long range adverse effects of the project, that there is no reasonable alternate site available for the project, and that all reasonable means and measures to mitigate adverse impacts of the project have been incorporated into the project design and shall be implemented at the applicant's expense. Measures taken to mitigate or minimize adverse impacts shall include actions that:
(A) minimize or avoid adverse impacts by limiting the magnitude or degree of the action;
(B) restore the affected environment; or
(C) compensate for the adverse impacts by replacing or providing substitute resources.

(4) "Primary nursery areas" are defined as those areas in the estuarine and ocean system where initial post larval development of finfish and crustaceans takes place. They are usually located in the uppermost sections of a system where populations are uniformly early juvenile stages. Primary nursery areas are designated and described by the N.C. Marine Fisheries Commission (MFC) and by the N.C. Wildlife Resources Commission (WRC) at 15A NCAC 03R .0103;

(5) "Outstanding Resource Waters" (ORW) are defined as those estuarine waters and public trust areas classified by the N.C. Environmental Management Commission (EMC). In those estuarine waters and public trust areas classified as ORW by the EMC no permit required by the Coastal Area Management Act shall be approved for any project which would be inconsistent with applicable use standards adopted by the CRC, EMC, or MFC for estuarine waters, public trust areas, or coastal wetlands. For development activities not covered by specific use standards, no permit shall be issued if the activity would, based on site specific information, degrade the water quality or outstanding resource values; and

(6) Beds of "submerged aquatic vegetation" (SAV) are defined as those habitats in public trust and estuarine waters vegetated with one or more species of submergent vegetation. These vegetation beds occur in both subtidal and intertidal zones and may occur in isolated patches or cover extensive areas. In either case, the bed is defined by the Marine Fisheries Commission. Any rules relating to SAVs shall not apply to non-development control activities authorized by the Aquatic Weed Control Act of 1991 (G.S. 113A-220 et seq.).

(b) Specific Use Standards

(1) Navigation channels, canals, and boat basins shall be aligned or located so as to avoid primary nursery areas, shellfish beds, beds of submerged aquatic vegetation as defined by the MFC, or areas of coastal wetlands except as otherwise allowed within this Subchapter. Navigation channels, canals and boat basins shall also comply with the following standards:
(A) Navigation channels and canals may be allowed through fringes of regularly and ir-regularly flooded coastal wetlands if the loss of wetlands will have no significant adverse impacts on fishery resources, water quality or adjacent wetlands, and if there is no reasonable alternative that would avoid the wetland losses;
(B) All dredged material shall be confined landward of regularly and irregularly flooded coastal wetlands and stabilized to prevent entry of sediments into the adjacent water bodies or coastal wetlands;
(C) Dredged material from maintenance of channels and canals through irregularly flooded wetlands shall be placed on non-wetland areas, remnant spoil piles, or disposed of by a method having no significant, long-term wetland impacts. Under no circumstances shall dredged material be placed on regularly flooded wetlands. New dredged material disposal areas shall not be located in the buffer area as outlined in 15A NCAC 07H .0209(d)(10);
(D) Widths of excavated canals and channels shall be the minimum required to meet the applicant's needs but not impair water circulation;

(E) Boat basin design shall maximize water exchange by having the widest possible opening and the shortest practical entrance canal. Depths of boat basins shall decrease from the waterward end inland;

(F) Any canal or boat basin shall be excavated no deeper than the depth of the connecting waters;

(G) Construction of finger canal systems are not allowed. Canals shall be either straight or meandering with no right angle corners;

(H) Canals shall be designed so as not to create an erosion hazard to adjoining property. Design may include shoreline stabilization, vegetative stabilization, or setbacks based on soil characteristics; and

(I) Maintenance excavation in canals, channels and boat basins within primary nursery areas and areas of submerged aquatic vegetation as defined by the MFC shall be avoided. However, when essential to maintain a traditional and established use, maintenance excavation may be approved if the applicant meets all of the following criteria:

(i) The applicant demonstrates and documents that a water-dependent need exists for the excavation;

(ii) There exists a previously permitted channel that was constructed or maintained under permits issued by the State or Federal government. If a natural channel was in use, or if a human-made channel was constructed before permitting was necessary, there shall be evidence that the channel was continuously used for a specific purpose;

(iii) Excavated material can be removed and placed in a disposal area in accordance with Part (b)(1)(B) of this Rule without impacting adjacent nursery areas and submerged aquatic vegetation as defined by the MFC; and

(iv) The original depth and width of a human-made or natural channel shall not be increased to allow a new or expanded use of the channel.

(2) Hydraulic Dredging

(A) The terminal end of the dredge pipeline shall be positioned at a distance sufficient to preclude erosion of the containment dike and a maximum distance from spillways to allow settlement of suspended solids;

(B) Dredged material shall be either confined on high ground by retaining structures or deposited on beaches for purposes of renourishment if the material is suitable in accordance with the rules in this Subchapter, except as provided in Part (G) of this Subparagraph;

(C) Confinement of excavated materials shall be landward of all coastal wetlands and shall employ soil stabilization measures to prevent entry of sediments into the adjacent water bodies or coastal wetlands;

(D) Effluent from diked areas receiving disposal from hydraulic dredging operations shall be contained by pipe, trough, or similar device to a point waterward of emergent vegetation or, where local conditions require, below normal low water or normal water level;

(E) When possible, effluent from diked disposal areas shall be returned to the area being dredged;

(F) A water control structure shall be installed at the intake end of the effluent pipe;

(G) Publicly funded projects shall be considered by review agencies on a case-by-case basis with respect to dredging methods and dredged material disposal in accordance with Subparagraph (a)(3) of this Rule; and

(H) Dredged material from closed shellfish waters and effluent from diked disposal areas used when dredging in closed shellfish waters shall be returned to the closed shellfish waters.

(3) Drainage Ditches

(A) Drainage ditches located through any coastal wetland shall not exceed six feet wide by four feet deep (from ground surface) unless the applicant shows that larger ditches are necessary;

(B) Dredged material derived from the construction or maintenance of drainage ditches through regularly flooded marsh shall be placed landward of these marsh areas in a manner that will insure that entry of sediment into the water or marsh will not occur.

Dredged material derived from the construction or maintenance of drainage ditches through irregularly flooded marshes shall be placed on non-wetlands wherever feasible. Non-wetland areas include relic disposal sites;

(C) Excavation of new ditches through high ground shall take place landward of an earthen plug or other methods to minimize siltation to adjacent water bodies; and

(D) Drainage ditches shall not have a significant adverse impact on primary nursery areas, productive shellfish beds, submerged aquatic vegetation as defined by the MFC, or other estuarine habitat. Drainage ditches shall be designed so as to minimize the effects of freshwater inflows, sediment, and the introduction of nutrients to receiving waters. Settling basins, water gates and retention structures are examples of design alternatives that may be used to minimize sediment introduction.

(4) Nonagricultural Drainage

(A) Drainage ditches shall be designed so that restrictions in the volume or diversions of flow are minimized to both surface and ground water;

(B) Drainage ditches shall provide for the passage of migratory organisms by allowing free passage of water of sufficient depth; and

(C) Drainage ditches shall not create stagnant water pools or changes in the velocity of flow.

(5) Marinas. "Marinas" are defined as any publicly or privately owned dock, basin or wet boat storage facility constructed to accommodate more than 10 boats and providing any of the following services: permanent or transient docking spaces, dry storage, fueling facilities, haulout facilities, and repair service. Excluded from this definition are boat ramp facilities allowing access only, temporary docking, and none of the preceding services. Expansion of existing facilities shall comply with the standards of this Subparagraph for all development other than maintenance and repair necessary to maintain previous service levels. Marinas shall comply with the following standards:

(A) Marinas shall be sited in non-wetland areas or in deep waters (areas not requiring dredging) and shall not disturb shellfish resources, submerged aquatic vegetation as defined by the MFC, or wetland habitats, except for dredging necessary for access to high-ground sites. The following four alternatives for siting marinas are listed in order of preference for the least damaging alterative; marina projects shall be designed to have the highest of these four priorities that is deemed feasible by the permit letting agency:

(i) an upland basin site requiring no alteration of wetland or estuarine habitat and providing flushing by tidal or wind generated water circulation or basin design characteristics;

(ii) an upland basin site requiring dredging for access when the necessary dredging and operation of the marina will not result in significant adverse impacts to existing fishery, shellfish, or wetland resources and the basin design shall provide flushing by tidal or wind generated water circulation;

(iii) an open water site located outside a primary nursery area which utilizes piers or docks rather than channels or canals to reach deeper water; and

(iv) an open water marina requiring excavation of no intertidal habitat, and no dredging greater than the depth of the connecting channel.

(B) Marinas that require dredging shall not be located in primary nursery areas nor in areas which require dredging through primary nursery areas for access. Maintenance dredging in primary nursery areas for existing marinas shall comply with the standards set out in Part (b)(1)(I) of this Rule;

(C) To minimize coverage of public trust areas by docks and moored vessels, dry storage marinas shall be used where feasible;

(D) Marinas to be developed in waters subject to public trust rights (other than those created by dredging upland basins or canals) for the purpose of providing docking for residential developments shall be allowed no more than 27 square feet of public trust areas for every one linear foot of shoreline adjacent to these public trust areas for construction of docks and mooring facilities. The 27 square feet allocation does not apply to fairway areas between parallel piers or any portion of the pier used only for access from land to the docking spaces;

(E) To protect water quality in shellfishing areas, marinas shall not be located within areas where shellfish harvesting for human consumption is a significant existing use or adjacent to such areas if shellfish harvest closure is anticipated to result from the location of the marina. In compliance with 33 U.S. Code Section 101(a)(2) of the Clean Water Act and North Carolina Water Quality Standards (15A NCAC 02B .0200) adopted pursuant to that section, shellfish harvesting is a significant existing use if it can be established that shellfish have been regularly harvested for human consumption since November 28, 1975 or that shellfish are propagating and surviving in a biologically suitable habitat and are available and suitable for harvesting for the purpose of human consumption. The Division of Coastal Management shall consult with the Division of Marine Fisheries regarding the significance of shellfish harvest as an existing use and the magnitude of the quantities of shellfish that have been harvested or are available for harvest in the area where harvest will be affected by the development;

(F) Marinas shall not be located without written consent from the leaseholders or owners of submerged lands that have been leased from the state or deeded by the State;

(G) Marina basins shall be designed to promote flushing through the following design criteria:

(i) the basin and channel depths shall gradually increase toward open water and shall never be deeper than the waters to which they connect; and

(ii) when possible, an opening shall be provided at opposite ends of the basin to establish flow-through circulation;

(H) Marinas shall be designed so that the capability of the waters to be used for navigation or for other public trust rights in estuarine or public trust waters are not jeopardized while allowing the applicant access to deep waters;

(I) Marinas shall be located and constructed so as to avoid adverse impacts on navigation throughout all federally maintained channels and their boundaries as designated by the US Army Corps of Engineers. This includes permanent or temporary mooring sites; speed or traffic reductions; or any other device, either physical or regulatory, that may cause a federally maintained channel to be restricted;

(J) Open water marinas shall not be enclosed within breakwaters that preclude circulation sufficient to maintain water quality;

(K) Marinas that require dredging shall provide areas in accordance with Part (b)(1)(B) of this Rule to accommodate disposal needs for future maintenance dredging, including the ability to remove the dredged material from the marina site;

(L) Marina design shall comply with all applicable EMC requirements (15A NCAC 02B .0200) for management of stormwater runoff. Stormwater management systems shall not be located within the 30-foot buffer area outlined in 15A NCAC 07H .0209(d);

(M) Marinas shall post a notice prohibiting the discharge of any waste from boat toilets and listing the availability of local pump-out services;

(N) Boat maintenance areas shall be designed so that all scraping, sandblasting, and painting will be done over dry land with collection and containment devices that prevent entry of waste materials into adjacent waters;

(O) All marinas shall comply with all applicable standards for docks and piers, shoreline stabilization, dredging and dredged material disposal of this Rule;

(P) All applications for marinas shall be reviewed by the Division of Coastal Management to determine their potential impact to coastal resources and compliance with applicable standards of this Rule. Such review shall also consider the cumulative impacts of marina development in accordance with G.S. 113A-120(a)(10); and

(Q) Replacement of existing marinas to maintain previous service levels shall be allowed provided that the development complies with the standards for marina development within this Section.

(6) Piers and Docking Facilities.

(A) Piers shall not exceed six feet in width. Piers greater than six feet in width shall be permitted only if the greater width is necessary for safe use, to improve public access, or to support a water dependent use that cannot otherwise occur;

(B) The total square footage of shaded impact for docks and mooring facilities (excluding the pier) allowed shall be eight square feet per linear foot of shoreline with a maximum of 2,000 square feet. In calculating the shaded impact, uncovered open water slips shall not be counted in the total. Projects requiring dimensions greater than those stated in this Rule shall be permitted only if the greater dimensions are necessary for safe use, to improve public access, or to support a water dependent use that cannot otherwise occur. Size restrictions shall not apply to marinas;

(C) Piers and docking facilities over coastal wetlands shall be no wider than six feet and shall be elevated at least three feet above any coastal wetland substrate as measured from the bottom of the decking;

(D) A boathouse shall not exceed 400 square feet except to accommodate a documented need for a larger boathouse and shall have sides extending no farther than one-half the height of the walls as measured from the Normal Water Level or Normal High Water and covering only the top half of the walls. Measurements of square footage shall be taken of the greatest exterior dimensions. Boathouses shall not be allowed on lots with less than 75 linear feet of shoreline, except that structural boat covers utilizing a frame-supported fabric covering may be permitted on properties with less than 75 linear feet of shoreline when using screened fabric for side walls. Size restrictions do not apply to marinas;

(E) The total area enclosed by an individual boat lift shall not exceed 400 square feet except to accommodate a documented need for a larger boat lift;

(F) Piers and docking facilities shall be single story. They may be roofed but shall not be designed to allow second story use;

(G) Pier and docking facility length shall be limited by:

(i) not extending beyond the established pier or docking facility length along the same shoreline for similar use. This restriction does not apply to piers 100 feet or less in length unless necessary to avoid unreasonable interference with navigation or other uses of the waters by the public;

(ii) not extending into the channel portion of the water body; and

(iii) not extending more than one-fourth the width of a natural water body, or human-made canal or basin. Measurements to determine widths of the water body, canals, or basins shall be made from the waterward edge of any coastal wetland vegetation that borders the water body. The one-fourth length limitation does not apply in areas where the U.S. Army Corps of Engineers, or a local government in consultation with the Corps of Engineers, has established an official pier-head line. The one-fourth length limitation shall not apply when the proposed pier is located between longer piers or docking facilities within 200 feet of the applicant's property. However, the proposed pier or docking facility shall not be longer than the pier head line established by the adjacent piers or docking facilities, nor longer than one-third the width of the water body.

(H) Piers or docking facilities longer than 400 feet shall be permitted only if the proposed length gives access to deeper water at a rate of at least 1 foot each 100 foot increment of length longer than 400 feet, or, if the additional length is necessary to span some obstruction to navigation. Measurements to determine lengths shall be made from the waterward edge of any coastal wetland vegetation that borders the water body;

(I) Piers and docking facilities shall not interfere with the access to any riparian property and shall have a minimum setback of 15 feet between any part of the pier or docking facility and the adjacent property owner's areas of riparian access. The line of division of areas of riparian access shall be established by drawing a line along the channel or deep water in front of the properties, then drawing a line perpendicular to the line of the channel so that it intersects with the shore at the point the upland property line meets the water's edge. The minimum setback provided in the rule may be waived by the written agreement of the adjacent riparian owner(s) or when two adjoining riparian owners are co-applicants. If the adjacent property is sold before construction of the pier or docking facility commences, the applicant shall obtain a written agreement with the new owner waiving the minimum setback and submit it to the permitting agency prior to initiating any development of the pier. Application of this Rule may be aided by reference to the

approved diagram in 15A NCAC 07H .1205(t) illustrating the rule as applied to various shoreline configurations. When shoreline configuration is such that a perpendicular alignment cannot be achieved, the pier shall be aligned to meet the intent of this Rule to the maximum extent practicable as determined by the Director of the Division of Coastal Management; and

(J) Applicants for authorization to construct a pier or docking facility shall provide notice of the permit application to the owner of any part of a shellfish franchise or lease over which the proposed dock or pier would extend. The applicant shall allow the lease holder the opportunity to mark a navigation route from the pier to the edge of the lease.

(7) Bulkheads

(A) Bulkhead alignment, for the purpose of shoreline stabilization, shall approximate the location of normal high water or normal water level;

(B) Bulkheads shall be constructed landward of coastal wetlands in order to avoid significant adverse impacts to the resources;

(C) Bulkhead backfill material shall be obtained from an upland source approved by the Division of Coastal Management pursuant to this Section, or if the bulkhead is a part of a permitted project involving excavation from a non-upland source, the material so obtained may be contained behind the bulkhead;

(D) Bulkheads shall be permitted below normal high water or normal water level only when the following standards are met:

(i) the property to be bulkheaded has an identifiable erosion problem, whether it results from natural causes or adjacent bulkheads, or it has unusual geographic or geologic features, e.g. steep grade bank, which will cause the applicant unreasonable hardship under the other provisions of this Rule;

(ii) the bulkhead alignment extends no further below normal high water or normal water level than necessary to allow recovery of the area eroded in the year prior to the date of application, to align with adjacent bulkheads, or to mitigate the unreasonable hardship resulting from the unusual geographic or geologic features;

(iii) the bulkhead alignment will not adversely impact public trust rights or the property of adjacent riparian owners;

(iv) the need for a bulkhead below normal high water or normal water level is documented by the Division of Coastal Management; and

(v) the property to be bulkheaded is in a non-oceanfront area.

(E) Where possible, sloping rip-rap, gabions, or vegetation shall be used rather than bulkheads.

(8) Beach Nourishment

(A) Beach creation or maintenance may be allowed to enhance water related recreational facilities for public, commercial, and private use consistent with the following:

(i) Beaches may be created or maintained in areas where they have historically been found due to natural processes;

(ii) Material placed in the water and along the shoreline shall be clean sand and free from pollutants. Grain size shall be equal to that found naturally at the site;

(iii) Beach creation shall not be allowed in primary nursery areas, nor in any areas where siltation from the site would pose a threat to shellfish beds;

(iv) Material shall not be placed on any coastal wetlands or submerged aquatic vegetation as defined by MFC;

(v) Material shall not be placed on any submerged bottom with significant shellfish resources as identified by the Division of Marine Fisheries during the permit review; and

(vi) Beach construction shall not create the potential for filling adjacent navigation channels, canals or boat basins.

(B) Placing unconfined sand material in the water and along the shoreline shall not be allowed as a method of shoreline erosion control;

(C) Material from dredging projects may be used for beach nourishment if:

(i) it is first handled in a manner consistent with dredged material disposal as set forth in this Rule;
(ii) it is allowed to dry prior to being placed on the beach; and
(iii) only that material of acceptable grain size as set forth in Subpart (b)(8)(A)(ii) of this Rule is removed from the disposal site for placement on the beach. Material shall not be placed directly on the beach by dredge or dragline during maintenance excavation.

(D) Beach construction shall comply with State and federal water quality standards;

(E) The renewal of permits for beach nourishment projects shall require an evaluation by the Division of Coastal Management of any adverse impacts of the original work; and

(F) Permits issued for beach nourishment shall be limited to authorizing beach nourishment only one time.

(9) Groins

(A) Groins shall not extend more than 25 feet waterward of the normal high water or normal water level unless a longer structure is justified by site specific conditions and by an individual who meets any North Carolina occupational licensing requirements for the type of structure being proposed and approved during the application process;

(B) Groins shall be set back a minimum of 15 feet from the adjoining riparian lines. The setback for rock groins shall be measured from the toe of the structure. This setback may be waived by written agreement of the adjacent riparian owner(s) or when two adjoining riparian owners are co-applicants. Should the adjacent property be sold before construction of the groin commences, the applicant shall obtain a written agreement with the new owner waiving the minimum setback and submit it to the permitting agency prior to initiating any development of the groin;

(C) Groins shall pose no threat to navigation;

(D) The height of groins shall not exceed one foot above normal high water or normal water level;

(E) No more than two structures shall be allowed per 100 feet of shoreline unless the applicant provides evidence that more structures are needed for shoreline stabilization.

(F) "L" and "T" sections shall not be allowed at the end of groins; and

(G) Riprap material used for groin construction shall be free from loose dirt or any other pollutant and of a size sufficient to prevent its movement from the site by wave and current action.

(10) "Freestanding Moorings".

(A) A "freestanding mooring" is any means to attach a ship, boat, vessel, floating structure or other water craft to a stationary underwater device, mooring buoy, buoyed anchor, or piling as long as the piling is not associated with an existing or proposed pier, dock, or boathouse;

(B) Freestanding moorings shall be permitted only:
(i) to riparian property owners within their riparian corridors; or
(ii) to any applicant proposing to locate a mooring buoy consistent with a water use plan that is included in either the local zoning or land use plan.

(C) All mooring fields shall provide an area for access to any mooring(s) and other land based operations that shall include wastewater pumpout, trash disposal and vehicle parking;

(D) To protect water quality of shellfishing areas, mooring fields shall not be located within areas where shellfish harvesting for human consumption is a significant existing use or adjacent to such areas if shellfish harvest closure is anticipated to result from the location of the mooring field. In compliance with Section 101(a)(2) of the Federal Water Pollution Control Act, 33 U.S.C. 1251 (a)(2), and North Carolina Water Quality Standards adopted pursuant to that section, shellfish harvesting is a significant existing use if it can be established that shellfish have been regularly harvested for human consumption since November 28, 1975 or that shellfish are propagating and surviving in a biologically suitable habitat and are available and suitable for harvesting for the purpose of human consumption. The Division of Marine Fisheries shall be consulted regarding the significance of shellfish harvest as an existing use and the magnitude of the quantities of

shellfish that have been harvested or are available for harvest in the area where harvest will be affected by the development;

(E) Moorings shall not be located without written consent from the leaseholders or owners of submerged lands that have been leased from the state or deeded by the State;

(F) Moorings shall be located and constructed so as to avoid adverse impacts on navigation throughout all federally maintained channels. This includes permanent or temporary mooring sites, speed or traffic reductions, or any other device, either physical or regulatory, which may cause a federally maintained channel to be restricted;

(G) Open water moorings shall not be enclosed within breakwaters that preclude circulation and degrade water quality in violation of EMC standards;

(H) Moorings and the associated land based operation design shall comply with all applicable EMC requirements for management of stormwater runoff;

(I) Mooring fields shall have posted in view of patrons a notice prohibiting the discharge of any waste from boat toilets or any other discharge and listing the availability of local pump-out services and waste disposal;

(J) Freestanding moorings associated with commercial shipping, public service, or temporary construction or salvage operations may be permitted without a public sponsor;

(K) Freestanding mooring buoys and piles shall be evaluated based upon the arc of the swing including the length of the vessel to be moored. Moorings and the attached vessel shall not interfere with the access of any riparian owner nor shall it block riparian access to channels or deep water, which allows riparian access. Freestanding moorings shall not interfere with the ability of any riparian owner to place a pier for access;

(L) Freestanding moorings shall not be established in submerged cable or pipe crossing areas or in a manner that interferes with the operations of an access through any bridge;

(M) Freestanding moorings shall be marked or colored in compliance with U.S. Coast Guard and the WRC requirements and the required marking maintained for the life of the mooring(s); and

(N) The type of material used to create a mooring must be free of pollutants and of a design and type of material so as to not present a hazard to navigation or public safety.

(11) Filling of Canals, Basins and Ditches - Notwithstanding the general use standards for estuarine systems as set out in Paragraph (a) of this Rule, filling canals, basins and ditches shall be allowed if all of the following conditions are met:

(A) the area to be filled was not created by excavating lands which were below the normal high water or normal water level;

(B) if the area was created from wetlands, the elevation of the proposed filling does not exceed the elevation of said wetlands so that wetland function will be restored;

(C) the filling will not adversely impact any designated primary nursery area, shellfish bed, submerged aquatic vegetation as defined by the MFC, coastal wetlands, public trust right or public trust usage; and

(D) the filling will not adversely affect the value and enjoyment of property of any riparian owner.

(12) "Submerged Lands Mining"

(A) Development Standards. Mining of submerged lands shall meet all the following standards:

(i) The biological productivity and biological significance of mine sites, or borrow sites used for sediment extraction, shall be evaluated for significant adverse impacts and a protection strategy for these natural functions and values provided with the State approval request or permit application;

(ii) Natural reefs, coral outcrops, artificial reefs, seaweed communities, and significant benthic communities identified by the Division of Marine Fisheries or the WRC shall be avoided;

(iii) Mining shall avoid significant archaeological resources as defined in Rule .0509 of this Subchapter; shipwrecks identified by the Department of Cultural Resources; and unique geological features that require protection from uncontrolled or incompatible development as identified by the Division of Energy, Mineral, and Land Resources pursuant to G.S. 113A-113(b)(4)(g);

(iv) Mining activities shall not be conducted on or within 500 meters of significant biological communities identified by the Division of Marine Fisheries or the WRC, such as high relief hard bottom areas. "High relief" is defined for this Part as relief greater than or equal to one-half meter per five meters of horizontal distance;

(v) Mining activities shall be timed to minimize impacts on the life cycles of estuarine or ocean resources; and

(vi) Mining activities shall not affect potable groundwater supplies, wildlife, freshwater, estuarine, or marine fisheries.

(B) Permit Conditions. Permits for submerged lands mining may be conditioned on the applicant amending the mining proposal to include measures necessary to ensure compliance with the provisions of the Mining Act and the rules for development set out in this Subchapter. Permit conditions shall also include:

(i) Monitoring by the applicant to ensure compliance with all applicable development standards; and

(ii) A determination of the necessity and feasibility of restoration shall be made by the Division of Coastal Management as part of the permit or consistency review process. Restoration shall be necessary where it will facilitate recovery of the pre-development ecosystem. Restoration shall be considered feasible unless, after consideration of all practicable restoration alternatives, the Division of Coastal Management determines that the adverse effects of restoration outweigh the benefits of the restoration on estuarine or ocean resources. If restoration is determined to be necessary and feasible, then the applicant shall submit a restoration plan to the Division of Coastal Management prior to the issuance of the permit.

(C) Dredging activities for the purposes of mining natural resources shall be consistent with the development standards set out in this Rule;

(D) Mitigation. Where mining cannot be conducted consistent with the development standards set out in this Rule, the applicant may request mitigation approval under 15A NCAC 07M .0700; and

(E) Public Benefits Exception. Projects that conflict with the standards in this Subparagraph, but provide a public benefit, may be approved pursuant to the standards set out in Subparagraph (a)(3) of this Rule.

(13) "Wind Energy Facilities"

(A) An applicant for the development and operation of a wind energy facility shall provide:

(i) an evaluation of the proposed noise impacts of the turbines to be associated with the proposed facility;

(ii) an evaluation of shadow flicker impacts for the turbines to be associated with the proposed facility;

(iii) an evaluation of avian and bat impacts of the proposed facility;

(iv) an evaluation of viewshed impacts of the proposed facility;

(v) an evaluation of potential user conflicts associated with development in the proposed project area; and

(vi) a plan regarding the action to be taken upon decommissioning and removal of the wind energy facility. The plan shall include estimates of monetary costs, time frame of removal and the proposed site condition after decommissioning.

(B) Development Standards. Development of wind energy facilities shall meet the following standards in addition to adhering to the requirements outlined in Part (a)(13)(A) of this Rule:

(i) Natural reefs, coral outcrops, artificial reefs, seaweed communities, and significant benthic communities identified by the Division of Marine Fisheries or the WRC shall be avoided;

(ii) Development shall not be sited on or within 500 meters of significant biological communities identified by the Division of Marine Fisheries or the WRC, such as high relief hard bottom areas. High relief is defined for this standard as relief greater than or equal to one-half meter per five meters of horizontal distance;

(iii) Development shall not cause irreversible damage to documented archeological resources including shipwrecks identified by the Department of Cultural Resources and unique geological features that require protection from uncontrolled or incompatible development as identified by the Division of Energy, Mineral, and Land Resources pursuant to G.S. 113A-113(b)(4)(g);

(iv) Development activities shall be timed to avoid significant adverse impacts on the life cycles of estuarine or ocean resources, or wildlife;

(v) Development or operation of a wind energy facility shall not jeopardize the use of the surrounding waters for navigation or for other public trust rights in public trust areas or estuarine waters; and

(vi) Development or operation of a wind energy facility shall not interfere with air navigation routes, air traffic control areas, military training routes or special use airspace and shall comply with standards adopted by the Federal Aviation Administration and codified under 14 CFR Part 77.13.

(C) Permit Conditions. Permits for wind energy facilities may be conditioned on the applicant amending the proposal to include measures necessary to ensure compliance with the standards for development set out in this Rule. Permit conditions may include monitoring to ensure compliance with all applicable development standards; and

(D) Public Benefits Exception. Projects that conflict with these standards, but provide a public benefit, may be approved pursuant to the standards set out in Subparagraph (a)(3) of this Rule.

History Note: *Authority G.S. 113A-107(b); 113A-108; 113A-113(b); 113A-124;*
Eff. September 9, 1977;
Amended Eff. February 1, 1996; April 1, 1993; February 1, 1993; November 30, 1992;
RRC Objection due to ambiguity Eff. March 21, 1996;
Amended Eff. August 1, 2012(see S.L. 2012-143, s.1.(f)); February 1, 2011; August 1, 2010;
June 1, 2010; August 1, 1998; May 1, 1996;
Readopted Eff. July 1, 2020;
Amended Eff. August 1, 2022.

15A NCAC 07H .0209 COASTAL SHORELINES

(a) Description. The Coastal Shorelines category includes estuarine shorelines and public trust shorelines.

(1) Estuarine shorelines AEC are those non-ocean shorelines extending from the normal high water level or normal water level along the estuarine waters, estuaries, sounds, bays, fresh and brackish waters, and public trust areas as set forth in an agreement adopted by the Wildlife Resources Commission and the Department of Environmental Quality [described in Rule .0206(a) of this Section] for a distance of 75 feet landward. For those estuarine shorelines immediately contiguous to waters classified as Outstanding Resource Waters (ORW) by the Environmental Management Commission (EMC), the estuarine shoreline AEC shall extend to 575 feet landward from the normal high water level or normal water level, unless the Coastal Resources Commission establishes the boundary at a greater or lesser extent following required public hearing(s) within the affected county or counties.

(2) Public trust shorelines AEC are those non-ocean shorelines immediately contiguous to public trust areas, as defined in Rule 07H .0207(a) of this Section, located inland of the dividing line between coastal fishing waters and inland fishing waters as set forth in that agreement and extending 30 feet landward of the normal high water level or normal water level.

(b) Significance. Development within coastal shorelines influences the quality of estuarine and ocean life and is subject to the damaging processes of shore front erosion and flooding. The coastal shorelines and wetlands contained within them serve as barriers against flood damage and control erosion between the estuary and the uplands. Coastal shorelines are the intersection of the upland and aquatic elements of the estuarine and ocean system, often integrating influences from both the land and the sea in wetland areas. Some of these wetlands are among the most productive natural environments of North Carolina and they support the functions of and habitat for many valuable commercial and sport fisheries of the coastal area. Many land-based activities influence the quality and productivity of estuarine waters. Some important features of the coastal shoreline include wetlands, flood plains, bluff shorelines, mud and sand flats, forested shorelines and other important habitat areas for fish and wildlife.

(c) Management Objective. All shoreline development shall be compatible with the dynamic nature of coastal shorelines as well as the values and the management objectives of the estuarine and ocean system. Other objectives are to conserve and manage the important natural features of the estuarine and ocean system so as to safeguard and perpetuate their biological, social, aesthetic, and economic values; to coordinate and establish a management system capable of conserving and utilizing these shorelines so as to maximize their benefits to the estuarine and ocean system and the people of North Carolina.

(d) Use Standards. Acceptable uses shall be those consistent with the management objectives in Paragraph (c) of this Rule. These uses shall be limited to those types of development activities that will not be detrimental to the public trust rights and the biological and physical functions of the estuarine and ocean system. Every effort shall be made by the permit applicant to avoid or minimize adverse impacts of development to estuarine and coastal systems through the planning and design of the development project. Development shall comply with the following standards:

(1) All development projects, proposals, and designs shall preserve natural barriers to erosion, including peat marshland, resistant clay shorelines, and cypress-gum protective fringe areas adjacent to vulnerable shorelines.

(2) All development projects, proposals, and designs shall limit the construction of impervious surfaces and areas not allowing natural drainage to only so much as is necessary to service the primary purpose or use for which the lot is to be developed. Impervious surfaces shall not exceed 30 percent of the AEC area of the lot, unless the applicant can demonstrate, through innovative design, that the protection provided by the design would be equal to or exceed the protection by the 30 percent limitation. Redevelopment of areas exceeding the 30 percent impervious surface limitation shall be permitted if impervious areas are not increased and the applicant designs the project to comply with the rule to the maximum extent feasible.

(3) All development projects, proposals, and designs shall comply with the following mandatory standards of the North Carolina Sedimentation Pollution Control Act of 1973:

(A) All development projects, proposals, and designs shall provide for a buffer zone along the margin of the estuarine water that is sufficient to confine visible siltation within 25 percent of the buffer zone nearest the land disturbing development.

(B) No development project proposal or design shall propose an angle for graded slopes or fill that is greater than an angle that can be retained by vegetative cover or other erosion-control devices or structures.

(C) All development projects, proposals, and designs that involve uncovering more than one acre of land shall plant a ground cover sufficient to restrain erosion within 30 working days of completion of the grading; unless the project involves clearing land for the purpose of forming a reservoir later to be inundated.

(4) Development shall not have a significant adverse impact on estuarine and ocean resources. Significant adverse impacts include development that would directly or indirectly impair water quality increase shoreline erosion, alter coastal wetlands or Submerged Aquatic Vegetation (SAV), deposit spoils waterward of normal water level or normal high water, or cause degradation of shellfish beds.

(5) Development shall not interfere with existing public rights of access to, or use of, navigable waters or public resources.

(6) No public facility shall be permitted if such a facility is likely to require public expenditures for maintenance and continued use, unless it can be shown that the public purpose served by the facility outweighs the required public expenditures for construction, maintenance, and continued use.

(7) Development shall not cause irreversible damage to valuable, historic architectural or archaeological resources as documented by the local historic commission or the North Carolina Department of Natural and Cultural Resources.

(8) Established common-law and statutory public rights of access to the public trust lands and waters in estuarine areas shall not be eliminated or restricted. Development shall not encroach upon public accessways nor shall it limit the use of the accessways.

(9) Within the AECs for shorelines contiguous to waters classified as ORW by the EMC, no CAMA permit shall be approved for any project that would be inconsistent with rules adopted by the CRC, EMC or MFC for estuarine waters, public trust areas, or coastal wetlands. For development

activities not covered by specific use standards, no permit shall be issued if the activity would, based on site-specific information, degrade the water quality or outstanding resource values.

(10) Within the Coastal Shorelines category (estuarine and public trust shoreline AECs), new development shall be located a distance of 30 feet landward of the normal water level or normal high water level, with the exception of the following:

(A) Water-dependent uses as described in Rule 07H .0208(a)(1) of this Section;

(B) Pile-supported signs (in accordance with local regulations);

(C) Post- or pile-supported fences;

(D) Elevated, slatted, wooden boardwalks exclusively for pedestrian use and six feet in width or less. The boardwalk may be greater than six feet in width if it is to serve a public use or need;

(E) Crab Shedders, if uncovered with elevated trays and no associated impervious surfaces except those necessary to protect the pump;

(F) Decks/Observation Decks limited to slatted, wooden, elevated and unroofed decks that shall not singularly or collectively exceed 200 square feet;

(G) Grading, excavation and landscaping with no wetland fill except when required by a permitted shoreline stabilization project. Projects shall not increase stormwater runoff to adjacent estuarine and public trust waters;

(H) Development over existing impervious surfaces, provided that the existing impervious surface is not increased;

(I) Where application of the buffer requirement would preclude placement of a residential structure with a footprint of 1,200 square feet or less on lots, parcels and tracts platted prior to June 1, 1999, development shall be permitted within the buffer as required in Subparagraph (d)(10) of this Rule, providing the following criteria are met:

(i) Development shall minimize the impacts to the buffer and reduce runoff by limiting land disturbance to only so much as is necessary to construct and provide access to the residence and to allow installation or connection of utilities, such as water and sewer; and

(ii) The residential structure development shall be located a distance landward of the normal high water or normal water level equal to 20 percent of the greatest depth of the lot. Existing structures that encroach into the applicable buffer area may be replaced or repaired consistent with the criteria set out in 15A NCAC 07J .0201 and .0211; and

(J) Where application of the buffer requirement set out in Subparagraph (d)(10) of this Rule would preclude placement of a residential structure on an undeveloped lot platted prior to June 1, 1999 that are 5,000 square feet or less that does not require an on-site septic system, or on an undeveloped lot that is 7,500 square feet or less that requires an on-site septic system, development shall be permitted within the buffer if all the following criteria are met:

(i) The lot on which the proposed residential structure is to be located, is located between:

(I) Two existing waterfront residential structures, both of which are within 100 feet of the center of the lot and at least one of which encroaches into the buffer; or

(II) An existing waterfront residential structure that encroaches into the buffer and a road, canal, or other open body of water, both of which are within 100 feet of the center of the lot;

(ii) Development of the lot shall minimize the impacts to the buffer and reduce runoff by limiting land disturbance to only so much as is necessary to construct and provide access to the residence and to allow installation or connection of utilities;

(iii) Placement of the residential structure and pervious decking shall be aligned no further into the buffer than the existing residential structures and existing pervious decking on adjoining lots;

(iv) The first one and one-half inches of rainfall from all impervious surfaces on the lot shall be collected and contained on-site in accordance with the design

standards for stormwater management for coastal counties as specified in 15A NCAC 02H .1005. The stormwater management system shall be designed by an individual who meets applicable State occupational licensing requirements for the type of system proposed and approved during the permit application process. If the residential structure encroaches into the buffer, then no other impervious surfaces shall be allowed within the buffer; and

(v) The lots shall not be adjacent to waters designated as approved or conditionally approved shellfish waters by the Shellfish Sanitation Section of the Division of Marine Fisheries of the Department of Environmental Quality.

(e) The buffer requirements in Paragraph (d) of this Rule shall not apply to Coastal Shorelines where the EMC has adopted rules that contain buffer standards.

(f) Specific Use Standards for ORW Coastal Shorelines.

(1) Within the AEC for estuarine and public trust shorelines contiguous to waters classified as ORW by the EMC, all development projects, proposals, and designs shall limit the built upon area in the AEC to no more than 25 percent or any lower site specific percentage as adopted by the EMC as necessary to protect the exceptional water quality and outstanding resource values of the ORW, and shall:

(A) provide a buffer zone of at least 30 feet from the normal high water line or normal water line; and

(B) otherwise be consistent with the use standards set out in Paragraph (d) of this Rule.

(2) Single-family residential lots that would not be buildable under the low-density standards defined in Subparagraph (f)(1) of this Rule may be developed for single-family residential purposes so long as the development complies with those standards to the maximum extent possible.

(g) Urban Waterfronts.

(1) Definition. Urban Waterfronts are waterfront areas, not adjacent to ORW, in the Coastal Shorelines category that lie within the corporate limits of any municipality duly chartered within the 20 coastal counties of the state. In determining whether an area is an urban waterfront, the following criteria shall be met:

(A) the area lies wholly within the corporate limits of a municipality; and

(B) the area has a central business district or similar commercial zoning classification where there are mixed land uses, and urban level services, such as water, sewer, streets, solid waste management, roads, police and fire protection, or in an area with an industrial or similar zoning classification adjacent to a central business district.

(2) Significance. Urban waterfronts are recognized as having cultural, historical and economic significance for many coastal municipalities. Maritime traditions and longstanding development patterns make these areas suitable for maintaining or promoting dense development along the shore. With proper planning and stormwater management, these areas may continue to preserve local historical and aesthetic values while enhancing the economy.

(3) Management Objectives. To provide for the continued cultural, historical, aesthetic and economic benefits of urban waterfronts. Activities such as in-fill development, reuse and redevelopment facilitate efficient use of already urbanized areas and reduce development pressure on surrounding areas, in an effort to minimize the adverse cumulative environmental effects on estuarine and ocean systems. While recognizing that opportunities to preserve buffers are limited in highly developed urban areas, they are encouraged where practical.

(4) Use Standards:

(A) The buffer requirement pursuant to Subparagraph (d)(10) of this Rule shall not apply to development within Urban Waterfronts that meets the following standards:

(i) The development shall be consistent with the locally adopted land use plan;

(ii) Impervious surfaces shall not exceed 30 percent of the AEC area of the lot. Impervious surfaces may exceed 30 percent if the applicant can demonstrate, through a stormwater management system design, that the protection provided by the design would be equal to or exceed the protection by the 30 percent limitation. The stormwater management system shall be designed by an individual who meets any North Carolina occupational licensing requirements for the type of system proposed and approved during the permit application process. Redevelopment of areas exceeding the 30 percent impervious surface

limitation shall be permitted if impervious areas are not increased and the applicant designs the project to comply with the intent of the rule to the maximum extent feasible; and

(iii) The development shall meet all state stormwater management requirements as required by the EMC;

(B) Non-water dependent uses over estuarine waters, public trust waters and coastal wetlands shall be allowed only within Urban Waterfronts as set out below.

(i) Existing structures over coastal wetlands, estuarine waters or public trust areas may be used for commercial non-water dependent purposes. Commercial, non-water dependent uses shall be limited to restaurants and retail services. Residential uses, lodging and new parking areas shall be prohibited.

(ii) For the purposes of this Rule, existing enclosed structures may be replaced or expanded vertically provided that vertical expansion does not exceed the original footprint of the structure, is limited to one additional story over the life of the structure, and is consistent with local requirements or limitations.

(iii) New structures built for non-water dependent purposes are limited to pile-supported, single-story, unenclosed decks and boardwalks, and shall meet the following criteria:

(I) shall provide for enhanced public access to the shoreline;

(II) may be roofed, but shall not be enclosed by partitions, plastic sheeting, screening, netting, lattice or solid walls of any kind;

(III) shall require no filling of coastal wetlands, estuarine waters or public trust areas;

(IV) shall not extend more than 20 feet waterward of the normal high water level or normal water level;

(V) shall be elevated at least three feet over the wetland substrate as measured from the bottom of the decking;

(VI) shall have no more than six feet of any dimension extending over coastal wetlands;

(VII) shall not interfere with access to any riparian property and shall have a minimum setback of 15 feet between any part of the structure and the adjacent property owners' areas of riparian access. The line of division of areas of riparian access shall be established by drawing a line along the channel or deep water in front of the properties, then drawing a line perpendicular to the line of the channel so that it intersects with the shore at the point the upland property line meets the water's edge. The minimum setback provided in the rule may be waived by the written agreement of the adjacent riparian owner(s) or when two adjoining riparian owners are co-applicants. Should the adjacent property be sold before construction of the structure commences, the applicant shall obtain a written agreement with the new owner waiving the minimum setback and submit it to the permitting agency prior to initiating any development;

(VIII) shall be consistent with the US Army Corps of Engineers setbacks along federally authorized waterways;

(IX) shall have no significant adverse impacts on fishery resources, water quality or adjacent wetlands and there shall be no alternative that would avoid wetlands. Significant adverse impacts include the development that would impair water quality standards, increase shoreline erosion, alter coastal wetlands or Submerged Aquatic Vegetation (SAV), deposit spoils waterward of normal water level or normal high water level, or cause degradation of shellfish beds;

(X) shall not degrade waters classified as SA or High Quality Waters or ORW as defined by the EMC;

(XI) shall not degrade Critical Habitat Areas or Primary Nursery Areas as defined by the NC Marine Fisheries Commission; and

(XII) shall not pose a threat to navigation.

History Note: *Authority G.S. 113A-107(b); 113A-108; 113A-113(b); 113A-124;*
Eff. September 1, 1977;
Amended Eff. April 1, 2001; August 1, 2000; August 3, 1992; December 1, 1991; May 1, 1990; October 1, 1989;
Temporary Amendment Eff. October 15, 2001 (exempt from 270 day requirement-S.L. 2000-142);
Temporary Amendment Eff. February 15, 2002 (exempt from 270 day requirement-S.L. 2001-494);
Amended Eff. April 1, 2019; March 1, 2010; April 1, 2008; August 1, 2002;
Readopted Eff. July 1, 2020.

SECTION .0300 - OCEAN HAZARD AREAS

15A NCAC 07H .0301 OCEAN HAZARD CATEGORIES

The Ocean Hazard categories of AECs encompass the natural hazard areas along the Atlantic Ocean shoreline where, because of their vulnerability to erosion or other adverse effects of sand, wind, and water, uncontrolled or incompatible development could endanger life or property. Ocean hazard areas include beaches, frontal dunes, inlet lands, and other areas in which geologic, vegetative and soil conditions may subject the area to erosion or flood damage.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b)(6a); 113A-113(b)(6b); 113A-113(b)(6d); 113A-124;*
Eff. September 9, 1977;
Readopted Eff. December 1, 2020.

15A NCAC 07H .0302 SIGNIFICANCE OF THE OCEAN HAZARD CATEGORY

(a) Hazards associated with ocean shorelines are due to the constant forces exerted by waves, winds, and currents upon the unstable sands that form the shore. During storms, these forces are intensified and can cause changes in the bordering landforms and to structures located on them. Ocean hazard area property is in the ownership of a large number of private individuals as well as several public agencies and is used by a vast number of visitors to the coast. Ocean hazard areas are critical due to both the severity of the hazards and the intensity of interest in these areas.
(b) The location and form of the various hazard area landforms, in particular the beaches, dunes, and inlets, are in a permanent state of flux, responding to meteorologically induced changes in the wave climate. For this reason, the siting of development on and near these landforms shall be subject to the provisions in this Section in order to avoid their loss or damage. The flexible nature of these landforms presents hazards to development situated immediately on them and offers protection to the land, water, and structures located landward of them. The value of each landform lies in the particular role it plays in affording protection to life and property. Development shall not diminish the energy dissipation and sand storage capacities of the landforms essential to the maintenance of the landforms' protective function.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b)(6a); 113A-113(b)(6b); 113A-113(b)(6d); 113A-124;*
Eff. September 9, 1977;
Amended Eff. October 1, 1992;
Readopted Eff. December 1, 2020.

15A NCAC 07H .0303 MANAGEMENT OBJECTIVE OF OCEAN HAZARD AREAS

(a) The CRC recognizes that absolute safety from the destructive forces of the Atlantic Ocean shoreline is an impossibility for development located adjacent to the coast. The loss of life and property to these forces, however, can be greatly reduced by the proper location and design of structures and by care taken in prevention of damage to natural protective features particularly primary and frontal dunes. Therefore, it is the CRC's objective that development in ocean hazard areas shall be sited to minimize danger to life and property and achieve a balance between the financial, safety, and social factors that are involved in hazard area development.
(b) The rules set forth in this Section shall further the goals set out in G.S. 113A-102(b), to minimize losses to life and property resulting from storms and long-term erosion, prevent encroachment of permanent structures on public

beach areas, preserve the natural ecological conditions of the barrier dune and beach systems, and reduce the public costs of development within ocean hazard areas, and protect common-law and statutory public rights of access to and use of the lands and waters of the coastal area.

History Note: *Authority G.S. 113A-107(b); 113A-113(b)(6) a.; 113A-113(b)(6) b.;113A-113(b)(6)d.; 113A-124; Eff. September 9, 1977;*
Amended Eff. October 1, 1992; December 1, 1991; September 1, 1985; February 2, 1981;
Readopted Eff. December 1, 2020.

15A NCAC 07H .0304 AECS WITHIN OCEAN HAZARD AREAS

The ocean hazard AECs contain all of the following areas:

(1) Ocean Erodible Area. This is the area where there exists a substantial possibility of excessive erosion and significant shoreline fluctuation. The oceanward boundary of this area is the mean low water line. The landward extent of this area is the distance landward from the vegetation line as defined in 15A NCAC 07H .0305(a)(5) to the recession line established by multiplying the long-term annual erosion rate times 90; provided that, where there has been no long-term erosion or the rate is less than two feet per year, this distance shall be set at 180 feet landward from the vegetation line. For the purposes of this Rule, the erosion rates are the long-term average based on available historical data. The current long-term average erosion rate data for each segment of the North Carolina coast is depicted on maps entitled "North Carolina 2019 Oceanfront Setback Factors & Long-Term Average Annual Erosion Rate Update Study" and approved by the Coastal Resources Commission on February 28, 2019 (except as such rates may be varied in individual contested cases or in declaratory or interpretive rulings). In all cases, the rate of shoreline change shall be no less than two feet of erosion per year. The maps are available without cost from any Local Permit Officer or the Division of Coastal Management on the internet at http://www.nccoastalmanagement.net.

(2) Inlet Hazard Area. The inlet hazard areas are natural-hazard areas that are especially vulnerable to erosion, flooding, and other adverse effects of sand, wind, and water because of their proximity to dynamic ocean inlets. This area extends landward from the mean low water line a distance encompassing that area within which the inlet migrates, based on statistical analysis, and shall consider such factors as previous inlet territory, structurally weak areas near the inlet, and external influences such as jetties, terminal groins, and channelization. The areas on the maps identified as Inlet Hazard Areas included in the report entitled INLET HAZARD AREAS, The Final Report and Recommendations to the Coastal Resources Commission, 1978, as amended in 1981, by Loie J. Priddy and Rick Carraway are incorporated by reference and are hereby designated as Inlet Hazard Areas, except for:

(a) the location of a former inlet which has been closed for at least 15 years;

(b) inlets that due to shoreline migration, no longer include the current location of the inlet; and

(c) inlets providing access to a State Port via a channel maintained by the United States Army Corps of Engineers.

In all cases, the Inlet Hazard Area shall be an extension of the adjacent ocean erodible areas and in no case shall the width of the inlet hazard area be less than the width of the adjacent ocean erodible area. This report is available for inspection at the Department of Environmental Quality, Division of Coastal Management, 400 Commerce Avenue, Morehead City, North Carolina or at the website referenced in Item (1) of this Rule.

(3) Unvegetated Beach Area. Beach areas within the Ocean Hazard Area where no stable and natural vegetation is present may be designated as Unvegetated Beach Areas on either a permanent or temporary basis as follows:

(a) An area appropriate for permanent designation as an Unvegetated Beach Area is a dynamic area that is subject to rapid unpredictable landform change due to wind and wave action. The areas in this category shall be designated following studies by the Division of Coastal Management. These areas shall be designated on maps approved by the Coastal Resources Commission and available without cost from any Local Permit Officer or the Division of Coastal Management on the internet at the website referenced in Item (1) of this Rule.

(b) An area that is unvegetated as a result of a hurricane or other major storm event may be designated by the Coastal Resources Commission as an Unvegetated Beach Area for a specific period of time, or until the vegetation has re-established in accordance with 15A NCAC 07H .0305(a)(5). At the expiration of the time specified or the re-establishment of the vegetation, the area shall return to its pre-storm designation.

(c) The Commission designates as temporary unvegetated beach areas those oceanfront areas of:

(i) Surf City and North Topsail Beach in which the vegetation line as shown on the United States National Oceanic and Atmospheric Administration imagery dated September 17, 2018 was destroyed as a result of Hurricane Florence in September 2018; and

(ii) Oak Island in which the vegetation line as shown on the United States National Oceanic and Atmospheric Administration and Geological Survey imagery dated August 4, 2020 was destroyed as a result of Hurricane Isaias in August 2020.

The designation AEC boundaries can be found on the Division's website at https://files.nc.gov/ncdeq/Coastal%20Management/GIS/unvegetated_beach_aec.pdf and https://files.nc.gov/ncdeq/Coastal%20Management/GIS/unveg_beachAEC_Oak_Island.zip. This designation shall continue until such time as the stable and natural vegetation has reestablished, or until the area is permanently designated as an unvegetated beach area pursuant to Sub-Item (3)(a) of this Rule.

(4) State Ports Inlet Management Area. These are areas adjacent to and within Beaufort Inlet and the mouth of the Cape Fear River, providing access to a State Port via a channel maintained by the Unites States Army Corps of Engineers. These areas are unique due to the influence of federally-maintained channels, and the critical nature of maintaining shipping access to North Carolina's State Ports. These areas may require specific management strategies not warranted at other inlets to address erosion and shoreline stabilization. State Ports Inlet Management Areas shall extend from the mean low water line landward as designated on maps approved by the Coastal Resources Commission and available without cost from the Division of Coastal Management, and on the internet at the website at https://files.nc.gov/ncdeq/Coastal%20Management/GIS/state_port_aec.pdf.

History Note: *Authority G.S. 113A-107; 113A-107.1; 113A-113; 113A-124;*
Eff. September 9, 1977;
Amended Eff. December 1, 1993; November 1, 1988; September 1, 1986; December 1, 1985;
Temporary Amendment Eff. October 10, 1996;
Amended Eff. April 1, 1997;
Temporary Amendment Eff. October 10, 1996 Expired on July 29, 1997;
Temporary Amendment Eff. October 22, 1997;
Amended Eff. April 1, 2020; July 1, 2016; September 1, 2015; May 1, 2014; February 1, 2013; January 1, 2010; February 1, 2006; October 1, 2004; April 1, 2004; August 1, 1998;
Readopted Eff. December 1, 2020;
Amended Eff. August 1, 2022; September 1, 2021.

15A NCAC 07H .0305 DEFINITION AND DESCRIPTION OF LANDFORMS

This Rule describes natural and man-made features that are found within the ocean hazard area of environmental concern.

(1) Ocean Beaches. Ocean beaches are lands consisting of unconsolidated soil materials that extend from the mean low water line landward to a point where either:

(a) the growth of vegetation occurs; or

(b) a distinct change in slope or elevation alters the configuration of the landform, whichever is farther landward.

(2) Nearshore. The nearshore is the portion of the beach seaward of mean low water that is characterized by dynamic changes both in space and time as a result of storms.

(3) Primary Dunes. Primary dunes are the first mounds of sand located landward of the ocean beaches having an elevation equal to the mean flood level (in a storm having a one percent chance of being equaled or exceeded in any given year) for the area plus six feet. Primary dunes extend landward

to the lowest elevation in the depression behind that same mound of sand commonly referred to as the "dune trough".

(4) Frontal Dunes. The frontal dune is the first mound of sand located landward of ocean beaches that has stable and natural vegetation present.

(5) Vegetation Line. The vegetation line refers to the first line of stable and natural vegetation, which shall be used as the reference point for measuring oceanfront setbacks. This line represents the boundary between the normal dry-sand beach, which is subject to constant flux due to waves, tides, storms and wind, and the more stable upland areas. The vegetation line is generally located at or immediately oceanward of the seaward toe of the frontal dune or erosion escarpment. The Division of Coastal Management or Local Permit Officer shall determine the location of the stable and natural vegetation line based on visual observations of plant composition and density. If the vegetation has been planted, it may be considered stable when the majority of the plant stems are from continuous rhizomes rather than planted individual rooted sets. Planted vegetation may be considered natural when the majority of the plants are mature and additional species native to the region have been recruited, providing stem and rhizome densities that are similar to adjacent areas that are naturally occurring. In areas where there is no stable and natural vegetation present, this line may be established by interpolation between the nearest adjacent stable natural vegetation by on-ground observations or by aerial photographic interpretation.

(6) Pre-project Vegetation Line. In areas within the boundaries of a large-scale beach fill project, the vegetation line that existed within one year prior to the onset of project construction shall be defined as the "pre-project vegetation line". The "onset of project construction" shall be defined as the date sediment placement begins, with the exception of projects completed prior to the original effective date of this Rule, in which case the award of the contract date will be considered the onset of construction. A pre-project vegetation line shall be established in coordination with the Division of Coastal Management using on-ground observation and survey or aerial imagery for all areas of oceanfront that undergo a large-scale beach fill project. Once a pre-project vegetation line is established, and after the onset of project construction, this line shall be used as the reference point for measuring oceanfront setbacks in all locations where it is landward of the vegetation line. In all locations where the vegetation line as defined in this Rule is landward of the pre-project vegetation line, the vegetation line shall be used as the reference point for measuring oceanfront setbacks. A pre-project vegetation line shall not be established where a pre-project vegetation line is already in place, including those established by the Division of Coastal Management prior to the effective date of this Rule. A record of all pre-project vegetation lines, including those established by the Division of Coastal Management prior to the effective date of this Rule, shall be maintained by the Division of Coastal Management for determining development standards as set forth in Rule .0306 of this Section. Because the impact of Hurricane Floyd in September 1999 caused significant portions of the vegetation line in the Town of Oak Island and the Town of Ocean Isle Beach to be relocated landward of its pre-storm position, the pre-project line for areas landward of the beach fill construction in the Town of Oak Island and the Town of Ocean Isle Beach, the onset of which occurred in 2000, shall be defined by the general trend of the vegetation line established by the Division of Coastal Management from June 1998 aerial orthophotography.

(7) Beach Fill. Beach fill refers to the placement of sediment along the oceanfront shoreline. Sediment used solely to establish or strengthen dunes shall not be considered a beach fill project under this Rule. A "large-scale beach fill project" shall be defined as any volume of sediment greater than 300,000 cubic yards or any storm protection project constructed by the U.S. Army Corps of Engineers.

(8) Erosion Escarpment. The normal vertical drop in the beach profile caused from high tide or storm tide erosion.

(9) Measurement Line. The line from which the ocean hazard setback as described in Rule .0306(a) of this Section is measured in the unvegetated beach area of environmental concern as described in Rule .0304(3) of this Section. In areas designated pursuant to Rule .0304(3)(b) of this Section, the Division of Coastal Management shall establish a measurement line by:

(a) determining the average distance the pre-storm vegetation line receded at the closest vegetated site adjacent to the area designated by the Commission as the unvegetated beach AEC; and

(b) mapping a line equal to the average recession determination in Part (a) of this Subparagraph, measured in a landward direction from the first line of stable and natural vegetation line on the most recent pre-storm aerial photography in the area designated as an unvegetated beach AEC.

History Note: *Authority G.S. 113A-107; 113A-113(b)(6); 113A-124;*
Eff. September 9, 1977;
Amended Eff. December 1, 1992; September 1, 1986; December 1, 1985; February 2, 1981;
Temporary Amendment Eff. October 10, 1996;
Amended Eff. January 1, 1997;
Temporary Amendment Eff. October 10, 1996 Expired on July 29, 1997;
Temporary Amendment Eff. October 22, 1997;
Amended Eff. April 1, 2020; April 1, 2016; April 1, 2008; August 1, 2002; August 1, 1998;
Readopted Eff. December 1, 2020;
Amended Eff. August 1, 2022.

15A NCAC 07H .0306 GENERAL USE STANDARDS FOR OCEAN HAZARD AREAS

(a) In order to protect life and property, all development not otherwise specifically exempted or allowed by law or elsewhere in the Coastal Resources Commission's rules shall be located according to whichever of the following is applicable:

(1) The ocean hazard setback for development shall be measured in a landward direction from the vegetation line, the pre-project vegetation line, or the measurement line, whichever is applicable.

(2) The ocean hazard setback shall be determined by both the size of development and the shoreline long term erosion rate as defined in Rule .0304 of this Section. "Development size" is defined by total floor area for structures and buildings or total area of footprint for development other than structures and buildings. Total floor area includes the following:

(A) The total square footage of heated or air-conditioned living space;

(B) The total square footage of parking elevated above ground level; and

(C) The total square footage of non-heated or non-air-conditioned areas elevated above ground level, excluding attic space that is not designed to be load-bearing.

Decks, roof-covered porches, and walkways shall not be included in the total floor area unless they are enclosed with material other than screen mesh or are being converted into an enclosed space with material other than screen mesh.

(3) With the exception of those types of development defined in 15A NCAC 07H .0309(a), no development, including any portion of a building or structure, shall extend oceanward of the ocean hazard setback. This includes roof overhangs and elevated structural components that are cantilevered, knee braced, or otherwise extended beyond the support of pilings or footings. The ocean hazard setback shall be established based on the following criteria:

(A) A building or other structure less than 5,000 square feet requires a minimum setback of 60 feet or 30 times the shoreline erosion rate, whichever is greater;

(B) A building or other structure greater than or equal to 5,000 square feet but less than 10,000 square feet requires a minimum setback of 120 feet or 60 times the shoreline erosion rate, whichever is greater;

(C) A building or other structure greater than or equal to 10,000 square feet but less than 20,000 square feet requires a minimum setback of 130 feet or 65 times the shoreline erosion rate, whichever is greater;

(D) A building or other structure greater than or equal to 20,000 square feet but less than 40,000 square feet requires a minimum setback of 140 feet or 70 times the shoreline erosion rate, whichever is greater;

(E) A building or other structure greater than or equal to 40,000 square feet but less than 60,000 square feet requires a minimum setback of 150 feet or 75 times the shoreline erosion rate, whichever is greater;

(F) A building or other structure greater than or equal to 60,000 square feet but less than 80,000 square feet requires a minimum setback of 160 feet or 80 times the shoreline erosion rate, whichever is greater;

(G) A building or other structure greater than or equal to 80,000 square feet but less than 100,000 square feet requires a minimum setback of 170 feet or 85 times the shoreline erosion rate, whichever is greater;

(H) A building or other structure greater than or equal to 100,000 square feet requires a minimum setback of 180 feet or 90 times the shoreline erosion rate, whichever is greater;

(I) Infrastructure that is linear in nature, such as roads, bridges, pedestrian access such as boardwalks and sidewalks, and utilities providing for the transmission of electricity, water, telephone, cable television, data, storm water, and sewer requires a minimum setback of 60 feet or 30 times the shoreline erosion rate, whichever is greater;

(J) Parking lots greater than or equal to 5,000 square feet require a setback of 120 feet or 60 times the shoreline erosion rate, whichever is greater;

(K) Notwithstanding any other setback requirement of this Subparagraph, construction of a new building or other structure greater than or equal to 5,000 square feet in a community with an unexpired static line exception or Beach Management Plan approved by the Commission in accordance with 15A NCAC 07J .1200 requires a minimum setback of 120 feet or 60 times the shoreline erosion rate in place at the time of permit issuance, whichever is greater. The setback shall be measured landward from either the vegetation line or measurement line, whichever is farthest landward; and

(L) Notwithstanding any other setback requirement of this Subparagraph, replacement of a structure with a total floor area no greater than 10,000 square feet shall be allowed provided that the structure meets the following criteria:

(i) the structure is in a community with an unexpired static line exception, Beach Management Plan approved by the Commission, or was originally constructed prior to August 11, 2009;

(ii) the structure as replaced does not exceed the original footprint or square footage;

(iii) it is not possible for the structure to be rebuilt in a location that meets the ocean hazard setback criteria required under Subparagraph (a)(5) of this Rule;

(iv) the structure as replaced meets the minimum setback required under Part (a)(5)(A) of this Rule; a minimum setback of 60 feet or 30 times the shoreline erosion rate, whichever is greater; and

(v) the structure is rebuilt as far landward on the lot as feasible.

(4) If a primary dune exists in the AEC, on or landward of the lot where the development is proposed, the development shall be landward of the applicable ocean hazard setback and the crest of the primary dune. For existing lots where setting the development landward of the crest of the primary dune would preclude any practical use of the lot, development may be located oceanward of the primary dune. In such cases, the development may be located landward of the ocean hazard setback, and shall not be located on or oceanward of a frontal dune. For the purposes of this Rule, "existing lots" shall mean a lot or tract of land that, as of June 1, 1979, is specifically described in a recorded plat and cannot be enlarged by combining the lot or tract of land with a contiguous lot or tract of land under the same ownership.

(5) If no primary dune exists, but a frontal dune does exist in the AEC on or landward of the lot where the development is proposed, the development shall be set landward of the frontal dune or ocean hazard setback, whichever is farthest from the vegetation line, pre-project vegetation line, or measurement line, whichever is applicable.

(6) Structural additions or increases in the footprint or total floor area of a building or structure represent expansions to the total floor area and shall meet the setback requirements established in this Rule and 15A NCAC 07H .0309(a). New development landward of the applicable setback may be cosmetically but not be structurally attached to an existing structure that does not conform with current setback requirements.

(7) Established common law and statutory public rights of access to and use of public trust lands and waters in ocean hazard areas shall not be eliminated or restricted, nor shall such development increase the risk of damage to public trust areas. Development shall not encroach upon public accessways, nor shall it limit the intended use of the accessways.

(8) Development setbacks in areas that have received large-scale beach fill as defined in 15A NCAC 07H .0305 shall be measured landward from the pre-project vegetation line as defined in this Section, unless an unexpired static line exception or Beach Management Plan approved by the

Commission has been approved for the local jurisdiction by the Coastal Resources Commission in accordance with 15A NCAC 07J .1200.

(9) A local government, group of local governments involved in a regional beach fill project, or qualified "owners' association" as defined in G.S. 47F-1-103(3) that has the authority to approve the locations of structures on lots within the territorial jurisdiction of the association and has jurisdiction over at least one mile of ocean shoreline, may petition the Coastal Resources Commission for approval of a "Beach Management Plan" in accordance with 15A NCAC 07J .1200. If the request for a Beach Management Plan is approved, the Coastal Resources Commission shall allow development setbacks to be measured from a vegetation line that is oceanward of the pre-project vegetation line under the following conditions:

(A) Development meets all setback requirements from the vegetation line defined in Subparagraphs (a)(1) and (a)(3) of this Rule;

(B) Development setbacks shall be calculated from the shoreline erosion rate in place at the time of permit issuance;

(C) No portion of a building or structure, including roof overhangs and elevated portions that are cantilevered, knee braced, or otherwise extended beyond the support of pilings or footings, extends oceanward of the landward-most adjacent habitable building or structure. The alignment shall be measured from the most oceanward point of the adjacent building or structure's roof line, including roofed decks, if applicable. An "adjacent" property is one that shares a boundary line with the site of the proposed development. When no adjacent buildings or structures exist, or the configuration of a lot, street, or shoreline precludes the placement of a building or structure in line with the landward-most adjacent building or structure, an average line of construction shall be determined by the Director of the Division of Coastal Management based on an approximation of the average seaward-most positions of the rooflines of adjacent structures along the same shoreline, extending 500 feet in either direction. If no structures exist within this distance, the proposed structure must meet the applicable setback from the Vegetation Line and will not be held to the landward-most adjacent structure or an average line of structures.

(D) With the exception of swimming pools, the exceptions defined in Rule .0309(a) of this Section shall be allowed oceanward of the pre-project vegetation line.

(b) Development shall not cause irreversible damage to historic architectural or archaeological resources as documented by the local historic commission, the North Carolina Department of Natural and Cultural Resources, or the National Historical Registry.

(c) Mobile homes shall not be placed within the high hazard flood area unless they are within mobile home parks existing as of June 1, 1979.

(d) Development proposals shall incorporate measures to avoid or minimize adverse impacts of the project. These measures shall be implemented at the applicant's expense and may include actions that:

(1) minimize or avoid adverse impacts by limiting the magnitude or degree of the action;

(2) restore the affected environment; or

(3) compensate for the adverse impacts by replacing or providing substitute resources.

(e) Prior to the issuance of any permit for development in the ocean hazard AECs, there shall be a written acknowledgment from the applicant to the Division of Coastal Management that the applicant is aware of the risks associated with development in this hazardous area and the limited suitability of this area for permanent structures. The acknowledgement shall state that the Coastal Resources Commission does not guarantee the safety of the development and assumes no liability for future damage to the development.

(f) The relocation or elevation of structures shall require permit approval.

(1) Structures relocated landward with public funds shall comply with the applicable ocean hazard setbacks and other applicable AEC rules.

(2) Structures relocated landward entirely with non-public funds that do not meet current applicable ocean hazard setbacks may be relocated the maximum feasible distance landward of its present location. Septic tanks shall not be relocated oceanward of the primary structure.

(3) Existing structures shall not be elevated if any portion of the structure is located seaward of the vegetation line.

(g) Permits shall include the condition that any structure shall be relocated or dismantled when it becomes imminently threatened by changes in shoreline configuration as defined in 15A NCAC 07H .0308(a)(2)(B). Any

such structure shall be relocated or dismantled within eight years of the time when it becomes imminently threatened, and in any case upon its collapse or subsidence. However, if natural shoreline recovery or beach fill takes place within eight years of the time the structure becomes imminently threatened, so that the structure is no longer imminently threatened, then it need not be relocated or dismantled. This permit condition shall not affect the permit holder's right to seek authorization of temporary protective measures allowed pursuant to 15A NCAC 07H .0308(a)(2).

History Note: *Authority G.S. 113A-107; 113A-113(b)(6); 113A-124;*
Eff. September 9, 1977;
Amended Eff. December 1, 1991; March 1, 1988; September 1, 1986; December 1, 1985;
RRC Objection due to ambiguity Eff. January 24, 1992;
Amended Eff. March 1, 1992;
RRC Objection due to ambiguity Eff. May 21, 1992;
Amended Eff. February 1, 1993; October 1, 1992; June 19, 1992;
RRC Objection due to ambiguity Eff. May 18, 1995;
Amended Eff. August 11, 2009; April 1, 2007; November 1, 2004; June 27, 1995;
Temporary Amendment Eff. January 3, 2013;
Amended Eff. September 1, 2017; February 1, 2017; April 1, 2016; September 1, 2013;
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15A NCAC 07H .0307 USE STANDARDS FOR OCEAN HAZARD AREAS: EXCEPTIONS

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b)(6)a; 113A-113(b)(6)b; 113A-113(b)(6)d;*
Eff. September 9, 1977;
Amended Eff. January 24, 1978;
Repealed Eff. September 15, 1979.

15A NCAC 07H .0308 SPECIFIC USE STANDARDS FOR OCEAN HAZARD AREAS

(a) Ocean Shoreline Erosion Control Activities:

(1) Use Standards Applicable to all Erosion Control Activities:

(A) All oceanfront erosion response activities shall be consistent with the general policy statements in 15A NCAC 07M .0200.

(B) Permanent erosion control structures may cause significant adverse impacts on the value and enjoyment of adjacent properties or public access to and use of the ocean beach, and, therefore, unless specifically authorized under the Coastal Area Management Act, are prohibited. Such structures include bulkheads, seawalls, revetments, jetties, groins and breakwaters.

(C) Rules concerning the use of oceanfront erosion response measures apply to all oceanfront properties without regard to the size of the structure on the property or the date of its construction.

(D) Shoreline erosion response projects shall not be constructed in beach or estuarine areas that sustain substantial habitat for fish and wildlife species, as identified by State or federal natural resource agencies during project review, unless mitigation measures are incorporated into project design, as set forth in Rule .0306(h) of this Section.

(E) Project construction shall be timed to minimize adverse effects on biological activity.

(F) Prior to completing any erosion response project, all exposed remnants of or debris from failed erosion control structures must be removed by the permittee.

(G) Permanent erosion control structures that would otherwise be prohibited by these standards may be permitted on finding by the Division that:

(i) the erosion control structure is necessary to protect a bridge that provides the only existing road access on a barrier island, that is vital to public safety, and is imminently threatened by erosion as defined in Part (a)(2)(B) of this Rule;

(ii) the erosion response measures of relocation, beach nourishment or temporary stabilization are not adequate to protect public health and safety; and

(iii) the proposed erosion control structure will have no adverse impacts on adjacent properties in private ownership or on public use of the beach.

(H) Structures that would otherwise be prohibited by these standards may also be permitted on finding by the Division that:

(i) the structure is necessary to protect a state or federally registered historic site that is imminently threatened by shoreline erosion as defined in Part (a)(2)(B) of this Rule;

(ii) the erosion response measures of relocation, beach nourishment or temporary stabilization are not adequate and practicable to protect the site;

(iii) the structure is limited in extent and scope to that necessary to protect the site; and

(iv) a permit for a structure under this Part may be issued only to a sponsoring public agency for projects where the public benefits outweigh the significant adverse impacts. Additionally, the permit shall include conditions providing for mitigation or minimization by that agency of significant adverse impacts on adjoining properties and on public access to and use of the beach.

(I) Structures that would otherwise be prohibited by these standards may also be permitted on finding by the Division that:

(i) the structure is necessary to maintain an existing commercial navigation channel of regional significance within federally authorized limits;

(ii) dredging alone is not practicable to maintain safe access to the affected channel;

(iii) the structure is limited in extent and scope to that necessary to maintain the channel;

(iv) the structure shall not have significant adverse impacts on fisheries or other public trust resources; and

(v) a permit for a structure under this Part may be issued only to a sponsoring public agency for projects where the public benefits outweigh the significant adverse impacts. Additionally, the permit shall include conditions providing for mitigation or minimization by that agency of any significant adverse impacts on adjoining properties and on public access to and use of the beach.

(J) The Commission may renew a permit for an erosion control structure issued pursuant to a variance granted by the Commission prior to 1 July 1995. The Commission may authorize the replacement of a permanent erosion control structure that was permitted by the Commission pursuant to a variance granted by the Commission prior to 1 July 1995 if the Commission finds that:

(i) the structure will not be enlarged beyond the dimensions set out in the permit;

(ii) there is no practical alternative to replacing the structure that will provide the same or similar benefits; and

(iii) the replacement structure will comply with all applicable laws and with all rules, other than the rule or rules with respect to which the Commission granted the variance, that are in effect at the time the structure is replaced.

(K) Proposed erosion response measures using innovative technology or design shall be considered as experimental and shall be evaluated on a case-by-case basis to determine consistency with 15A NCAC 07M .0200 and general and specific use standards within this Section.

(2) Temporary Erosion Control Structures:

(A) Permittable temporary erosion control structures shall be limited to sandbags placed landward of mean high water and parallel to the shore.

(B) Temporary erosion control structures as defined in Part (A) of this Subparagraph may be used to protect only imminently threatened roads and associated right of ways and buildings and their associated septic systems. A structure is considered imminently threatened if its foundation, septic system, or right-of-way in the case of roads is less than 20 feet away from the erosion scarp. Buildings and roads located more than 20 feet from the erosion scarp or in areas where there is no obvious erosion scarp may also be found to be imminently threatened when site conditions, such as a flat beach profile or accelerated erosion, increase the risk of imminent damage to the structure.

(C) Temporary erosion control structures shall be used to protect only the principal structure and its associated septic system, but not appurtenances such as pools, gazebos, decks or any amenity that is allowed under Rule .0309 of this Section as an exception to the erosion setback requirement.

(D) Temporary erosion control structures may be placed waterward of a septic system when there is no alternative to relocate it on the same or adjoining lot so that it is landward of or in line with the structure being protected.

(E) Temporary erosion control structures shall not extend more than 20 feet past the sides of the structure to be protected except to align with temporary erosion control structures on adjacent properties, where the Division has determined that gaps between adjacent erosion control structures may result in an increased risk of damage to the structure to be protected. The landward side of such temporary erosion control structures shall not be located more than 20 feet waterward of the structure to be protected or the right-of-way in the case of roads. If a building or road is found to be imminently threatened and at an increased risk of imminent damage due to site conditions such as a flat beach profile or accelerated erosion, temporary erosion control structures may be located more than 20 feet waterward of the structure being protected. In cases of increased risk of imminent damage, the location of the temporary erosion control structures shall be determined by the Director of the Division of Coastal Management or the Director's designee in accordance with Part (A) of this Subparagraph.

(F) Temporary erosion control structures may remain in place for up to eight years for a building and its associated septic system, a bridge or a road. The property owner shall be responsible for removal of any portion of the temporary erosion control structure exposed above grade within 30 days of the end of the allowable time period.

(G) An imminently threatened structure or property may be protected only once, regardless of ownership, unless the threatened structure or property is located in a community that is actively pursuing a beach nourishment project or an inlet relocation or stabilization project in accordance with Part (H) of this Subparagraph. Existing temporary erosion control structures may be permitted for additional eight-year periods provided that the structure or property being protected is still imminently threatened, the temporary erosion control structure is in compliance with requirements of this Subchapter, and the community in which it is located is actively pursuing a beach nourishment or an inlet relocation or stabilization project in accordance with Part (H) of this Subparagraph. In the case of a building, a temporary erosion control structure may be extended, or new segments constructed, if additional areas of the building become imminently threatened. Where temporary structures are installed or extended incrementally, the time period for removal under Part (F) or (H) of this Subparagraph shall begin at the time the initial erosion control structure was installed. For the purpose of this Rule:

(i) a building and its septic system shall be considered separate structures,

(ii) a road or highway may be incrementally protected as sections become imminently threatened. The time period for removal of each contiguous section of temporary erosion control structure shall begin at the time that the initial section was installed, in accordance with Part (F) of this Subparagraph.

(H) For purposes of this Rule, a community is considered to be actively pursuing a beach nourishment or an inlet relocation or stabilization project in accordance with G.S. 113A-115.1 if it:

(i) has been issued an active CAMA permit, where necessary, approving such project; or

(ii) has been identified by a U.S. Army Corps of Engineers' Beach Nourishment Reconnaissance Study, General Reevaluation Report, Coastal Storm Damage Reduction Study, or an ongoing feasibility study by the U.S. Army Corps of Engineers and a commitment of local or federal money, when necessary; or

(iii) has received a favorable economic evaluation report on a federal project; or

(iv) is in the planning stages of a project designed by the U.S. Army Corps of Engineers or persons meeting applicable State occupational licensing requirements and initiated by a local government or community with a

commitment of local or state funds to construct the project or the identification of the financial resources or funding bases necessary to fund the beach nourishment, inlet relocation or stabilization project.

If beach nourishment, inlet relocation, or stabilization is rejected by the sponsoring agency or community, or ceases to be actively planned for a section of shoreline, the time extension is void for that section of beach or community and existing sandbags are subject to all applicable time limits set forth in Part (F) of this Subparagraph.

(I) Once a temporary erosion control structure is determined by the Division of Coastal Management to be unnecessary due to relocation or removal of the threatened structure, it shall be removed to the maximum extent practicable by the property owner within 30 days of official notification from the Division of Coastal Management regardless of the time limit placed on the temporary erosion control structure. If the temporary erosion control structure is determined by the Division of Coastal Management to be unnecessary due to the completion of a storm protection project constructed by the U.S. Army Corps of Engineers, a large-scale beach nourishment project, or an inlet relocation or stabilization project, any portion of the temporary erosion control structure exposed above grade shall be removed by the property owner within 30 days of official notification from the Division of Coastal Management regardless of the time limit placed on the temporary erosion control structure.

(J) Removal of temporary erosion control structures is not required if they are covered by sand. Any portion of the temporary erosion control structure that becomes exposed above grade after the expiration of the permitted time period shall be removed by the property owner within 30 days of official notification from the Division of Coastal Management.

(K) The property owner shall be responsible for the removal of remnants of all portions of any damaged temporary erosion control structure.

(L) Sandbags used to construct temporary erosion control structures shall be tan in color and three to five feet wide and seven to 15 feet long when measured flat. Base width of the temporary erosion control structure shall not exceed 20 feet, and the total height shall not exceed six feet, as measured from the bottom of the lowest bag.

(M) Soldier pilings and other types of devices to anchor sandbags shall not be allowed.

(N) Existing sandbag structures may be repaired or replaced within their originally permitted dimensions during the time period allowed under Part (F) or (G) of this Subparagraph.

(3) Beach Nourishment. Sand used for beach nourishment shall be compatible with existing grain size and in accordance with Rule .0312 of this Section.

(4) Beach Bulldozing. Beach bulldozing (defined as the process of moving natural beach material from any point seaward of the vegetation line to create a protective sand dike or to obtain material for any other purpose) is development and may be permitted as an erosion response if the following conditions are met:

(A) The area on which this activity is being performed shall maintain a slope of adequate grade so as to not endanger the public or the public's use of the beach and shall follow the pre-emergency slope as closely as possible. The movement of material utilizing a bulldozer, front end loader, backhoe, scraper, or any type of earth moving or construction equipment shall not exceed one foot in depth measured from the pre-activity surface elevation;

(B) The activity shall not exceed the lateral bounds of the applicant's property unless permission is obtained from the adjoining land owner(s);

(C) Movement of material from seaward of the mean low water line will require a CAMA Major Development and State Dredge and Fill Permit;

(D) The activity shall not increase erosion on neighboring properties and shall not have an adverse effect on natural or cultural resources;

(E) The activity may be undertaken to protect threatened on-site waste disposal systems as well as the threatened structure's foundations.

(b) Dune Protection, Establishment, Restoration and Stabilization.

(1) No development shall be permitted that involves the removal or relocation of primary or frontal dune sand or vegetation that would adversely affect the integrity of the dune. Other dunes within the ocean hazard area shall not be disturbed unless the development of the property is otherwise

impracticable. Any disturbance of these other dunes shall be allowed only to the extent permitted by this Rule.

(2) Any new dunes established shall be aligned to the greatest extent possible with existing adjacent dune ridges and shall be of the same configuration as adjacent natural dunes.

(3) Existing primary and frontal dunes shall not, except for beach nourishment and emergency situations, be broadened or extended in an oceanward direction.

(4) Adding to dunes shall be accomplished in such a manner that the damage to existing vegetation is minimized. The filled areas shall be replanted or temporarily stabilized until planting can be completed.

(5) Sand used to establish or strengthen dunes shall be of the same general characteristics as the sand in the area in which it is to be placed.

(6) No new dunes shall be created in inlet hazard areas. Reconstruction or repair of existing dune systems as defined in Rule .0305 of this Section and within the Inlet Hazard Area may be permitted.

(7) Sand held in storage in any dune, other than the frontal or primary dune, shall remain on the lot or tract of land to the maximum extent practicable and may be redistributed within the Ocean Hazard AEC provided that it is not placed any farther oceanward than the crest of a primary dune, if present, or the crest of a frontal dune.

(8) No disturbance of a dune area shall be allowed when other techniques of construction can be utilized and alternative site locations exist to avoid dune impacts.

(c) Structural Accessways:

(1) Structural accessways shall be permitted across primary or frontal dunes so long as they are designed and constructed in a manner that entails negligible alteration of the primary or frontal dune. Structural accessways shall not be considered threatened structures for the purpose of Paragraph (a) of this Rule.

(2) An accessway shall be considered to entail negligible alteration of primary or frontal dunes provided that:

(A) The accessway is exclusively for pedestrian use;

(B) The accessway is a maximum of six feet in width;

(C) Except in the case of beach matting for a local, State, or federal government's public access, the accessway is raised on posts or pilings of five feet or less depth, so that wherever possible only the posts or pilings touch the dune, in accordance with any more restrictive local, State, or federal building requirements. Beach matting for a local, State, or federal government's public access shall be installed at grade and not involve any excavation or fill of the dune; and

(D) Any areas of vegetation that are disturbed are revegetated as soon as feasible.

(3) An accessway that does not meet Part (2)(A) and (B) of this Paragraph shall be permitted only if it meets a public purpose or need which cannot otherwise be met and it meets Part (2)(C) of this Paragraph. Public fishing piers are allowed provided all other applicable standards of this Rule are met.

(4) In order to preserve the protective nature of primary and frontal dunes, a structural accessway (such as a "Hatteras ramp") may be provided for off-road vehicle (ORV) or emergency vehicle access. Such accessways shall be no greater than 15 feet in width and may be constructed of wooden sections fastened together, or other materials approved by the Division, over the length of the affected dune area. Installation of a Hatteras ramp shall be done in a manner that will preserve the dune's function as a protective barrier against flooding and erosion by not reducing the volume of the dune.

(5) Structural accessways may be constructed no more than six feet seaward of the waterward toe of the frontal or primary dune, provided they do not interfere with public trust rights and emergency access along the beach. Structural accessways are not restricted by the requirement to be landward of the First Line of Stable and Natural Vegetation as described in Rule .0309(a) of this Section.

(d) Building Construction Standards. New building construction and any construction identified in .0306(a)(5) of this Section and 15A NCAC 07J .0210 shall comply with the following standards:

(1) In order to avoid danger to life and property, all development shall be designed and placed so as to minimize damage due to fluctuations in ground elevation and wave action in a 100-year storm. Any building constructed within the ocean hazard area shall comply with relevant sections of the

North Carolina Building Code including the Coastal and Flood Plain Construction Standards and the local flood damage prevention ordinance as required by the National Flood Insurance Program. If any provision of the building code or a flood damage prevention ordinance is inconsistent with any of the following AEC standards, the more restrictive provision shall control.

(2) All building in the ocean hazard area shall be on pilings not less than eight inches in diameter if round or eight inches to a side if square.

(3) All pilings shall have a tip penetration greater than eight feet below the lowest ground elevation under the structure. For those structures so located on or seaward of the primary dune, the pilings shall extend to five feet below mean sea level.

(4) All foundations shall be designed to be stable during applicable fluctuations in ground elevation and wave forces during a 100-year storm. Cantilevered decks and walkways shall meet the requirements of this Part or shall be designed to break-away without structural damage to the main structure.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b)(6)a.,b.,d.; 113A-115.1; 113A-124;*
Eff. June 1, 1979;
Temporary Amendment Eff. June 20, 1989, for a period of 180 days to expire on December 17, 1989;
Amended Eff. August 3, 1992; December 1, 1991; March 1, 1990; December 1, 1989;
RRC Objection Eff. November 19, 1992 due to ambiguity;
RRC Objection Eff. January 21, 1993 due to ambiguity;
Amended Eff. March 1, 1993; December 28, 1992;
RRC Objection Eff. March 16, 1995 due to ambiguity;
Amended Eff. April 1, 1999; February 1, 1996; May 4, 1995;
Temporary Amendment Eff. July 3, 2000; May 22, 2000;
Amended Eff. April 1, 2019; May 1, 2013; July 1, 2009; April 1, 2008; February 1, 2006; August 1, 2002;
Readopted Eff. December 1, 2020;
Amended Eff. August 1, 2022; December 1, 2021.

15A NCAC 07H .0309 USE STANDARDS FOR OCEAN HAZARD AREAS: EXCEPTIONS

(a) The following types of development shall be permitted seaward of the oceanfront setback requirements of Rule .0306(a) of this Section if all other provisions of this Subchapter and other state and local regulations are met:

(1) campsites;
(2) driveways and parking areas with clay, packed sand, or gravel;
(3) elevated decks not exceeding a footprint of 500 square feet. Existing decks exceeding a footprint of 500 square feet may be replaced with no enlargement beyond their original dimensions;
(4) beach accessways consistent with Rule .0308(c) of this Section;
(5) unenclosed, uninhabitable gazebos with a footprint of 200 square feet or less;
(6) uninhabitable, single-story storage sheds with a foundation or floor consisting of wood, clay, packed sand or gravel, and a footprint of 200 square feet or less;
(7) temporary amusement stands consistent with Section .1900 of this Subchapter;
(8) sand fences;
(9) swimming pools; and
(10) fill not associated with dune creation that is obtained from an upland source and is of the same general characteristics as the sand in the area in which it is to be placed.

In all cases, this development shall be permitted only if it is landward of the vegetation line or pre-project vegetation line, whichever is applicable; involves no alteration or removal of primary or frontal dunes which would compromise the integrity of the dune as a protective landform or the dune vegetation; is not essential to the continued existence or use of an associated principal development; and meets all other non-setback requirements of this Subchapter.

(b) Where application of the oceanfront setback requirements of Rule .0306(a) of this Section would preclude placement of a structure on a lot existing as of June 1, 1979, the structure shall be permitted seaward of the applicable setback line in Ocean Erodible Areas, State Ports Inlet Management Areas, and Inlet Hazard Areas, but not Unvegetated Beach Areas if each of the following conditions are met:

(1) The development is set back from the ocean the maximum feasible distance possible on the existing lot and the development is designed to minimize encroachment into the setback area;

(2) The development is at least 60 feet landward of the vegetation line, measurement line, or pre-project vegetation line, whichever is applicable;

(3) The development is not located on or oceanward of a frontal dune, but is entirely behind the landward toe of the frontal dune;

(4) The development incorporates each of the following design standards, which are in addition to those required by Rule .0308(d) of this Section;

(A) All pilings shall have a tip penetration that extends to at least four feet below mean sea level;

(B) The footprint of the structure shall be no more than 1,000 square feet, and the total floor area of the structure shall be no more than 2,000 square feet. For the purpose of this Section, roof-covered decks and porches that are structurally attached shall be included in the calculation of footprint;

(C) Driveways and parking areas shall be constructed of clay, packed sand or gravel except in those cases where the development does not abut the ocean and is located landward of a paved public street or highway currently in use. In those cases, other material may be used; and

(D) No portion of a building's total floor area, including elevated portions that are cantilevered, knee braced, or otherwise extended beyond the support of pilings or footings, may extend oceanward of the total floor area of the landward-most habitable building or structure. The alignment shall be measured from the most oceanward point of the adjacent building or structure's roof line, including roofed decks. An "adjacent" property is one that shares a boundary line with the site of the proposed development. When no adjacent building or structure exists, or the geometry or orientation of a lot or shoreline precludes the placement of a building in line with the landward most adjacent structure of similar use, an average line of construction shall be determined by the Director of the Division of Coastal Management based on an approximation of the average seaward-most positions of the rooflines of adjacent structures along the same shoreline, extending 500 feet in either direction. If no structures exist within this distance, the proposed structure shall meet the applicable setback from the Vegetation Line but shall not be held to the landward-most adjacent structure or an average line of structures. The ocean hazard setback shall extend landward of the vegetation line, static vegetation line or measurement line, whichever is applicable, a distance no less than 60 feet.

(5) All other provisions of this Subchapter and other state and local regulations are met. If the development is to be serviced by an on-site waste disposal system, a copy of a valid permit for such a system shall be submitted as part of the CAMA permit application.

(c) The following types of water dependent development shall be permitted seaward of the oceanfront setback requirements of Rule .0306(a) of this Section if all other provisions of this Subchapter and other state and local regulations are met:

(1) piers providing public access; and

(2) maintenance and replacement of existing state-owned bridges, and causeways and accessways to such bridges.

(d) Replacement or construction of a pier house associated with an ocean pier shall be permitted if each of the following conditions is met:

(1) The ocean pier provides public access for fishing and other recreational purposes whether on a commercial, public, or nonprofit basis;

(2) Commercial, non-water dependent uses of the ocean pier and associated pier house shall be limited to restaurants and retail services. Residential uses, lodging, and parking areas shall be prohibited;

(3) The pier house shall be limited to a maximum of two stories;

(4) A new pier house shall not exceed a footprint of 5,000 square feet and shall be located landward of mean high water;

(5) A replacement pier house may be rebuilt not to exceed its most recent footprint or a footprint of 5,000 square feet, whichever is larger;

(6) The pier house shall be rebuilt to comply with all other provisions of this Subchapter; and

(7) If the pier has been destroyed or rendered unusable, replacement or expansion of the associated pier house shall be permitted only if the pier is being replaced and returned to its original function.

(e) In addition to the development authorized under Paragraph (d) of this Rule, small scale, non-essential development that does not induce further growth in the Ocean Hazard Area, such as the construction of single family piers and small scale erosion control measures that do not interfere with natural oceanfront processes, shall be permitted in the Ocean Hazard Area along those portions of shoreline that exhibit features characteristic of an Estuarine Shoreline. Such features include the presence of wetland vegetation, and lower wave energy and erosion rates than in the adjoining Ocean Erodible Area. Such development shall be permitted under the standards set out in Rule .0208 of this Subchapter. For the purpose of this Rule, small scale is defined as those projects which are eligible for authorization under 15A NCAC 07H .1100, .1200, and 15A NCAC 07K .0203.

(f) Transmission lines necessary to transmit electricity from an offshore energy-producing facility may be permitted provided that each of the following conditions is met:

(1) The transmission lines are buried under the ocean beach, nearshore area, and primary and frontal dunes, all as defined in Rule .0305 of this Section, in such a manner so as to ensure that the placement of the transmission lines involves no alteration or removal of the primary or frontal dunes; and

(2) The design and placement of the transmission lines shall be performed in a manner so as not to endanger the public or the public's use of the beach.

(g) Existing stormwater outfalls as of the last amended date of this rule within the Ocean Hazard AEC that are owned or maintained by a State agency or local government, may be extended oceanward subject to the provisions contained within 15A NCAC 07J .0200. Outfalls may be extended below mean low water and may be maintained in accordance with 15A NCAC 07K .0103. Shortening or lengthening of outfall structures within the authorized dimensions, in response to changes in beach width, is considered maintenance under 15A NCAC 07K .0103. Outfall extensions may be marked with signage and shall not prevent pedestrian or vehicular access along the beach. This Paragraph does not apply to existing stormwater outfalls that are not owned or maintained by a State agency or local government.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b)(6)a; 113A-113(b)(6)b; 113A-113(b)(6)d; 113A-124;*
Eff. February 2, 1981;
Amended Eff. April 1, 2020; June 1, 2010; February 1, 2006; September 17, 2002 pursuant to S.L. 2002-116; August 1, 2000; August 1, 1998; April 1, 1996; April 1, 1995; February 1, 1993; January 1, 1991; April 1, 1987;
Readopted Eff. December 1, 2020;
Amended Eff. August 1, 2022.

15A NCAC 07H .0310 USE STANDARDS FOR INLET HAZARD AREAS

(a) Inlet Hazard Areas of Environmental Concern as defined by Rule .0304 of this Section are subject to inlet migration, rapid and severe changes in watercourses, flooding and strong tides. Due to the extremely hazardous nature of the Inlet Hazard Areas, all development within these areas shall be permitted in accordance with the following standards:

(1) All development in the inlet hazard area shall be set back from the vegetation line a distance equal to the setback required in the adjacent ocean hazard area;

(2) Permanent structures shall be permitted at a density of no more than one commercial or residential unit per 15,000 square feet of land area on lots subdivided or created after July 23, 1981;

(3) Only residential structures of four units or less or non-residential structures of less than 5,000 square feet total floor area shall be allowed within the inlet hazard area, except that access roads to those areas and maintenance and replacement of existing bridges shall be allowed;

(4) Established common-law and statutory public rights of access to the public trust lands and waters in Inlet Hazard Areas shall not be eliminated or restricted. Development shall not encroach upon public accessways nor shall it limit the intended use of the accessways; and

(5) All other rules in this Subchapter pertaining to development in the ocean hazard areas shall be applied to development within the Inlet Hazard Areas.

(b) The inlet hazard area setback requirements shall not apply to the types of development exempted from the ocean setback rules in 15A NCAC 07H .0309(a), or to the types of development listed in 15A NCAC 07H .0309(c).

(c) In addition to the types of development excepted under Rule .0309 of this Section, small scale development that does not induce further growth in the Inlet Hazard Area, such as the construction of single-family piers and small scale erosion control measures that do not interfere with natural inlet movement, may be permitted on those portions of shoreline within a designated Inlet Hazard Area that exhibit features characteristic of Estuarine Shoreline. Such features include the presence of wetland vegetation, lower wave energy, and lower erosion rates than in the adjoining Ocean Erodible Area. Such development shall be permitted under the standards set out in Rule .0208 of this Subchapter. For the purpose of this Rule, small scale is defined as those projects which are eligible for authorization under 15A NCAC 07H .1100, .1200, and 07K .0203.

History Note: *Authority G.S. 113A-107; 113A-113(b); 113A-124;*
Eff. December 1, 1981;
Emergency Rule Eff. September 11, 1981, for a period of 120 days to expire on January 8, 1982;
Temporary Amendment Eff. October 30, 1981, for a period of 70 days to expire on January 8, 1982;
Amended Eff. April 1, 1999; April 1, 1996; December 1, 1992; December 1, 1991; March 1, 1988;
Readopted Eff. December 1, 2020;
Amended Eff. August 1, 2022.

15A NCAC 07H .0311 INSTALLATION AND MAINTENANCE OF SAND FENCING

(a) Sand fencing may only be installed for the purpose of building sand dunes by trapping windblown sand, for the protection of the dune(s) and vegetation (planted or existing).
(b) Sand fencing shall not impede existing public access to the beach, recreational use of the beach, or emergency vehicle access. Sand fencing shall not be installed in a manner that impedes or restricts established common law and statutory rights of public access and use of public trust lands and waters.
(c) Sand fencing shall not be installed in a manner that impedes, traps or otherwise endangers sea turtles, sea turtle nests or sea turtle hatchlings. CAMA permit applications for sand fencing shall be subject to review by the Wildlife Resources Commission and the U.S. Fish and Wildlife Service in order to determine whether or not the proposed design or installation will have an adverse impact on sea turtles or other threatened or endangered species.
(d) Non-functioning, damaged, or unsecured sand fencing shall be removed by the property owner.
(e) Sand fencing shall not be placed on the wet sand beach area.

History Note: *Authority G.S. 113A-107; 113A-113(b)(6);*
Eff. August 1, 2002;
Readopted Eff. December 1, 2020.

15A NCAC 07H .0312 TECHNICAL STANDARDS FOR BEACH FILL PROJECTS

Placement of sediment along the oceanfront shoreline is referred to in this Rule as "beach fill." Sediment used solely to establish or strengthen dunes shall conform to the standards contained in 15A NCAC 07H .0308(b). Sediment used to re-establish state-maintained transportation corridors across a barrier island breach in a disaster area as declared by the Governor is not considered a beach fill project under this Rule. Beach fill projects including beach nourishment, dredged material disposal, habitat restoration, storm protection, and erosion control may be permitted under the following conditions:

(1) The applicant shall characterize the recipient beach according to the following methodology. Initial characterizations of the recipient beach shall serve as the baseline for subsequent beach fill projects:
    (a) Characterization of the recipient beach is not required for the placement of sediment directly from and completely confined to a cape shoal system, or maintained navigation channel or associated sediment basins within the active nearshore, beach or inlet shoal system. For purposes of this Rule, "cape shoal systems" include Frying Pan Shoals at Cape Fear, Lookout Shoals at Cape Lookout, and Diamond Shoals at Cape Hatteras;
    (b) Sediment sampling and analysis shall be used to capture the spatial variability of the sediment characteristics including grain size, sorting and mineralogy within the natural system;
    (c) Shore-perpendicular transects shall be established for topographic and bathymetric surveying of the recipient beach. Topographic and bathymetric surveying shall occur along a minimum of five shore-perpendicular transects evenly spaced throughout the

entire project area with spacing not to exceed 5,000 feet (1,524 meters) in the shore-parallel direction. Each transect shall extend from the frontal dune crest seaward to a depth of 20 feet (6.1 meters) or to the shore-perpendicular distance 2,400 feet (732 meters) seaward of mean low water, whichever is in a more landward position. Elevation data for all transects shall be compliant with Standards of Practice for Land Surveying in North Carolina pursuant to 21 NCAC 56 .1600. These Rules are hereby incorporated by reference, including subsequent amendments;

(d) Along each transect, at least one sample shall be taken from each of the following morphodynamic zones where present: frontal dune, frontal dune toe, mid berm, mean high water (MHW), mid tide (MT), mean low water (MLW), trough, bar crest and at even depth increments from 6 feet (1.8 meters) to 20 feet (6.1 meters) or to a shore-perpendicular distance 2,400 feet (732 meters) seaward of mean low water, whichever is in a more landward position. The total number of samples taken landward of MLW shall equal the total number of samples taken seaward of MLW;

(e) For the purpose of this Rule, "sediment grain size categories" are defined as "fine" (less than 0.0625 millimeters), "sand" (greater than or equal to 0.0625 millimeters and less than 2 millimeters), "granular" (greater than or equal to 2 millimeters and less than 4.76 millimeters) and "gravel" (greater than or equal to 4.76 millimeters and less than 76 millimeters). Each sediment sample shall report percentage by weight of each of these four grain size categories;

(f) A composite of the simple arithmetic mean for each of the four grain size categories defined in Sub-Item (1)(e) of this Rule shall be calculated for each transect. A grand mean shall be established for each of the four grain size categories by summing the mean for each transect and dividing by the total number of transects. The value that characterizes grain size values for the recipient beach is the grand mean of percentage by weight for each grain size category defined in Sub-Item (1)(e) of this Rule;

(g) Percentage by weight calcium carbonate shall be calculated from a composite of all sediment samples. The value that characterizes the carbonate content of the recipient beach is a grand mean calculated by summing the average percentage by weight calcium carbonate for each transect and dividing by the total number of transects;

(h) The number of sediments greater than or equal to one inch (25.4 millimeters) in diameter, and shell material greater than or equal to three inches (76 millimeters) in diameter shall be differentiated and calculated through visual observation of an area of 10,000 square feet centered on each transect, and between mean tide level (MTL) and the frontal dune toe within the beach fill project boundaries. A simple arithmetic mean shall be calculated for both sediments and shell by summing the totals for each across all transects and dividing by the total number of transects, and these values shall be considered representative of the entire project area, and referred to as the "background" values for large sediment and large shell material;

(i) Beaches that received sediment prior to the effective date of this Rule shall be characterized in a way that is consistent with Sub-Items (1)(a) through (1)(h) of this Rule and may use data collected from the recipient beach prior to the addition of beach fill where data are available, and in coordination with the Division of Coastal Management; and

(j) All data used to characterize the recipient beach shall be provided in digital and hardcopy format to the Division of Coastal Management upon request.

(2) Characterization of borrow areas is not required if completely confined to a cape shoal system. For the purposes of this Rule, "cape shoal systems" include the Frying Pan Shoals at Cape Fear, Lookout Shoals at Cape Lookout, and Diamond Shoals at Cape Hatteras. The applicant shall characterize the sediment to be placed on the recipient beach according to the following methodology:

(a) The characterization of borrow areas including submarine sites, upland sites, and dredged material disposal areas shall be designed to capture the spatial variability of the sediment characteristics including grain size, sorting and mineralogy within the natural system or dredged material disposal area;

(b) The characterization of borrow sites may include historical sediment characterization data where available and collected using methods consistent with Sub-Items (2)(c) through (2)(g) of this Rule, and in coordination with the Division of Coastal Management.

(c) Seafloor surveys shall measure elevation and capture acoustic imagery of the seafloor. Measurement of seafloor elevation shall cover 100 percent, or the maximum extent practicable as determined in consultation with the Division of Coastal Management, of each submarine borrow site and use survey-grade swath sonar (e.g. multibeam or similar technologies). Seafloor imaging without an elevation component (e.g. sidescan sonar or similar technologies) shall also cover 100 percent, or the maximum extent practicable, of each site. Because shallow submarine areas can provide technical challenges and physical limitations for acoustic measurements, seafloor imaging without an elevation component may not be required for water depths less than 10 feet (3 meters). Alternative elevation surveying methods for water depths less than 10 feet (3 meters) may be evaluated on a case-by-case basis by the Division of Coastal Management. Elevation data shall be tide- and motion-corrected and compliant with Standards of Practice for Land Surveying in North Carolina pursuant to 21 NCAC 56 .1600. Seafloor imaging data without an elevation component shall also be compliant with Standards of Practice for Land Surveying in North Carolina pursuant to 21 NCAC 56 .1600. For offshore dredged material disposal sites, only one set of imagery without elevation is required. Sonar imaging of the seafloor without elevation is also not required for borrow sites completely confined to maintained navigation channels, and for sediment deposition basins within the active nearshore, beach or inlet shoal system;

(d) Geophysical imaging of the seafloor subsurface shall be used to characterize each borrow site. Because shallow submarine areas can pose technical challenges and physical limitations for geophysical techniques, subsurface data may not be required in water depths less than 10 feet (3 meters), and the Division of Coastal Management shall evaluate these areas on a case-by-case basis. Subsurface geophysical imaging shall not be required for borrow sites completely confined to maintained navigation channels, and for sediment deposition basins within the active nearshore, beach or inlet shoal system, or upland sites. All final subsurface geophysical data shall use accurate sediment velocity models for time-depth conversions and be compliant with Standards of Practice for Land Surveying in North Carolina pursuant to 21 NCAC 56 .1600;

(e) With the exception of upland borrow sites, sediment sampling of all borrow sites shall use a vertical sampling device no less than 3 inches (76 millimeters) in diameter. Characterization of each borrow site shall use no fewer than five evenly spaced cores or one core per 23 acres (grid spacing of 1,000 feet or 305 meters), whichever is greater. Characterization of borrow sites completely confined to maintained navigation channels or sediment deposition basins within the active nearshore, beach or inlet shoal system shall use no fewer than five evenly spaced vertical samples per channel or sediment basin, or sample spacing of no more than 5,000 linear feet (1,524 meters), whichever is greater. Two sets of sampling data (with at least one dredging event in between) from maintained navigation channels or sediment deposition basins within the active nearshore, beach or inlet shoal system, or offshore dredged material disposal site (ODMDS) may be used to characterize material for subsequent nourishment events from those areas if the sampling results are found to be compatible with Sub-Item (3)(a) of this Rule. Vertical sampling shall penetrate to a depth equal to or greater than permitted dredge or excavation depth or expected dredge or excavation depths for pending permit applications. Because shallow submarine areas completely confined to a maintained navigation channel or associated sediment basins within the active nearshore, beach or inlet shoal system can pose technical challenges and physical limitations for vertical sampling techniques, geophysical data of and below the seafloor may not be required in water depths less than 10 feet (3 meters), and shall be evaluated by the Division of Coastal Management on a case-by-case basis;

(f) Grain size distributions shall be reported for all sub-samples taken within each vertical sample for each of the four grain size categories defined in Sub-Item (1)(e) of this Rule. Weighted averages for each core shall be calculated based on the total number of samples

and the thickness of each sampled interval. A simple arithmetic mean of the weighted averages for each grain size category shall be calculated to represent the average grain size values for each borrow site. Vertical samples shall be geo-referenced and digitally imaged using scaled, color-calibrated photography;

(g) Percentage by weight of calcium carbonate shall be calculated from a composite sample of each core. A weighted average of calcium carbonate percentage by weight shall be calculated for each borrow site based on the composite sample thickness of each core. Carbonate analysis is not required for sediment confined to maintained navigation channels or associated sediment deposition basins within the active nearshore, beach or inlet shoal system; and

(h) All data used to characterize the borrow site shall be provided in digital and hardcopy format to the Division of Coastal Management.

(3) Compliance with these sediment standards shall be certified by an individual licensed pursuant to Chapter 89C or 89E of the N.C. General Statutes. Sediment compatibility shall be determined according to the following criteria:

(a) Sediment completely confined to the permitted dredge depth of a maintained navigation channel or associated sediment deposition basins within the active nearshore, beach or inlet shoal system shall be considered compatible if the average percentage by weight of fine-grained (less than 0.0625 millimeters) sediment is less than 10 percent;

(b) The average percentage by weight of fine-grained sediment (less than 0.0625 millimeters) in each borrow site shall not exceed the average percentage by weight of fine-grained sediment of the recipient beach characterization plus five percent;

(c) The average percentage by weight of granular sediment (greater than or equal to 2 millimeters and less than 4.76 millimeters) in a borrow site shall not exceed the average percentage by weight of coarse-sand sediment of the recipient beach characterization plus 10 percent;

(d) The average percentage by weight of gravel (greater than or equal to 4.76 millimeters and less than 76 millimeters) in a borrow site shall not exceed the average percentage by weight of gravel-sized sediment for the recipient beach characterization plus five percent;

(e) The average percentage by weight of calcium carbonate in a borrow site shall not exceed the average percentage by weight of calcium carbonate of the recipient beach characterization plus 15 percent; and

(f) Techniques that take incompatible sediment within a borrow site or combination of sites and make it compatible with that of the recipient beach characterization shall be evaluated on a case-by-case basis by the Division of Coastal Management.

(4) Excavation and placement of sediment shall conform to the following criteria:

(a) In order to protect threatened and endangered species, and to minimize impacts to fish, shellfish and wildlife resources, no excavation or placement of sediment shall occur within the project area during any seasonal environmental moratoria designated by the Division of Coastal Management in consultation with other State and Federal agencies, unless specifically approved by the Division of Coastal Management in consultation with other State and Federal agencies. The time limitations shall be established during the permitting process and shall be made known prior to permit issuance; and

(b) The total sediments with a diameter greater than or equal to one inch (25.4 millimeters), and shell material with a diameter greater than or equal to three inches (76 millimeters) is considered incompatible if it has been placed on the beach during the beach fill project, is observed between MTL and the frontal dune toe, and is in excess of twice the background value of material of the same size along any 10,000 square feet section of beach within the beach fill project boundaries. In the event that more than twice the background value of incompatible material is placed on the beach, it shall be the permittee's responsibility to remove the incompatible material in coordination with the Division of Coastal Management and other State and Federal resource agencies.

History Note: *Authority G.S. 113-229; 113A-102(b)(1); 113A-103(5)(a); 113A-107(a); 113A-113(b)(5); 113A-113(b)(6); 113A-118; 113A-124;*
Eff. February 1, 2007;

Amended Eff. August 1, 2014; September 1, 2013; April 1, 2008;
Readopted December 1, 2020;
Amended Eff. September 1, 2021.

15A NCAC 07H .0313 USE STANDARDS FOR STATE PORTS INLET MANAGEMENT AREAS

(a) Development within State Ports Inlet Management Areas are defined by Rule .0304 of this Section in accordance with the standards in this Rule.

(b) All development in the State Ports Inlet Management Areas shall be set back from the first line of stable and natural vegetation, static vegetation line, or measurement line at a distance in accordance with Rule .0305(a)(5) of this Section, except for development exempted under Rule .0309 of this Section.

(c) Notwithstanding the use standards for temporary erosion control structures described in Rule .0308(a)(2) of this Section, a local government or State government agencies may apply for a permit to seek protection of an imminently threatened frontal or primary dune, public and private structures and infrastructure within a State Ports Inlet Management Area. For the purpose of this Rule, a frontal or primary dune, structure, or infrastructure shall be considered imminently threatened in a State Ports Inlet Management Area if:

(1) its foundation, septic system, right-of-way in the case of roads, or waterward toe of the dune is less than 20 feet away from the erosion scarp;

(2) site conditions, such as flat beach profile or accelerated erosion, increase the risk of imminent damage to the structure as determined by the Director of the Division of Coastal Management;

(3) the frontal or primary dune or infrastructure will be imminently threatened within six months as certified by persons meeting all applicable State occupational licensing requirements; or

(4) the rate of erosion from the erosion scarp or shoreline within 100 feet of the infrastructure, structure, frontal or primary dune was greater than 20 feet over the preceding 30 days.

Permit applications to protect property where no structures are imminently threatened require consultation with the US Army Corps of Engineers.

(d) Temporary erosion control structures constructed by a local or state government shall have a base width not exceeding 20 feet, and a height not to exceed six feet. Individual sandbags shall be tan in color and be a minimum of three feet wide and seven feet in length when measured flat.

(e) Established common-law and statutory public rights of access to the public trust lands and waters in State Ports Inlet Management Areas shall not be eliminated or restricted. Development shall not encroach upon public accessways nor shall it limit the intended use of the accessways.

(f) Except where inconsistent with the above standards, all other rules in this Subchapter pertaining to development in the ocean hazard areas shall be applied to development within the State Ports Inlet Management Areas.

(g) In addition to the types of development excepted under Rule .0309 of this Section, small-scale, non-essential development that does not induce further growth in the State Ports Inlet Management Areas, such as the construction of single-family piers and small-scale erosion control measures that do not interfere with natural inlet movement, may be permitted on those portions of shoreline within a designated State Ports Inlet Management Area that exhibit features characteristic of Estuarine Shoreline. Such features include the presence of wetland vegetation, lower wave energy, and lower erosion rates than in the adjoining Ocean Erodible Area. Such development shall be permitted under the standards set out in Rule .0208 of this Subchapter. For the purpose of this Rule, small-scale is defined as those projects which are eligible for authorization under 15A NCAC 07H .1100 and .1200.

History Note: *Authority G.S. 113A-107; 113A-107.1; 113A-113; 113A-124;*
Eff. April 1, 2020.

SECTION .0400 - PUBLIC WATER SUPPLIES

15A NCAC 07H .0401 PUBLIC WATER SUPPLY CATEGORIES

Public water supply AECs include the following categories: valuable small surface water supply watersheds and public water supply well fields.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b)(3)a; 113A-124;*
Eff. September 9, 1977;
Readopted Eff. June 1, 2021.

15A NCAC 07H .0402 SIGNIFICANCE

(a) These vulnerable, critical water supplies, if degraded, could adversely affect public health or require substantial monetary outlays by affected communities for alternative water source development.
(b) Uncontrolled development within the designated boundaries of a watershed or well field site could cause significant changes in runoff patterns or water withdrawal rates that may adversely affect the quantity and quality of the raw water supply. Also, incompatible development could adversely affect water quality by introducing a wide variety of pollutants from homes, businesses, or industries, either through subsurface discharge, surface runoff, or seepage into the vulnerable water supply.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b)(3)a; 113A-124;*
Eff. September 9, 1977;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018.

15A NCAC 07H .0403 MANAGEMENT OBJECTIVE FOR PUBLIC WATER SUPPLIES
The CRC objective in regulating development within critical water supply areas is the protection and preservation of public water supply well fields and A-II streams and to coordinate and establish a management system capable of maintaining public water supplies so as to perpetuate their values to the public health, safety, and welfare.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b)(3)a; 113A-124;*
Eff. September 9, 1977;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018.

15A NCAC 07H .0404 AECS WITHIN PUBLIC WATER SUPPLIES

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b)(3)a; 113A-124;*
Eff. September 9, 1977;
Amended Eff. May 1, 1990; November 1, 1984; January 24, 1978;
Repealed Eff. June 1, 2021.

15A NCAC 07H .0405 SMALL SURFACE WATER SUPPLY WATERSHEDS
(a) Description. Small surface water supply watersheds are catchment areas situated only within the coastal area which contain a water body classified as WS-III by the Environmental Management Commission. These bodies of water serve as supply for drinking, culinary, or food processing purposes.
(b) Use Standards. The CRC or local permitting officer shall approve a CAMA permit upon finding that the project is in accord with the following standards:
(1) Ground absorption sewage disposal systems shall be located a minimum of 100 feet from WS-III surface waters.
(2) A national pollution discharge elimination system (NPDES) permit shall be secured if required.
(3) Land-disturbing activities including land clearing, grading, and surfacing shall be in compliance with the mandatory standards of G.S. 113A-57.
(c) Designated Small Surface Water Supply Watersheds AECs shall follow the standards set forth in this Paragraph. The Fresh Pond located between Kill Devil Hills and Nags Head on Bodie Island and adjacent catchment area.
(1) The lake is approximately one-quarter mile west of the U.S. 158 bypass.
(2) To protect the water quality of Fresh Pond, the construction of septic tanks and other sources of pollution shall be regulated as follows:
(A) Within 500 feet, horizontal distance of the edge of the pond, no construction of sewers, septic tanks nitrification fields or other possible sources of pollution shall be permitted.
(B) Between the distances of 500 feet and 1200 feet from the edge of the pond, construction of septic tank systems shall be limited to one single septic tank system serving a single family residence not to exceed four bedrooms or its equivalent volume of sewage, on a lot or tract of land not less than 40,000 square feet.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b)(3)a; 113A-124;*
Eff. September 9, 1977;
Amended Eff. May 1, 1990; September 1, 1988; November 1, 1984; February 18, 1980;

Readopted Eff. June 1, 2021.

15A NCAC 07H .0406 PUBLIC WATER SUPPLY WELL FIELDS

(a) Description. Public water supply well fields are areas of well-drained sands that extend downward from the surface into the shallow ground water table that supplies the public with potable water. These surficial well fields are confined to a definable geographic area identified by the North Carolina Department of Environmental Quality and can be found at https://ncdenr.maps.arcgis.com/apps/webappviewer/index.html?id=26f4e2b3140f4e58825e48781ccebf5e.

(b) Use Standards. Development within these AECs shall be consistent with the following standards:

(1) No ground absorption sewage disposal or subsurface pollution injection systems shall be placed within the designated AEC boundary except to replace systems existing as of July 24, 1987;

(2) Development shall not limit the quality or quantity of the public water supply or the amount of rechargeable water;

(3) The development shall not cause salt water intrusion or result in the discharge of contaminants, as defined in 15A NCAC 02L .0202, into standing or groundwater; and

(4) Groundwater absorption sewage treatment systems may also be used within the AEC boundary if the following provisions are met:

(A) the system is serving development on a lot that was platted as of July 24, 1987;

(B) there is no other viable method of waste treatment for the permittable development of such lot;

(C) there is no space outside the boundaries of the AEC on the lot upon which the treatment system could be located; and

(D) the Environmental Health Section of the North Carolina Department of Health and Human Services, prior to the permit decision by the Division of Coastal Management under G.S. 113A-118, 113A-119, and 113A-120, reviews and approves the proposed system as complying with existing rules.

(c) Designated public water supply well field. The CRC has designated Cape Hatteras Well Field as a public water supply well field which shall be subject to the use standards as set out in Paragraph (b) of this Rule. The County of Dare is supplied with raw water from a well field located south of N.C. 12 on Hatteras Island between Frisco and Buxton. The area of environmental concern is bounded by a line located 1,000 feet from the centerlines of three tracts. The first tract is identified as "well field" on maps entitled "Cape Hatteras Wellfield Area of Environmental Concern" approved by the Coastal Resources Commission on July 24, 1987, and extends approximately 12,000 feet west from Water Association Road. The second tract is conterminous with the first tract, is identified as "future well field" on said maps and extends approximately 8,000 feet to the east of Water Association Road. The third tract is identified as "future well field" on said maps and extends approximately 6,200 feet along the National Park Service boundary east of Water Association Road. A map of the Cape Hatteras Well Field AEC is available from the Division of Coastal Management, 400 Commerce Avenue, Morehead City, NC 28557.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b)(3)a.; 113A-124; 113A-124(c)(8);*
Eff. September 9, 1977;
Amended Eff. December 1, 1997; April 1, 1995; May 1, 1990; October 1, 1987;
November 1, 1984;
Readopted Eff. June 1, 2021.

SECTION .0500 - NATURAL AND CULTURAL RESOURCE AREAS

15A NCAC 07H .0501 GENERAL

The fourth and final group of AECs is gathered under the heading of fragile coastal natural and cultural resource areas and is defined as areas containing environmental, natural or cultural resources of more than local significance in which uncontrolled or incompatible development could result in major or irreversible damage to natural systems or cultural resources, scientific, educational, or associative values, or aesthetic qualities.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b)(4e) to (b)(4g);*
113A-124;
Eff. September 9, 1977;
Amended Eff. June 1, 1979;

RRC objection due to lack of statutory authority, ambiguity, lack of necessity, and failure to comply with the APA Eff. September 17, 2022.

15A NCAC 07H .0502 SIGNIFICANCE

(a) Fragile coastal natural resource areas are generally recognized to be of educational, scientific, or cultural value because of the natural features of the particular site. These features in the coastal area serve to distinguish the area designated from the vast majority of coastal landscape and therein establish its value. Such areas may be key components of systems unique to the coast which act to maintain the integrity of that system.

(b) Areas that contain outstanding examples of coastal processes or habitat areas of significance to the scientific or educational communities are a second type of fragile coastal natural resource area. These areas are essentially self-contained units or "closed systems" minimally dependent upon adjoining areas.

(c) Finally, fragile areas may be particularly important to a locale either in an aesthetic or cultural sense.

(d) Fragile coastal cultural resource areas are generally recognized to be of educational, associative, scientific, aesthetic, or cultural value because of their special importance to our understanding of past human settlement of and interaction with the coastal zone. Their importance serves to distinguish the designated areas as significant among the historic architectural or archaeological remains in the coastal zone, and therein established their value.

History Note: *Authority G.S. 113A-107(a),(b); 113A-113(b)(4e) to (b)(4g); 113A-124;*
Eff. September 9, 1977;
Amended Eff. June 1, 1979;
RRC objection due to lack of statutory authority, ambiguity, lack of necessity, and failure to comply with the APA Eff. September 17, 2022.

15A NCAC 07H .0503 NOMINATION AND DESIGNATION PROCEDURES

(a) Special Designation Process. The nomination and designation of a coastal complex natural area, a unique coastal geologic formation, a coastal area that sustains remnant species, a significant coastal archaeological resource, or a significant coastal historic architectural resource area of environmental concern shall follow the procedures set forth in this Rule and in GS 113A-115.

(b) Nomination. An area may be nominated by any person or group at any time for Coastal Resources Commission (CRC) consideration. Nominations may, for example, be made by citizens, interest groups, local governments, or state and federal agencies. Nominations shall be on a standard form and shall be submitted to the Division of Coastal Management (DCM). The nomination shall include information relating to the location, size, importance, ownership, and uniqueness of the proposed site. Nomination forms are available from the Division of Coastal Management.

(c) Preliminary Evaluation. After receipt of a nomination, the Division of Coastal Management shall conduct a preliminary evaluation of the proposed site. The land owner, local government, and CRC and CRAC members in whose jurisdiction the site is located shall be informed of the proposed nomination. Representatives of these groups shall meet to discuss the proposed nomination and shall complete a preliminary evaluation within 60 days after receipt of the nomination. Various protection methods shall be examined to determine if AEC designation is appropriate.

(d) CRC Endorsement. A report on the preliminary evaluation shall be presented to the CRC so that it may determine whether to endorse the evaluations and proceed with a more detailed analysis of the site. This report shall be made at the first CRC meeting after the preliminary evaluation is completed. All parties involved in the nomination and preliminary evaluation shall be informed, in writing, of the Commission's decision to proceed or not to proceed with a detailed review of the site in question. For sites that do not receive CRC endorsement for detailed review, recommendations for some other form of protection may be discussed with the landowner. Other forms of protection include, registry with the North Carolina Natural Heritage Program, conservation easement to a public agency or to a local conservation foundation, donation or acquisition of title, or other strategies.

(e) Detailed Review. A detailed review of the proposed site shall be initiated under DCM supervision after CRC endorsement. This shall include the development of a management plan, if applicable, or site specific use standards. Opportunity shall be given to local government officials, interest groups, and those with scientific expertise to comment on the specific biological/physical or cultural values of the site together with appropriate management strategies to safeguard the values identified. This review shall be completed within 90 days, starting from the date of the official CRC endorsement. At the conclusion of this review, the report on the detailed review shall be presented to the CRC for their consideration.

(f) Public Hearing. If, after receiving the detailed review, the CRC decides to consider formal designation of the site as an AEC and adopt the particular management plan or use standards developed, a public hearing or hearings shall be conducted and notice of hearing published and distributed in accordance with the requirements of G.S. 113A-115 and G.S. 150B-21.2. Copies of the site description and of any proposed rules shall be made available for public inspection at the county courthouse in each affected county and at the Morehead City Office of the Division of Coastal Management. At the hearing(s) the CRC shall present the documentation and recommendations in support of the designation decision.
(g) Formal Designation. After consideration of all comments, the Commission shall make its final judgment. If the site is designated as an AEC, the CRC shall also adopt a management strategy or use standards applicable to the AEC.

History Note: *Authority G.S. 113A-107(a),(b); 113A-113(b)(4)e,f,g, and h; 113A-124;*
Eff. September 9, 1977;
Amended Eff. June 1, 2005; May 1, 1988; May 1, 1985; February 1, 1982; June 1, 1979;
RRC objection due to lack of statutory authority, ambiguity, lack of necessity, and failure to comply with the APA Eff. September 17, 2022.

15A NCAC 07H .0504 AECS WITHIN CATEGORY

History Note: *Authority G.S. 113A-107(a),(b); 113A-113(b)(4) e., f., g., and h.; 113A-124;*
Eff. September 9, 1977;
Amended Eff. December 1, 1991; June 1, 1979;
RRC objection September 16, 2022 and rule returned to agency on December 7, 2022.

15A NCAC 07H .0505 COASTAL AREAS THAT SUSTAIN REMNANT SPECIES
(a) Description. Coastal areas that sustain remnant species are those areas that support native plants or animals determined to be rare or endangered (synonymous with threatened and endangered), within the coastal area. Such places provide habitats necessary for the survival of existing populations or communities of rare or endangered species within the coastal area. Determination will be made by the Commission based upon the listing adopted by the North Carolina Wildlife Resources Commission or the federal government listing; upon written reports or testimony of experts indicating that a species is rare or endangered within the coastal area; and upon consideration of written testimony of local government officials, interest groups, and private land owners.
(b) Significance. The continued survival of certain habitats that support native plants and animals in the coastal area is vital for the preservation of our natural heritage and for the protection of natural diversity which is related to biological stability. These habitats and the species they support provide a valuable educational and scientific resource that cannot be duplicated.
(c) Management Objective. To protect unique habitat conditions that are necessary to the continued survival of threatened and endangered native plants and animals and to minimize land use impacts that might jeopardize these conditions.

History Note: *Authority G.S. 113A-107(a),(b); 113A-113(b)(4)f; 113A-124;*
Eff. September 9, 1977;
RRC objection due to lack of statutory authority, ambiguity, lack of necessity, and failure to comply with the APA Eff. September 17, 2022.

15A NCAC 07H .0506 COASTAL COMPLEX NATURAL AREAS
(a) Description. Coastal complex natural areas are defined as lands that support native plant and animal communities and provide habitat qualities which have remained essentially unchanged by human activity. Such areas may be either significant components of coastal systems or especially notable habitat areas of scientific, educational, or aesthetic value. They may be surrounded by landscape that has been modified but does not drastically alter conditions within the natural area. Such areas may have been altered by human activity and/or subject to limited future modifications, e.g. the placement of dredge spoil, if the CRC determines that the modifications benefit the plant or animal habitat or enhance the biological, scientific or educational values which will be protected by designation as an AEC.
(b) Significance. Coastal complex natural areas function as key biological components of natural systems, as important scientific and educational sites, or as valuable scenic or cultural resources. Often these natural areas

provide habitat suitable for threatened or endangered species or support plant and animal communities representative of pre-settlement conditions. These areas help provide a historical perspective to changing natural habitats in the coastal area and together are important and irreplaceable scientific and educational resources. The CRC may determine significance of a natural area by consulting the Natural Heritage Priority List maintained by the Natural Heritage Program within the Division of Parks and Recreation. The CRC will establish a standing committee, composed of two or more members of the CRC, one or more members of the CRAC, and three or more members of the Natural Area Advisory Committee, to evaluate areas not included in the Natural Heritage Priority List.

(c) Management Objectives. The management objectives of this Rule are to protect the features of a designated coastal complex natural area in order to safeguard its biological relationships, educational and scientific values, and aesthetic qualities. Specific objectives for each of these functions shall be related to the following policy statement either singly or in combination:

(1) To protect the natural conditions or the sites that function as key or unique components of coastal systems. The interactions of various life forms are the foremost concern and include sites that are necessary for the completion of life cycles, areas that function as links to other wildlife areas (wildlife corridors), and localities where the links between biological and physical environments are most fragile.

(2) To protect the identified scientific and educational values and to ensure that the site will be accessible for related study purposes.

(3) To protect the values of the designated coastal complex natural area as expressed by the local government and citizenry. These values should be related to the educational and aesthetic qualities of the feature.

History Note: *Authority G.S. 113A-107(a),(b); 113A-113(b)(4)e; 113A-24;*
Eff. September 9, 1977;
Amended Eff. October 1, 1988; February 1, 1982;
RRC objection due to lack of statutory authority, ambiguity, lack of necessity, and failure to comply with the APA Eff. September 17, 2022.

15A NCAC 07H .0507 UNIQUE COASTAL GEOLOGIC FORMATIONS

(a) Description. Unique coastal geologic formations are defined as sites that contain geologic formations that are unique or otherwise significant components of coastal systems, or that are especially notable examples of geologic formations or processes in the coastal area. Such areas will be evaluated by the Commission after identification by the State Geologist.

(b) Significance. Unique coastal geologic areas are important educational, scientific, or scenic resources that would be jeopardized by uncontrolled or incompatible development.

(c) Management Objectives. The CRC's objective is to preserve unique resources of more than local significance that function as key physical components of natural systems, as important scientific and educational sites, or as valuable scenic resources. Specific objectives for each of these functions shall be related to the following policy statements either singly or in combination:

(1) To ensure that the designated geologic feature will be able to freely interact with other components of the identified systems. These interactions are often the natural forces acting to maintain the unique qualities of the site. The primary concern is the relationship between the geologic feature and the accompanying biological component associated with the feature. Other interactions which may be of equal concern are those relating the geologic feature to other physical components, specifically the relationship of the geologic feature to the hydrologic elements; ground water and surface runoff.

(2) To ensure that the designated geologic feature or process will be preserved for and be accessible to the scientific and educational communities for related study purposes.

(3) To protect the values of the designated geologic feature as expressed by the local government and citizenry. These values should be related to the educational and aesthetic qualities of the feature.

(d) Designation. The Coastal Resources Commission hereby designates Jockey's Ridge as a unique coastal geologic formation area of environmental concern. The boundaries of the area of environmental concern shall be as depicted on a map approved by the Coastal Resources Commission on December 4, 1987, and on file with the Division of Coastal Management. This area includes the entire rights of way of US 158 Bypass, SR 1221 (Sound Side Road), Virginia Dare Trail, and Conch Street where these roads bound this area. Jockey's Ridge is the tallest active sand

dune along the Atlantic Coast of the United States. Located within the Town of Nags Head in Dare County, between US 158 and Roanoke Sound, the Ridge represents the southern extremity of a back barrier dune system which extends north along Currituck Spit into Virginia. Jockey's Ridge is an excellent example of a medano, a large isolated hill of sand, asymmetrical in shape and lacking vegetation. Jockey's Ridge is the largest medano in North Carolina and has been designated a National Natural Landmark by the U.S. Department of the Interior.

(e) Use Standards. Jockey's Ridge. Development within the Jockey's Ridge AEC shall be consistent with the following minimum use standards:

(1) Development which requires the removal of greater than ten cubic yards of sand per year from the area within the AEC boundary shall require a permit;

(2) All sand which is removed from the area within the AEC boundary in accordance with 7H .0507(e)(1) shall be deposited at locations within the Jockey's Ridge State Park designated by the Division of Coastal Management in consultation with the Division of Parks and Recreation;

(3) Development activities shall not significantly alter or retard the free movement of sand except when necessary for the purpose of maintaining or constructing a road, residential/commercial structure, accessway, lawn/garden, or parking area.

History Note: *Authority G.S. 113A-107(a),(b); 113A-113(b)(4)g.; 113A-124;*
Eff. September 9, 1977;
Amended Eff. March 1, 1988;
RRC objection due to lack of statutory authority, ambiguity, lack of necessity, and failure to comply with the APA Eff. September 17, 2022.

15A NCAC 07H .0508 USE STANDARDS

Permits for development in designated fragile coastal natural or cultural resource areas will be approved upon finding that:

(1) The proposed design and location will cause no major or irreversible damage to the stated values of a particular resource. One or more of the following values must be considered depending upon the stated significance of the resource:

(a) Development shall preserve the values of the individual resource as it functions as a critical component of a natural system.

(b) Development shall not adversely affect the values of the resource as a unique scientific, associative, or educational resource.

(c) Development shall be consistent with the aesthetic values of a resource as identified by the local government and citizenry.

(2) No reasonable alternative sites are available outside the designated AEC.

(3) Reasonable mitigation measures have been considered and incorporated into the project plan. These measures shall include consultation with recognized authorities and with the CRC.

(4) The project will be of equal or greater public benefit than those benefits lost or damaged through development.

(5) Use standards will not address farming and forestry activities that are exempted in the definition of development (G.S. 113A-103(5)a.4).

History Note: *Authority G.S. 113A-107(a),(b); 113A-113(b)(4e) to (b)(4h); 113A-124;*
Eff. September 9, 1977;
Amended Eff. February 1, 1982; June 1, 1979;
RRC objection due to lack of statutory authority, ambiguity, lack of necessity, and failure to comply with the APA Eff. September 17, 2022.

15A NCAC 07H .0509 SIGNIFICANT COASTAL ARCHAEOLOGICAL RESOURCES

(a) Description. Significant coastal archaeological resources are defined as areas that contain archaeological remains (objects, features, and/or sites) that have more than local significance to history or prehistory. Such areas will be evaluated by the North Carolina Historical Commission in consultation with the Commission as part of the procedure set forth in Rule .0503 of this Section.

(b) Significance. Significant coastal archaeological resources are important educational, scientific, or aesthetic resources. Such resources would be jeopardized by uncontrolled or incompatible development. In general,

significant archaeological resources possess integrity of location, design, setting, workmanship, materials, and association and:

(1) are associated with events that have made a significant contribution to the broad patterns of history; or

(2) are associated with the lives of persons significant in history; or

(3) embody the distinctive characteristics of a type, period, or method of construction, or represent a significant and distinguishable entity whose components may lack individual distinction; or

(4) have yielded, or may be likely to yield, information important in history or prehistory.

(c) Management Objectives. The CRC's objective is to conserve coastal archaeological resources of more than local significance to history or prehistory that constitute important scientific sites, or are valuable educational, associative, or aesthetic resources. Specific objectives for each of these functions shall be related to the following policy statements either singly or in combination:

(1) to give the highest priority to the development of a preservation management plan to provide long-term, effective management of the archaeological resource; only that development which would have minimal adverse effects on the archaeological resource will be acceptable;

(2) to conserve significant archaeological resources, including their spatial and structural context and characteristics through in-situ preservation and/or scientific study;

(3) to insure that the designated archaeological resource, or the information contained therein, be preserved for and be accessible to the scientific and educational communities for related study purposes;

(4) to protect the values of the designated archaeological resource as expressed by the local government and citizenry; these values should be related to the educational, associative, or aesthetic qualities of the resource.

(d) General Use Standards.

(1) Significant concentrations of archaeological material, preferably reflecting a full range of human behavior, should be preserved in-situ for future research by avoidance during planned construction activities. Areas for avoidance should be selected only after sufficient archaeological investigations have been made. See Subparagraph (d)(2)(B) of this Rule to determine the nature, extent, conditions and relative significance of the cultural deposits. Three avoidance measures should be considered, preferably in combination:

(A) incorporation of "no impact" spaces in construction plans such as green spaces between lots;

(B) definition of restrictions limiting specific types of ground disturbing activities;

(C) donation of preservation easements to the state or, upon approval by the N.C. Division of Archives and History, a legitimate historic preservation agency or organization.

(2) Any activities which would damage or destroy the fragile contents of a designated site's surface or subsurface shall be expressly prohibited until an archaeological investigation and subsequent resource management plan has been implemented. Such investigation and management plan shall be developed in full consultation with the North Carolina Division of Archives and History. In this way, potentially damaging or destructive activities (e.g., construction, roads, sewer lines, land-scaping) may be managed both during initial phases of construction and after the development is completed. Such archaeological investigations shall comply with the following criteria:

(A) all archaeological work will be conducted by an experienced professional archaeologist;

(B) initial archaeological investigations conducted as part of the permit review process will be implemented in three parts: Phase I, a reconnaissance level investigation to determine the nature and extent of archaeological materials over the designated area; Phase II, an intensive level investigation which represents a direct outgrowth of Phase I findings and through systematic data recovery assesses the potential importance of identified concentrations of archaeological materials; Phase III, mitigation of adverse effects to recognized areas of importance. Evaluations of research potential will be made and prioritized in order of importance, based upon the status of previous research in the area and the integrity of the remains;

(C) an archaeological research design will be required for all archaeological investigations. All research designs will be subject to the approval of the North Carolina Division of Archives and History prior to conducting the work. A research proposal must allow at

least 30 days for review and comment by the North Carolina Division of Archives and History;

(D) data will be collected and recorded accurately and systematically and artifacts will be curated according to accepted professional standards at an approved repository.

(e) Designations. The Coastal Resources Commission hereby designates Permuda Island as a significant coastal archaeological resource area of environmental concern. Permuda Island is a former barrier island located within Stump Sound in southwestern Onslow County. The island is 1.2 miles long and .1 - .25 miles wide. Archaeological evidence indicates earliest occupation from the Middle Woodland Period (300 B.C. - 800 A.D.) through the late Woodland Period (800 A.D. - 1650 A.D.) and historic occupations predating the Revolutionary War. Archaeological remains on the island consist of discrete shell heaps, broad and thick layers of shell midden, prehistoric refuse pits and postholes, as well as numerous ceramic vessel fragments and well-preserved animal bone remains. The resources offer extensive research opportunities.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b)(4h); 113A-124;*
Eff. June 1, 1979;
Amended Eff. October 1, 1988; January 1, 1985;
RRC objection due to lack of statutory authority, ambiguity, lack of necessity, and failure to comply with the APA Eff. September 17, 2022.

15A NCAC 07H .0510 SIGNIFICANT COASTAL HISTORIC ARCHITECTURAL RESOURCES

(a) Description. Significant coastal historic architectural resources are defined as districts, structures, buildings, sites or objects that have more than local significance to history or architecture. Such areas will be evaluated by the North Carolina Historical Commission in consultation with the Commission as part of the procedure set forth in Rule .0503 of this Section.

(b) Significance. Significant coastal historic architectural resources are important educational, scientific, associative, or aesthetic resources. Such resources would be jeopardized by uncontrolled or incompatible development. In general, significant historic architectural resources possess integrity of design, setting, workmanship, materials, and association and:

(1) are associated with events that have made a significant contribution to the broad patterns of history; or

(2) are associated with the lives of persons significant in history; or

(3) embody the distinctive characteristics of a type, period, or method of construction, or represent a significant and distinguishable entity whose components may lack individual distinction; or

(4) have yielded, or may be likely to yield, information important in history.

(c) Management Objectives. The CRC's objective is to conserve coastal historic architectural resources of more than local significance which are valuable educational, scientific, associative or aesthetic resources. Specific objectives for each of these functions shall be related to the following policy statements either singly or in combination:

(1) to conserve historic architectural resources as a living part of community life and development, including their structural and environmental characteristics, in order to give a sense of orientation to the people of the state;

(2) to insure that the designated historic architectural resource be preserved, as a tangible element of our cultural heritage, for its educational, scientific, associative or aesthetic purposes;

(3) to protect the values of the designated historic architectural resource as expressed by the local government and citizenry; these values should be related to the educational, scientific, associative or aesthetic qualities of the resource.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b)(4h); 113A-124;*
Eff. June 1, 1979;
RRC objection due to lack of statutory authority, ambiguity, lack of necessity, and failure to comply with the APA Eff. September 17, 2022.

SECTION .0600 - DEVELOPMENT STANDARDS APPLICABLE TO ALL AECS

15A NCAC 07H .0601 NO VIOLATION OF ANY RULE

History Note: *Authority G.S. 113A-107(a),(b); 113A-124;*
Eff. September 9, 1977;
RRC objection September 16, 2022 and rule returned to agency on December 7, 2022.

15A NCAC 07H .0602 POLLUTION OF WATERS

No development shall be allowed in any AEC which would have a substantial likelihood of causing pollution of the waters of the state in which shellfishing is an existing use to the extent that such waters would be officially closed to the taking of shellfish. This rule shall also apply to development adjacent to or within closed shellfish waters when a use attainability study of those waters documents the presence of a significant shellfish resource in an area that could be expected to be opened for shellfishing given reasonable efforts to control the existing sources of pollution.

History Note: *Authority G.S. 113A-107(a),(b); 113A-124;*
Eff. September 9, 1977;
Amended Eff. July 1, 1987.

15A NCAC 07H .0603 MINIMUM ALTITUDES

History Note: *Authority G.S. 113A-107(a),(b);*
Eff. March 1, 1990;
RRC objection September 16, 2022 and rule returned to agency on December 7, 2022.

15A NCAC 07H .0604 NOISE POLLUTION

History Note: *Authority G.S. 113A-107(a),(b);*
Eff. March 1, 1990;
RRC objection September 16, 2022 and rule returned to agency on December 7, 2022.

SECTION .0700 - TECHNICAL APPENDIX 1: DEFINITIONS FOR PUBLIC TRUST AREAS

15A NCAC 07H .0701 MEAN HIGH WATER
15A NCAC 07H .0702 MEAN WATER LEVEL

History Note: *Authority G.S. 113A-107(a),(b); 113A-113(b)(5);*
Eff. September 9, 1977;
Repealed Eff. November 1, 1984.

SECTION .0800 - TECHNICAL APPENDIX 2: OCEAN HAZARD AREAS

15A NCAC 07H .0801 PHYSICAL PROCESSES IN OCEAN HAZARD AREAS
15A NCAC 07H .0802 DYNAMIC EQUILIBRIUM
15A NCAC 07H .0803 BEACHES
15A NCAC 07H .0804 SAND DUNES
15A NCAC 07H .0805 SEDIMENT TRANSPORT
15A NCAC 07H .0806 INLETS
15A NCAC 07H .0807 WASHOVER AREAS

History Note: *Authority G.S. 113A-107(a),(b); 113A-113(b)(6)a,(b)(6)b; (b)(6)d;*
Eff. September 9, 1977;
Repealed Eff. November 1, 1984.

SECTION .0900 - TECHNICAL APPENDIX 3: INLET LANDS

15A NCAC 07H .0901 IDENTIFICATION PROCEDURE FOR INLET LANDS
15A NCAC 07H .0902 DESIGNATION OF NON-STABILIZED INLETS

History Note: *Authority G.S. 113A-107(a),(b); 113A-113(b)(6)d;*

Eff. September 9, 1977;
Amended Eff. January 24, 1978;
Repealed Eff. September 15, 1979.

SECTION .1000 - TECHNICAL APPENDIX 4: PUBLIC WATER SUPPLIES

15A NCAC 07H .1001 SMALL SURFACE WATER SUPPLY WATERSHEDS
15A NCAC 07H .1002 PUBLIC WATER SUPPLY WELL FIELDS
15A NCAC 07H .1003 BIBLIOGRAPHY

History Note: *Authority G.S. 113A-107(a),(b); 113A-113(a),(b)(3)a;*
Eff. September 9, 1977;
Amended Eff. February 18, 1980;
Repealed Eff. November 1, 1984.

SECTION .1100 - GENERAL PERMIT FOR CONSTRUCTION OF BULKHEADS AND RIPRAP REVETMENTS FOR SHORELINE PROTECTION IN ESTUARINE AND PUBLIC TRUST WATERS AND OCEAN HAZARD AREAS

15A NCAC 07H .1101 PURPOSE

A permit for construction of bulkheads and riprap revetments under this Section shall allow the construction of bulkheads and riprap revetments for shoreline protection in the public trust waters and estuarine waters AECs subject to the procedures outlined in Subchapter 07J, Section .1100 and according to the Rules in this Section. This permit shall not apply to shoreline protection along the oceanfront or to waters and shorelines adjacent to the Ocean Hazard AEC with the exception of those shorelines that feature characteristics of the Estuarine Shoreline AEC. Such features include the presence of wetland vegetation, lower wave energy, and lower erosion rates than the adjoining Ocean Erodible Area.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b); 113A-118.1; 113A-124; 113-229;*
Eff. March 1, 1984;
Amended Eff. July 1, 2009; April 1, 2003;
Readopted Eff. April 1, 2022.

15A NCAC 07H .1102 APPROVAL PROCEDURES

(a) An applicant for a General Permit under this Subchapter shall contact the Division of Coastal Management and request approval for development.
(b) The applicant shall provide:
(1) provide site location, dimensions of the project area, and the applicant's name and address, confirmation that the applicant has obtained a written statement, signed by the adjacent riparian property owners indicating that they have no objections to the proposed work; or
(2) confirmation that the applicant has notified adjacent riparian property owners by certified mail of the proposed work. The notice shall instruct adjacent property owners to provide written comments on the proposed development to DCM within 10 days of receipt of the notice and indicate that no response shall be interpreted as no objection. DCM shall review all comments and determine, based on their relevance to the potential impacts of the proposed project, if the proposed project can be approved by a General Permit. If DCM determines that the project exceeds the guidelines established by the General Permit process provided in 15A NCAC 07J .1100, DCM shall notify the applicant that an application for a major development permit shall be required.

(c) No work shall begin until an on-site meeting is held with the applicant and a DCM representative so that the proposed alignment may be marked. A General Permit to proceed with the proposed development shall be issued if the DCM representative finds that the application meets all the requirements of this Rule. Construction of the bulkhead or riprap revetment shall be completed within 120 days of the issuance of the general permit or the authorization shall expire and it shall be necessary to re-examine the structure alignment to determine if the general permit may be reissued.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b); 113A-118.1; 113A-124; 113A-118; 113A-120; 113-229;*
Eff. March 1, 1984;
Amended Eff. July 1, 2009; October 1, 2007; September 1, 2006; January 1, 1990; December 1, 1987;
Readopted Eff. April 1, 2022.

15A NCAC 07H .1103 PERMIT FEE

The applicant shall pay a permit fee of two hundred dollars ($200.00) for riprap revetments sited at or above normal high water or normal water level, or a permit fee of four hundred dollars ($400.00) for riprap revetments sited below normal high water or normal water level. The applicant shall pay a permit fee of four hundred dollars ($400.00) for bulkheads. Permit fees shall be paid by check or money order payable to the Department.

History Note: *Authority G.S. 113A-107; 113A-113(b); 113A-118.1; 113A-119; 113-119.1; 113A-124; 113-229;*
Eff. March 1, 1984;
Amended Eff. October 5, 2009; September 1, 2006; August 1, 2000; March 1, 1991;
Readopted Eff. April 1, 2022.

15A NCAC 07H .1104 GENERAL CONDITIONS

(a) This permit authorizes only the construction of bulkheads and riprap revetments conforming to the standards in this Section.
(b) Individuals shall allow authorized representatives of the Department of Environmental Quality to make inspections at any time in order to ensure that the activity being performed under authority of this general permit is in accordance with the terms and conditions prescribed herein.
(c) There shall be no interference with the use of the waters by the public by the existence of the bulkhead or the riprap revetment authorized herein. Bulkheads and riprap revetments authorized in this Section shall not interfere with the established or traditional rights of navigation of the waters by the public.
(d) This permit shall not be applicable to proposed construction where the Division of Coastal Management has determined, based on an initial review of the application, that notice and review pursuant to G.S. 113A-119 is necessary because there are unresolved questions concerning the proposed activity's impact on adjoining properties or on water quality, air quality, coastal wetlands, cultural or historic sites, wildlife, fisheries resources, or public trust rights.
(e) This permit shall not eliminate the need to obtain any other required State, local, or federal authorization.
(f) Development carried out under permit set forth in this Section shall be consistent with all State, federal, local requirements, and local land use plans current at the time of authorization.
Development carried out under the permit set forth in this Section shall be consistent with all State, federal, local requirements, and local land use plans current at the time of authorization.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b); 113A-118.1; 113A-124; 113-229;*
Eff. March 1, 1984;
Amended Eff. May 1, 1990; December 1, 1987;
RRC Objection due to ambiguity Eff. May 19, 1994;
Amended Eff. July 1, 2009; August 1, 1998; July 1, 1994;
Readopted Eff. April 1, 2022.

15A NCAC 07H .1105 SPECIFIC CONDITIONS

(a) Along shorelines void of wetland vegetation:
(1) New bulkheads shall have an average approximation of normal high water or normal water level. The bulkhead position shall not exceed a distance of five feet waterward of normal high water or normal water level at any point along its alignment.
(2) New bulkheads or riprap revetments on shorelines within manmade upland basins, canals, and ditches, shall be positioned so as not to exceed an average distance of two feet and maximum distance of five feet waterward of normal high water or normal water level.
(3) When replacing an existing bulkhead, the new alignment shall be positioned so as not to exceed a maximum distance of two feet waterward of the current bulkhead alignment. To tie into a like structure on the adjacent property, replacement bulkhead position shall not exceed a maximum

distance of five feet waterward of the current bulkhead alignment. When replacing a bulkhead where lands landward of the bulkhead were lost in the last year, bulkheads shall be positioned a maximum of two feet waterward of the original or existing alignment.

(4) Riprap revetments shall be positioned so as not to exceed a maximum distance of 10 feet waterward of the normal high water or normal water level at any point along its alignment.

(b) Along shorelines with wetland vegetation, bulkheads and riprap revetments shall be positioned so that all construction is to be accomplished landward of such vegetation.

(c) Bulkheads shall be constructed of vinyl, steel sheet pile, concrete, stone, timber, or other materials approved by the Division of Coastal Management.

(d) Riprap revetments shall be constructed of granite, marl, concrete without exposed rebar, or other materials approved by the Division of Coastal Management.

(e) Revetment material shall be free from loose dirt or other materials not approved by the Division of Coastal Management.

(f) Revetment material shall be of size approved by the Division of Coastal Management to prevent movement of the material from the site by wave action or currents.

(g) Construction design for riprap revetments shall take into consideration the height of the area to be protected i.e., bulkhead height, escarpment height, water depth, and the alignment shall allow for a slope no flatter than three feet horizontal per one foot vertical and no steeper than 1½ feet horizontal per one foot vertical.

(h) All backfill material shall be obtained from an upland source pursuant to 15A NCAC 07H .0208. The bulkhead or riprap revetment shall be constructed prior to any backfilling activities and shall be structurally tight so as to prevent seepage of backfill materials through the structure.

(i) No excavation, grading or fill shall be permitted except for that which may be required for the construction of the bulkhead or riprap revetment. This permit shall not authorize any excavation waterward of the approved alignment.

(j) Runoff from construction shall not increase the amount of suspended sediments in adjacent waters. Sedimentation and erosion control devices, measures, or structures shall be implemented to ensure that eroded materials do no enter adjacent wetlands, watercourses and property, e.g. silt fence, diversion swales or berms, sand fence, etc.

(k) If one contiguous acre or more of property is to be excavated or filled, an erosion and sedimentation control plan shall be filed with and approved by the Division of Energy, Mineral, and Land Resources, or local government having and a delegated program prior to commencing the land-disturbing activity.

(l) For the purposes of these Rules, the Atlantic Intracoastal Waterway (AIWW) is considered a natural shoreline.

(m) Construction authorized by this general permit shall be limited to a maximum shoreline length of 500 feet.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b); 113A-118.1; 113A-124; 113-229;*
Eff. March 1, 1984;
Amended Eff. August 1, 2012 (see S.L. 2012-143, s.1.(f)); July 1, 2009; April 1, 2005; December 1, 1991; January 1, 1989; December 1, 1987;
Readopted Eff. April 1, 2022.

SECTION .1200 - GENERAL PERMIT FOR CONSTRUCTION OF PIERS AND DOCKING FACILITIES: IN ESTUARINE AND PUBLIC TRUST WATERS AND OCEAN HAZARD AREAS

15A NCAC 07H .1201 PURPOSE

A permit under this Section shall allow the construction of piers and docking facilities, including pile supported or floating, in the Estuarine and Public Trust Waters AECs and construction of piers and docks within Coastal Wetland AECs according to the authority provided in Subchapter 07J .1100 and according to the rules in this Section. This permit shall not apply to oceanfront shorelines or to waters and shorelines adjacent to the Ocean Hazard AEC with the exception of those shorelines that feature characteristics of the Estuarine Shoreline AEC. Such features include the presence of wetland vegetation, lower wave energy, and lower erosion rates than the adjacent Ocean Erodible Area.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b); 113A-118.1; 113A-124;*
Eff. March 1, 1984;
Amended Eff. July 1, 2009; April 1, 2003;
Readopted Eff. December 1, 2021.

15A NCAC 07H .1202 APPROVAL PROCEDURES

(a) An applicant for a General Permit under this Subchapter shall contact the Division of Coastal Management and request approval for development.

(b) The applicant shall provide:

(1) the site location, dimensions of the project area and name, and his or her address; and

(2) confirmation that a written statement has been obtained signed by the adjacent riparian property owners indicating that they have no objections to the proposed work; or

(3) confirmation that the adjacent riparian property owners have been notified by certified mail of the proposed work. The notice shall instruct adjacent property owners to provide any comments on the proposed development in writing for consideration by permitting officials to the Division of Coastal Management within 10 days of receipt of the notice and indicate that no response will be interpreted as no objection. Division staff shall review all comments and determine, based on their relevance to the potential impacts of the proposed project, if the proposed project can be approved by a General Permit. If Division staff finds that the comments are worthy of more in-depth review, the Division shall notify the applicant that he or she must submit an application for a major development permit.

(c) No work shall begin until an on-site meeting is held with the applicant and a Division of Coastal Management representative to review the proposed development. A permit to to proceed with the proposed development shall be issued if the Division representative finds that the application meets all the requirements of this Subchapter. Construction shall be completed within 120 days of the issuance of the general permit or the authorization shall expire and it shall be necessary to re-examine the proposed development to determine if the general permit may be reissued.

(d) Any modification or addition to the permitted project shall require prior approval from the Division of Coastal Management.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b); 113A-118.1; 113A-124;*
Eff. March 1, 1984;
Amended Eff. October 1, 2007; August 1, 1998; January 1, 1990;
Readopted Eff. December 1, 2021.

15A NCAC 07H .1203 PERMIT FEE

The applicant shall pay a permit fee of two hundred dollars ($200.00) by check or money order payable to the Department.

History Note: *Authority G.S. 113A-107; 113A-113(b); 113A-118.1; 113A-119; 113-119.1; 113A-124;*
Eff. March 1, 1984;
Amended Eff. September 1, 2006; August 1, 2000; March 1, 1991;
Readopted Eff. December 1, 2021.

15A NCAC 07H .1204 GENERAL CONDITIONS

(a) Piers and docking facilities authorized by the general permit set forth in this Section shall be for the exclusive use of the land owner or occupant and shall not be leased, rented, or used for any commercial purpose. Piers and docking facilities shall provide docking space for no more than two boats. Docking facilities providing docking space for more than two boats shall be reviewed through the major permitting process due to their greater potential for adverse impacts and, therefore, are not authorized by this general permit, excluding the exceptions described in Rule .1205 of this Section.

(b) Individuals shall allow representatives of the Department of Environmental Quality to make inspections at any time in order to ensure that the activity being performed under the authority of the general permit set forth in this Section is in accordance with the terms and conditions prescribed herein.

(c) There shall be no interference with navigation or use of the waters by the public through the existence of piers and docking facilities.

(d) The permit set forth in this Section shall not be applicable to proposed construction where the Department determines that the proposed activity will endanger adjoining properties or significantly affect historic, cultural, scenic, conservation or recreation values, identified in G.S. 113A-102 and G.S. 113A-113(b)(4).

(e) The permit set forth in this Section does not eliminate the need to obtain any other required State, local, or federal authorization.
(f) Development carried out under the permit set forth in this Section shall be consistent with all State, federal, local requirements, and local land use plans current at the time of authorization.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b); 113A-118.1; 113A-124;*
Eff. March 1, 1984;
Amended Eff. May 1, 1990;
RRC Objection due to ambiguity Eff. May 19, 1994;
Amended Eff. August 1, 2014; July 1, 2009; August 1, 1998; July 1, 1994;
Readopted Eff. December 1, 2021.

15A NCAC 07H .1205 SPECIFIC CONDITIONS

(a) Piers and docking facilities may extend or be located up to a maximum of 400 feet waterward from the normal high water line or the normal water level, whichever is applicable.
(b) Piers and docking facilities shall not extend beyond the established pier length along the same shoreline for similar use. This restriction shall not apply to piers and docking facilities 100 feet or less in length unless necessary to avoid interference with navigation or other uses of the waters by the public such as blocking established navigation routes or interfering with access to adjoining properties as determined by the Division of Coastal Management. The length of piers and docking facilities shall be measured from the waterward edge of any wetlands that border the water body.
(c) Piers and docking facilities longer than 200 feet shall be permitted only if the proposed length gives access to deeper water at a rate of at least one foot at each 100 foot increment of pier length longer than 200 feet, or if the additional length is necessary to span some obstruction to navigation. Measurements to determine pier and docking facility lengths shall be made from the waterward edge of any coastal wetland vegetation that borders the water body.
(d) Piers shall be no wider than six feet and shall be elevated at least three feet above any coastal wetland substrate as measured from the bottom of the decking.
(e) The total square footage of shaded impact for docks and mooring facilities (excluding the pier) allowed shall be 8 square feet per linear foot of shoreline with a maximum of 800 square feet. In calculating the shaded impact, uncovered open water slips shall not be counted in the total.
(f) The maximum size of any individual component of the docking facility authorized by this general permit shall not exceed 400 square feet.
(g) Docking facilities shall not be constructed in a designated Primary Nursery Area with less than two feet of water at normal low water level or normal water level under the general permit set forth in this Section without prior approval from the Division of Marine Fisheries or the Wildlife Resources Commission.
(h) Piers and docking facilities located over shellfish beds or submerged aquatic vegetation as defined by the Marine Fisheries Commission may be constructed without prior consultation from the Division of Marine Fisheries or the Wildlife Resources Commission if the following two conditions are met:

(1) Water depth at the docking facility location is equal to or greater than two feet of water at normal low water level or normal water level; and
(2) The pier and docking facility is located to minimize the area of submerged aquatic vegetation or shellfish beds under the structure as determined by the Division of Coastal Management.

(i) Floating piers and floating docking facilities located in Primary Nursery Areas, over shellfish beds, or over submerged aquatic vegetation shall be allowed if the water depth between the bottom of the proposed structure and the substrate is at least 18 inches at normal low water level or normal water level.
(j) Docking facilities shall have no more than six feet of any horizontal dimension extending over coastal wetlands and shall be elevated at least three feet above any coastal wetland substrate as measured from the bottom of the decking.
(k) The width requirements established in Paragraph (d) of this Rule shall not apply to pier structures in existence on or before July 1, 2001 when structural modifications are needed to prevent or minimize storm damage. In these cases, pilings and cross bracing may be used to provide structural support as long as they do not extend more than two feet on either side of the principal structure. These modifications shall not be used to expand the floor decking of platforms and piers.
(l) Boathouses shall not exceed a combined total of 400 square feet and shall have sides extending no further than one-half the height of the walls as measured in a downward direction from the top wall plate or header to the Normal

Water Level or Normal High Water and only covering the top half of the walls. Measurements of square footage shall be taken of the greatest exterior dimensions. Boathouses shall not be allowed on lots with less than 75 linear feet of shoreline. Structural boat covers, utilizing frame-supported fabric covering, can be permitted on properties with less than 75 linear feet of shoreline when using screened fabric for side walls.

(m) The area enclosed by a boat lift shall not exceed 400 square feet.

(n) Piers and docking facilities shall be single story. They may be roofed but shall not allow second story use.

(o) Pier and docking facility alignments along federally maintained channels shall also meet Corps of Engineers regulations for construction pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

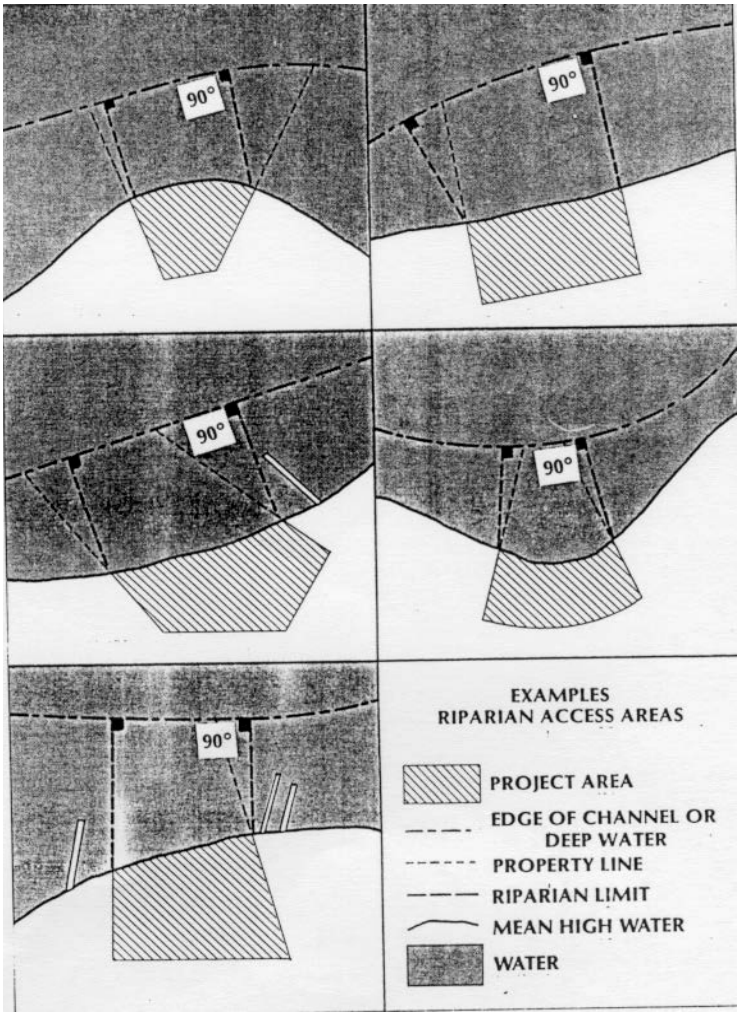
(p) Piers and docking facilities shall in no case extend more than 1/4 the width of a natural water body, human-made canal, or basin. Measurements to determine widths of the water body, human-made canals, or basins shall be made from the waterward edge of any coastal wetland vegetation which borders the water body. The 1/4 length limitation shall not apply when the proposed pier and docking facility is located between longer structures within 200 feet of the applicant's property. However, the proposed pier and docking facility shall not be longer than the pier head line established by the adjacent piers and docking facilities or longer than 1/3 the width of the water body.

(q) Piers and docking facilities shall not interfere with the access to any riparian property, and shall have a minimum setback of 15 feet between any part of the pier and docking facility and the adjacent property lines extended into the water at the points that they intersect the shoreline. The minimum setbacks provided in this Paragraph may be waived by the written agreement of the adjacent riparian owner(s), or when two adjoining riparian owners are co-applicants. Should the adjacent property be sold before construction of the pier commences, the applicant shall obtain a written agreement with the new owner waiving the minimum setback and submit it to the Division of Coastal Management prior to initiating any development of the pier or docking facility. The line of division of areas of riparian access shall be established by drawing a line along the channel or deep water in front of the property, then drawing a line perpendicular to the line of the channel so that it intersects with the shore at the point the upland property line meets the water's edge. Application of this Rule may be aided by reference to the diagram in Paragraph (t) of this Rule illustrating the Rule as applied to various shoreline configurations. Copies of the diagram may be obtained from the Division of Coastal Management website at http://www.nccoastalmanagement.net.When shoreline configuration is such that a perpendicular alignment cannot be achieved, the pier or docking facility shall be aligned to meet the intent of this Rule to the maximum extent practicable.

(r) Piers and docking facilities shall provide docking space for no more than two boats, as defined in 15A NCAC 07M .0602(a), except when stored on a platform that has already been accounted for within the shading impacts condition of this general permit. Boats stored on floating or fixed platforms shall not count as docking spaces.

(s) Applicants for authorization to construct a pier or docking facility shall provide notice of the permit application to the owner of any part of a shellfish franchise or lease over which the proposed pier or docking facility would extend. The applicant shall allow the lease holder the opportunity to mark a navigation route from the pier to the edge of the lease.

(t) The diagram shown below illustrates various shoreline configurations:



(u) Shared piers or docking facilities shall be allowed, provided that in addition to complying with Paragraphs (a) through (t) of this Rule the following shall also apply:

(1) The shared pier or docking facility shall be confined to two adjacent riparian property owners and the landward point of origination of the structure shall overlap the shared property line;

(2) Shared piers and docking facilities shall be designed to provide docking space for no more than four boats;

(3) The total square footage of shaded impact for docks and mooring facilities shall be calculated using Paragraph (e) of this Rule and in addition shall allow for combined shoreline of both properties;

(4) The property owners of the shared pier shall not be required to obtain a 15-foot waiver from each other as described in Paragraph (q) of this Rule as is applies to the shared riparian line for any work associated with the shared pier, provided that the title owners of both properties have executed a shared pier agreement that has become a part of the permit file; and

(5) The construction of a second access pier or docking facility not associated with the shared pier shall not be authorized under the general permit set forth in this Section.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b); 113A-118.1; 113A-124;*
Eff. March 1, 1984;
Amended Eff. December 1, 1991; May 1, 1990; March 1, 1990;
RRC Objection due to ambiguity Eff. March 18, 1993;
Amended Eff. August 1, 1998; April 23, 1993;
Temporary Amendment Eff. December 20, 2001;

Amended Eff. August 1, 2014; July 1, 2009; April 1, 2003;
Readopted Eff. December 1, 2021;
Amended Eff. August 1, 2022.

SECTION .1300 – GENERAL PERMIT TO CONSTRUCT BOAT RAMPS ALONG ESTUARINE AND PUBLIC TRUST SHORELINES AND INTO ESTUARINE AND PUBLIC TRUST WATERS

15A NCAC 07H .1301 PURPOSE

A person requesting the construction of boat ramps along estuarine and public trust shorelines and into Estuarine and Public Trust Waters AECs shall apply for a General Permit according to the rules in this Section. This permit shall not apply to oceanfront shorelines or to waters and shorelines adjacent to the Ocean Hazard AEC with the exception of those shorelines that feature characteristics of the Estuarine Shoreline AEC. Such features include the presence of wetland vegetation, lower wave energy, and lower erosion rates than the adjacent Ocean Erodible Area.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b); 113A-118.1; 113A-124;*
Eff. March 1, 1984;
Amended Eff. April 1, 2003; August 1, 2000;
Readopted Eff. October 1, 2022.

15A NCAC 07H .1302 APPROVAL PROCEDURES

(a) An applicant for a General Permit under this Subchapter shall contact the Division of Coastal Management at the Regional Office indicated on the map located at https://ncdenr.maps.arcgis.com/apps/webappviewer/index.html?id=1a5881ec85ca40679988982e02665b51 and request approval for development as defined in G.S. 113A-130(5).

(b) The applicant shall provide:

(1) the site location, dimensions of the project area, and his or her name and address; and

(2) confirmation that a written statement has been obtained, signed by the adjacent riparian property owners, indicating that they have no objections to the proposed work; or

(3) confirmation that the adjacent riparian property owners have been notified by certified mail of the proposed work. The notice shall instruct adjacent property owners to provide any comments on the proposed development in writing to the Division of Coastal Management within ten days of receipt of the notice and indicate that no response by the adjacent property owners shall be interpreted as the adjacent property owners having no objection. Division staff shall review all comments and determine, based on their relevance to the potential impacts of the proposed project, if the proposed project can be approved by a General Permit. If Division staff finds that the comments are worthy of more in-depth review, the Division shall notify the applicant that he or she must submit an application for a major development permit.

(c) No work shall begin until an on-site meeting is held with the applicant and a Division of Coastal Management representative to review the proposed development. A permit to proceed with the proposed development shall be issued if the Division representative finds that the application meets all the requirements of this Subchapter. Construction permitted under this Section shall be completed within 120 days of permit issuance or such permit shall expire. If the applicant seeks a new permit under this Section, the Division of Coastal Management shall re-examine the proposed development to determine if the General Permit may be reissued.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b); 113A-118.1; 113A-124;*
Eff. March 1, 1984;
Amended Eff. August 1, 2007; September 1, 2006; January 1, 1990;
Readopted Eff. October 1, 2022.

15A NCAC 07H .1303 PERMIT FEE

The applicant shall pay a permit fee of two hundred dollars ($200.00) by check or money order payable to the Department of Environmental Quality.

History Note: *Authority G.S. 113A-107; 113A-113(b); 113A-118.1; 113A-119; 113A-119.1; 113A-124;*
Eff. March 1, 1984;
Amended Eff. September 1, 2006; August 1, 2000; March 1, 1991;

Readopted Eff. October 1, 2022.

15A NCAC 07H .1304 GENERAL CONDITIONS

(a) Structures authorized by this permit shall be non-commercial boat ramps constructed of acceptable material and conforming to the standards herein.

(b) Permittees shall allow authorized representatives of the Department of Environmental Quality to make inspections at any time in order to ensure that the activity being performed under authority of the General Permit set forth in this Section is in accordance with the terms and conditions prescribed herein.

(c) There shall be no interference with navigation or use of the waters by the public through the existence of boat ramps.

(d) The permit set forth in this Section shall not be applicable to proposed construction where the Department has determined based on an initial review of the application that notice and review pursuant to G.S. 113A-119 is required because there are unresolved questions concerning the proposed activity's impact on Areas of Environmental Concern.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b); 113A-118.1; 113A-124;*
Eff. March 1, 1984;
Amended Eff. May 1, 1990;
RRC Objection due to ambiguity Eff. May 19, 1994;
Amended Eff. August 1, 1998; July 1, 1994;
Readopted Eff. October 1, 2022.

15A NCAC 07H .1305 SPECIFIC CONDITIONS

(a) Boat ramps shall be no wider than 15 feet and shall not extend more than 20 feet waterward of the normal high water level or normal water level.

(b) Excavation and ground disturbing activities above and below the normal high water level or normal water level will be limited to that necessary to establish ramp slope and provide a ramp no greater in size than specified by this general permit.

(c) Placement of fill materials below normal high water level, or normal water level, will be limited to the ramp structure and any associated riprap groins. Boat ramps may be constructed of concrete, wood, steel, clean riprap, marl, or any other suitable equivalent materials approved by the Division of Coastal Management. No coastal wetland vegetation shall be excavated or filled at any time during construction.

(d) The permit set forth in this Section allows for up to a six-foot wide launch access dock, fixed or floating, immediately adjacent to a new or existing boat ramp. The length shall be limited to the length of the permitted boat ramp with a maximum length of 20 feet waterward of the normal high water level or normal water level. No permanent slips are authorized by this permit.

(e) Groins shall be allowed as a structural component on one or both sides of a new or existing boat ramp to reduce scouring. The groins shall be limited to the length of the permitted boat ramp with a maximum length of 20 feet waterward of the normal high water level or normal water level.

(f) The height of sheetpile groins shall not exceed one foot above normal high water level or normal water level and the height of riprap groins shall not exceed two feet above normal high water level or normal water level.

(g) Riprap groins shall not exceed a base width of five feet.

(h) Material used for groin construction shall be free from loose dirt or any other pollutant. Riprap material must be of sufficient size to prevent its movement from the approved alignment by wave action or currents.

(i) "L" and "T" sections shall not be allowed at the end of groins.

(j) Groins shall be constructed of granite, marl, concrete without exposed rebar, timber, vinyl sheet pile, steel sheet pile, or other suitable equivalent materials approved by the Division of Coastal Management.

(k) Boat ramps and their associated structures authorized under this permit shall not interfere with the access to any riparian property and shall have a minimum setback of 15 feet between any part of the boat ramp or associated structures and the adjacent property owners' areas of riparian access. The minimum setbacks provided in the rule may be waived by the written agreement of the adjacent riparian owners, or when two adjoining riparian owners are co-applicants. Should the adjacent property be sold before construction of the boat ramp or associated structures commences, the applicant shall obtain a written agreement with the new owner waiving the minimum setback and submit it to the Division of Coastal Management prior to initiating any development of the boat ramp or associated structures authorized under this permit.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b); 113A-118.1; 113A-124;*
Eff. March 1, 1984;
Amended Eff. August 1, 2014;
Readopted Eff. October 1, 2022.

SECTION .1400 - GENERAL PERMIT FOR CONSTRUCTION OF GROINS IN ESTUARINE AND PUBLIC TRUST WATERS AND OCEAN HAZARD AREAS

15A NCAC 07H .1401 PURPOSE

A person requesting the construction of groins in the Estuarine and Public Trust Waters AECs shall apply for a General Permit according to the rules in this Section. This general permit shall not apply to the oceanfront shorelines or to waters and shorelines adjacent to the Ocean Hazard AEC with the exception of those shorelines that feature characteristics of the Estuarine Shoreline AEC. Such features include the presence of wetland vegetation, lower wave energy, and lower erosion rates than the adjacent Ocean Erodible Area.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b); 113A-118.1; 113A-124(c);*
Eff. March 1, 1984;
Temporary Amendment Eff. December 1, 2002;
Amended Eff. February 1, 2009; August 1, 2004; April 1, 2003;
Readopted Eff. October 1, 2022.

15A NCAC 07H .1402 APPROVAL PROCEDURES

(a) An applicant for a General Permit under this Subchapter shall contact the Division of Coastal Management at the Regional Office indicated on the map located at https://ncdenr.maps.arcgis.com/apps/webappviewer/index.html?id=1a5881ec85ca40679988982e02665b51 and request approval for development as defined in G.S. 113A-130(5).

(b) The applicant shall provide:

(1) the site location, dimensions of the project area, and his or her name and address; and

(2) confirmation that a written statement has been obtained, signed by the adjacent riparian property owners, indicating that they have no objections to the proposed work; or

(3) confirmation that the adjacent riparian property owners have been notified by certified mail of the proposed work. The notice shall instruct adjacent property owners to provide any comments on the proposed development in writing to the Division of Coastal Management within 10 days of receipt of the notice and shall indicate that no response by the adjacent property owners shall be interpreted as the adjacent property owners having no objection. Division staff of Coastal Management shall review all comments and determine, based on their relevance to the potential impacts of the proposed project, if the proposed project can be approved by a General Permit. If Division staff finds that the comments are worthy of more in-depth review, the Division shall notify the applicant that he or she must submit an application for a major development permit.

(c) No work shall begin until an on-site meeting is held with the applicant and a Division of Coastal Management representative to review the proposed development. A permit to proceed with the proposed development shall be issued if the Division representative finds that the application meets all the requirements of this Subchapter. Construction permitted under this Section shall be completed within 120 days of permit issuance or such permit shall expire. If the applicant seeks a new permit under this Section, the Division of Coastal Management shall re-examine the proposed development to determine if the General Permit may be reissued.

(d) Any modification or addition to the authorized project shall require approval from the Division of Coastal Management in accordance with 15A NCAC 07J .0405.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b); 113A-118.1; 113A-124;*
Eff. March 1, 1984;
Amended Eff. February 1, 2009; October 1, 2007; August 1, 2004; May 1, 1990; January 1, 1990;
Readopted Eff. October 1, 2022.

15A NCAC 07H .1403 PERMIT FEE

The applicant shall pay a permit fee of two hundred dollars ($200.00) by check or money order payable to the Department of Environmental Quality.

History Note: *Authority G.S. 113A-107; 113A-113(b); 113A-118.1; 113A-119; 113A-119.1; 113A-124;*
Eff. March 1, 1984;
Amended Eff. September 1, 2006; August 1, 2000; March 1, 1991;
Readopted Eff. October 1, 2022.

15A NCAC 07H .1404 GENERAL CONDITIONS

(a) Structures authorized by a General Permit in this Section shall be timber, sheetpile, or riprap groins.
(b) Permittees shall allow authorized representatives of the Department of Environmental Quality to make inspections at any time in order to ensure that the activity being performed under authority of the General Permit set forth in this Section is in accordance with the terms and conditions prescribed herein.
(c) The placement of groins authorized in this Rule shall not interfere with the established or traditional rights of navigation of the waters by the public.
(d) The permit set forth in this Section shall not be applicable to proposed construction where the Department has determined based on an initial review of the application, that notice and review pursuant to G.S. 113A-119 is required because there are unresolved questions concerning the proposed activity's impact on Areas of Environmental Concern.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b); 113A-118.1; 113A-124;*
Eff. March 1, 1984;
Amended Eff. May 1, 1990;
RRC Objection due to ambiguity Eff. May 16, 1994;
Amended Eff. August 1, 1998; July 1, 1994;
Temporary Amendment Eff. December 1, 2002;
Amended Eff. February 1, 2009; August 1, 2004;
Readopted Eff. October 1, 2022.

15A NCAC 07H .1405 SPECIFIC CONDITIONS

(a) Groins shall be perpendicular to the shoreline and shall not extend more than 25 feet waterward of the normal high water or normal water level.
(b) Riprap groins shall not exceed a base width of 10 feet.
(c) Groins shall be set back at least 15 feet from the riparian access dividing line as measured from the closest point of the structure. This setback may be waived by written agreement of the adjacent riparian owners or when two adjoining riparian owners are co-applicants. Should the adjacent property be sold before construction of the groin commences, the applicant shall obtain a written agreement with the new owner waiving the minimum setback and submit it to the Division of Coastal Management prior to initiating any development of the groin.
(d) The height of sheetpile groins shall not exceed one foot above normal high water or the normal water level and the height of riprap groins shall not exceed two feet above normal high water or the normal water level.
(e) Material used for groin construction shall be free from loose dirt. Groin material must be of sufficient size to prevent its movement from the site by wave action or currents.
(f) Structure spacing shall be two times the groin length as measured from the centerline of the structure. Spacing may be less than two times the groin length around channels, docking facilities, boat lifts, or boat ramps and when positioned to prevent sedimentation or accretion around channels, docking facilities, boat lifts, or boat ramps.
(g) "L" and "T" sections shall not be allowed at the end of groins.
(h) Groins shall be constructed of granite, marl, concrete without exposed rebar, timber, vinyl sheet pile, steel sheet pile, or other suitable equivalent materials approved by the Division of Coastal Management.

History Note: *Authority G.S. 113A-107(a); 113A-107(b); 113A-113(b); 113A-118.1; 113A-124;*
Eff. March 1, 1984;
Temporary Amendment Eff. December 1, 2002;
Amended Eff. February 1, 2009; August 1, 2004;
Readopted Eff. October 1, 2022.

SECTION .1500 - GENERAL PERMIT FOR EXCAVATION WITHIN OR CONNECTING TO EXISTING CANALS, CHANNELS, BASINS, OR DITCHES IN ESTUARINE WATERS, PUBLIC TRUST WATERS, AND COASTAL SHORELINE AECS

15A NCAC 07H .1501 PURPOSE

A person requesting excavation within or connecting to existing canals, channels, basins, or ditches in Estuarine Waters, Public Trust Waters, and Coastal Shorelines AECs for the purpose of maintaining water depths and creating new boat basins from non-wetland areas that will be used for private, non-commercial activities shall apply for a General Permit according to the rules of this Section.

History Note: *Authority G.S. 113A-107(a),(b); 113A-113(b); 113A-118.1; 113-229(c1);*
Eff. July 1, 1984;
Amended Eff. July 1, 2015; December 1, 1987;
Readopted Eff. October 1, 2022.

15A NCAC 07H .1502 APPROVAL PROCEDURES

(a) An applicant for a General Permit under this Subchapter shall contact the Division of Coastal Management at the Regional Office indicated on the map located at https://ncdenr.maps.arcgis.com/apps/webappviewer/index.html?id=1a5881ec85ca40679988982e02665b51 and request approval for development as defined in G.S. 113A-130(5).

(b) The applicant shall provide:

(1) the site location, dimensions of the project area, and his or her name and address; and

(2) confirmation that a written statement has been obtained, signed by the adjacent riparian property owners, indicating that they have no objections to the proposed work; or

(3) confirmation that the adjacent riparian property owners have been notified by certified mail of the proposed work. The notice shall instruct adjacent property owners to provide any comments on the proposed development in writing to the Division of Coastal Management within ten days of receipt of the notice and indicate that no response by the adjacent property owners will be interpreted as the adjacent property owners having no objection. Division staff shall review all comments and determine, based on their relevance to the potential impacts of the proposed project, if the proposed project can be approved by a General Permit. If Division staff finds that the comments are worthy of more in-depth review, the Division shall notify the applicant that he or she must submit an application for a major development permit.

(c) No work shall begin until an onsite meeting is held with the applicant and a Division of Coastal Management representative to review the proposed development. A Permit to proceed with the proposed development shall be issued if the Division representative finds that the application meets all the requirements of this Subchapter. Construction permitted under this Section shall be completed within 120 days of the date of permit issuance or such permit shall expire. If the applicant seeks a new permit under this Section, the Division of Coastal Management shall re-examine the proposed development to determine if the General Permit may be reissued.

History Note: *Authority G.S. 113A-107(a),(b); 113A-113(b); 113A-118.1; 113-229(c1);*
Eff. July 1, 1984;
Amended Eff. July 1, 2015; January 1, 1990; December 1, 1987;
Readopted Eff. October 1, 2022.

15A NCAC 07H .1503 APPLICATION FEE

The applicant shall pay a permit fee of two hundred dollars ($200.00) for maintenance excavation of 100 cubic yards or less or four hundred dollars ($400.00) for maintenance excavation of 100 to 1,000 cubic yards. Permit fees shall be paid by check or money order payable to the Department of Environmental Quality.

History Note: *Authority G.S. 113A-107; 113A-113(b); 113A-118.1; 113A-119; 113A-119.1; 113A-124;*
Eff. July 1, 1984;
Amended Eff. September 1, 2006; August 1, 2000; March 1, 1991;
Readopted Eff. October 1, 2022.

15A NCAC 07H .1504 GENERAL CONDITIONS

(a) Permittees shall allow representatives of the Department of Environmental Quality to make inspections at any time to ensure that the activity being performed under authority of the General Permit set forth in this Section is in accordance with the terms and conditions prescribed herein.

(b) The permit set forth in this Section shall not be applicable to proposed construction where the Department has determined based on an initial review of the application that notice and review pursuant to G.S. 113A-119 is required because there are unresolved questions concerning the proposed activity's impact on Areas of Environmental Concern.
(c) No new basins shall be allowed that result in closure of shellfish waters according to the closure policy of the Division of Marine Fisheries, 15A NCAC 18A .0911.

History Note: *Authority G.S. 113A-107(a),(b); G.S. 113A-108; 113A-113(b); 113A-118.1; 113-229(c1);*
Eff. July 1, 1984;
Amended Eff. May 1, 1990; December 1, 1987;
RRC Objection due to ambiguity Eff. May 19, 1994;
Amended Eff. July 1, 2015; August 1, 1998; July 1, 1994;
Readopted Eff. October 1, 2022.

15A NCAC 07H .1505 SPECIFIC CONDITIONS

Proposed maintenance excavation shall meet each of the following specific conditions to be eligible for authorization by this general permit.

(1) New basins shall be allowed only when they are located entirely in highground and join existing man-made canals or basins.
(2) New basins shall be no larger than 50 feet in either length or width and no deeper than the waters they join.
(3) New basins shall be for the private non-commercial use of the land owner.
(4) Maintenance excavation shall involve the removal of no more than 1,000 cubic yards of material as part of a single and complete project.
(5) All excavated material shall be placed entirely on high ground above the mean high tide or ordinary high water line, and above any marsh, or other wetland.
(6) All spoil material shall be stabilized or retained so as to prevent any excavated material from re-entering the surrounding waters, marsh, or other wetlands.
(7) The proposed project shall not involve the excavation of any marsh, submerged aquatic vegetation as defined at 15A NCAC 03I .0101 by the Marine Fisheries Commission, or other wetlands.
(8) Maintenance excavation shall not exceed the original dimensions of the canal, channel, basin, or ditch and in no case be deeper than 6 feet below mean low water or ordinary low water, nor deeper than connecting channels.
(9) Proposed excavation in existing channels and basins shall not allow for a public or commercial use.
(10) Maintenance excavation as well as excavation of new basins shall not be allowed within or with connections to primary nursery areas without prior approval from the Division of Marine Fisheries or Wildlife Resources Commission.
(11) Bulkheads shall be allowed as a structural component on one or more sides of the permitted basin to stabilize the shoreline from erosion.
(12) The bulkhead shall not exceed a distance of two feet waterward of the normal high water or normal water level at any point along its alignment.
(13) Bulkheads shall be constructed of vinyl or steel sheet pile, concrete, stone, timber, or other materials approved by the Division of Coastal Management.
(14) All backfill material shall be obtained from an upland source pursuant to 15A NCAC 07H .0208. The bulkhead shall be constructed prior to any backfilling activities and shall be constructed so as to prevent seepage of backfill materials through the structure.
(15) Construction of bulkhead authorized by this general permit in conjunction with bulkhead authorized under 15A NCAC 07H .1100 shall be limited to a combined maximum shoreline length of 500 feet.

History Note: *Authority G.S. 113A-107(a),(b); 113A-108; 113A-113(b); 113A-118.1; 113-229(c1);*
Eff. July 1, 1984;
Amended Eff. July 1, 2015; September 1, 1988; December 1, 1987;
Readopted Eff. October 1, 2022.

SECTION .1600 - GENERAL PERMIT FOR THE INSTALLATION OF AERIAL AND SUBAQUEOUS UTILITY LINES WITH ATTENDANT STRUCTURES IN COASTAL WETLANDS: ESTUARINE WATERS: PUBLIC TRUST WATERS AND ESTUARINE SHORELINES

15A NCAC 07H .1601 PURPOSE

A person requesting the installation of utility lines both aerially and subaqueously in the Coastal Wetland, Estuarine Waters, Public Trust Areas, and Estuarine and Public Trust Shoreline AECs shall apply for a General Permit according to rules in this Section. This general permit shall not apply to the ocean hazard AECs.

History Note: *Authority G.S. 113A-107(a)(b); 113A-113(b); 113A-118.1; 113-229(c1);*
Eff. March 1, 1985;
Amended Eff. August 1, 2000; August 1, 1998;
Readopted Eff. October 1, 2022.

15A NCAC 07H .1602 APPROVAL PROCEDURES

(a) An applicant for a General Permit under this Subchapter shall contact the Division of Coastal Management at the Regional Office indicated on the map located at https://ncdenr.maps.arcgis.com/apps/webappviewer/index.html?id=1a5881ec85ca40679988982e02665b51 and request approval for development as defined in G.S. 113A-130(5).

(b) The applicant shall provide:

(1) the site location, dimensions of the project area, and his or her name and address; and

(2) confirmation that a written statement has been obtained, signed by the adjacent riparian property owners, indicating that they have no objections to the proposed work; or

(3) confirmation that the adjacent riparian property owners have been notified by certified mail of the proposed work. The notice shall instruct adjacent property owners to provide any comments on the proposed development in writing to the Division of Coastal Management within ten days of receipt of the notice and indicate that no response by the adjacent property owners will be interpreted as the adjacent property owners having no objection. Division staff shall review all comments and determine, based on their relevance to the potential impacts of the proposed project, if the proposed project can be approved by a General Permit. If Division staff finds that the comments are worthy of more in-depth review, the Division shall notify the applicant that he or she must submit an application for a major development permit.

(c) No work shall begin until an on-site meeting is held with the applicant and a Division of Coastal Management representative to review the proposed development. A Permit to proceed with the proposed development shall be issued if the Division representative finds that the application meets all the requirements of this Subchapter. Construction permitted under this Section shall begin within twelve months of the date of permit issuance or such permit shall expire. If the applicant seeks a new permit under this Section, the Division of Coastal Management shall re-examine the proposed development to determine if the General Permit may be reissued.

History Note: *Authority G.S. 113A-107(a)(b); 113A-113(b); 113A-118.1; 113-229(c1);*
Eff. March 1, 1985;
Amended Eff. January 1, 1990;
Readopted Eff. October 1, 2022.

15A NCAC 07H .1603 PERMIT FEE

The applicant shall pay a permit fee of four hundred dollars ($400.00) by check or money order payable to the Department of Environmental Quality.

History Note: *Authority G.S. 113A-107; 113A-113(b); 113A-118.1; 113A-119; 113A-119.1; 113-229(c1);*
Eff. March 1, 1985;
Amended Eff. September 1, 2006; August 1, 2000; March 1, 1991;
Readopted Eff. October 1, 2022.

15A NCAC 07H .1604 GENERAL CONDITIONS

(a) Utility lines for the purpose of this General Permit are any pipes or pipelines for the transportation of potable water, domestic sanitary sewage, natural gas, and any cable, line, or wire for the transmission, of electrical energy, telephone and telegraph messages, and radio and television communication.
(b) There shall be no alteration of preconstruction bottom contours. Fill authorized by a permit set forth in this Section shall include only that necessary to backfill or bed the utility line. Any excess material shall be removed to an upland disposal area.
(c) The utility line crossing shall not adversely affect a public water supply intake.
(d) The utility line route or construction method shall not disrupt the movement of those species of aquatic life indigenous to the waterbody.
(e) Permittees shall allow authorized representatives of the Department of Environmental Quality to make inspections at any time to ensure that the activity being performed under authority of the General Permit set forth in this Section is in accordance with the terms and conditions prescribed herein.
(f) The permit set forth in this Section shall not be applicable to proposed construction where the Department has determined based on an initial review of the application, that notice and review pursuant to G.S. 113A-119 is required because there are unresolved questions concerning the proposed activity impact on Areas of Environmental Concern.

History Note: *Authority G.S. 113A-107(a)(b); 113A-113(b); 113A-118.1; 113-229(c1);*
Eff. March 1, 1985;
Amended Eff. May 1, 1990;
RRC Objection due to ambiguity Eff. May 19, 1994;
Amended Eff. August 1, 1998; July 1, 1994;
Readopted Eff. October 1, 2022.

15A NCAC 07H .1605 SPECIFIC CONDITIONS

Proposed utility line installations shall meet each of the following specific conditions to be eligible for authorization by this General Permit:

(1) All domestic sanitary sewer line requests must be accompanied by a statement of prior approval from the NC Division Water Quality.
(2) All spoils which are permanently removed must be placed on a high ground disposal site and stabilized so as not to return to waters, marsh, or other wetlands.
(3) Any additional backfill material required shall consist of sand or rock and not contain organic matter.
(4) Finished grades or subaqueous or wetland crossing must be returned to preproject contours.
(5) There can be no work within any productive shellfish beds.
(6) No excavation or filling activities will be permitted between April 1 and September 30 of any year within any designated primary nursery area.
(7) Subaqueous lines must be placed at a depth of six feet below the project depth of federal projects. For non-federal projects, subaqueous lines shall be installed at a minimum depth of two feet below the bottom contour.
(8) The minimum clearance for aerial communication lines or any lines not transmitting electricity shall be 10 feet above the clearance required for bridges in the vicinity.
(9) The minimum clearance for aerial electrical transmission lines shall be consistent with those established by the US Army Corps of Engineers and US Coast per 33 CFR 322.5 (i).
(10) The installation of a utility line on pipe bents or otherwise above the elevation of mean high or mean ordinary water must be of sufficient height to allow for traditional navigation in the water body. The utility line shall not interfere with the waterflow of normal or flood waters.
(11) Natural gas lines shall not exceed 11 inches in diameter.

History Note: *Authority G.S. 113A-107(a)(b); 113A-113(b); 113A-118.1; 113-229(c1);*
Eff. March 1, 1985;
Amended Eff. August 1, 1998;
Readopted Eff. October 1, 2022.

SECTION .1700 - GENERAL PERMIT FOR EMERGENCY WORK REQUIRING A CAMA AND/OR A DREDGE AND FILL PERMIT

15A NCAC 07H .1701 PURPOSE

This permit allows work necessary to protect property or prevent further damage to property caused by a sudden or unexpected natural event or structural failure which imminently endangers life or structure. For the purposes of this general permit, major storms such as hurricanes, northeasters, or southwesters may be considered a sudden unexpected natural event although such storms may be predicted and publicized in advance.

History Note: *Authority G.S. 113-229(cl); 113A-107(a),(b); 113A-113(b); 113A-118.1;*
Eff. November 1, 1985;
Readopted Eff. July 1, 2022.

15A NCAC 07H .1702 APPROVAL PROCEDURES

(a) Any person wishing to undertake development in an area of environmental concern necessary to protect life or endangered structures will notify the Division of Coastal Management or Local Permit Office (LPO) when a possible emergency situation exists.

(b) The applicant may qualify for approval of work described in this permit after an onsite inspection by the LPO or Division of Coastal Management Field Consultant and upon his or her findings that the proposed emergency work requires a CAMA or Dredge and Fill permit. The LPO shall issue the permit if the required emergency measures constitute minor development in accordance with G.S. 113A-118(2).

(c) Once the LPO or Consultant determines that the applicant's proposed project may qualify for an emergency permit, he or she shall consult with the applicant and assist him or her in preparing an application. The applicant shall include a sketch showing existing conditions and the proposed work.

(d) The applicant for an emergency permit shall take all reasonable steps to notify adjacent riparian landowners of the application, and prior to receiving a permit will certify by signing the permit the following:

(1) that a copy of the application and sketch has been served on all adjacent riparian landowners, or if service of a copy was not feasible, that the applicant has explained the project to all adjacent riparian landowners;

(2) that the applicant has explained to all adjacent riparian landowners that they have a right to oppose the issuance of a permit by filing objections with the local CAMA permit officer or with the Secretary of the Department of Environmental Quality; and

(3) that, as to adjacent riparian landowners not contacted, the applicant has made a reasonable attempt to contact them and furnish them with the required information.

(e) All work authorized by this general permit will cease after thirty days from the date of issuance.

History Note: *Authority G.S. 113-229(cl); 113A-107(a),(b); 113A-113(b); 113A-118.1;*
Eff. November 1, 1985;
Amended Eff. May 1, 1990;
Readopted Eff. July 1, 2022.

15A NCAC 07H .1703 PERMIT FEE

The agency shall not charge a fee for permitting work necessary to respond to emergency situations except in the case when a temporary erosion control structure is used. In those cases, the applicant shall pay a permit fee of four hundred dollars ($400.00) by check or money order made payable to the Department.

History Note: *Authority G.S. 113-229(cl); 113A-107(a),(b); 113A-113(b); 113A-118.1; 113A-119;*
Eff. November 1, 1985;
Amended Eff. September 1, 2006; August 1, 2002; March 1, 1991; October 1, 1993;
Readopted Eff. July 1, 2022.

15A NCAC 07H .1704 GENERAL CONDITIONS

(a) Work permitted by means of an emergency general permit shall be subject to the following limitations:

(1) No work shall begin until an onsite meeting is held with the applicant and a Division of Coastal Management representative so that the scope of the proposed emergency work can be delineated.

(2) No work shall be permitted other than that which is necessary to protect against or reduce the imminent danger caused by the emergency, to restore the damaged property to its condition immediately before the emergency, or to re-establish public facilities or transportation corridors.

(3) Any permitted temporary erosion control projects shall be located no more than 20 feet waterward of the imminently threatened structure or the right-of way in the case of roads, except as provided under 15A NCAC 07H .0308. If a building or road is found to be imminently threatened and at increased risk of imminent damage due to site conditions, such as a flat beach profile or accelerated erosion, temporary erosion control structures may be located more than 20 feet waterward of the structure being protected. In cases of increased risk of imminent damage, the location of the temporary erosion control structures shall be determined by the Director of the Division of Coastal Management or the Director's designee.

(4) Fill materials used in conjunction with emergency work for storm or erosion control shall be obtained from an upland source. Excavation below MHW in the Ocean Hazard AEC may be allowed to obtain material to fill sandbags used for emergency protection.

(5) This emergency general permit allows the use of oceanfront erosion control measures for all oceanfront properties without regard to the size of the existing structure on the property or the date of construction.

(b) Individuals shall allow authorized representatives of the Department of Environmental Quality to make inspections to ensure that the activity being performed under authority of this emergency general permit is in accordance with these Rules.

(c) Development shall not jeopardize the use of the waters for navigation or for other public trust rights in public trust areas including estuarine waters.

(d) This permit shall not be applicable to proposed construction where the Department has determined, based on an initial review of the application, that notice and review pursuant to G.S. 113A-119 is necessary because there are unresolved questions concerning the proposed activity's impact on adjoining properties or on water quality, air quality, coastal wetlands, cultural or historic sites, wildlife, fisheries resources, or public trust rights.

(e) This permit does not eliminate the need to obtain any other state, local, or federal authorization.

(f) Development carried out under this permit must be consistent with all local requirements, CAMA rules, and local land use plans, storm hazard mitigation, and post-disaster recovery plans current at the time of authorization.

History Note: *Authority G.S. 113-229(cl); 113A-107(a),(b); 113A-113(b); 113A-118; 113A-118.1;*
Eff. November 1, 1985;
Amended Eff. December 1, 1991; May 1, 1990;
RRC Objection due to ambiguity Eff. May 19, 1994;
Amended Eff. April 1, 2019; May 1, 2010; August 1, 1998; July 1, 1994;
Readopted Eff. July 1, 2022.

15A NCAC 07H .1705 SPECIFIC CONDITIONS

(a) Temporary Erosion Control Structures in the Ocean Hazard AEC.

(1) Permittable temporary erosion control structures shall be limited to sandbags placed landward of mean high water and parallel to the shore.

(2) Temporary erosion control structures as defined in Subparagraph (1) of this Paragraph may be used to protect only imminently threatened roads and associated right of ways, and buildings and their associated septic systems. A structure is considered imminently threatened if its foundation, septic system, or right-of-way in the case of roads is less than 20 feet away from the erosion scarp. Buildings and roads located more than 20 feet from the erosion scarp or in areas where there is no obvious erosion scarp may also be found to be imminently threatened when the Division determines that site conditions, such as a flat beach profile or accelerated erosion, increase the risk of imminent damage to the structure.

(3) Temporary erosion control structures shall be used to protect only the principal structure and its associated septic system, but not appurtenances such as pools, gazebos, decks or any amenity that is allowed under 15A NCAC 07H .0309 as an exception to the erosion setback requirement.

(4) Temporary erosion control structures may be placed waterward of a septic system when there is no alternative to relocate it on the same or adjoining lot so that it is landward of or in line with the structure being protected.

(5) Temporary erosion control structures shall not extend more than 20 feet past the sides of the structure to be protected except to align with temporary erosion control structures on adjacent properties, where the Division has determined that gaps between adjacent erosion control structures may result in an increased risk of damage to the structure being protected. The landward

side of such temporary erosion control structures shall not be located more than 20 feet waterward of the structure to be protected or the right-of-way in the case of roads. If a building or road is found to be imminently threatened and at increased risk of imminent damage due to site conditions such as a flat beach profile or accelerated erosion, temporary erosion control structures may be located more than 20 feet waterward of the structure being protected. In cases of increased risk of imminent damage, the location of the temporary erosion control structures shall be determined by the Director of the Division of Coastal Management or the Director's designee.

(6) Temporary erosion control structures may remain in place for up to eight years for a building and its associated septic system, or a bridge or a road. The property owner shall be responsible for removal of any portion of the temporary erosion control structure exposed above grade within 30 days of the end of the allowable time period.

(7) For purposes of this Rule, a community is considered to be actively pursuing a beach nourishment or an inlet relocation or stabilization project if it:

(A) has an active CAMA permit, where necessary, approving such project;

(B) has been identified by a U.S. Army Corps of Engineers' Beach Nourishment Reconnaissance Study, General Reevaluation Report, Coastal Storm Damage Reduction Study, or an ongoing feasibility study by the U.S. Army Corps of Engineers and a commitment of local or federal money, when necessary; or

(C) has received a favorable economic evaluation report on a federal project; or

(D) is in the planning stages of a project designed by the U.S. Army Corps of Engineers or persons meeting applicable State occupational licensing requirements and initiated by a local government or community with a commitment of local or state funds to construct the project or the identification of the financial resources or funding bases necessary to fund the beach nourishment or inlet relocation or stabilization project.

If beach nourishment, inlet relocation or stabilization is rejected by the sponsoring agency or community, or ceases to be actively planned for a section of shoreline, the time extension is void for that section of beach or community and existing sandbags shall be subject to all applicable time limits set forth in Subparagraph (6) of this Paragraph.

(8) Once a temporary erosion control structure is determined by the Division of Coastal Management to be unnecessary due to relocation or removal of the threatened structure, it shall be removed by the property owner to the maximum extent practicable within 30 days of official notification from the Division of Coastal Management, regardless of the time limit placed on the temporary erosion control structure. If the temporary erosion control structure is determined by the Division of Coastal Management to be unnecessary due to the completion of a storm protection project constructed by the U.S. Army Corps of Engineers, a large scale beach nourishment project, or an inlet relocation or stabilization project, any portion of the temporary erosion control structure exposed above grade shall be removed by the permittee within 30 days of official notification by the Division of Coastal Management regardless of the time limit placed on the temporary erosion control structure.

(9) Removal of temporary erosion control structures is not required if they are covered by sand. Any portion of a temporary erosion control structure that becomes exposed above grade after the expiration of the permitted time period shall be removed by the property owner within 30 days of official notification from the Division of Coastal Management.

(10) The property owner shall be responsible for the removal of remnants of all portions of any damaged temporary erosion control structure.

(11) Sandbags used to construct temporary erosion control structures shall be tan in color and 3 to 5 feet wide and 7 to 15 feet long when measured flat. Base width of the structure shall not exceed 20 feet, and the total height shall not exceed 6 feet, as measured from the bottom of the lowest bag.

(12) Soldier pilings and other types of devices to anchor sandbags shall not be allowed.

(13) Excavation below mean high water in the Ocean Hazard AEC may be allowed to obtain material to fill sandbags used for emergency protection.

(14) An imminently threatened structure may be protected by a temporary erosion control structure only once regardless of ownership, unless the threatened structure is located in a community that is actively pursuing a beach nourishment project, an inlet relocation or stabilization project in accordance with Subparagraph (7) of this Paragraph. Existing temporary erosion control structures may be permitted for additional eight-year periods provided that the structure being protected is

still imminently threatened, the temporary erosion control structure is in compliance with requirements of this Subparagraph, and the community in which it is located is actively pursuing a beach nourishment or an inlet relocation or stabilization project in accordance with Subparagraph (7) of this Paragraph. In the case of a building, a temporary erosion control structure may be extended, or new segments constructed, if additional areas of the building become imminently threatened. Where temporary structures are installed or extended incrementally, the time period for removal under Subparagraph (6) or (7) of this Paragraph shall begin at the time the initial erosion control structure is installed. For the purpose of this Rule:

(A) a building and its associated septic system shall be considered as separate structures; and

(B) a road or highway shall be allowed to be incrementally protected as sections become imminently threatened. The time period for removal of each contiguous section of sandbags shall begin at the time that section is installed in accordance with Subparagraph (6) or (7) of this Paragraph.

(15) Existing temporary erosion control structures may be repaired or replaced within their originally permitted dimensions during the time period allowed under Subparagraph (6) or (7) of this Paragraph.

(b) Erosion Control Structures in the Estuarine Shoreline, Estuarine Waters, and Public Trust AECs. Work permitted by this Rule shall be subject to the following limitations:

(1) The erosion control structure shall be located no more than 20 feet waterward of the imminently threatened structure. If a building or road is found to be imminently threatened and at increased risk of imminent damage due to site conditions such as a flat shore profile or accelerated erosion, temporary erosion control structures may be located more than 20 feet waterward of the structure being protected. In cases of increased risk of imminent damage, the location of the temporary erosion control structures shall be determined by the Director of the Division of Coastal Management or the Director's designee.

(2) Fill material used in conjunction with emergency work for storm or erosion control in the Estuarine Shoreline, Estuarine Waters, and Public Trust AECs shall be obtained from an upland source.

(c) Protection, Rehabilitation, or Temporary Relocation of Public Facilities or Transportation Corridors. This permit authorizes only the immediate protection or temporary rehabilitation or relocation of existing public facilities. Long-term stabilization or relocation of public facilities shall be consistent with local governments' post-disaster recovery plans and policies which are part of their Land Use Plans.

(1) Work permitted by this general permit shall be subject to the following limitations:

(A) no work shall be permitted other than that which is necessary to protect against or reduce the imminent danger caused by the emergency or to restore the damaged property to its condition immediately before the emergency;

(B) the erosion control structure shall be located no more than 20 feet waterward of the imminently threatened structure or the right-of-way in the case of roads. If a public facility or transportation corridor is found to be imminently threatened and at increased risk of imminent damage due to site conditions such as a flat shore profile or accelerated erosion, temporary erosion control structures may be located more than 20 feet waterward of the facility or corridor being protected. In cases of increased risk of imminent damage, the location of the temporary erosion control structures shall be determined by the Director of the Division of Coastal Management or the Director's designee in accordance with Subparagraph (a)(1) of this Rule;

(C) any fill materials used in conjunction with emergency work for storm or erosion control shall be obtained from an upland source except that dredging for fill material to protect public facilities or transportation corridors shall be considered in accordance with standards in 15A NCAC 07H .0208; and

(D) all fill materials or structures associated with temporary relocations which are located within Coastal Wetlands, Estuarine Water, or Public Trust AECs shall be removed after the emergency event has ended and the area restored to pre-disturbed conditions.

History Note: *Authority G.S. 113-229(cl); 113A-107(a),(b); 113A-113(b); 113A-115.1; 113A-118.1;*
Eff. November 1, 1985;
Amended Eff. April 1, 1999; February 1, 1996; June 1, 1995;

Temporary Amendment Eff. July 3, 2000; May 22, 2000;
Amended Eff. April 1, 2019; May 1, 2013; May 1, 2010; August 1, 2002;
Readopted Eff. July 1, 2022.

SECTION .1800 - GENERAL PERMIT TO ALLOW BEACH BULLDOZING IN THE OCEAN HAZARD AEC

15A NCAC 07H .1801 PURPOSE

This permit will allow beach bulldozing needed to reconstruct or repair dune systems, as defined in Rule .0305 of this Subchapter. For the purpose of this general permit, "beach bulldozing" is defined as the process of moving natural beach material from any point seaward of the first line of stable vegetation to repair damage to frontal or primary dunes. This general permit is subject to the procedures outlined in Subchapter 07J .1100, and shall not apply where a town or community has a Major Permit for either an ongoing beach bulldozing project or project completed within 30 days of a request for a General Permit.

History Note: *Authority G.S. 113-229(cl); 113A-107;113A-113(b); 113A-118.1;*
Eff. December 1, 1987;
Amended Eff. September 1, 2016;
Readopted Eff. April 1, 2022;
Amended Eff. August 1, 2022.

15A NCAC 07H .1802 APPROVAL PROCEDURES

(a) An applicant for a General Permit under this Subchapter shall contact the Division of Coastal Management and request approval for development.

(b) The applicant shall provide:

(1) the site location, dimensions of the project area, and their name and address;

(2) Confirmation that a written statement has been obtained signed by the adjacent riparian property owners indicating that they have no objections to the proposed work; or

(3) confirmation that the adjacent riparian property owners have been notified by certified mail of the proposed work. The notice shall instruct adjacent property owners to provide any comments on the proposed development in writing for consideration by permitting official to the Division of Coastal Management within 10 days of receipt of the notice and indicate that no response wil be interpreted as no objection. Division staff shall review all comments and determine, based on their relevance to the potential impacts of the proposed project, if the proposed project can be approved by a General Permit. If Division staff determines that the project exceeds the guidelines established by the General Permit process provided in 15A NCAC 07J .1100, Division staff shall notify the applicant that they must submit an application for a major development permit.

(c) No work shall begin until an on-site meeting is held with the applicant and DCM representative. All bulldozing shall be completed within 30 days of the date of permit issuance.

History Note: *Authority G.S. 113-229(c1); 113-229(c2); 113A-107; 113A-113(b); 113A-118.1;113A-120;*
Eff. December 1, 1987;
Amended Eff. September 1, 2016; January 1, 1990;
Readopted Eff. April 1, 2022.

15A NCAC 07H .1803 PERMIT FEE

The applicant shall pay a permit fee of four hundred dollars ($400.00) by check or money order payable to the Department.

History Note: *Authority G.S. 113-229(c1); 113A-107; 113A-113(b); 113A-118.1; 113A-119; 113A-119.1;*
Eff. December 1, 1987;
Amended Eff. September 1, 2006; August 1, 2000; March 1, 1991;
Readopted Eff. April 1, 2022.

15A NCAC 07H .1804 GENERAL CONDITIONS

(a) This General Permit shall not be applicable to proposed construction where the Division of Coastal Management has determined, based on an initial review of the application, that notice and review pursuant to G.S. 113A-119 is necessary because there are unresolved questions concerning the proposed activity's impact on adjoining properties or on water quality, air quality, coastal wetlands, cultural or historic sites, wildlife, fisheries resources, or public trust rights. If a shipwreck is unearthed, all work shall stop immediately and the Division of Coastal Management shall be contacted.
(b) This General Permit shall not eliminate the need to obtain any other required State, local, or federal authorization.
(c) Development carried out under a permit as set forth in this Section shall be consistent with all State, federal and local requirements, and local Land Use Plans in effect at the time of authorization.

History Note: *Authority G.S. 113-229(c1); 113A-102(b)(4)(e); 113A-107;113A-113(b); 113A-118.1;*
Eff. December 1, 1987;
Amended Eff. May 1, 1990;
RRC Objection due to ambiguity Eff. May 19, 1994;
Amended Eff. September 1, 2016; August 1,1998; July 1, 1994;
Readopted Eff. April 1, 2022.

15A NCAC 07H .1805 SPECIFIC CONDITIONS
(a) The area where beach bulldozing is being performed shall maintain a slope that follows the pre-emergency slopes as closely as possible so as not to endanger the public or the public's use of the beach. The movement of material by a bulldozer, front-end loader, backhoe, scraper, or any type of earth moving or construction equipment shall not exceed one foot in depth measured from the pre-activity surface elevation.
(b) The activity shall not exceed the lateral bounds of the applicant's property without the written permission of the adjoining landowner(s).
(c) The permit shall not authorize movement of material from seaward of the mean low water line.
(d) Adding sand to dunes shall be accomplished in such a manner that the damage to existing vegetation is minimized. Upon completion of the project, the fill areas shall be replanted with native vegetation, such as Sea Oats (Uniola paniculata), or if outside the planting season, shall be stabilized with sand fencing until planting can occur.
(e) In order to minimize adverse impacts to threatened and endangered species, no bulldozing shall occur inside the Ocean Hazard AEC within the period of April 1 through November 15 of any year, or anytime inside an Inlet Hazard AEC without the prior approval of the Division of Coastal Management, in coordination with the North Carolina Wildlife Resources Commission, the United States Fish and Wildlife Service, and the United States Army Corps of Engineers.
(f) If one contiguous acre or more of oceanfront property is to be excavated or filled, an erosion and sedimentation control plan shall be filed with and approved by the Division of Energy, Mineral, and Land Resources, or local government having jurisdiction. This plan must be approved prior to commencing the land disturbing activity.

History Note: *Authority G.S. 113-229(c1); 113A-107; 113A-113(b); 113A-118.1;*
Eff. December 1, 1987;
Temporary Amendment Eff. September 2, 1998;
Amended Eff. September 1, 2016; August 1, 2012 (see S.L. 2012-143, s.1.(f)); August 1, 2000;
Readopted Eff. April 1, 2022;
Amended Eff. September 1, 2022.

SECTION .1900 – GENERAL PERMIT TO ALLOW FOR TEMPORARY STRUCTURES WITHIN THE ESTUARINE AND OCEAN SYSTEMS AECS

15A NCAC 07H .1901 PURPOSE
A permit under this Section shall allow for the placement of temporary structures within the estuarine and ocean systems AECs according to the provisions provided in 15A NCAC 07J .1100 and according to the rules in this Section.

History Note: *Authority G.S. 113-229(c1); 113A-107(a)(b); 113A-113(b); 113A-118.1;*
Eff. March 1, 1989;
Amended Eff. April 1, 2020; August 1, 2000;

Readopted Eff. July 1, 2022.

15A NCAC 07H .1902 APPROVAL PROCEDURES

(a) The applicant shall contact the Division of Coastal Management at the address provided in 15A NCAC 07A .0101 and complete an application requesting approval for development. For temporary structures associated with scientific research, permit applicants shall be lead investigators on behalf of accredited educational institutions, or state or federal agencies.

(b) If a temporary structure is to be located less than 400 feet waterward of normal high water or normal water level, or within the established pier head line as determined by the Division of Coastal Management, the applicant shall provide:

(1) a written statement signed by the adjacent riparian property owners indicating that they have no objections to the proposed work; or

(2) confirmation that the adjacent riparian property owners have been notified by certified mail of the proposed work. Such notice should instruct adjacent property owners to provide any comments on the proposed development in writing for consideration by permitting officials to the Division of Coastal Management within ten days of receipt of the notice, and indicate that no response will be interpreted as no objection. DCM staff will review all comments and determine, based on their relevance to the potential impacts of the proposed project, if the proposed project can be approved by a General Permit. If DCM determines that the project exceeds the conditions established by this General Permit, DCM shall notify the applicant that a Major Permit application shall be required.

(c) No work shall begin until an onsite meeting is held with the applicant and a Division of Coastal Management representative to inspect and mark the site of construction of the proposed development. Temporary structures authorized by this General Permit may remain in place for a maximum of one year from the date of issuance. The project site shall be restored to pre-development conditions and all structures shall be removed within one year of permit issuance, or by the date specified with the General Permit.

History Note: *Authority G.S. 113-229(cl); 113A-107(a)(b); 113A-113(b); 113A-118.1;*
Eff. March 1, 1989;
Amended Eff. April 1, 2020; January 1, 1990;
Readopted Eff. July 1, 2022.

15A NCAC 07H .1903 PERMIT FEE

The applicant shall pay a permit fee of two hundred dollars ($200.00) by check or money order payable to the Department.

History Note: *Authority G.S. 113-229(c1); 113A-107; 113A-113(b); 113A-118.1; 113A-119; 113A-119.1;*
Eff. March 1, 1989;
Amended Eff. September 1, 2006; August 1, 2000; March 1, 1991;
Readopted Eff. July 1, 2022.

15A NCAC 07H .1904 GENERAL CONDITIONS

(a) Temporary structures for the purpose of this general permit are those which are constructed or installed within the estuarine and ocean system AECs and because of their dimensions or functions cannot be authorized by another General Permit within this Subchapter.

(b) There shall be no encroachment oceanward of the first line of stable vegetation within the ocean hazard AEC except for the placement of auxiliary structures such as signs, fences, posts, or pilings.

(c) There shall be no fill or excavation activity below normal high water or normal water level.

(d) This permit shall not be applicable to proposed development where the Division of Coastal Management determines that the proposed activity would endanger adjoining properties or significantly affect historic, cultural, scenic, conservation, or recreation value, identified in G.S. 113A-102 and G.S. 113A-113(b)(4).

(e) Individuals shall allow authorized representatives of the Department of Environmental Quality to make periodic inspections at any time necessary to ensure that the activity being performed under authority of this general permit is in accordance with the terms and conditions prescribed herein.

(f) This permit does not eliminate the need to obtain any other state, local or federal authorization, nor, to abide by rules or regulations adopted by any federal, state, or local agency.

(g) Development carried out under this permit shall be consistent with all local requirements and local land use plans current at the time of authorization.

History Note: *Authority G.S. 113-229(c1); 113A-107(a)(b); 113A-113(b); 113A-118.1;*
Eff. March 1, 1989;
Amended Eff. May 1, 1990; March 1, 1990;
RRC Objection due to ambiguity Eff. May 19, 1994;
Amended Eff. April 1, 2020; August 1, 1998; July 1, 1994;
Readopted Eff. July 1, 2022.

15A NCAC 07H .1905 SPECIFIC CONDITIONS

Proposed temporary structures shall meet each of the following specific conditions to be eligible for authorization by the general permit:

(1) All aspects of the structure shall be removed and the site returned to pre-project conditions at the expiration of this general permit.
(2) There shall be no work within any productive shellfish beds without authorization from the Division of Marine Fisheries.
(3) The proposed structure shall not involve the disturbance of any marsh, submerged aquatic vegetation, or other wetlands including excavation or filling of these areas.
(4) The proposed activity shall not disrupt navigation and transportation channels and shall be marked to prevent being a hazard to navigation.
(5) The proposed structure shall not impede public access or other public trust uses.
(6) The proposed structure shall not be habitable.
(7) There shall be no disturbance of existing dunes.
(8) Temporary structures authorized by this permit shall not individually or cumulatively exceed 100 square meters in size.
(9) Structures shall not be constructed in a designated Primary Nursery Area without approval from the Division of Marine Fisheries or the Wildlife Resources Commission.

History Note: *Authority G.S. 113-229(c1); 113A-107(a)(b); 113A-113(b); 113A-118.1;*
Eff. March 1, 1989;
Amended Eff. April 1, 2020; May 1, 1990;
Readopted Eff. July 1, 2022.

SECTION .2000 - GENERAL PERMIT FOR AUTHORIZING MINOR MODIFICATIONS AND REPAIR TO EXISTING PIER/MOORING FACILITIES IN ESTUARINE AND PUBLIC TRUST WATERS AND OCEAN HAZARD AREAS

15A NCAC 07H .2001 PURPOSE

A person requesting reconfiguration, minor modifications, repair, or improvements to existing pier and mooring facilities in estuarine waters and public trust areas shall apply for a General Permit according to the rules in this Section. This permit shall not apply to oceanfront shorelines or to waters and shorelines adjacent to the Ocean Hazard AEC with the exception of those shorelines that feature characteristics of the Estuarine Shoreline AEC. Such features include the presence of wetland vegetation, lower wave energy, and lower erosion rates than the adjacent Ocean Erodible Area. A Division of Coastal Management representative will make the determination whether the site features characteristics of the Estuarine Shoreline at the time of permit application.

History Note: *Authority G.S. 113A-107; 113A-118.1;*
Eff. October 1, 1993;
Amended Eff. April 1, 2003;
Readopted Eff. October 1, 2022.

15A NCAC 07H .2002 APPROVAL PROCEDURES

(a) An applicant for a General Permit under this Subchapter shall contact the Division of Coastal Management at the Regional Office indicated on the map located at

https://ncdenr.maps.arcgis.com/apps/webappviewer/index.html?id=1a5881ec85ca40679988982e02665b51 and request approval for development as defined in G.S. 113A-130(5).

(b) The applicant shall provide:

(1) information on site location, dimensions of the project area, and his or her name and address; and

(2) confirmation that a written statement has been obtained, signed by the adjacent riparian property owners, indicating that they have no objections to the proposed work; or

(3) confirmation that the adjacent riparian property owners have been notified by certified mail of the proposed work. The notice shall instruct adjacent property owners to provide any comments on the proposed development in writing for consideration by permitting officials to the Division of Coastal Management within 10 days of receipt of the notice and indicate that no response by the adjacent property owners will be interpreted as the adjacent property owners having no objection. Division staff shall review all comments and determine, based on their relevance to the potential impacts of the proposed project, if the proposed project can be approved by a General Permit. If Division staff finds that the comments are worthy of more in-depth review, the Division shall notify the applicant that he or she must submit an application for a major development permit.

(c) No work shall begin until an on-site meeting is held with the applicant and a Division of Coastal Management representative to review the proposed development. A permit to proceed with the proposed development shall be issued if the Division representative finds that the application meets all the requirements of this Subchapter. Construction permitted under this Section shall be completed within 120 days of permit issuance or such permit shall expire. If the applicant seeks a new permit under this Section, the Division of Coastal Management shall re-examine the proposed development to determine if the General Permit may be reissued.

(d) Any modification or addition to the permitted project shall require approval from the Division of Coastal Management.

History Note: *Authority G.S. 113A-107; 113A-118.1;*
Eff. January 1, 1994;
Amended Eff. August 1, 2007;
Readopted Eff. October 1, 2022.

15A NCAC 07H .2003 PERMIT FEE

The applicant shall pay a permit fee of two hundred dollars ($200.00) by check or money order payable to the Department of Environmental Quality.

History Note: *Authority G.S. 113A-107; 113A-118.1; 113A-119.1;*
Eff. October 1, 1993;
Amended Eff. September 1, 2006; August 1, 2000;
Readopted Eff. October 1, 2022.

15A NCAC 07H .2004 GENERAL CONDITIONS

(a) Permittees shall allow authorized representatives of the Department of Environmental Quality to make inspections at any time in order to ensure that the activity being performed under the authority of the General Permit set forth in this Section is in accordance with the terms and conditions prescribed herein.

(b) There shall be no interference with navigation or use of the waters by the public by the existence of piers or mooring pilings.

(c) The permit set forth in this Section shall not be applicable to proposed construction where the Department has determined based on an initial review of the application that notice and review pursuant to G.S. 113A-119 is required because there are unresolved questions concerning the proposed activity's impact on Areas of Environmental Concern.

(d) This permit shall not be applicable where the Department determines that the proposed modification will result in closure of waters to shellfishing under rules adopted by the Commission for Public Health.

History Note: *Authority G.S. 113A-107; 113A-118.1;*
Eff. January 1, 1994;
Amended Eff. August 1,1998;
Readopted Eff. October 1, 2022.

15A NCAC 07H .2005 SPECIFIC CONDITIONS

(a) All proposed work must be carried out within the existing footprint of the development with no increase in the number of slips and no change in the existing use. "Existing footprint" is defined as the area delineated by the outer most line of tie pilings, ends of piers, and upland basin or area within an enclosing breakwater, whichever is greater.

(b) Modifications to piers and mooring facilities shall not interfere with the access to any riparian property and shall have a minimum setback of 15 feet between any part of the pier or pilings and the adjacent property lines extended into the water at the points that they intersect the shoreline. The minimum setbacks provided in the rule may be waived by the written agreement of the adjacent riparian owners, or when two adjoining riparian owners are co-applicants. Should the adjacent property be sold before construction of the pier or pilings commences, the applicant shall obtain a written agreement with the new owner waiving the minimum setback and submit it to the Division of Coastal Management prior to initiating any development. The line of division of areas of riparian access shall be established by drawing a line along the channel or deep water in front of the property, then drawing a line perpendicular to a line of the channel so that it intersects with the shore at the point the upland property line meets the water's edge. When shoreline configuration is such that a perpendicular alignment cannot be achieved, the pier shall be aligned to meet the intent of this rule to the maximum extent practicable.

History Note: *Authority G.S. 113A-107; 113A-118.1;*
Eff. October 1, 1993;
Readopted Eff. October 1, 2022.

SECTION .2100 - GENERAL PERMIT FOR CONSTRUCTION OF SHEETPILE SILL FOR SHORELINE PROTECTION IN ESTUARINE AND PUBLIC TRUST WATERS AND OCEAN HAZARD AREAS

15A NCAC 07H .2101 PURPOSE

Persons seeking to construct offshore parallel sheetpile sills constructed from timber, vinyl, or steel sheetpiles for shoreline protection in conjunction with existing or created coastal wetlands shall apply for a general permit under this Section. This permit shall only be applicable in Estuarine Waters and Public Trust Areas. This permit shall not apply to oceanfront shorelines or to waters and shorelines adjacent to the Ocean Hazard AEC with the exception of those shorelines that feature characteristics of Estuarine Shorelines. Such features include the presence of wetland vegetation, lower wave energy, and lower erosion rates than in adjoining Ocean Erodible Area. A Division of Coastal Management representative will make the determination whether the site features characteristics of the Estuarine Shoreline at the time of permit application.

History Note: *Authority G.S. 113A-107; 113A-118.1;*
Eff. June 1, 1994;
Amended Eff. February 1, 2009; April 1, 2003; August 1, 2000;
Readopted Eff. October 1, 2022.

15A NCAC 07H .2102 APPROVAL PROCEDURES

(a) An applicant for a General Permit under this Subchapter shall contact the Division of Coastal Management at the Regional Office indicated on the map located at https://ncdenr.maps.arcgis.com/apps/webappviewer/index.html?id=1a5881ec85ca40679988982e02665b51 and request approval for development as defined in G.S. 113A-130(5).

(b) The applicant shall provide:

(1) information on site location, dimensions of the project area, and his or her name and address; and

(2) confirmation that a written statement has been obtained, signed by the adjacent riparian property owners, indicating that they have no objections to the proposed work; or

(3) confirmation that the adjacent riparian property owners have been notified by certified mail of the proposed work. The notice shall instruct adjacent property owners to provide any comments on the proposed development in writing to the Division of Coastal Management within 10 days of receipt of the notice and indicate that no response by the adjacent property owners shall be interpreted as the adjacent property owners having no objection. Division staff shall review all comments and determine, based on their relevance to the potential impacts of the proposed project, if the proposed project can be approved by a General Permit. If Division staff finds that the comments are worthy of more in-depth review, the Division shall notify the applicant that he or she must submit an application for a major development permit.

(c) No work shall begin until an on-site meeting is held with the applicant and a Division of Coastal Management representative to review the proposed development. A permit to proceed with the proposed development shall be issued if the Division representative finds that the application meets all the requirements of this Subchapter. Construction permitted under this Section shall be completed within 120 days of the permit issuance or such permit shall expire. If the applicant seeks a new permit under this Section, the Division of Coastal Management shall re-examine the proposed development to determine if the General Permit may be reissued.
(d) Any modification or addition to the permitted project shall require approval from the Division of Coastal Management.

History Note: *Authority G.S. 113A-107; 113A-118.1; 113A-118.1(a)(4);*
Eff. June 1, 1994;
Amended Eff. February 1, 2009; October 1, 2007; September 1, 2006; August 1, 2000;
Readopted Eff. October 1, 2022.

15A NCAC 07H .2103 PERMIT FEE
The applicant shall pay a permit fee of two hundred dollars ($200.00). This fee shall be paid by check or money order made payable to the Department of Environmental Quality.

History Note: *Authority G.S. 113A-107; 113A-118.1; 113A-119.1;*
Eff. June 1, 1994;
Amended Eff. September 1, 2006; August 1, 2000;
Readopted Eff. October 1, 2022.

15A NCAC 07H .2104 GENERAL CONDITIONS
(a) Permittees shall allow authorized representatives of the Department of Environmental Quality to make inspections at any time in order to ensure that the activity being performed under authority of this General Permit set forth in this Section is in accordance with the terms and conditions prescribed herein.
(b) The placement of sills authorized in this Rule shall not interfere with the established or traditional rights of navigation of the water by the public.
(c) The permit set forth in this Section shall not be applicable to proposed construction where the Department has determined based on an initial review of the application that notice and review pursuant to G.S. 113A-119 is required because there are unresolved questions concerning the proposed activity's impact on Areas of Environmental Concern.

History Note: *Authority G.S. 113A-107; 113A-118.1;*
RRC Objection due to ambiguity Eff. May 19, 1994;
Eff. July 1, 1994;
Amended Eff. February 1, 2009; August 1, 1998;
Readopted Eff. October 1, 2022.

15A NCAC 07H .2105 SPECIFIC CONDITIONS
(a) The sill shall be positioned no more than 20 feet waterward of the normal high water or normal water level or 20 feet waterward of the waterward edge of existing wetlands at any point along its alignment. For narrow waterbodies (canals, creeks, etc.), the sheet pile sill shall not be positioned offshore more than one sixth (1/6) the width of the waterbody at any point along its alignment.
(b) Sills authorized under this General Permit shall be allowed only in waters that average less than three feet in depth along the proposed alignment as measured from the normal high water or normal water level.
(c) Construction authorized by this General Permit shall be limited to a maximum length of 500 feet.
(d) The sill shall be constructed with an equal gap between each sheathing board totaling at least one inch of open area every linear foot of sill. The sill shall have at least one five-foot opening at every 100 feet. The sill sections shall be staggered and overlap as long as the five-foot separation between sections is maintained. Overlapping sections shall not overlap more than 10 feet.
(e) The height of the sill shall not exceed six inches above normal high water or the normal water level.
(f) Offshore sill sections shall be set back 15 feet from the riparian access dividing line. The line of division of riparian access shall be established by drawing a line along the channel or deep water in front of the property, then drawing a line perpendicular to the line of the channel so that it intersects with the shore at the point the upland

property line meets the water's edge. The set back may be waived by written agreement of the adjacent riparian owner(s) or when the two adjoining riparian owners are co-applicants. Should the adjacent property be sold before construction of the sill begins, the applicant shall obtain a written agreement with the new owner waiving the minimum setback and submit it to the Division of Coastal Management prior to initiating any construction of the sill.
(g) Sills shall be marked at 50-foot intervals with yellow reflectors extending at least three feet above mean high water.
(h) No backfill of the sill or any other fill of wetlands, estuarine waters, public trust areas, or highground is authorized by this general permit.
(i) No excavation of the shallow water bottom, any wetlands, or high ground is authorized by this general permit.
(j) The sill shall be constructed of vinyl or steel sheet pile, formed concrete, timber, or other suitable equivalent materials approved by the Division of Coastal Management.
(k) Perpendicular sections, return walls, or sections that would enclose estuarine waters or public trust areas shall not be allowed under this permit.
(l) The permittee will maintain the sill in conformance with the terms and conditions of this permit or the remaining sill structure shall be removed within 90 days of notification from the Division of Coastal Management.

History Note: *Authority G.S. 113A-107; 113A-108; 113A-118.1;*
Eff. June 1, 1994;
Amended Eff. February 1, 2009; August 1, 2000;
Readopted Eff. October 1, 2022.

SECTION .2200 – GENERAL PERMIT FOR CONSTRUCTION OF FREESTANDING MOORINGS AND BIRD NESTING POLES IN ESTUARINE WATERS AND PUBLIC TRUST AREAS AND OCEAN HAZARD AREAS

15A NCAC 07H .2201 PURPOSE

Persons wishing to place freestanding moorings or bird nesting poles in the Estuarine Waters and Public Trust Areas AECs shall apply for a General Permit according to the rules in this Section. This permit shall not apply to waters adjacent to oceanfront shorelines or to waters and shorelines adjacent to the Ocean Hazard AEC with the exception of those shorelines that feature characteristics of the Estuarine Shoreline AEC. Such features include the presence of wetland vegetation, lower wave energy, and lower erosion rates than the adjacent Ocean Erodible Area. A Division of Coastal Management representative will make the determination whether the site features characteristics of the Estuarine Shoreline at the time of permit application.

History Note: *Authority G.S. 113A-107; 113A-118.1;*
Eff. February 1, 1996;
Amended Eff. January 1, 2018; April 1, 2003;
Readopted Eff. October 1, 2022.

15A NCAC 07H .2202 APPROVAL PROCEDURES

(a) An applicant for a General Permit under this Subchapter shall contact the Division of Coastal Management at the Regional Office indicated on the map located at https://ncdenr.maps.arcgis.com/apps/webappviewer/index.html?id=1a5881ec85ca40679988982e02665b51 and request approval for development as defined in G.S. 113A-130(5).
(b) The applicant shall provide:
(1) information on site location, dimensions of the project area, and his or her name and address; and
(2) confirmation that a written statement has been obtained, signed by the adjacent riparian property owners indicating that they have no objections to the proposed work; or
(3) confirmation that the adjacent riparian property owners have been notified by certified mail of the proposed work. The notice shall instruct adjacent property owners to provide any comments on the proposed development in writing to the Division of Coastal Management within 10 days of receipt of the notice and indicate that no response by the adjacent property owners shall be interpreted as the adjacent property owners having no objection. Division staff shall review all comments and determine, based on their relevance to the potential impacts of the proposed project, if the proposed project can be approved by a General Permit. If Division staff finds that the comments

are worthy of more in-depth review, the Division shall notify the applicant that he or she must submit an application for a major development permit.

(c) No work shall begin until an on-site meeting is held with the applicant and a Division of Coastal Management representative to review the proposed development. A permit to proceed with the proposed development shall be issued if the Division representative finds that the application meets all the requirements of this Subchapter. Construction permitted under this Section shall be completed within 120 days of the permit issuance or such permit shall expire. If the applicant seeks a new permit under this Section, the Division of Coastal Management shall re-examine the proposed development to determine if the General Permit may be reissued.

(d) Any modification or addition to the permitted project shall require prior approval from the Division of Coastal Management.

History Note: *Authority G.S. 113A-107; 113A-118.1;*
Eff. February 1, 1996;
Amended Eff. January 1, 2018; August 1, 2007;
Readopted Eff. October 1, 2022.

15A NCAC 07H .2203 PERMIT FEE

The applicant shall pay a permit fee of two hundred dollars ($200.00). This fee shall be paid by check or money order made payable to the Department of Environmental Quality.

History Note: *Authority G.S. 113A-107; 113A-118.1; 113A-119; 113A-119.1;*
Eff. February 1, 1996;
Amended Eff. September 1, 2006; August 1, 2000;
Readopted Eff. October 1, 2022.

15A NCAC 07H .2204 GENERAL CONDITIONS

(a) A "freestanding mooring" is any means to attach a ship, boat, vessel, floating structure, or other water craft to a stationary underwater device, mooring buoy, buoyed anchor, or piling (as long as the piling is not associated with an existing or proposed pier, dock, or boathouse).

(b) A "bird nesting pole" is any pole or piling erected, with a platform on top, for the purpose of attracting birds for nesting.

(c) Freestanding moorings and bird nesting poles authorized by this permit shall be for the exclusive use of the riparian landowner(s) in whose name the permit is issued and shall not provide either leased or rented moorings or any other commercial services.

(d) Permittees shall allow authorized representatives of the Department of Environmental Quality to make inspections at any time in order to ensure that the activity being performed under the authority of this General Permit set forth in this Section is in accordance with the terms and conditions prescribed herein.

(e) Freestanding moorings or bird nesting poles authorized by this permit shall not interfere with navigation or use of the waters by the public.

(f) The permit set forth in this Section may not be applicable to proposed construction when the Department has determined that based on an initial review of the application that notice and review pursuant to G.S. 113A-119 is required because there are unresolved questions concerning the proposed activity's impact on Areas of Environmental Concern.

History Note: *Authority G.S. 113A-107; 113A-118.1;*
Eff. February 1, 1996;
Amended Eff: January 1, 2018;
Readopted Eff. October 1, 2022.

15A NCAC 07H .2205 SPECIFIC CONDITIONS

(a) Freestanding moorings and bird nesting poles may be located up to a maximum of 400 feet from the mean high water line or the normal water line.

(b) Freestanding moorings in no case shall extend more than 1/4 the width of a natural water body or man-made canal or basin.

(c) Freestanding mooring buoys and piles shall be evaluated based upon the arc of the swing including the vessel to be moored. Moorings and the attached vessel shall not interfere with the access to any riparian property, and shall

have a minimum setback of 15 feet from the adjacent property lines extended into the water at the points that they intersect the shoreline. The minimum setbacks provided in this Rule may be waived by the written agreement of the adjacent riparian owner(s), or when two adjoining riparian owners are co-applicants. Should the adjacent property be sold before construction commences, the applicant shall obtain a written agreement with the new owner waiving the minimum setback and submit it to the Division of Coastal Management prior to initiating any development of freestanding moorings. The line of division of areas of riparian access shall be established by drawing a line along the channel or deep water in front of the property, then drawing a line perpendicular to the line of the channel so that it intersects with the shore at the point the upland property line meets the water's edge.

(d) The total number of docking or mooring facilities to be authorized by this General Permit shall not exceed two per property.

(e) Bird nesting poles shall be limited to one per property. Any proposal to change the location of a permitted bird nesting pole shall require additional authorization from the Division of Coastal Management.

(f) Freestanding moorings and bird nesting poles shall not interfere with shellfish franchises or leases. Applicants for authorization to construct freestanding moorings and bird nesting poles shall provide notice of the permit application to the owner of any part of a shellfish franchise or lease over which the proposed installation would extend.

(g) Freestanding moorings shall not be constructed in a designated Primary Nursery Area as defined in 15A NCAC 07H .0208(a)(4) with less than two feet of water at normal low water level or normal water level under the General Permit set forth in this Section without prior approval from the Division of Marine Fisheries or the Wildlife Resources Commission.

(h) Freestanding moorings located over shellfish beds or submerged aquatic vegetation as defined by the Marine Fisheries Commission may be constructed without prior consultation from the Division of Marine Fisheries or the Wildlife Resources Commission if the following two conditions are met:

(1) water depth at the freestanding mooring location is equal to or greater than two feet of water at normal low water level or normal water level; and

(2) the freestanding mooring is located to minimize the area of submerged aquatic vegetation or shellfish beds impacted under the structure as determined by the Division of Coastal Management.

(i) Freestanding moorings and bird nesting poles shall not be established in submerged utility crossing areas or in a manner that interferes with the operation of an access through any bridge.

(j) Freestanding moorings and bird nesting poles shall be marked or colored for the life of the moorings and poles in compliance with G.S. 75A-15 and the applicant shall contact the U.S. Coast Guard and N.C. Wildlife Resources Commission to ensure compliance. Permanent reflectors shall be attached to the structure in order to make it more visible during hours of darkness or inclement weather.

(k) Freestanding moorings shall bear owner's name, vessel State registration numbers, or U.S. Customs Documentation numbers. Required identification shall be legible for the life of the moorings.

(l) The type of material used to anchor a proposed mooring buoy shall be non-polluting and of sufficient weight and design to anchor the buoy and vessel.

(m) Mooring buoys authorized by this General Permit shall be a minimum 12" in diameter or otherwise be designed to be recognized and not present a hazard to navigation.

(n) The platform located at the apex of the bird nesting pole shall not exceed three feet by three feet and shall not have sides.

(o) This permit does not relieve the permit holder of the responsibility to ensure that all other State and Federal permit requirements are met prior to implementation of the project, including G.S. 113A-107(a), G.S. 113A-118(d)(1) or G.S. 113A-120(b1)(4).

History Note: *Authority G.S. 113A-107; 113A-118.1;*
Eff. February 1, 1996;
Amended Eff. January 1, 2018;
Readopted Eff. October 1, 2022.

SECTION .2300 - GENERAL PERMIT FOR REPLACEMENT OF EXISTING BRIDGES AND CULVERTS IN ESTUARINE WATERS, ESTUARINE AND PUBLIC TRUST SHORELINES, PUBLIC TRUST AREAS, AND COASTAL WETLANDS

15A NCAC 07H .2301 PURPOSE

A person wishing to replace existing bridges and culverts in estuarine waters, estuarine and public trust shorelines, public trust areas, and coastal wetlands AECs, shall apply for a General Permit pursuant to the rules in this Section.

History Note: *Authority G.S. 113A-107; 113A-118.1; 113A-124;*
Eff. June 1, 1996;
Amended Eff. August 1, 2000;
Readopted Eff. October 1, 2022.

15A NCAC 07H .2302 APPROVAL PROCEDURES

(a) An applicant for a General Permit under this Subchapter shall contact the Division of Coastal Management at the Regional Office indicated on the map located at https://ncdenr.maps.arcgis.com/apps/webappviewer/index.html?id=1a5881ec85ca40679988982e02665b51 and request approval for development as defined in G.S. 113A-130(5).

(b) The applicant shall provide:

(1) the site location, dimensions of the project area, and his or her name and address; and

(2) confirmation that a written statement has been obtained, signed by the adjacent riparian property owners, indicating that they have no objections to the proposed work; or

(3) confirmation that the adjacent riparian property owners have been notified by certified mail of the proposed work. The notice shall instruct adjacent property owners to provide any comments on the proposed development in writing to the Division of Coastal Management within 10 days of receipt of the notice and indicate that no response by the adjacent property owners will be interpreted as the adjacent property owners having no objection. Division staff shall review all comments and determine, based on their relevance to the potential impacts of the proposed project, if the proposed project can be approved by a General Permit. If Division staff finds that the comments are worthy of more in-depth review, the Division shall notify the applicant that he or she must submit an application for a major development permit.

(c) No work shall begin until an onsite meeting is held with the applicant and a Division of Coastal Management representative to review the proposed development. A permit to proceed with the proposed development shall be issued if the Division representative finds that the application meets all the requirements of this Subchapter. Construction permitted under this Section shall be completed within 120 days of permit issuance or such permit shall expire. If the applicant seeks a new permit under this Section, the Division of Coastal Management shall re-examine the proposed development to determine if the General Permit may be reissued. Pursuant to G.S. 136-44.7B, permits issued to the North Carolina Department of Transportation for projects identified in the Transportation Improvement Program shall not expire.

(d) Any modification or addition to the permitted project shall require approval from the Division of Coastal Management.

History Note: *Authority G.S. 113A-107; 113A-118.1; 113A-124;*
Eff. June 1, 1996;
Amended Eff. May 1, 2010;
Readopted Eff. October 1, 2022.

15A NCAC 07H .2303 PERMIT FEE

The applicant shall pay a permit fee of four hundred dollars ($400.00). This fee shall be paid by inter-departmental fund transfer, check, or money order made payable to the Department of Environmental Quality.

History Note: *Authority G.S. 113A-107; 113A-118.1; 113A-119; 113A-119.1; 113A-124;*
Eff. June 1, 1996;
Amended Eff. May 1, 2010; September 1, 2006; August 1, 2000;
Readopted Eff. October 1, 2022.

15A NCAC 07H .2304 GENERAL CONDITIONS

(a) Projects authorized by this permit shall be demolition, removal, and replacement of existing bridges and culverts along the existing alignment and conforming to the standards in this Rule. This permit shall be applicable only to single bridge and culvert projects and shall not authorize temporary fill causeways or temporary bridges that may be associated with bridge replacement projects.

(b) The permittee shall allow authorized representatives of the Department of Environmental Quality to make inspections at any time in order to ensure that the activity being performed under authority of this General Permit is in accordance with the terms and conditions prescribed herein.
(c) The permit set forth in this Section shall not be applicable to proposed construction where the Department determined based on an initial review of the application that notice and review pursuant to G.S. 113A-119 is required because there are unresolved questions concerning the proposed activity's impact on Areas of Environmental Concern.
(d) Review of individual project requests shall be coordinated with the Division of Marine Fisheries (DMF) and the Wildlife Resources Commission (WRC). This may result in a construction moratorium during periods of significant biological productivity or critical life stages as determined by the WRC and DMF.
(e) Development under this permit shall be carried out within Department of Transportation (DOT) right-of-ways or on lands under the ownership of the applicant in the case of a non-DOT project.
(f) Bridge and culvert replacements shall be designed to minimize any adverse impacts to potential navigation or use of the waters by the public.

History Note: *Authority G.S. 113A-107; 113A-118.1; 113A-124;*
Eff. June 1, 1996;
Amended Eff. May 1, 2010;
Readopted Eff. October 1, 2022.

15A NCAC 07H .2305 SPECIFIC CONDITIONS
(a) This general permit is applicable to bridge replacement projects spanning no more than 400 feet of estuarine water, public trust area, and coastal wetland AECs.
(b) Existing roadway deck width shall not be expanded to create additional lanes, with the exception that an existing one lane bridge may be expanded to two lanes where the Department of Environment and Natural Resources determines that authorization is warranted and the proposed project does not significantly affect the quality of the human and natural environment or unnecessarily endangers adjoining properties.
(c) Replacement of existing bridges with new bridges shall not reduce vertical or horizontal navigational clearances.
(d) All demolition debris shall be disposed of landward of all wetlands and the normal water level (NWL) or normal high water (NHW) level (as defined in 15A NCAC 07H .0106), and shall employ soil stabilization measures to prevent entry of sediments in the adjacent water bodies or wetlands.
(e) Bridges and culverts shall be designed to allow passage of anticipated high water flows.
(f) Measures sufficient to restrain sedimentation and erosion shall be implemented at each site.
(g) Bridge or culvert replacement activities involving excavation or fill in wetlands, public trust areas, and estuarine waters shall meet the following conditions:

(1) Replacing bridges with culverts shall not be allowed in primary nursery areas as defined by the Marine Fisheries or Wildlife Resources Commissions.
(2) The total area of public trust area, estuarine waters, and wetlands to be excavated or filled shall not exceed 2,500 square feet except that the coastal wetland component shall not exceed 750 square feet.
(3) Culverts shall not be used to replace bridges with open water spans greater than 50 feet.
(4) There shall be no temporary placement or double handling of excavated or fill materials within waters or vegetated wetlands.
(5) No excavated or fill material shall be placed in any wetlands or surrounding waters outside of the alignment of the fill area indicated on the work plat(s).
(6) All excavated materials shall be confined above NWL or NHW and landward of any wetlands behind dikes or other retaining structures to prevent spill-over of solids into any wetlands or surrounding waters.
(7) No bridges with a clearance of four feet or greater above the NWL or NHW shall be allowed to be replaced with culvert(s) unless the culvert design maintains the existing water depth, vertical clearance and horizontal clearance.
(8) If a bridge is being replaced by a culvert(s) then the width of the waterbody shall not be decreased by more than 40 percent.
(9) All pipe and culvert inverts placed within the Public Trust or the Estuarine Waters AECs shall be buried at least one foot below normal bed elevation to allow for passage of water and aquatic life. Culverts placed in wetlands are not subject to this requirement.

History Note: *Authority G.S. 113A-107; 113A-118.1; 113A-124;*
Eff. June 1, 1996;
Amended Eff. May 1, 2010.
RRC objection due to ambiguity Eff. September 17, 2022.

SECTION .2400 - GENERAL PERMIT FOR PLACEMENT OF RIPRAP REVETMENTS FOR WETLAND PROTECTION IN ESTUARINE AND PUBLIC TRUST WATERS

15A NCAC 07H .2401 PURPOSE

Persons wishing to construct riprap revetments for wetland protection in estuarine and public trust waters, immediately adjacent to and waterward of the wetland toe, shall apply for a General Permit under this Section. This permit shall not apply to oceanfront shorelines or to waters and shorelines adjacent to the Ocean Hazard AEC with the exception of those portions of shoreline that feature characteristics of Estuarine Shorelines. Such features include the presence of wetland vegetation, lower wave energy, and lower erosion rates than in the adjoining Ocean Erodible Area.

History Note: *Authority G.S. 113A-107; 113A-118.1;*
Eff. August 1, 2000;
Amended Eff. February 1, 2009; April 1, 2003;
Readopted Eff. October 1, 2022.

15A NCAC 07H .2402 APPROVAL PROCEDURES

(a) An applicant for a General Permit under this Subchapter shall contact the Division of Coastal Management at the Regional Office indicated on the map located at https://ncdenr.maps.arcgis.com/apps/webappviewer/index.html?id=1a5881ec85ca40679988982e02665b51 and request approval for development as defined in G.S. 113A-130(5).

(b) The applicant shall provide:

(1) the site location, dimensions of the project area, and his or her name and address; and

(2) confirmation that a written statement has been obtained, signed by the adjacent riparian property owners, indicating that they have no objections to the proposed work; or

(3) confirmation that the adjacent riparian property owners have been notified by certified mail of the proposed work. The notice shall instruct adjacent property owners to provide any comments on the proposed development in writing to the Division of Coastal Management within 10 days of receipt of the notice and indicate that no response by the adjacent property owners shall be interpreted as the adjacent property owners having no objection. Division staff shall review all comments and determine, based on their relevance to the potential impacts of the proposed project, if the proposed project can be approved by a General Permit. If Division staff finds that the comments are worthy of more in-depth review, the Division shall notify the applicant that he or she must submit an application for a major development permit.

(c) No work shall begin until an on-site meeting is held with the applicant and a Division of Coastal Management representative to review the proposed development. A permit to proceed with the proposed development shall be issued if the Division representative finds that the application meets all the requirements of this Subchapter. Construction shall be completed within 120 days of permit issuance or such permit shall expire. If the applicant seeks a new permit under this Section, the Division of Coastal Management shall re-examine the proposed development to determine if the General Permit may be reissued.

(d) Any modification or addition to the permitted project shall require approval from the Division of Coastal Management.

History Note: *Authority G.S. 113A-107; 113A-118.1;*
Eff. August 1, 2000;
Amended Eff. February 1, 2009; October 1, 2007;
Readopted Eff. October 1, 2022.

15A NCAC 07H .2403 PERMIT FEE

The applicant shall pay a permit fee of two hundred dollars ($200.00). This fee shall be paid by check or money order made payable to the Department of Environmental Quality.

History Note: *Authority G.S. 113A-107; 113A-118.1; 113A-119.1;*
Eff. August 1, 2000;
Amended Eff. September 1, 2006;
Readopted Eff. October 1, 2022.

15A NCAC 07H .2404 GENERAL CONDITIONS

(a) This permit authorizes only the construction of wetland protection structures conforming to the standards herein.
(b) Permittees shall allow authorized representatives of the Department of Environmental Quality to make inspections at any time in order to ensure that the activity being performed under authority of this General Permit set forth in this Section is in accordance with the terms and conditions prescribed herein.
(c) The placement of riprap revetments authorized in this Rule shall not interfere with the established or traditional rights of navigation of the waters by the public.
(d) This permit shall not be applicable to proposed construction where the Division of Coastal Management has determined, based on an initial review of the application, that notice and review pursuant to G.S. 113A-119 is required because there are unresolved questions concerning the proposed activity's impact on Areas of Environmental Concern.

History Note: *Authority G.S. 113A-107; 113A-118.1;*
Eff. August 1, 2000;
Amended Eff. February 1, 2009;
Readopted Eff. October 1, 2022.

15A NCAC 07H .2405 SPECIFIC CONDITIONS

(a) This General Permit shall only be applicable along shorelines possessing wetlands, which exhibit an identifiable escarpment.
(b) The structure shall be constructed of granite, marl, riprap, concrete without exposed rebar, or other suitable equivalent materials approved by the Division of Coastal Management.
(c) The height of the erosion escarpment shall not exceed three feet.
(d) The riprap shall be placed immediately waterward of the erosion escarpment.
(e) The riprap revetment shall be positioned so as not to exceed a maximum of six feet waterward of the erosion escarpment at any point along its alignment with a slope no flatter than three feet horizontal per one foot vertical and no steeper than one and one half feet horizontal per one foot vertical.
(f) The riprap shall be positioned so as not to exceed a maximum of six inches above the elevation of the adjacent wetland substrate or escarpment.
(g) Construction authorized by this general permit will be limited to a maximum length of 500 feet.
(h) No backfill or any other fill of wetlands, submerged aquatic vegetation, estuarine waters, public trust areas, or highground areas is authorized by this general permit.
(i) No excavation of the shallow water bottom, any wetlands, or high ground is authorized by this general permit.
(j) Riprap material used for revetment construction shall be free from loose dirt or any pollutant and be of a size sufficient to prevent its movement from the site by wave action or currents.
(k) If the crossing of wetlands with mechanized or non-mechanized construction equipment is necessary, temporary construction mats shall be utilized for the area to be crossed. The temporary mats shall be removed immediately upon completion of construction of the riprap structure.
(l) The permittee shall maintain the structure in conformance with the terms and conditions of this permit or the remaining riprap revetment shall be removed within 90 days of notification from the Division of Coastal Management.

History Note: *Authority G.S. 113A-107; 113A-107; 113A-108; 113A-118.1;*
Eff. August 1, 2000;
Amended Eff. February 1, 2009;
Readopted Eff. October 1, 2022.

SECTION .2500 - EMERGENCY GENERAL PERMIT, TO BE INITIATED AT THE DISCRETION OF THE SECRETARY OF THE DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES FOR REPLACEMENT OF STRUCTURES, THE RECONSTRUCTION OF PRIMARY OR FRONTAL DUNE SYSTEMS, AND THE MAINTENANCE EXCAVATION OF EXISTING CANALS, BASINS, CHANNELS, OR DITCHES, DAMAGED, DESTROYED, OR FILLED IN BY HURRICANES OR TROPICAL STORMS, PROVIDED ALL REPLACEMENT, RECONSTRUCTION AND MAINTENANCE EXCAVATION ACTIVITIES CONFORM TO ALL CURRENT STANDARDS

15A NCAC 07H .2501 PURPOSE

Following damage to coastal North Carolina due to hurricanes or tropical storms, the Secretary may, based upon an examination of the extent and severity of the damage, implement any or all provisions of this Section. Factors the Secretary may consider in making this decision include, but are not limited to, severity and scale of property damage, designation of counties as disaster areas, reconnaissance of the impacted areas, or discussions with staff, state, or federal emergency response agencies. This permit shall allow for:

(1) the replacement of structures that were located within the estuarine system or public trust Areas of Environmental Concern and that were destroyed or damaged beyond 50 percent of the structures value as a result of any hurricane or tropical storm;

(2) a one time per property fee waiver for the reconstruction or repair by beach bulldozing of hurricane or tropical storm damaged frontal or primary dune systems; and

(3) a one time per property fee waiver for maintenance dredging activities within existing basins, canals, channels, and ditches. Structure replacement, dune reconstruction, and maintenance excavation activities authorized by this permit shall conform with all current use standards and regulations. The structural replacement component of this general permit shall only be applicable where the structure was in place and serving its intended function at the time of the impacting hurricane or storm, and shall not apply within the Ocean Hazard System of Areas of Environmental Concern (AEC) or waters adjacent to these AECs with the exception of those portions of shoreline that feature characteristics of Estuarine Shorelines. Such features include the presence of wetland vegetation, lower wave energy, and lower erosion rates than in the adjoining Ocean Erodible Area.

History Note: *Authority G.S. 113A-107; 113A-118.1;*
Temporary Adoption Eff. October 2, 1999;
Temporary Adoption Expired on July 28, 2000;
Eff. April 1, 2001;
Readopted Eff. July 1, 2022.

15A NCAC 07H .2502 APPROVAL PROCEDURES

(a) The applicant must contact the Division of Coastal Management and request approval for structural replacement, dune reconstruction, or maintenance excavation.

(b) The applicant shall provide:

(1) the site location, dimensions of the project area including shoreline length, a description of the repair, replacement, reconstruction, or maintenance excavation needed, and his or her name and address. In the case of structural replacements, any additional documentation confirming the existence of the structure prior to the hurricane or tropical storm, such as surveys, previous permits, photographs or videos; and

(2) Description of the extent of repair, replacement, reconstruction, or maintenance excavation needed, including dimensions and shoreline length.

(c) For projects involving the excavation or filling of any area of estuarine water, the applicant must provide confirmation that the adjacent riparian property owners have been notified by certified mail of the proposed work. Such notice shall instruct adjacent property owners to provide any comments on the proposed development in writing for consideration by permitting officials to the Division of Coastal Management within 10 days of receipt of the notice, and, indicate that no response shall be interpreted as no objection. Division staff shall review all comments and determine, based on their relevance to the potential impacts of the proposed project, if the proposed project can be approved by a General Permit. If Division staff finds that the comments are worthy of more in-depth review, the Division shall notify the applicant that he or she shall submit an application for a major development permit.

(d) No work shall begin until a meeting is held with the applicant and a Division of Coastal Management representative to review the proposed development. A permit to proceed with the proposed development may be issued during this meeting if the Division representative finds that the application meets all the requirements of this Subchapter.
(e) Replacement, reconstruction, or maintenance excavation activities must be completed within one year of each activation by the Secretary of this general permit.
(f) Authorizations under this General Permit shall not be issued more than one year following each activation by the Secretary of this general permit.

History Note: *Authority G.S. 113A-107; 113A-118.1;*
Temporary Adoption Eff. October 2, 1999;
Temporary Adoption Expired on July 28, 2000;
Eff. April 1, 2001;
Readopted Eff. July 1, 2022.

15A NCAC 07H .2503 PERMIT FEE
The standard permit fee of two hundred dollars ($200.00) has been waived for this General Permit.

History Note: *Authority G.S. 113A-107; 113A-118.1;*
Temporary Adoption Eff. October 2, 1999;
Temporary Adoption Expired on July 28, 2000;
Eff. April 1, 2001;
Amended Eff. September 1, 2006;
Readopted Eff. July 1, 2022.

15A NCAC 07H .2504 GENERAL CONDITIONS
(a) This permit shall only become available following a written statement by the Secretary that, based upon hurricane or tropical storm related damage, implementation of the provisions of this Section are warranted.
(b) Based upon an examination of the specific circumstances following a specific hurricane or tropical storm, the Secretary may choose to activate any or all of the components of this Section. The Secretary may also limit the geographic service area of this permit.
(c) This permit authorizes only the replacement of damaged or destroyed structures, the reconstruction of frontal or primary dunes, and maintenance excavation activities conforming to the standards described in this Section.
(d) This permit does not authorize the replacement of any structure within any Ocean Hazard Area of Environmental Concern, with the exception of those portions of shoreline within the Ocean Hazard AEC that feature characteristics of Estuarine Shorelines. Such features include the presence of wetland vegetation, lower wave energy, and lower erosion rates than in the adjoining Ocean Erodible Area.
(e) Individuals shall allow authorized representatives of the Department of Environmental Quality to make inspections at any time in order to be sure that the activity being performed under authority of the general permit set forth in this Section is in accordance with the terms and conditions prescribed herein.
(f) The permit set forth in this Section shall not be applicable to proposed construction where the Department determines that the proposed activity would endanger adjoining properties or significantly affect historic, cultural, scenic, conservation, or recreational values identified in G.S. 113A-102 and G.S 113A-113(b)(4).
(g) This permit does not eliminate the need to obtain any other required State, local, or federal authorization.
(h) This permit does not preclude an individual from applying for other authorizations for structure replacement that may be available under the Coastal Area Management Act and the Rules of the Coastal Resources Commission. However, application fees for any such authorization shall not be waived or deferred.

History Note: *Authority G.S. 113A-107; 113A-118.1;*
Temporary Adoption Eff. October 2, 1999;
Temporary Adoption Expired on July 28, 2000;
Eff. April 1, 2001;
Readopted Eff. July 1, 2022.

15A NCAC 07H .2505 SPECIFIC CONDITIONS

(a) The replacement of a damaged or destroyed structure shall take place within the footprint and dimensions that existed immediately prior to the damaging hurricane or tropical storm. No structural enlargement or additions shall be allowed.
(b) Structure replacement, dune reconstruction, and maintenance excavation authorized by this permit shall conform to the existing use standards and regulations for exemptions, minor development permits, and major development permits, including general permits. These use standards include, but are not limited to:

(1) 15A NCAC 07H .0208(b)(6) for the replacement of docks and piers;
(2) 15A NCAC 07H .0208(b)(7) for the replacement of bulkheads and shoreline stabilization measures;
(3) 15A NCAC 07H .0208(b)(9) for the replacement of wooden and riprap groins;
(4) 15A NCAC 07H .1500 for maintenance excavation activities; and
(5) 15A NCAC 07H .1800 for beach bulldozing in the Ocean Hazard AEC.

(c) The replacement of an existing dock or pier facility, including associated structures, marsh enhancement breakwaters, or groins shall be set back 15 feet from the adjoining property lines and the riparian access dividing line. The line of division of riparian access shall be established by drawing a line along the channel or deep water in front of the property, then drawing a line perpendicular to the line of the channel so that it intersects with the shore at the point the upland property line meets the water's edge. Application of this Rule may be aided by reference to the approved diagram in 15A NCAC 07H .1205, illustrating the rule as applied to various shoreline configurations. Copies of the diagram may be obtained from the Division of Coastal Management. When shoreline configuration is such that a perpendicular alignment cannot be achieved, the pier shall be aligned to meet the intent of this Rule to the maximum extent practicable. The setback may be waived by written agreement of the adjacent riparian owner(s) or when the two adjoining riparian owners are co-applicants. Should the adjacent property be sold before replacement of the structure begins, the applicant shall obtain a written agreement with the new owner waiving the minimum setback and submit it to the Division of Coastal Management prior to initiating any construction of the structure.

History Note: *Authority G.S. 113A-107; 113A-118.1;*
Temporary Adoption Eff. October 2, 1999;
Temporary Adoption Expired on July 28, 2000;
Eff. April 1, 2001;
Amended Eff. September 1, 2016;
Readopted Eff. July 1, 2022.

SECTION .2600 – GENERAL PERMIT FOR CONSTRUCTION OF MITIGATION BANKS AND IN-LIEU FEE MITIGATION PROJECTS

15A NCAC 07H .2601 PURPOSE

Persons seeking to construct mitigation banks and in-lieu fee mitigation projects shall apply for a General Permit according to the rules in this Section. This permit shall be applicable only for activities resulting in net increases in aquatic resource functions and services per 73 FR 19670 and federal Clean Water Act, at 33 U.S.C. 401 et seq.; 33 U.S.C. 1344; and Pub. L. 108-136. These activities include:

(1) restoration;
(2) enhancement;
(3) establishment of tidal and non-tidal wetlands and riparian areas;
(4) restoration and enhancement of non-tidal streams and other non-tidal open waters; and
(5) rehabilitation or enhancement of tidal streams, tidal wetlands, and tidal open waters.

This permit shall not apply within the Ocean Hazard System of Areas of Environmental Concern (AEC) or waters adjacent to these AECs with the exception of those portions of shoreline within the Inlet Hazard Area AEC that feature characteristics of Estuarine Shorelines. Such features include the presence of wetland vegetation, lower wave energy, and lower erosion rates than in the adjoining Ocean Erodible Area. A Division of Coastal Management representative will make the determination whether the site features characteristics of the Estuarine Shoreline at the time of permit application.

History Note: *Authority G.S. 113A-107; 113A-118.1;*
Eff. October 1, 2004;
Amended Eff. October 1, 2014;

Readopted Eff. October 1, 2022.

15A NCAC 07H .2602 APPROVAL PROCEDURES

(a) The applicant shall contact the Division of Coastal Management at the Regional Office indicated on the map located at https://ncdenr.maps.arcgis.com/apps/webappviewer/index.html?id=1a5881ec85ca40679988982e02665b51 and request approval for development as defined in G.S. 113A-130(5).

(b) The applicant shall provide:

(1) the site location, dimensions of the project area, and his or her name and address; and

(2) confirmation that a written statement has been obtained, signed by the adjacent riparian property owners, indicating that they have no objections to the proposed work; or

(3) confirmation that the adjacent riparian property owners have been notified by certified mail of the proposed work. The notice shall instruct adjacent property owners to provide any comments on the proposed development in writing for to the Division of Coastal Management within 10 days of receipt of the notice and indicate that no response by the adjacent property owners will be interpreted as the adjacent property owners having no objection. Division staff shall review all comments and determine, based on their relevance to the potential impacts of the proposed project, if the proposed project can be approved by a General Permit. If Division staff finds that the comments are worthy of more in-depth review, the Division shall notify the applicant that he or she must submit an application for a major development permit.

(c) No work shall begin until a meeting is held with the applicant and a Division of Coastal Management representative to review the proposed development. A permit to proceed with the proposed development shall be issued if the Division representative finds that the application meets all the requirements of this Subchapter. Construction of the mitigation site permitted under this Section shall start within 365 days of permit issuance or such permit shall expire. If the applicant seeks a new permit under this Section, the Division of Coastal Management shall re-examine the proposed development to determine if the General Permit shall be reissued.

(d) Any modification or addition to the permitted project shall require approval from the Division of Coastal Management.

History Note: *Authority G.S. 113A-107; 113A-118.1;*
Eff. October 1, 2004;
Amended Eff. October 1, 2014;
Readopted Eff. October 1, 2022.

15A NCAC 07H .2603 PERMIT FEE

The applicant shall pay a permit fee of four hundred dollars ($400.00). This fee shall be paid by check or money order made payable to the Department of Environmental Quality.

History Note: *Authority G.S. 113A-107; 113A-118.1; 113A-119.1;*
Eff. October 1, 2004;
Amended Eff. September 1, 2006;
Readopted Eff. October 1, 2022.

15A NCAC 07H .2604 GENERAL CONDITIONS

(a) The permit in this Section authorizes only those activities associated with the construction of mitigation banks and in-lieu fee mitigation projects.

(b) Permittees shall allow representatives of the Department of Environmental Quality to make inspections at any time in order to ensure that the activity being performed under authority of this General Permit set forth in this Section is in accordance with the terms and conditions prescribed herein.

(c) There shall be no interference with navigation or use of the waters by the public. No attempt shall be made by the permittee to prevent the use by the public of all navigable waters at or adjacent to the development authorized pursuant to the rules of this Section.

(d) This permit shall not be applicable to proposed construction where the Division of Coastal Management has determined, based on an initial review of the application, that notice and review pursuant to G.S. 113A-119 is required because there are unresolved questions concerning the proposed activity's impact on Areas of Environmental Concern.

(e) At the discretion of the Division of Coastal Management, review of individual project requests shall be coordinated with the Department of Environmental Quality to determine if a construction moratorium during periods of significant biological productivity or critical life stages of fisheries resources is necessary to protect those resources.

History Note: *Authority G.S. 113A-107; 113A-118.1;*
Eff. October 1, 2004;
Amended Eff. October 1, 2014;
Readopted Eff. October 1, 2022.

15A NCAC 07H .2605 SPECIFIC CONDITIONS

(a) The General Permit in this Section shall be applicable only for the construction of mitigation banks or in-lieu fee mitigation projects.
(b) No excavation or filling of any submerged aquatic vegetation shall be authorized by this general permit.
(c) The crossing of wetlands in transporting equipment shall be avoided or minimized to the maximum extent practicable. If the crossing of wetlands with mechanized or non-mechanized construction equipment is necessary, track and low-pressure equipment or temporary construction mats shall be utilized for the area to be crossed. The temporary mats shall be removed immediately upon completion of construction.
(d) No permanent structures shall be authorized by this general permit, except for signs, fences, water control structures, or those structures needed for site monitoring or shoreline stabilization.
(e) The use of any portion of the site as compensatory mitigation for future projects shall be determined in accordance with applicable regulatory policies and procedures.
(f) The development authorized pursuant to this general permit shall result in a net increase in aquatic resource functions and services per 73 FR 19670 and federal Clean Water Act, at 33 U.S.C. 401 et seq.; 33 U.S.C. 1344; and Pub. L. 108-136.
(g) The entire mitigation bank or in-lieu fee project site shall be protected in perpetuity in its mitigated state through conservation easement, deed restriction, or other appropriate instrument attached to the title for the subject property and shall be owned by the permittee or its designee.
(h) The Division of Coastal Management shall be provided copies of all monitoring reports prepared by the permittee or its designee for the authorized mitigation bank or in-lieu fee project site.
(i) If water control structures or other hydrologic alterations are proposed, such activities shall not increase the likelihood of flooding any adjacent property.
(j) Appropriate sedimentation and erosion control devices, measures, or structures such as silt fences, diversion swales or berms, and sand fences shall be implemented to ensure that eroded materials do not enter adjacent wetlands, watercourses, and property.
(k) If one or more contiguous acre of property is to be graded, excavated, or filled, the applicant shall submit an erosion and sedimentation control plan with the Division of Energy, Mineral, and Land Resources, Land Quality Section. The plan shall be approved prior to commencing the land-disturbing activity.

History Note: *Authority G.S. 113A-107; 113A-118.1;*
Eff. October 1, 2004;
Amended Eff. October 1, 2014; August 1, 2012 (see S.L. 2012-143, s.1.(f));
Readopted Eff. October 1, 2022.

SECTION .2700 – GENERAL PERMIT FOR THE CONSTRUCTION OF MARSH SILLS

15A NCAC 07H .2701 PURPOSE

Persons seeking to construct marsh sills for wetland enhancement and shoreline stabilization in estuarine and public trust waters shall apply for a General Permit according to the rules in this Section. Marsh sills are defined as sills that are shore-parallel structures built in conjunction with existing, created, or restored wetlands. This general permit shall not apply within the Ocean Hazard System AECs or waters adjacent to these AECs with the exception of those portions of shoreline within the Inlet Hazard Area AEC that feature characteristics of Estuarine Shorelines. Such features include the presence of wetland vegetation, lower wave energy, and lower erosion rates than in the adjoining Ocean Erodible Area. A Division of Coastal Management representative will make the determination whether the site features characteristics of the Estuarine Shoreline at the time of permit application.

History Note: *Authority G.S. 113A-107; 113A-118.1;*
Temporary Adoption Eff. June 15, 2004;
Eff. April 1, 2005;
Temporary Amendment Eff. April 1, 2019;
Amended Eff. July 1, 2019;
Readopted Eff. October 1, 2022.

15A NCAC 07H .2702 APPROVAL PROCEDURES

(a) An applicant for a General Permit under this Subchapter shall contact the Division of Coastal Management at the Regional Office indicated on the map located at https://ncdenr.maps.arcgis.com/apps/webappviewer/index.html?id=1a5881ec85ca40679988982e02665b51 and request approval for development as defined in G.S. 113A-130(5).

(b) The applicant shall provide:

(1) the site location, dimensions of the project area, and his or her name and address; and

(2) confirmation that a written statement has been obtained, signed by the adjacent riparian property owners, indicating that they have no objections to the proposed work; or

(3) confirmation that the adjacent riparian property owners have been notified by certified mail of the proposed work. The notice shall instruct adjacent property owners to provide any comments on the proposed development in writing for consideration to the Division of Coastal Management within 10 days of receipt of the notice and indicate that no response by the adjacent property owners will be interpreted as the adjacent property owners having no objection. Division staff shall review all comments and determine, based on their relevance to the potential impacts of the proposed project, if the proposed project can be approved by a General Permit. If Division staff finds that the comments are worthy of more in-depth review, the Division shall notify the applicant that he or she must submit an application for a major development permit.

(c) No work shall begin until an on-site meeting is held with the applicant and a Division of Coastal Management representative to review the proposed development. A permit to proceed with the proposed development shall be issued if the Division representative finds that the application meets all the requirements of this Subchapter. Construction permitted under this Section shall be completed within 120 days of permit issuance or such permit shall expire. If the applicant seeks a new permit under this Section, the Division of Coastal Management shall re-examine the proposed development to determine if the General Permit may be reissued.

(d) Any modification or addition to the permitted project shall require approval from the Division of Coastal Management.

History Note: *Authority G.S. 113A-107; 113A-118.1;*
Temporary Adoption Eff. June 15, 2004;
Eff. April 1, 2005;
Amended Eff. October 1, 2007;
Readopted Eff. October 1, 2022.

15A NCAC 07H .2703 PERMIT FEE

The applicant shall pay a permit fee of two hundred dollars ($200.00). This fee shall be paid by check or money order made payable to the Department of Environmental Quality.

History Note: *Authority G.S. 113A-107; 113A-118.1; 113A-119.1;*
Temporary Adoption Eff. June 15, 2004;
Eff. April 1, 2005;
Amended Eff. September 1, 2006;
Readopted Eff. October 1, 2022.

15A NCAC 07H .2704 GENERAL CONDITIONS

(a) Permittees shall allow authorized representatives of the Department of Environmental Quality (DEQ) to make inspections at any time in order to ensure that the activity being performed under authority of this General Permit set forth in this Section is in accordance with the terms and conditions prescribed herein.

(b) The placement of marsh sills authorized in these Rules shall not interfere with the established or traditional rights of navigation of the waters by the public.

(c) The permit set forth in this Section shall not be applicable to proposed construction where the Department has determined, based on an initial review of the application, that notice and review pursuant to G.S. 113A-119 is because there are unresolved questions concerning the proposed activity's impact Areas of Environmental Concern.

History Note: *Authority G.S. 113A-107; 113A-118.1;*
Temporary Adoption Eff. June 15, 2004;
Eff. April 1, 2005;
Temporary Amendment Eff. April 1, 2019;
Amended Eff. July 1, 2019;
Readopted Eff. October 1, 2022.

15A NCAC 07H .2705 SPECIFIC CONDITIONS

(a) A General Permit issued pursuant to this Section shall be applicable only for the construction of marsh sill structures built in conjunction with existing, created, or restored wetlands. Planted wetland vegetation shall consist only of native species per G.S. 113A-113(b)(1).
(b) The landward edge of the sill shall be positioned no greater than 30 feet waterward of the normal high water or normal water level or five feet waterward of the existing wetlands, whichever distance is greater.
(c) The permittee shall maintain the authorized sill, including wetlands and tidal inundation, in conformance with the terms and conditions of this permit, or the remaining sill structures shall be removed within 90 days of notification of noncompliance from the Division of Coastal Management.
(d) The height of sills shall not exceed 12 inches above normal high water, normal water level, or the height of the adjacent wetland substrate, whichever is higher.
(e) Sill construction authorized by this permit shall be limited to a maximum length of 500 feet.
(f) The sills shall have at least one five-foot opening every 100 feet and may be staggered, overlapped, or left open as long as the five-foot separation between sections is maintained. Overlapping sections shall not overlap more than 10 feet.
(g) The sill structure shall not exceed a slope of a one and a half foot horizontal distance over a one foot vertical rise. The width of the structure on the bottom shall not exceed 12 feet.
(h) For water bodies narrower than 150 feet, no portion of the structures shall be positioned offshore more than one sixth (1/6) the width of the waterbody at any point along its alignment.
(i) The sill shall not be within a navigation channel or associated setbacks marked or maintained by a state or federal agency.
(j) The sill shall not interfere with leases or franchises for shellfish culture.
(k) All structures shall have a minimum setback distance of 15 feet between any parts of the structure and the adjacent property owner's riparian access corridor, unless either a signed waiver statement is obtained from the adjacent property owner or the portion of the structure within 15 feet of the adjacent riparian access corridor is located no more than 25 feet from the normal high or normal water level. The riparian access corridor line is determined by drawing a line parallel to the channel, then drawing a line perpendicular to the channel line that intersects with the shore at the point where the upland property line meets the water's edge, as illustrated in 15A NCAC 07H .1205(t). Additionally, the sill shall not interfere with the exercise of riparian rights by adjacent property owners, including access to navigation channels from piers, or other means of access.
(l) Sills shall be marked at 50-foot intervals with yellow reflectors extending at least three feet above normal high water or normal water level and shall be maintained for the life of the structure.
(m) If the crossing of wetlands with mechanized construction equipment is necessary, temporary construction mats shall be utilized for the areas to be crossed. The temporary mats shall be removed upon completion of the construction of the sill structure. Material used to construct the sill shall not be stockpiled on existing wetlands or in open water unless contained in a containment structure supported by construction mats.
(n) Sedimentation and erosion control measures shall be implemented to ensure that eroded materials do not enter adjacent wetlands or waters.
(o) No excavation or filling, other than that necessary for the construction and bedding of the sill structure, is authorized by this general permit.
(p) Sills shall not be constructed within any native submerged aquatic vegetation. If submerged aquatic vegetation is present within a project area, a submerged aquatic vegetation survey shall be completed during the growing season of April 1 through September 30. All sills shall have a minimum setback of 10 feet from any native submerged aquatic vegetation as defined by the N.C. Marine Fisheries Commission.

(q) Sills shall not be constructed within any habitat that includes oyster reefs or shell banks. All sills shall have a minimum setback of 10 feet from any oysters, oyster beds, or shell banks.
(r) No excavation of the shallow water bottom or any wetland is authorized by this general permit.
(s) The sill material shall consist of clean rock, marl, oyster shell, or masonry materials such as granite or broken concrete, or other similar materials that are approved by the N.C. Division of Coastal Management. Sill material shall be free of loose sediment or exposed rebar. The sill material shall be of sufficient size and slope to prevent its movement from the approved alignment by wave or current action.

History Note: *Authority G.S. 113A-107; 113A-113(b)(1); 113A-118.1;*
Temporary Adoption Eff. June 15, 2004;
Eff. April 1, 2005;
Amended Eff. August 1, 2012 (see S.L. 2012-143, s.1.(f));
Temporary Amendment Eff. April 1, 2019;
Amended Eff. July 1, 2019;
Readopted Eff. October 1, 2022.

b) 15A NCAC 07J

SUBCHAPTER 07J - PROCEDURES FOR PROCESSING AND ENFORCEMENT OF MAJOR AND MINOR DEVELOPMENT PERMITS, VARIANCE REQUESTS, APPEALS FROM PERMIT DECISIONS, DECLARATORY RULINGS, AND STATIC LINE EXCEPTIONS

SECTION .0100 - DEFINITIONS

15A NCAC 07J .0101 STATUTORY DEFINITIONS

All definitions set out in G.S. 113A-100 through -128 and in G.S. 113-229 apply herein.

History Note: *Authority G.S. 113-229; 113A-103(5)(a); 113A-118; 113A-124;*
Eff. March 15, 1978;
Amended Eff. November 1, 1984;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018.

15A NCAC 07J .0102 GENERAL DEFINITIONS

The following definitions apply whenever these words are used in this Subchapter:

(1) "Areas of Environmental Concern" (AECs) means geographic areas within the coastal area which the Coastal Resources Commission chooses to designate for special environmental and land use regulations. The types of areas which may be designated as AECs are described in G.S. 113A-113. Areas which have already been designated are defined in 15A NCAC 07H, "State Guidelines for Areas of Environmental Concern."

(2) "Department" (DEQ) means the North Carolina Department of Environmental Quality.

(3) "Excavation Project" means any moving, digging, or exposing of bottom materials, marshland substrate, or root or rhizome matter in the estuarine waters, tidelands, marshlands and State-owned lakes, regardless of the equipment or method used.

(4) "Filling Project" means the placing of any materials in estuarine waters, tidelands, marshlands, and State-owned lakes so as to raise the elevation of the area upon which the material is placed. Structure placement does not constitute a filling or excavation project. The placement of shell material specifically for the purpose of oyster culture also shall not be considered a filling project.

(5) "Local Management Program" means the local implementation and enforcement program of a coastal city or county that has undertaken to administer a permit program for minor development in areas of environmental concern located within such city or county.

(6) "Local Permit Officer" refers to the locally designated official who will administer and enforce the minor development permit program in areas of environmental concern and all parts of the land use plan which the local government may wish to enforce over the entire planning area.

(7) "Division" means the Division of Coastal Management.

(8) "Permit" refers to CAMA major development permits, CAMA minor development permits and dredge and fill permits unless the context clearly indicates otherwise.

(9) "Secretary" refers to the Secretary of Environment and Natural Resources.

History Note: *Authority G.S. 113-229; 113A-116; 113A-117; 113A-118;*
Eff. March 15, 1978;
Amended Eff. June 1, 2006; April 1, 1997; May 1, 1990; November 1, 1984;
Readopted Eff. October 1, 2022.

SECTION .0200 - APPLICATION PROCESS

15A NCAC 07J .0201 PERMIT REQUIRED

After March 1, 1978, every person wishing to undertake any development in an area of environmental concern shall obtain a permit from the Department, in the case of a major development or dredge and fill permit, or from the local permit officer, in the case of a minor development permit, unless such development is exempted by the Commission.

History Note: *Authority G.S. 113-229; 113A-118; 113A-124;*
Eff. March 15, 1978;
Amended Eff. November 1, 1984;

Readopted Eff. October 1, 2022.

15A NCAC 07J .0202 PERMIT APPLICATIONS

(a) Any person seeking to obtain a permit for a major development and/or dredge and fill project is required to file with the Department an application completed in accordance with 15A NCAC 07J .0204(b)(1) through (7).

(b) Any person seeking to obtain a permit for a minor development project is required to file with the local permit officer a completed application form as adopted and approved by the Coastal Resources Commission and in accordance with the minor permit provisions in 15A NCAC 07J .0204.

(c) Regardless of whether any advice or information was provided by other persons, including department officials, the applicant is responsible for the accuracy and completeness of the information provided in the application.

History Note: *Authority G.S. 113-229; 113A-119; 113A-124(b);*
Eff. March 15, 1978;
Amended Eff. December 1, 1985; May 1, 1985; November 1, 1984; November 1, 1983;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018.

15A NCAC 07J .0203 PREPARATION OF WORK PLATS

(a) General. Project plans or work plats must include a top or planview, a cross-sectional view, and a location map. All plats must have the standard north arrow. North should be at the top of the plat. The prints must be neat and sufficiently clear to permit photographic reproduction. Originals are preferred as copies are often found to be unacceptable. The applicant should use as few sheets as necessary to show clearly what is proposed. Work plats must be accurately drawn to scale. A scale of 1" = 200' or less is normally required in order that project detail can be easily understood.

(b) Details of Work Plats

(1) Topview or Planview Plats. Such drawings must show existing and proposed features such as dune systems, shorelines, creeks, marshlands, docks, piers, bulkheads, excavated areas, fill areas, type and location of sewage treatment facilities and effluent outlets. Existing water depths must be indicated using mean low water as base or zero. These can be shown either as contours or spot elevation. Care should be used in indicating which features are existing and which are proposed. Property boundaries, as they appear on the deed, and the names of adjacent property owners must be shown on the detailed plat. The work plat must clearly show any areas to be excavated and exact locality for disposal of the excavated material. When fill material is to be placed behind a bulkhead or dike, the plan must be sufficiently detailed to show the exact location of such bulkheads or dikes, and the adequacy of the bulkhead or dike to confine the material. Drawings must indicate approximate mean low and mean high water lines and the presence of marsh in the area of proposed work. In areas where the difference in daily low and high tides is less than six inches, only an average water level must be indicated.

(2) Cross-Section Drawing. A cross-sectional diagram showing depth and elevation of proposed work relative to existing ground level -- mean low and mean high water line must be included in the plan. The mean low water must be the reference for water depths and land elevations (i.e., mean low water should be depicted as "Elevation 0.0 MLW"). First floor elevations relative to mean sea level must be shown for any proposed buildings.

(3) Location Map. A map of small scale showing the location of the proposed work is also required. The location map must provide adequate information to locate the project site.

(4) Title of Drawing. Each drawing must have a simple title block to identify the project or work, and shall include name of applicant, date the plat was prepared, and scale of the plat. The date of any revisions must be clearly noted. The applicant must also include the name of the person who drew the plat.

(c) Applications are often made for permits to authorize projects that have a portion of the development outside Areas of Environmental Concern. Some information concerning plans for development outside AECs is necessary to determine compatibility with the local Land Use Plan and to be reasonably sure that such development will not adversely impact AECs. Therefore, any application for a CAMA or Dredge and Fill permit shall include, at a minimum, the following information:

(1) detailed information on any development located in or directly impacting an AEC;

(2) a plat showing the entire tract of land to be developed and possible access or roadway locations;

(3) maps or statements concerning the location of wetlands within the project area to the extent that a wetlands examination has been made by a private consultant or government agency. Each developer of a project is urged, for his own protection and planning, to procure such information prior to submission for a CAMA permit;

(4) a narrative description of the proposed development that shall include, at a minimum, the following information:

(A) the character of the development (i.e. residential, commercial, recreational, etc.);

(B) the maximum number of residential living units that will be permitted;

(C) the maximum acreage that will be utilized for non-residential purposes;

(D) a statement as to whether wastewater treatment is to be by municipal system, septic tank, or other on-site treatment system. A general description of any on-site treatment system shall be included;

(E) a statement that access, as required by all land use regulations, is available through the site to the Area of Environmental Concern without crossing any Section +404= wetland or, if such a crossing is required, a statement that said crossing is properly authorized. If the site contains significant wetlands, such statement may be required from a qualified private consultant or government agency, based on an examination of the property by such private consultant or government agency. The CAMA permit when issued may be conditioned upon the procurement of any required wetlands permit, if the need for such is disclosed by such statement;

(5) any maps or plans that have been prepared to meet other regulatory requirements such as stormwater management and sedimentation and erosion control.

Following review of the permit application, including the aforementioned supporting data (Subparagraphs 1-5), a permit may be issued conditioned upon compliance with the development parameters provided in the narrative statement accompanying the application. Any subsequent violation of these narrative standards as incorporated within the permit shall be a permit violation. No subsequent permit, permit modification, or other agency approval shall be required for any subsequent work performed outside the Area of Environmental Concern as long as such work is within the parameters described in the narrative statement presented with the permit, and included in the permit conditions. Any subsequent change in the development which changes the parameters of the narrative, statement shall be submitted to the staff, but no new permit or permit modification shall be required unless staff finds that the changes would have reasonable expectation of adversely affecting an Area of Environmental Concern or rendering the project inconsistent with Local Land Use Plans. Nothing in this Rule would prohibit an applicant from proceeding with work outside an AEC that cannot reasonably be determined to have a direct adverse impact on the AEC while a permit application for work in the AEC is pending provided that all other necessary local, state, and federal permits have been obtained.

History Note: *Authority G.S. 113A-119; 113A-124;*
Eff. March 15, 1978;
Amended Eff. July 1, 1989;
RRC objection due to lack of statutory authority, ambiguity, lack of necessity, and failure to comply with the APA Eff. September 17, 2022.

15A NCAC 07J .0204 PROCESSING THE APPLICATION

(a) On receipt of a CAMA major development and/or dredge and fill permit application by the Department, a letter shall be sent to the applicant acknowledging receipt.

(b) Application processing shall begin when an application is accepted as complete. Before an application will be accepted as complete, the following requirements must be met;

(1) a current application form must be submitted;

(2) all questions on the application form must be completed or the letters "N/A" must be placed in each section that does not apply;

(3) an accurate work plan as described in 15A NCAC 7J .0203 herein must be attached to all CAMA major development and/or dredge and fill permit applications;

(4) a copy of a deed or other instrument under which the applicant claims title must accompany a CAMA major development and/or dredge and fill permit application;

(5) notice to adjacent riparian landowners must be given as follows:

(A) Certified return mail receipts (or copies thereof) indicating that adjacent riparian landowners (as identified in the permit application) have been sent a copy of the application for the proposed development must be included in a CAMA major development and/or dredge and fill permit application. Said landowners have 30 days from the date of notification in which to comment. Such comments will be considered by the Department in reaching a final decision on the application.

(B) For CAMA minor development permits, the applicant must give actual notice of his intention to develop his property and apply for a CAMA minor development permit to all adjacent riparian landowners. Actual notice can be given by sending a certified letter, informing the adjoining property owner in person or by telephone, or by using any other method which satisfies the Local Permit Officers that a good faith effort has been made to provide the required notice;

(6) the application fee must be paid as set out in this Subparagraph:

(A) Major development permit - Application fees shall be in the form of a check or money order payable to the Department. The application fee for private, non-commercial development shall be two hundred fifty dollars ($250.00). The application fee for a public or commercial project shall be four hundred dollars ($400.00).

(B) Minor development permit - Application fees shall be in the form of a check or money order payable to the permit-letting agency in the amount of one hundred dollars ($100.00). Monies so collected may be used only in the administration of the permit program;

(7) any other information the Department or local permit officer deems necessary for a review of the application must be provided. Any application not in compliance with these requirements will be returned to the applicant along with a cover letter explaining the deficiencies of the application and will not be considered accepted until it is resubmitted and determined to be complete and sufficient. If a local permit officer receives an application for a permit that the local permit officer lacks authority to grant, the permit officer shall return the application with information as to how the application may be properly considered; and

(8) for development proposals subject to review under the North Carolina Environmental Policy Act (NCEPA), G.S. 113A-100 et. seq., the permit application will be complete only on submission of the appropriate environmental assessment document.

(c) Upon acceptance of a major development and/or dredge and fill permit as complete, the Department shall send a letter to the applicant setting forth the data on which acceptance was made.

(d) If the application is found to be incomplete or inaccurate after processing has begun or if additional information from the applicant is necessary to adequately assess the project, the processing shall be terminated pending receipt of the necessary changes or necessary information from the applicant. During the pendency of any termination of processing, the permit processing period shall not run. If the changes or additional information significantly alters the project proposal, the application shall be considered new and the permit processing period will begin to run from that date.

(e) Any violation occurring at a proposed project site for which an application is being reviewed shall be processed according to the procedures in 15A NCAC 7J .0408 - 0410. If the violation substantially altered the proposed project site, and restoration is deemed necessary, the applicant shall be notified that processing of the application will be suspended pending compliance with the notice of required restoration. Satisfactory restoration of any unauthorized development that has substantially altered a project site is deemed necessary to allow a complete review of the application and an accurate assessment of the project's potential impacts. The applicant shall be notified that permit processing has resumed, and that a new processing deadline has been established once the required restoration has been deemed satisfactory by the Division of Coastal Management or Local Permit Officer.

(f) If during the public comment period a question is raised as to public rights of access across the subject property, the Division of Coastal Management shall examine the access issue prior to making a permit decision. Any individual or governmental entity initiating action to judicially recognize a public right of access must obtain a court order to suspend processing of the permit application. Should the parties to legal action resolve the issue, permit processing shall continue.

History Note: *Authority G.S. 113-229; 113A-119; 113A-119.1; 113A-122(c); 113A-124;*
Eff. March 15, 1978;
Amended Eff. November 1, 1991; March 1, 1991; July 1, 1990; July 1, 1989;

Temporary Amendment Eff. September 2, 1998;
Temporary Amendment Expired June 28, 1999;
Amended Eff. August 1, 2000;
RRC objection due to ambiguity Eff. September 17, 2022.

15A NCAC 07J .0205 ACCEPTANCE OF AN APPLICATION

History Note: *Authority G.S. 113A-118(c); 113A-122(a);*
Eff. March 15, 1978;
Amended Eff. August 1, 1983; May 1, 1983;
Repealed Eff. November 1, 1983.

15A NCAC 07J .0206 PUBLIC NOTICE OF THE PROPOSED DEVELOPMENT

Within a reasonable time after receiving an application for a major development permit, a significant modification to an application for a major permit, or an application to modify substantially a previously issued major permit, the Division of Coastal Management shall issue public notice of the proposed development as provided in G.S. 113A-119(b). Any citizen or group will, upon request, be promptly sent a copy of the application upon payment of a reasonable fee to cover costs of copying, handling, and posting.

History Note: *Authority G.S. 113A-119(b);*
Eff. March 15, 1978;
Amended Eff. January 1, 1990; October 1, 1988; November 1, 1983;
RRC objection due to lack of statutory authority, ambiguity, and lack of necessity Eff. September 17, 2022.

15A NCAC 07J .0207 AGENCY REVIEW/COMMENTS: MAJOR DEVELOPMENT/DREDGE AND FILL

(a) In order to determine the impact of the proposed project, the Department shall prepare a field report on each major development and/or dredge and fill permit application accepted for processing. Such report shall be prepared after an on-site investigation is made, preferably in the presence of the applicant or his agent. The report will include such topics as project location, environmental setting, project description and probable environmental impact but will not include recommendations of the office.
(b) The Department will circulate major development permit applications to the several state review agencies having expertise in the criteria enumerated in G.S. 113A-120.
(c) The Department will circulate dredge and fill permit applications to the several state review agencies having expertise in those matters enumerated in G.S. 113- 229(e)(1) - (5).
(d) Each reviewing agency may make an independent analysis of the application and submit recommendations and comments to the Department. Such recommendations and comments will be considered by the Department in taking action on a permit application.
(e) Each reviewing agency may request additional information (including Stormwater Management Plans) from the applicant through the Division of Coastal Management if such information is deemed necessary for a thorough and complete review of the application. The applicant will be notified of the requirement for additional information and permit processing will be suspended according to 15A NCAC 7J .0204(d).
(f) The Division of Coastal Management is one of the state agencies that comments on dredge and fill project applications. In its role as a commenting agency the Division will use criteria in 15A NCAC 7H and local land use plans to assess whether to recommend permit issuance, permit issuance with conditions, or permit denial. Other commenting state agencies will make assessments, in accordance with Paragraph (c) of this Rule.

History Note: *Authority G.S. 113-229; 113A-124(a)(1);*
Eff. March 15, 1978;
Amended Eff. July 1, 1989; October 1, 1988; September 1, 1985; November 1, 1984;
RRC objection due to lack of statutory authority Eff. September 17, 2022.

15A NCAC 07J .0208 PERMIT CONDITIONS

(a) Each of the several state review agencies may submit specific recommendations regarding the manner in which the requested work should be carried out and suggest reasonable limitations on the work in order to protect the

public interest with respect to the factors enumerated in G.S. 113A-120 and/or G.S. 113-229(c). The several state review agencies also may submit specific recommendations regarding limitations to be placed on the operation and/or maintenance of the completed project, as necessary to ensure continued protection of the public interest with respect to those factors. Such limitations may be recommended by the Department or commission to be imposed on the project in the form of "permit conditions". Upon the failure of the applicant to appeal a permit condition, the applicant will be deemed to have amended his permit to conform to the conditions imposed by the Department. Compliance with operational and/or maintenance conditions must continue for the life of the project.

(b) The local permit officer may condition a minor development permit upon amendment of the proposed project to take whatever measures may be reasonably necessary to protect the public interest with respect to the factors enumerated in G.S. 113A-120. The applicant must sign the conditioned grant as an indication of amendment of the proposed project in a manner consistent with the conditions set out by the local permit officer before the permit shall become effective.

(c) Failure to comply with permit conditions constitutes a violation of an order of the Commission under G.S. 113A-126.

History Note: *Authority G.S. 113A-120(b); 113A-124(a)(1); 113A-124(c)(5);*
Eff. March 15, 1978;
Amended Eff. March 1, 1985; November 1, 1984;
RRC objection due to lack of statutory authority Eff. September 17, 2022.

15A NCAC 07J .0209 ISSUANCE OF PERMITS

(a) The Commission hereby delegates to the Department the authority to issue or deny CAMA permits. The decision to issue or deny the permit will be based on the criteria set forth in G.S. 113A-120, the standards for development set forth in 15A NCAC, Subchapters 7H and 7M, and any other applicable rules adopted by the Commission. The Department may condition issuance of permits on such conditions as are considered necessary to ensure compliance with these criteria and standards. The Department's decisions to grant or deny CAMA permits may be appealed as provided in G.S. Chapter 150B, G.S. 113A-121.1, and 15A NCAC 7J Section .0300.

(b) The Department will make a final decision with respect to a dredge and fill permit application as provided in G.S. 113-229(e) upon considering the field investigation report, the comments of all interested state agencies, the comments of adjacent riparian landowners and the comments of other interested parties. The Department's decisions to grant or deny dredge and fill permits may be appealed as provided in G.S. Chapter 150B, G.S. 113-229, and 15A NCAC 7J Section .1000.

(c) In cities and counties that have developed local management programs, applications for minor development permits shall be considered by the local permit officer. The decision to issue or deny the permit will be based on the applicable criteria set forth in G.S. 113A-120, the applicable standards for development set forth in 15A NCAC, Subchapters 7H and 7M, and any other applicable rules adopted by the Commission. The local permit officer may condition issuance of a permit on such conditions as are considered necessary to ensure compliance with criteria and standards. A city's or county's decision to grant or deny a CAMA minor development permit may be appealed as provided in G.S. Chapter 150B, G.S. 113A-121.1, and 15A NCAC 7J Section .0300.

History Note: *Authority G.S. 113-229; 113A-118(c); 113A-122(c); 113A-124;*
Eff. March 15, 1978;
Amended Eff. October 1, 1988; November 1, 1984; September 6, 1979; March 5, 1979;
Readopted Eff. October 1, 2022.

15A NCAC 07J .0210 REPLACEMENT OF EXISTING STRUCTURES

Replacement of structures damaged or destroyed by natural elements, fire or normal deterioration is considered development and requires CAMA permits. Replacement of structures shall be permitted if the replacement is consistent with current CRC rules. Repair of structures damaged by natural elements, fire or normal deterioration is not considered development and shall not require CAMA permits. The CRC shall use the following criteria to determine whether proposed work is considered repair or replacement.

(1) NON-WATER DEPENDENT STRUCTURES. Proposed work is considered replacement if the Department determines that the cost to do the work exceeds 50 percent of the market value of an existing structure either prior to a catastrophic event such as a fire or hurricane or if there is no catastrophic event, at the time of the request market value and costs are determined as follows:

(a) The market value of the structure shall be determined by the Division based on information provided by the applicant that is no more than one year old as of the date the request is made. The market value of the structure shall not include the value of the land or value resulting from the location of the property, the value of accessory structures, or the value of other improvements located on the property. The information provided by the applicant may include any of the following:
    (i) an appraisal;
    (ii) the replacement cost with depreciation for age of the structure and quality of construction; or
    (iii) the tax assessed value.

(b) The cost to do the work is the cost to return the structure to its pre-damaged condition, using labor and materials obtained at market prices, regardless of the actual cost incurred by the owner to restore the structure. It shall include the costs of construction necessary to comply with local and state building codes. The cost shall be determined by the Division utilizing any or all of the following provided by the applicant:
    (i) an estimate provided by a North Carolina licensed contractor qualified by license to provide an estimate or bid with respect to the proposed work;
    (ii) an insurance company's report itemizing the cost, excluding contents and accessory structures; or
    (iii) an estimate provided by the local building inspections office.

(2) WATER DEPENDENT STRUCTURES. The proposed work is considered replacement if it enlarges the existing structure in any dimension. The proposed work is also considered replacement if:

(a) in the case of fixed docks, piers, platforms, boathouses, boatlifts, and free standing moorings, more than 50 percent of the framing and structural components (beams, girders, joists, stringers, or pilings) must be rebuilt in order to restore the structure to its pre-damage condition. Water dependent structures that are structurally independent from the principal pier or dock, such as boatlifts or boathouses, are considered as separate structures for the purpose of this Rule;

(b) in the case of boat ramps and floating structures such as docks, piers, platforms, and modular floating systems, more than 50 percent of the square feet area of the structure must be rebuilt in order to restore the structure to its pre-damage condition;

(c) in the case of bulkheads, seawalls, groins, breakwaters, and revetments, more than 50 percent of the linear footage of the structure must be rebuilt in order to restore the structure to its pre-damage condition.

History Note: *Authority G.S. 113A-103(5)b.5.; 113A-107(a),(b);*
Eff. July 1, 1990;
Amended Eff. August 1, 2007;
Readopted Eff. January 1, 2023.

15A NCAC 07J .0211 NON-CONFORMING DEVELOPMENT

A non-conforming structure is any structure within an AEC other than Ocean Hazard and Inlet Hazard AECs that is inconsistent with current CRC rules, and was built prior to the effective date(s) of the rule(s) with which it is inconsistent. Replacement of such structures shall be allowed when all of the following criteria are met:

(1) the structure shall not be enlarged beyond its original dimensions;

(2) the structure shall serve the same or similar use;

(3) there are no alternatives for replacing the structure to provide the same or similar benefits to the structure owner in compliance with current rules; and

(4) the structure will be rebuilt so as to comply with current rules to the maximum extent possible.

History Note: *Authority G.S. 113A-107(a),(b);*
Eff. July 1, 1990;
Amended Eff. December 1, 1991;
Readopted Eff. October 1, 2022.

SECTION .0300 - HEARING PROCEDURE

15A NCAC 07J .0301 WHO IS ENTITLED TO A CONTESTED CASE HEARING

Under G.S. 113A-121.1(b), persons other than those entitled to a contested case hearing on a permit decision under Paragraph (a) of this Rule may file a request for such a hearing and with the Director, Division of Coastal Management, Department of Environmental Quality (DEQ), 400 Commerce Avenue, Morehead City, NC 28557, and a copy shall be filed with the Attorney General's Office, 9001 Mail Service Center, Raleigh, NC 27699-9001. The Commission hereby delegates to the Chair the authority to determine whether persons other than those entitled to a hearing shall be granted a hearing.

History Note: *Authority G.S. 113-229; 113A-118(a); 113A-121.1; 113A-124;*
Eff. March 15, 1978;
Amended Eff. July 1, 1990; October 1, 1988; November 1, 1984;
RRC Objection due to lack of Statutory Authority Eff. February 20, 1992;
Amended Eff. March 31, 1992;
RRC Objection due to lack of Statutory Authority Eff. March 19, 1992;
Amended Eff. June 1, 2005; April 1, 1992;
Readopted Eff. October 1, 2022.

15A NCAC 07J .0302 PETITION FOR CONTESTED CASE HEARING

(a) Any petition shall conform to the requirements of G.S. 150B-23. A copy of the petition shall be served on the Director, Division of Coastal Management, 400 Commerce Avenue, Morehead City NC 28557, and on the Attorney General's Office, 9001 Mail Service Center, Raleigh, NC 27699-9001. If a minor development permit is appealed, a copy of the petition shall also be served on the local permit officer. Failure to file any petition within the time period in G.S. 113A-121.1 (a) and (b) constitutes a waiver of the opportunity for a contested case hearing.
(b) Upon the request of the Director, the local permit officer shall submit a certified copy of the entire record of any minor permit decision which is being appealed to the Director. The record shall include the elements indicated in 15A NCAC 07I .0508(c).

History Note: *Authority G.S. 113-229; 113A-118(a); 113A-121.1; 113A-124;*
Eff. March 15, 1978;
Amended Eff. July 1, 1990; October 1, 1988; November 1, 1984; July 1, 1982;
RRC Objection due to lack of Statutory Authority Eff. February 20, 1992;
Amended Eff. March 31, 1992;
RRC Objection due to lack of Statutory Authority Eff. March 19, 1992;
Amended Eff. June 1, 2005; April 1, 1992;
Readopted Eff. October 1, 2022.

15A NCAC 07J .0303 CONTESTED CASE HEARING PROCEDURES

(a) All contested case hearings shall be heard before an administrative law judge assigned by the Office of Administrative Hearings.
(b) All contested case hearings shall be governed by the procedures in Article 3 of Chapter 150B of the General Statutes and in Title 26 North Carolina Administrative Code except to the extent and in the particulars that Chapters 113 and 113A of the General Statutes make specific provision to the contrary.

History Note: *Authority G.S. 113-229; 113A-122(b); 113A-124;*
Eff. March 15, 1978;
Amended Eff. January 1, 1989; November 1, 1984; July 1, 1982; October 15, 1981;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018.

15A NCAC 07J .0304 VENUE

History Note: *Authority G.S. 113A-124(c)(5); 150B-24;*
Eff. March 15, 1978;
Amended Eff. July 1, 1982;

Repealed Eff. August 1, 1988.

15A NCAC 07J .0305 BURDEN OF PROOF

The burden of proof at any hearing on a permit appeal shall be as provided in G.S. 113A-122(b)(7).

History Note: *Authority G.S. 113A-122(b)(7);*
Eff. March 15, 1978;
Amended Eff. October 1, 1988; July 1, 1982; March 30, 1979;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018.

15A NCAC 07J .0306 ACTION PENDING FINAL DISPOSITION

Pending the final disposition of a hearing allowed under these rules, no action shall be taken which would be unlawful in the absence of an issued CAMA development and/or dredge and fill permit. In cases where the request for a hearing has been denied under Rule .0301(b), development authorized by the permit may be undertaken unless prohibited by an order of the superior court.

History Note: *Authority G.S. 113A-121.1(d) and (e);*
Eff. March 15, 1978;
Amended Eff. July 1, 1989; October 1, 1988; July 1, 1982;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018.

15A NCAC 07J .0307 PRE-HEARING CONFERENCES
15A NCAC 07J .0308 PRESENTATION OF EVIDENCE
15A NCAC 07J .0309 CONDUCT OF THE HEARING
15A NCAC 07J .0310 PROCEDURES FOR APPLICATION HEARINGS: NO PARTIES APPEAR
15A NCAC 07J .0311 POST HEARING PROCEDURES

History Note: *Authority G.S. 113A-121(b)(4)(11); 113A-122(b)(3)(4)(8)(9); 113A-122(c)(5); 113A-124(c)(4)(5); 150B-25,24;*
Eff. March 15, 1978;
Repealed Eff. July 1, 1982.

15A NCAC 07J .0312 SETTLEMENT

(a) Whenever possible, the Commission encourages the resolution of disputes over the grant or denial of CAMA permits and dredge and fill permits.

(b) The Commission hereby delegates to the director the authority to enter into settlements of appeals concerning CAMA permits and dredge and fill permits prior to the time the administrative law judge opens the hearing on the permit appeal. The director may enter into a settlement without the Commission's approval. Such a settlement shall not be considered a final commission decision, but shall be subject to appeal pursuant to G.S. 113A-121.1 and G.S. 113-229(f). The Department shall provide public notice of any settlement entered into prior to the opening of the administrative hearing in the same manner as it provides public notice of permit decisions.

(c) The Commission further delegates to the director the authority to enter into negotiations concerning the settlement of any permit appeal after the opening of the hearing on it. Any settlement after the opening of the hearing on an appeal must be submitted to the Commission for adoption or rejection. All parties to a proposed settlement agreement shall waive the time limitation in G.S. 113A-122(c) so as to prevent the decision being appealed from becoming effective before the Commission's consideration of the proposed settlement. The Commission's adoption of any settlement shall constitute a final commission decision under G.S. 113A-123.

History Note: *Authority G.S. 113A-120; 113A-122; 113A-124;*
Eff. April 1, 1987;
Amended Eff. July 1, 1989; October 1, 1988;
RRC objection due to lack of statutory authority Eff. September 17, 2022.

SECTION .0400 - FINAL APPROVAL AND ENFORCEMENT

15A NCAC 07J .0401 FINAL DECISION
15A NCAC 07J .0402 CRITERIA FOR GRANT OR DENIAL OF PERMIT APPLICATIONS

History Note: *Authority G.S. 113-229; 113A-118(c); 113A-120(a)(b), and (c); 113A-122(b); 113A-122(b)(10); 113A-122(c); 113A-124;*
Eff. March 15, 1978;
Amended Eff. January 1, 1992; July 1, 1989; October 1, 1988; September 1, 1988; November 1, 1984; November 1, 1983; August 1, 1983;
Expired Eff. April 1, 2018 pursuant to G.S. 150B-21.3A.

15A NCAC 07J .0403 DEVELOPMENT PERIOD/COMMENCEMENT/CONTINUATION
(a) New dredge and fill permits and CAMA Major permits shall expire five years from the date of permit issuance, with the exception of publicly-sponsored, multi-phased beach nourishment projects, which shall expire 10 years from the date of permit issuance. Minor permits, except those authorizing beach bulldozing when authorized through issuance of a CAMA minor permit, shall expire on December 31 of the third year following the year of permit issuance.
(b) CAMA minor permits authorizing beach bulldozing shall expire 30 days from the date of permit issuance. Following permit expiration, the permit holder is entitled to request an extension in accordance with Rule .0404(a) of this Section.
(c) Development After Permit Expiration. Any development undertaken after permit expiration shall be considered unpermitted and shall constitute a violation of G.S. 113A-118 or G.S. 113-229. Any development to be undertaken after permit expiration shall require a new permit or review in accordance with 15A NCAC 07J .0404(c) as determined by the Division.
(d) Commencement of Development in Ocean Hazard AEC. No development shall begin until the oceanfront setback requirement can be established in accordance with 15A NCAC 07H .0306. When the permit holder or an individual receiving an exception is ready to begin development, they shall arrange an onsite meeting with the Division of Coastal Management or Local Permitting Officer to determine the oceanfront setback. This setback determination shall replace the one completed at the time the permit was processed and approved and development shall begin within 60 days from the date of that meeting. In the case of a shoreline change that reduces the determined setback; a new setback determination may be required. To determine if a new setback is required, additional coordination with the Division of Coastal Management or Local Permitting Officer shall be required before development begins.
(e) Any permit that has been suspended as a result of litigation shall be extended at the permit holder's written request for a period equivalent to the period of permit suspension, but not to exceed the development period authorized under Paragraph (a) of this Rule.

History Note: *Authority G.S. 113A-118; 113A-124(c)(8); 113-229;*
Eff. March 15, 1978;
Amended Eff. August 1, 2002; April 1, 1995; July 1, 1989; March 1, 1985; November 1, 1984;
Readopted Eff. August 1, 2021;
Amended Eff. August 1, 2022.

15A NCAC 07J .0404 DEVELOPMENT PERIOD EXTENSION
(a) For CAMA minor permits authorizing beach bulldozing, the permit holder is entitled to request a one-time 30-day permit extension. No additional extensions shall be granted after the 30-day extension has expired. Notwithstanding this Paragraph, the permit holder is eligible to apply for another minor permit authorizing beach bulldozing following expiration of the 30-day permit extension.
(b) All other CAMA permits may be extended where substantial development, either within or outside the AEC, has begun or is continuing. The permitting authority shall grant as many two-year extensions as necessary to complete the initial development, with the exception that multi-phased beach nourishment projects may be granted ten-year extensions to allow for continuing project implementation. Renewals for maintenance of previously approved dredging projects may be granted for periods not to exceed five years, For the purpose of this Rule, substantial development shall be deemed to have occurred on a project if the permit holder can show that development has progressed beyond basic site preparation, such as land clearing and grading, and construction has begun and is continuing on the primary structure or structures authorized under the permit. For elevated structures in Ocean

Hazard Areas, substantial development begins with the placement of foundation pilings, and proof of the local building inspector's certification that the installed pilings have passed a floor and foundation inspection. For residential subdivisions, installation of subdivision roads consistent with an approved subdivision plat shall constitute substantial development.

(c) To request an extension pursuant to Paragraphs (a) and (b) of this Rule, the permit holder shall submit a signed and dated request containing the following:

(1) a statement of the completed and remaining work;

(2) a statement that there has been no change of plans since the issuance of the original permit other than changes that would have the effect of reducing the scope of the project, or previously approved permit modifications;

(3) notice of any change in ownership of the property to be developed and a request for transfer of the permit; and

(4) a statement that the project is in compliance with all conditions of the current permit.

(d) For extension requests where substantial development has not occurred in accordance with Paragraph (b) of this Rule, the Division of Coastal Management may circulate the request to the commenting State resource agencies along with a copy of the original permit application. Commenting State resource agencies will be given 30 days in which to comment on the extension request. Upon the expiration of the commenting period the Division of Coastal Management will notify the permit holder of its actions on the extension request.

(e) Notwithstanding Paragraphs (b) and (d) of this Rule, an extension request may be denied on making findings as required in either G.S. 113A-120 or G.S. 113-229(e). Changes in circumstances or in development standards shall be considered and applied by the Division of Coastal Management in making a decision on an extension request.

(f) The applicant for a major development extension request shall submit, with the request, a check or money order payable to the Department in the sum of one hundred dollars ($100.00).

History Note: *Authority G.S. 113A-119; 113A-119.1; 113A-120; 113A-124(c)(8); 113-229(e);*
Eff. March 15, 1978;
Amended Eff. August 1, 2002; August 1, 2000; April 1, 1995; March 1, 1991; March 1, 1985; November 1, 1984;
Readopted Eff. August 1, 2021;
Amended Eff. August 1, 2022.

15A NCAC 07J .0405 PERMIT MODIFICATION

(a) A permit holder may modify their permitted major development and/or dredge and fill project only after approval by the Division of Coastal Management. In order to modify a permitted project the permit holder shall make a written request to the Division of Coastal Management showing the proposed modifications. Minor modifications may be shown on the existing approved application and plat. Modification requests which, in the opinion of the Division of Coastal Management are major shall require a new application. Modification requests are subject to the same processing procedure applicable to original permit applications. A permit need not be circulated to all agencies commenting on the original application if the Commission determines that the modification is so minor that circulation would serve no purpose.

(b) Modifications to a permitted project that are imposed or made at the request of the U.S. Army Corps of Engineers or other federal agencies shall be approved by the Division of Coastal Management under provisions of this Rule dealing with permit modification procedures.

(c) Modifications of projects for the benefit of private waterfront property owners that meet the following criteria shall be considered minor modifications and shall not require a new permit application, but shall be approved under the provisions of Paragraph (a) of this Rule:

(1) for bulkheads:

(A) bulkhead shall be positioned so as not to extend more than an average distance of two feet waterward of the mean high water and in no place shall the bulkhead be more than five feet waterward of the mean high water contour;

(B) all backfill must come from an upland source;

(C) no marsh area may be excavated or filled;

(D) work must be undertaken because of the necessity to prevent loss of private residential property due to erosion;

(E) the bulkhead must be constructed prior to any backfilling activities;

(F) the bulkhead must be constructed so as to prevent seepages of backfill materials through the bulkhead; and
(G) the bulkhead may not be constructed in the Ocean Hazard AEC;

(2) for piers, docks and boathouses:
(A) the modification or addition shall not be within 150 feet of the edge of a federally-maintained channel;
(B) the structure, as modified, must be 200 feet or less in total length offshore;
(C) the structure, as modified, must not extend past the four feet mean low water contour line (four feet depth at mean low water) of the waterbody;
(D) the project as modified, must not exceed six feet in width;
(E) the modification or addition must not include an enclosed structure; and
(F) the project shall continue to be used for private, residential purposes;

(3) for boatramps:
(A) the project, as modified, shall not exceed 10 feet in width and 20 feet offshore; and
(B) the project shall continue to be used for private, residential purposes.

(d) An applicant may modify his permitted minor development project only after approval by the local permit-letting authority. In order to modify a permitted project the applicant must make a written request to the local minor permit-letting authority showing in detail the proposed modifications. The request shall be reviewed in consultation with the appropriate Division of Coastal Management field consultant and granted if all of the following provisions are met:

(1) the size of the project is expanded less than 20 percent of the size of the originally permitted project;
(2) a signed, written statement is obtained from all adjacent riparian property owners indicating they have no objections to the proposed modifications;
(3) the proposed modifications are consistent with all local, State, and federal standards and local Land Use Plans in effect at the time of the modification requests; and
(4) the type or nature of development is not changed.

Failure to meet this Paragraph shall necessitate the submission of a new permit application.

(e) The applicant for a major permit modification shall submit with the request a check or money order payable to the Department in the sum of one hundred dollars ($100.00) for a minor modification and two hundred fifty dollars ($250.00) for a major modification.

History Note: *Authority G.S. 113A-119; 113A-119.1; 113-229;*
Eff. March 15, 1978;
Amended Eff. August 1, 2000; March 1, 1991; August 1, 1986; November 1, 1984;
Readopted Eff. August 1, 2021.

15A NCAC 07J .0406 PERMIT ISSUANCE AND TRANSFER

(a) Upon the approval of an application and the issuance of the permit, the permit shall be delivered to the applicant, or to any person designated by the applicant to receive the permit, by hand, first class mail or any means.

(b) Anyone holding a permit shall not assign, transfer, sell, or otherwise dispose of a permit to a third party, unless approval is granted by the Director of the Division of Coastal Management pursuant to Paragraph (c) of this Rule.

(c) A permit may be transferred to a new party at the discretion of the Director of the Division of Coastal Management upon finding each of the following:

(1) a written request from the new owner or developer of the involved properties;
(2) a deed, a sale, lease, or option to the proposed new party showing the proposed new party as having the sole legal right to develop the project;
(3) that the applicant transferee will use the permit for the purposes for which it was issued;
(4) no change in conditions, circumstances, or facts affecting the project;
(5) no change or modification of the project as proposed in the original application.

(d) A person aggrieved by a decision of the Director as to the transfer of a permit may request a declaratory ruling by the Coastal Resources Commission as per 15A NCAC 07J .0600.

(e) The applicant for a permit transfer shall submit with the request a check or money order payable to the Department in the sum of one hundred dollars ($100.00).

History Note: *Authority G.S. 113A-118(c); 113A-119(a); 113A-119.1; 113A-124(c)(8);*

Eff. March 15, 1978;
Amended Eff. August 1, 2000; March 1, 1991; March 1, 1990; October 15, 1981;
Readopted Eff. June 1, 2021.

15A NCAC 07J .0407 PROJECT MAINTENANCE: MAJOR DEVELOPMENT/DREDGE AND FILL

(a) No project previously requiring a major development or dredge and fill permit shall be maintained after the expiration of the authorized development period without approval from the Division of Coastal Management. Permits may contain provisions that allow the applicant to maintain the project after its completion. Persons wishing to maintain a project beyond the development period and whose permit contains no maintenance provision shall apply for a maintenance permit. This Rule does not apply to maintenance required by rule or by permit condition.

(b) Maintenance Request. Persons desiring to initiate maintenance work on a project pursuant to the maintenance provisions of an existing permit shall file a request two weeks prior to the initiation of maintenance work with:

Department of Environmental Quality
Division of Coastal Management
400 Commerce Avenue
Morehead City, NC 28557

(c) Such requests shall include:

(1) the name and address of the permittee;
(2) the number of the original permit;
(3) a description of proposed changes;
(4) in the case of a dredge and fill maintenance request, a statement that no dimensional changes are proposed;
(5) a copy of the original permit plat with cross-hatching indicating the area to be maintained, any area to be used as spoil, and the estimated amount of material to be removed; and
(6) the date of map revision and the applicant's signature shown anew on the original plat.

(d) Conditions for Maintenance. All work undertaken pursuant to the maintenance provisions of a permit shall comply with the following conditions:

(1) Maintenance work under a major development permit shall be limited to activities which are within the exemptions set forth by the Commission.
(2) Maintenance under a dredge and fill permit shall be limited to excavation and filling which is necessary to maintain the project dimensions as found in the original permit.
(3) Maintenance work is subject to all the conditions included in the original permit.
(4) Spoil disposal shall be in the same locations as authorized in the original permit, provided that the person requesting the authority to maintain a project may request a different spoil disposal site if he or she first serves a copy of the maintenance request on all adjoining landowners.
(5) The maintenance work is subject to any conditions determined by the Department to be necessary to protect the public interest with respect to the factors enumerated in G.S. 113A-120 or G.S. 113-229.

(e) The Division of Coastal Management may suspend or revoke the right to maintain a project in whole or in part upon a finding:

(1) that the project area has been put to a different use from that indicated in the original permit application;
(2) that there has been a change in the impacts associated with the permitted development affecting coastal resources listed in G.S. 113A-113 or G.S. 113A-120(a) that would justify denial of a permit; or
(3) that there has been a violation of any of the terms or conditions of the original permit.

(f) Grant or Denial of Maintenance Request

(1) Upon receipt of a complete maintenance request the Division of Coastal Management shall determine if there are grounds for revocation or suspension of the applicant's right to maintain based on the criteria in Paragraph (e) of this Rule. If there are grounds for revocation or suspension the applicant shall be notified of the suspension or revocation by certified mail, return receipt requested setting forth the findings on which the revocation or suspension is based.
(2) If the Division of Coastal Management determines that the right to maintain should not be revoked or based on the criteria in Paragraph (e) of this Rule, a letter shall be issued which shall authorize the applicant to perform maintenance work. The letter shall set forth the terms and conditions under which the maintenance work is authorized.

(3) If the maintenance request discloses changes in the dimensions of the original project, the Division of Coastal Management shall notify the applicant that a permit modification or renewal shall be required pursuant to the procedure set out in 15A NCAC 07J .0404 and .0405.

(4) Appeal of the Division of Coastal Management action under this Section shall be in accordance with 15A NCAC 07J .0302.

History Note: *Authority G.S. 113A-103(5)c; 113A-120(b); 113A-124(c)(8);*
Eff. March 15, 1978;
Amended Eff. June 1, 2005; December 1, 1991; May 1, 1990; March 1, 1985; November 1, 1984;
Readopted Eff. August 1, 2021.

15A NCAC 07J .0408 VIOLATION OF A PERMIT

History Note: *Authority G.S. 113A-126;*
Eff. March 15, 1978;
Amended Eff. January 25, 1980;
Repealed Eff. August 1, 1989.

15A NCAC 07J .0409 CIVIL PENALTIES

(a) Purpose and Scope. This Rule provides the procedures and standards governing the assessment, remission, settlement, and appeal of civil penalties assessed by the Coastal Resources Commission and the Director pursuant to G.S. 113A-126(d).

(b) Definitions. The terms used in this Rule shall be as defined in G.S. 113A-103 and as follows:

(1) "Act" means the Coastal Area Management Act of 1974, G.S. 113A-100 through 134.

(2) "Delegate" means the Director or other employees of the Division of Coastal Management, or local permit officers to whom the Commission has delegated authority to act pursuant to this Rule.

(3) "Director" means the Director, Division of Coastal Management.

(4) "Respondent" means the person to whom a notice of violation has been issued or against whom a penalty has been assessed.

(c) Investigative costs. In addition to any civil penalty, the costs incurred by the Division for any investigation, inspection, and monitoring associated with assessment the civil penalty may be assessed pursuant to G.S. 113A-126(d)(4a). The amount of investigative costs assessed shall be based upon factors including the amount of staff time required for site visits, investigation, enforcement action, interagency coordination, and for monitoring restoration of the site.

(d) Notice of Violation. The Commission authorizes employees of the Division of Coastal Management to issue in the name of the Commission notices of violation to any person engaged in an activity which constitutes a violation for which a civil penalty may be assessed.

(e) Procedures for Notification of Civil Penalty Assessment.

(1) The Commission delegates to the Director the authority to assess civil penalties according to the procedures set forth in Paragraph (g) of this Rule.

(2) If restoration of affected resources is not required, the Director shall issue a civil penalty assessment within 90 days from the date of the Notice of Violation. If restoration of affected resources is required, the Director may issue a civil penalty assessment within 60 days after the Division determines that restoration of the adversely impacted resources is complete or once the date restoration was required has passed without having been completed.

(f) Procedures for Determining the Amount of Civil Penalty Assessment.

(1) Pursuant to G.S. 113A-126(d)(1), penalties for major development violations, including violations of permit conditions, shall be assessed as follows:

(A) Major development that could have been permitted under the Commission's rules at the time the notice of violation is issued shall be assessed a penalty equal to two times the relevant CAMA permit application fee as set forth in Rule .0204 of this Subchapter, plus investigative costs.

(B) Major development that could not have been permitted under the Commission's rules at the time the notice of violation is issued shall be assessed an amount equal to the relevant CAMA permit application fee, plus a penalty pursuant to Schedule A of this Rule, plus investigative costs. If a violation affects more than one area of environmental concern

(AEC) or coastal resource as listed within Schedule A of this Rule, the penalties for each affected AEC shall be combined not to exceed ten thousand dollars ($10,000) per G.S. 113A-126(d)(1). Any structure or part of a structure that is constructed in violation of existing Commission rules shall be removed or modified as necessary to bring the structure into compliance with the Commission's rules.

SCHEDULE A
Major Development Violations

Penalties for Major Development Permit Violations By Size of Violation (sq. ft.)

Area of Environmental Concern Affected	≤ 100	101-500	501-1,000	1001-3000	3001-5000	5001-8000	8001-11,000	11,001-15,000	15,001-20,000	20,001-25,000	>25,000
Estuarine Waters or Public Trust Areas (1)	$250	$375	$500	$1,500	$2,000	$3,500	$5,000	$7,000	$9,000	$10,000	$10,000
Primary Nursery Areas	$100	$225	$350	$850	$1,350	$2,850	$4,350	$3,000	$1,000	n/a	n/a
Mudflats and Shell Bottom	$100	$225	$350	$850	$1,350	$2,850	$4,350	$3,000	$1,000	n/a	n/a
Submerged Aquatic Vegetation	$100	$225	$350	$850	$1,350	$2,850	$4,350	$3,000	$1,000	n/a	n/a
Coastal Wetlands	$250	$375	$500	$1,500	$2,000	$3,500	$5,000	$7,000	$9,000	$10,000	$10,000
Coastal Shorelines	$250	$350	$450	$850	$1,250	$2,450	$3,650	$5,250	$7,250	$9,250	$10,000
Wetlands (2)	$100	$200	$300	$700	$1,100	$2,300	$3,500	$4,750	$2,750	$750	n/a
ORW- Adjacent Areas	$100	$200	$300	$700	$1,100	$2,300	$3,500	$4,750	$2,750	$750	n/a
Ocean Hazard System (3)(4)	$250	$350	$450	$850	$1,250	$2,450	$3,650	$5,250	$7,250	$9,250	$10,000
Primary or Frontal Dune	$100	$200	$300	$700	$1,100	$2,300	$3,500	$4,750	$2,750	$750	n/a
Public Water Supplies (5)	$250	$350	$450	$850	$1,250	$2,450	$3,650	$5,250	$7,250	$9,250	$10,000
Natural and Cultural Resource Areas (6)	$250	$350	$450	$850	$1,250	$2,450	$3,650	$5,250	$7,250	$9,250	$10,000

(1) Includes the Atlantic Ocean from the normal high water mark to three miles offshore.
(2) Wetlands that are jurisdictional by the Federal Clean Water Act.
(3) If the AEC physically overlaps another AEC, use the greater penalty schedule.
(4) Includes the Ocean Erodible, Inlet Hazard Area, and Unvegetated Beach Area.
(5) Includes Small Surface Water Supply, Watershed and Public Water Supply Well Fields.
(6) Includes Coastal Complex Natural Areas, Coastal Areas Sustaining Remnant Species, Unique Geological Formations, Significant Coastal Archaeological Resources, and Significant Coastal Historical Architectural Resources.

(C) Assessments for violations by public agencies, i.e. towns, counties, and State agencies shall be determined in accordance with Parts (1)(A) and (B) of this Paragraph.

(D) Willful and intentional violations. The penalty assessed in accordance with Parts (1)(A) and (B) of this Paragraph. shall be doubled for willful and intentional violations except that the doubled penalties assessed under this Subparagraph shall not exceed ten thousand dollars ($10,000) or be less than two thousand dollars ($2,000) for each separate violation. For the purposes of G.S. 113A-126(d)(2), the following actions shall be considered willful and intentional:

(i) the person received written instructions from one of the Commission's delegates that a permit would be required for the development and subsequently undertook development without a permit;

(ii) the person received written instructions from one of the Commission's delegates that the proposed development was not permissible under the Commission's rules, or received denial of a permit application for the proposed activity, and subsequently undertook the development without a permit;

(iii) the person committed previous violations of the Commission's rules; or

(iv) the person refused or failed to restore a damaged area as ordered by one of the Commission's delegates.

(E) Assessments against contractors. Any contractor, subcontractor, or person functioning as a contractor shall be subject to a notice of violation and assessment of a civil penalty in accordance with Paragraph (f) of this Rule. Such penalty shall be in addition to that assessed against the landowner. When a penalty is being doubled pursuant to Part (D) of this Subparagraph and the element of willfulness is present only on the part of the contractor, the landowner shall be assessed the standard penalty and the contractor shall be assessed the doubled penalty.

(F) Assessments for Continuing violations.

(i) Pursuant to G.S. 113A-126(d)(2), each day that the violation continues after the date specified in the notice of violation for the unauthorized activity to cease or restoration to be completed shall be considered a separate violation and shall be assessed an additional penalty.

(ii) Refusal or failure to restore a damaged area as directed in the restoration order shall be considered a continuing violation and shall be assessed an additional penalty. When resources continue to be affected by the violation, the amount of the penalty shall be determined according to Part (B) of this Subparagraph. The continuing penalty period shall be calculated from the date specified in the restoration order which accompanies the notice of violation for the unauthorized activity to cease or restoration to be completed and run until:

(I) the Division determines that the terms of the restoration order are satisfied;

(II) the respondent enters into negotiations with the Division; or

(III) the respondent contests the Division's order in a judicial proceeding.

The continuing penalty period shall resume if the respondent terminates negotiations without reaching an agreement with the Division, fails to comply with court ordered restoration, or fails to meet a deadline for restoration that was negotiated with the Division.

(2) Pursuant to G.S. 113A-126(d)(1), penalties for minor development violations, including violations of permit conditions, shall be assessed as follows:

(A) Minor development that could have been permitted under the Commission's rules at the time the notice of violation is issued shall be assessed a penalty equal to two times the relevant CAMA permit application fee, plus investigative costs.

(B) Minor development that could not have been permitted under the Commission's rules at the time the notice of violation is issued shall be assessed an amount equal to the relevant CAMA permit application fee as set forth in Rule .0204 of this Subchapter, plus a penalty pursuant to Schedule B of this Rule, plus investigative costs. If a violation affects more than one area of environmental concern (AEC) or coastal resource as listed within Schedule B of this Rule, the penalties for each affected AEC shall be combined. Any

structure or part of a structure that is constructed in violation of existing Commission rules shall be removed or modified as necessary to bring the structure into compliance with the Commission's rules.

SCHEDULE B
Penalties for Minor Development Permit Violations By Size of Violation

Size of Violation (sq. ft.)

Area of Environmental Concern Affected	≤ 100	101-500	501-1,000	1001-3000	3001-5000	5001-8000	8001-11,000	11,001 - 15,000	15,001 - 20,000	20,001 - 25,000	>25,000
Coastal Shorelines	$225	$250	$275	$325	$375	$450	$525	$625	$750	$875	$1,000
ORW- Adjacent Areas	$125	$150	$175	$225	$275	$350	$425	$375	$250	$125	n/a
Ocean Hazard System (1)(2)	$225	$250	$275	$325	$375	$450	$525	$625	$750	$875	$1,000
Primary or Frontal Dune	$125	$150	$175	$225	$275	$350	$425	$375	$250	$125	n/a
Public Water Supplies (3)	$225	$250	$275	$325	$375	$450	$525	$625	$750	$875	$1,000
Natural and Cultural Resource Areas (4)	$225	$250	$275	$325	$375	$450	$525	$625	$750	$875	$1,000

(1) Includes the Ocean Erodible, Inlet Hazard Area, and Unvegetated Beach Area.

(2) If the AEC physically overlaps another AEC, use the greater penalty schedule.

(3) Includes Small Surface Water Supply Watersheds, defined in 15A NCAC 07H .0404 and Public Water Supply Well Fields, defined in 15A NCAC 07H .0406.

(4) Includes Coastal Complex Natural Areas, Coastal Areas Sustaining Remnant Species, Unique Geological Formations, Significant Coastal Archaeological Resources, and Significant Coastal Historical Architectural Resources as defined in 15A NCAC 07H .0505, .0506, .0509, and .0510.

(C) Violations by public agencies , e.g., towns, counties, and State agencies, shall be handled by the local permit officer or one of the Commission's delegates within their respective jurisdictions except that in no case shall a local permit officer handle a violation committed by the local government they represent. Penalties shall be assessed in accordance with Parts (A) and (B) of this Subparagraph.

(D) Willful and intentional violations. The penalty assessed under Parts (A) and (B) of this Subparagraph shall be doubled for willful and intentional violations except that the doubled penalties assessed under this Subparagraph shall not exceed one thousand dollars ($1,000.00) for each separate violation. For the purposes of G.S. 113A-126(d)(2), the following actions shall be considered willful and intentional:

(i) the person received written instructions from the local permit officer or one of the Commission's delegates that a permit would be required for the development and subsequently undertook development without a permit;

(ii) the person received written instructions from the local permit officer or one of the Commission's delegates that the proposed development was not permissible under the Commission's rules, or received denial of a permit application for the proposed activity, and subsequently undertook the development without a permit;

(iii) the person committed previous violations of the Commission's rules; or

(iv) the person refused or failed to restore a damaged area as ordered by the local permit officer or one of the Commission's delegates.

(E) Assessments against contractors. Any contractor, subcontractor, or person functioning as a contractor shall be subject to a notice of violation and assessment of a civil penalty in accordance with Paragraph (f) of this Rule. Such penalty shall be in addition to that assessed against the landowner. When a penalty is being doubled pursuant to Part (D) of this Subparagraph and the element of willfulness is present only on the part of the contractor, the landowner shall be assessed the standard penalty and the contractor shall be assessed the doubled penalty.

(F) Assessments of Continuing violations.

(i) Pursuant to G.S. 113A-126(d)(2), each day that the violation continues after the date specified in the notice of violation for the unauthorized activity to cease and restoration to be completed shall be considered a separate violation and shall be assessed an additional penalty.

(ii) Refusal or failure to restore a damaged area as directed in the restoration order shall be considered a continuing violation and shall be assessed an additional penalty. The amount of the penalty shall be determined according to Part (B) of this Subparagraph. The continuing penalty period shall be calculated from the date specified in the restoration order which accompanies the notice of violation for the unauthorized activity to cease and restoration to be completed and run until:

(I) the Division determines that the terms of the restoration order are satisfied;

(II) the respondent enters into negotiations with the local permit officer or the Division; or

(III) the respondent contests the local permit officer's or the Division's order in a judicial proceeding.

The continuing penalty period shall resume if the respondent terminates negotiations without reaching an agreement with the local permit officer or the Division, fails to comply with court ordered restoration, or fails to meet a deadline for restoration that was negotiated with the local permit officer or the Division.

(g) Reports to the Commission. Action taken by the Director shall be reported to the Commission at the next regularly scheduled Commission meeting. Such reports shall include information on the following:

(1) respondent(s) against whom penalties have been assessed;

(2) respondent(s) who have paid a penalty, requested remission, or requested an administrative hearing;

(3) respondent(s) who have failed to pay; and

(4) cases referred to the Attorney General for collection.

(h) Settlements. The Commission hereby delegates to the Director the authority to enter into a settlement of an appeal of a civil penalty at any time prior to the issuance of a decision by the administrative law judge in a contested case under G.S. 150B-23, and shall not require the approval of the Commission. Any settlement agreement proposed subsequent to the issuance of a decision by the administrative law judge in a contested case under G.S. 150B-23 shall be submitted to the Commission for approval.

History Note: *Authority G.S. 113A-124; 113A-124(c)(8); 113A-126(d);*
Eff. January 24, 1980;
ARRC Objection August 18, 1988;
Amended Eff. January 1, 1989; November 1, 1986; November 1, 1984;
ARRC Objection Lodged Eff. January 18, 1991;
Amended Eff. September 1, 2019; February 1, 2008; July 1, 1991; June 1, 1991;
Readopted Eff. June 1, 2021.

15A NCAC 07J .0410 RESTORATION/MITIGATION

Any violation involving development that is inconsistent with rules for development within AECs, i.e. wetland fill, improper location of a structure, shall result in a notice of restoration from the Secretary or its delegate or a local government. The notice shall describe the extent of restoration necessary to recover lost resources, or to prevent further resource damage and a time for its completion. Failure to complete the restoration described in the notice

may result in a court order as described in G.S. 113-126(a) and (b). Failure to act to complete the required restoration may be determined to constitute a separate violation, according to G.S. 113-126(d)(2), subject to the penalties in Rule .0409 of this Section. Any resources that cannot be recovered by restoration of the affected site shall be replaced in compliance with the goals of the Commission's mitigation policy described in 15A NCAC 07M .0701.

History Note: *Authority G.S. 113A-126; 113A-124(c); 113A-124(c)(8);*
Eff. July 1, 1985;
Readopted Eff. August 1, 2021.

SECTION .0500 - GENERAL PERMITS

15A NCAC 07J .0501 DEVELOPMENT INITIATED PRIOR TO MARCH 1, 1978

History Note: *Authority G.S. 113A-118.1;*
Eff. April 12, 1978;
Amended Eff. December 1, 1991;
Expired Eff. April 1, 2018 pursuant to G.S. 150B-21.3A.

15A NCAC 07J .0502 UNCONTESTED PERMIT APPLICATIONS

History Note: *Authority G.S. 113A-124(c)(5);*
Eff. April 12, 1978;
Amended Eff. September 11, 1978;
Repealed Eff. September 6, 1979.

SECTION .0600 - DECLARATORY RULINGS AND PETITIONS FOR RULEMAKING

15A NCAC 07J .0601 DECLARATORY RULINGS: GENERALLY

At the request of any person aggrieved, as defined in G.S. 150B-2(6), the Coastal Resources Commission may issue a declaratory ruling as provided in G.S. 150B-4.

History Note: *Authority G.S. 113A-124; 150B-4;*
Eff. June 1, 1979;
Amended Eff. October 1, 1992; October 1, 1988;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018.

15A NCAC 07J .0602 PROCEDURE FOR REQUESTING DECLARATORY RULINGS

(a) All requests for a declaratory ruling shall be filed with the Director, Division of Coastal Management, Department of Environmental Quality (DEQ), 400 Commerce Avenue, Morehead City NC 28557, and also the Attorney General's Office, 9001 Mail Service Center, Raleigh NC 27699-9001. All requests shall include the following: the aggrieved person's name and address; the rule, statute or order for which a ruling is desired; and a statement as to whether the request is for a ruling on the validity of a rule or on the applicability of a rule, order or statute; and certified mail receipts showing the request was sent to the owners of property adjacent to the property that is the subject of the declaratory ruling.

(b) A request for a ruling on the applicability of a rule, order, or statute shall include a description of the factual situation on which the ruling is to be based. A request for a ruling on the validity of a Commission rule shall state the aggrieved person's reasons for questioning the validity of the rule. A person may ask for both types of rulings in a single request. A request for a ruling shall include or be accompanied by:

(1) a statement of facts proposed for adoption by the Commission; and
(2) a draft of the proposed ruling.

History Note: *Authority G.S. 113A-124; 150B-4;*
Eff. June 1, 1979;
Amended Eff. June 1, 2005; October 1, 1992; November 1, 1991; July 1, 1990; May 1, 1990;

Readopted Eff. October 1, 2022.

15A NCAC 07J .0603 PROCEDURES: CONSIDERING REQUESTS FOR DECLARATORY RULINGS

(a) The Commission hereby delegates to the Chairman the authority to grant or deny requests for declaratory rulings and to determine whether notice of the declaratory ruling request should be provided to anyone other than the adjacent property owners. The Division of Coastal Management shall review each request for a declaratory ruling and shall prepare a recommendation for the Chairman as to whether the Commission should consent to issue a ruling or whether for good cause the request for a declaratory ruling should be denied. The Chairman shall deny a request for declaratory ruling on finding that:

(1) the requesting party and the Division of Coastal Management cannot agree on a set of stipulated facts to support a ruling;
(2) the matter is the subject of a pending contested case hearing; or
(3) no genuine controversy exists as to the application of a statute or rule to a proposed project or activity.

(b) After consenting to issue a ruling, the Commission shall place the declaratory ruling on the agenda for its next regularly scheduled meeting. The Commission shall provide notice of the declaratory ruling proceeding to the requesting party, the adjacent property owners, and other persons to whom the Commission decides to give notice no less than 10 days before the date for which the declaratory ruling is set. The requesting party and other persons to whom the Commission decides to give notice shall be allowed to submit written comments concerning the proposed declaratory ruling.

(c) If a ruling is to be issued, the Chairman shall decide whether notice should be given to persons other than the party requesting the ruling and the adjacent property owners. In making such a decision, the Commission shall consider such factors as: whether additional public participation would aid the Commission in reaching a decision; whether any persons have requested in writing to be notified of proposed declaratory rulings; whether the property or personal rights of other persons might be directly affected by the requested ruling; and whether the proposed ruling would affect the application and interpretation of a rule in which other persons might be interested. All persons receiving notice of the declaratory ruling, including all members of the public who respond to a published notice of the proposed ruling, may submit written comments to the Commission concerning the proposed declaratory ruling pursuant to Paragraph (b) of this Rule at least five days prior to the date of the proposed ruling; all such comments shall be provided to the Commission and shall be included in the record of the declaratory ruling.

(d) Unless the Department waives the opportunity to be heard, it shall be a party to any request for declaratory ruling. The requesting party and the Department shall each be allowed 30 minutes to present oral arguments to the Commission. Neither party may offer testimony or conduct cross-examination before the Commission. The declaratory ruling shall be determined on the basis of the statement of undisputed facts submitted by the parties.

(e) The Commission will keep a record of each declaratory ruling, which will include at a minimum the following items:

(1) the request for a ruling;
(2) any written comments by interested parties;
(3) the statement of undisputed facts on which the ruling was based;
(4) any transcripts of oral proceedings, or, in the absence of a transcript, a summary of all arguments;
(5) any other matter considered by the Commission in making the decision; and
(6) the declaratory ruling together with the reasons therefore.

(f) A declaratory ruling is binding on the Commission and the person requesting it unless it is altered or set aside by the court. The Commission may not retroactively change a declaratory ruling, but nothing in this Section prevents the Commission from prospectively changing a ruling.

(g) A declaratory ruling is subject to judicial review in the same manner as an agency final decision or order in a contested case. Unless the requesting party consents to the delay, failure of the Commission to issue a ruling on the merits within 60 days of the request for such ruling shall constitute a denial of the request as well as a denial of the merits of the request and shall be subject to judicial review.

History Note: *Authority G.S. 113A-124; 150B-4;*
Eff. June 1, 1979;
Amended Eff. October 1, 1992; October 1, 1988;
Readopted Eff. October 1, 2022.

15A NCAC 07J .0604 FEDERAL ACTIVITIES

(a) At the request of any federal agency or of any state or local co-sponsor of a federal project with the written concurrence of the federal agency, the Commission shall issue a declaratory ruling concerning the consistency of a proposed federal activity with North Carolina's coastal management statutes and regulations unless the Chairman determines that no genuine controversy exists as to the application of a statute or rule to a proposed federal activity.
(b) The request for ruling shall include:

(1) a statement identifying the rule, statute or order at issue;
(2) certified mail receipts indicating that notice of the request for ruling was sent to the owners of property adjacent to the property on which the proposed federal activity will take place;
(3) a statement of facts proposed for adoption by the Commission and any documentary evidence supporting the proposed statement of facts;
(4) a draft of the proposed ruling;
(5) a statement indicating that the Division of Coastal Management has preliminarily determined that the project may be inconsistent with a coastal management statute or regulation; and
(6) a statement identifying the factual issues in dispute between the Department and the federal agency.

(c) The Commission shall provide notice of the declaratory ruling proceeding to the adjacent property owners and to persons who have requested notice of proposed rulings. Notice shall be published in a newspaper of general circulation in the area of the proposed federal activity 10 days prior to the Commission's consideration of the declaratory ruling. Any person may submit written comments on the proposed declaratory ruling at least five days prior to the date the Commission will consider the declaratory ruling; such comments shall be provided to the Commission and shall be included in the record of the declaratory ruling.
(d) The parties to a declaratory ruling shall be allowed 30 minutes to present oral arguments to the Commission. Unless the Division of Coastal Management waives the opportunity to be heard, it shall be a party to any request for declaratory ruling. No party may offer testimony or conduct cross-examination before the Commission.

History Note: *Authority G.S. 113A-124; 150B-4;*
Eff. November 30, 1992.

15A NCAC 07J .0605 PETITIONS FOR RULEMAKING

(a) Any person wishing to request the adoption, amendment, or repeal of a rule shall make this request in a petition addressed to the Division of Coastal Management. The petition shall specify it is filed pursuant to G.S. 150B-20 and shall contain the following information:

(1) either a draft of the proposed rule or a summary of its contents;
(2) a statement of reasons for adoption of the proposed rule(s);
(3) a statement of the effect on existing rules or orders;
(4) any data in support of the proposed rule(s);
(5) a statement of the effect of the proposed rule on existing practices; and
(6) the name and address of the petitioner.

(b) The petition will be placed on the agenda for the next regularly scheduled commission meeting, if received at least four weeks prior to the meeting, and the director shall prepare a recommended response to the petition for the Commission's consideration. Petitions will be considered in accordance with the requirements of G.S. 150B-20.

History Note: *Authority G.S. 113A-124; 150B-20;*
Eff. January 1, 1989;
Amended Eff. October 1, 1992;
Readopted Eff. October 1, 2022.

SECTION .0700 – PROCEDURES FOR CONSIDERING VARIANCE PETITIONS

15 NCAC 07J .0701 VARIANCE PETITIONS

(a) Any person whose application for a CAMA major or minor development permit has been denied or issued with condition(s) that the person does not agree with may petition for a variance from the Commission by means of the procedure described in this Section. Before filing a petition for a variance from a rule of the Commission, the person must seek relief from local requirements restricting use of the property, and there must not be pending litigation between the petitioner and any other person which may make the request for a variance moot.
(b) The procedure in this Section shall be used for all variance petitions except when:

(1) the Commission determines that more facts are necessary; or
(2) there are controverted facts that are necessary for a decision on the variance petition.

(c) Variance petitions shall be submitted on forms provided by the Department of Environmental Quality. The following information shall be submitted before a variance petition is considered complete:

(1) the case name and location of the development as identified on the denied permit application;
(2) a copy of the deed to the property on which the proposed development would be located;
(3) a copy of the permit application and denial for the development in question;
(4) the date of the petition, and the name, address, and phone number of the petitioner and his or her attorney, if applicable;
(5) a complete description of the proposed development, including a site drawing with topographical and survey information;
(6) a stipulation that the proposed project is inconsistent with the rule from which the petitioner seeks a variance;
(7) notice of the variance petition sent via certified mail, return receipt requested to the adjacent property owners and persons who submitted written comments to the Division of Coastal Management or the Local Permit Officer during the permit review process and copies of the documents which indicate that the certified mail notices were received or that deliveries were attempted;
(8) an explanation of why the petitioner believes that the Commission should make the following findings, all of which are necessary for a variance to be granted:
    (A) that unnecessary hardships would result from strict application of the development rules, standards, or orders issued by the Commission;
    (B) that such hardships result from conditions peculiar to the petitioner's property such as the location, size, or topography of the property;
    (C) that such hardships did not result from actions taken by the petitioner; and
    (D) that the requested variance is consistent with the spirit, purpose and intent of the Commission's rules, standards or orders; will secure the public safety and welfare; and will preserve substantial justice.
(9) a proposed set of stipulated facts, for staff's consideration, containing all of the facts relied upon in the petitioner's explanation as to why he meets the criteria for a variance; and
(10) proposed documents, for the staff's consideration, that the petitioner wants the Commission to consider.

(d) Petitions shall be mailed to the Director of the Division of Coastal Management, Department of Environmental Quality, 400 Commerce Avenue, Morehead City NC 28557 and to Air and Natural Resources Section, Environmental Division, Attorney General's Office, 9001 Mail Service Center, Raleigh, NC 27699-9001.

(e) A variance petition shall be considered by the Commission at a scheduled meeting. Petitions shall be scheduled in chronological order based upon the date of receipt of a complete variance petition by the Division of Coastal Management. A complete variance petition, as described in Paragraph (c) of this Rule, shall be received by the Division of Coastal Management at least six weeks in advance of a scheduled Commission meeting to be considered by the Commission at that meeting. If the petitioner seeks to postpone consideration of his or her variance request, the request shall be treated as though it was filed on the date petitioner requested postponement and scheduled for hearing after all then pending variance requests.

(f) Written notice of a variance hearing or Commission consideration of a variance petition shall be provided to the petitioner and the permit officer making the initial permit decision.

History Note: *Authority G.S. 113A-120.1; 113A-124;*
Eff. December 12, 1979;
Amended Eff. December 1, 1991; May 1, 1990; March 1, 1988, February 1, 1983;
Temporary Amendment Eff. December 20, 2001;
Temporary Amendment Expired October 12, 2002;
Temporary Amendment Eff. December 1, 2002;
Amended Eff. March 1, 2009; June 1, 2005; August 1, 2004;
Readopted Eff. October 1, 2022.

15A NCAC 07J .0702 STAFF REVIEW OF VARIANCE PETITIONS

(a) The Division of Coastal Management, as staff to the Commission, shall review petitions to determine whether they are complete according to the requirements set forth in Rule .0701. Incomplete petitions and a description of the deficiencies shall be returned to the petitioner. Complete variance petitions shall be scheduled within two Commission meetings.
(b) The staff and the petitioner shall determine the facts that are relevant to the Commission's consideration of the variance petition. For all facts upon which staff and the petitioner agree, a document entitled Stipulated Facts shall be prepared and signed by both parties.
(c) After the facts agreed upon by the petitioner and staff, the staff shall prepare a written recommendation which shall be submitted to the Commission before the petition is considered. The staff recommendation shall include:

(1) a description of the property in question;
(2) a description of how the use of the property is restricted or otherwise affected by the applicable rules;
(3) the Stipulated Facts;
(4) staff's position on whether the petition meets or does not meet each of the requirements for a variance; and
(5) petitioner's position on each of the variance criteria.

Copies of the staff recommendation shall be provided to the petitioner and the permit officer making the initial permit decision at the same time as it is provided to the Commission. If the Stipulated Facts are not agreed upon at least four weeks prior to a scheduled Coastal Resources Commission meeting, the variance petition shall be considered at the next scheduled Commission meeting.
(d) If the staff determines that agreement cannot be reached on sufficient facts on which to base a variance decision, the petition shall be considered by means of an administrative hearing to determine the relevant facts.

History Note: *Authority G.S. 113A-120.1; 113A-124;*
Eff. December 12, 1979;
Amended Eff. December 1, 1991; May 1, 1990; October 1, 1988; March 1, 1988;
Temporary Amendment Eff. December 20, 2001;
Temporary Amendment Expired October 12, 2002;
Temporary Amendment Eff. December 1, 2002;
Amended Eff. July 3, 2008; August 1, 2004;
Readopted Eff. October 1, 2022.

15A NCAC 07J .0703 PROCEDURES FOR DECIDING VARIANCE PETITIONS

(a) The Commission may review the variance petition and staff recommendation and hear oral presentation by the petitioner, if any, in full session or may appoint a member or members to do so. In cases where a member or members are appointed, they shall report a summary of the facts and a recommended decision to the Commission.
(b) The Commission or its appointed member or members shall be provided with copies of the petition, the stipulated facts, and the staff recommendation before considering the petition.
(c) At the Commission's request, staff shall orally describe the petition to the Commission or its appointed member(s) and shall present comments concerning whether the Commission should make the findings necessary for granting the variance. The petitioner shall also be allowed to present oral arguments concerning the petition. The Commission may set time limits on such oral presentations.
(d) The final decision of the Commission may be made at the meeting at which the matter is heard or in no case later than the next scheduled meeting. The final decision shall be transmitted to the petitioner by certified mail, return receipt requested within 30 days of the meeting at which the Commission reached its decision. In the event that the Commission cannot reach a final decision because it determines that more facts are necessary, it shall remand the matter to staff and the petitioner with instructions for the parties to either agree to the necessary fact(s) or to request a hearing in the Office of Administrative Hearings.
(e) Final decisions concerning variance petitions shall be made by concurrence of a majority of a quorum of the Commission.

History Note: *Authority G.S. 113A-120.1; 113A-124;*
Eff. December 12, 1979;
Amended Eff. December 1, 1991; March 3, 1981;
Temporary Amendment Eff. December 20, 2001;
Temporary Amendment Expired October 12, 2002;

Temporary Amendment Eff. December 1, 2002;
Amended Eff. March 1, 2009; August 1, 2004;
Readopted Eff. October 1, 2022.

SECTION .0800 - DREDGE AND FILL: PERMIT PROCESSING PROCEDURE: STANDARD

15A NCAC 07J .0801 DEFINITIONS
15A NCAC 07J .0802 APPLICATION FORMS
15A NCAC 07J .0803 PREPARATION OF WORK PLATS: GENERAL
15A NCAC 07J .0804 PREPARATION OF WORK PLATS: SPECIFIC
15A NCAC 07J .0805 ADJACENT RIPARIAN LANDOWNER NOTIFICATION
15A NCAC 07J .0806 APPLICATION PROCESSING
15A NCAC 07J .0807 FIELD INVESTIGATION
15A NCAC 07J .0808 AGENCY REVIEW AND COMMENTS
15A NCAC 07J .0809 CRITERIA FOR PROJECT PLANNING AND EVALUATION
15A NCAC 07J .0810 FINAL ACTION
15A NCAC 07J .0811 NOTICE OF DENIAL
15A NCAC 07J .0812 APPEAL OF DEPARTMENTAL ACTION
15A NCAC 07J .0813 PERMIT ISSUANCE AND TRANSFER
15A NCAC 07J .0814 PERMIT EXPIRATION
15A NCAC 07J .0815 PERMIT RENEWAL
15A NCAC 07J .0816 PERMIT MODIFICATION
15A NCAC 07J .0817 PERMIT CONDITIONS
15A NCAC 07J .0818 PROJECT MAINTENANCE
15A NCAC 07J .0819 MAINTENANCE REQUEST
15A NCAC 07J .0820 CONDITIONS FOR MAINTENANCE
15A NCAC 07J .0821 GRANT OR DENIAL OF MAINTENANCE REQUEST
15A NCAC 07J .0822 VIOLATION OF PERMIT

History Note: *Authority G.S. 113A-118(c); 113A-119(a); 113A-124(c)(5); 113-229;*
Eff. February 1, 1976;
Amended Eff. January 1, 1984; August 1, 1983; October 15, 1981; August 30, 1980;
Repealed Eff. July 1, 1989.

SECTION .0900 - DREDGE AND FILL: EMERGENCY PERMIT PROCEDURE

15A NCAC 07J .0901 PURPOSE
15A NCAC 07J .0902 DEFINITIONS
15A NCAC 07J .0903 INITIATION OF EMERGENCY PROCESS: ON-SITE INVESTIGATION
15A NCAC 07J .0904 PROCEDURES FOR EXEMPTING EMERGENCY MAINTENANCE: REPAIRS
15A NCAC 07J .0905 APPLICABILITY OF EMERGENCY CAMA: DREDGE AND FILL PERMITS
15A NCAC 07J .0906 PREPARATION OF EMERGENCY PERMIT APPLICATION
15A NCAC 07J .0907 NOTIFICATION OF ADJACENT RIPARIAN LANDOWNERS

History Note: *Authority G.S. 113A-103(5)b.5; 113A-118 1.c.; 113-229 (e1);*
Eff. February 1, 1976;
Amended Eff. December 1, 1985; August 1, 1983; September 8, 1980; July 31, 1980;
Repealed Eff. July 1, 1989.

15A NCAC 07J .0908 REVIEW AND ISSUANCE OF EMERGENCY PERMIT
15A NCAC 07J .0909 LIMITATION OF EMERGENCY WORK

History Note: *Authority G.S. 113A-118 1.c.; 113A-119; 113A-229(e1);*
Eff. September 8, 1980;
Amended Eff. December 1, 1985; September 1, 1983; August 1, 1983;
Repealed Eff. July 1, 1989.

SECTION .1000 - DREDGE AND FILL: REVIEW HEARING PROCEDURES

15A NCAC 07J .1001 WHO IS ENTITLED TO HEARING
15A NCAC 07J .1002 PARTIES
15A NCAC 07J .1003 PROCEDURES

History Note: *Authority G.S. 113-229; 150B, Article 3; 150B-26;*
Eff. February 1, 1976;
Amended Eff. December 1, 1982; August 30, 1980;
Repealed Eff. July 1, 1989.

15A NCAC 07J .1004 HEARING OFFICER
15A NCAC 07J .1005 REQUEST FOR HEARING
15A NCAC 07J .1006 TIME FOR HEARING
15A NCAC 07J .1007 VENUE
15A NCAC 07J .1008 PARTIES
15A NCAC 07J .1009 INTERVENTION
15A NCAC 07J .1010 NOTICE
15A NCAC 07J .1011 HEARING OPEN TO PUBLIC
15A NCAC 07J .1012 PRE-HEARING CONFERENCE
15A NCAC 07J .1013 SIMPLIFICATION OF ISSUES
15A NCAC 07J .1014 STIPULATIONS
15A NCAC 07J .1015 SUBPOENAS
15A NCAC 07J .1016 DEPOSITIONS AND DISCOVERY
15A NCAC 07J .1017 BURDEN OF PROOF
15A NCAC 07J .1018 NO EX PARTE COMMUNICATION: EXCEPTIONS
15A NCAC 07J .1019 PRESENTATION OF EVIDENCE
15A NCAC 07J .1020 CONDUCT OF THE HEARING
15A NCAC 07J .1021 POST HEARING PROCEDURE
15A NCAC 07J .1022 DECISION
15A NCAC 07J .1023 RECORD OF DEPARTMENT ACTION AND HEARING
15A NCAC 07J .1024 JUDICIAL REVIEW

History Note: *Authority G.S. 113-229; 150B-23 through 150B-28;*
150B-31 through 150B-36; 150B-43;
Eff. February 1, 1976;
Amended Eff. August 30, 1980; January 1, 1979;
Repealed Eff. December 1, 1982.

SECTION .1100 - GENERAL PERMIT PROCEDURE

15A NCAC 07J .1101 PURPOSE

The purpose of this Section is to establish a procedure for issuing general permits for development having insignificant impacts on areas of environmental concern and which should not require public review and comment. These Rules are established according to G.S. 113A-118.1 and G.S. 113-229(C)(1) and will apply to projects requiring either Dredge and Fill and/or CAMA Major or Minor development permits. The CRC may, after following the procedures set forth in these Rules, issue general permits for certain catagories of development which require Dredge and Fill and/or CAMA Major or Minor development permits. After a general permit is issued, individual activities falling within these categories may be further authorized by the procedures set forth in these Rules.

History Note: *Authority G.S. 113A-107; 113A-118.1; 113-229(c1);*
Eff. September 1, 1983;
Amended Eff. December 1, 1991;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018.

15A NCAC 07J .1102 CATEGORIES OF DEVELOPMENT

The Commission shall include as candidates for general permits only those activities that are substantially similar in nature that cause only minimal adverse environmental impacts when performed separately, and that will have only a minimal adverse cumulative effect on the environment. In identifying these categories, the Commission shall consider:

(1) the size of the development;
(2) the impact of the development on areas of environmental concern;
(3) how often the class of development is carried out;
(4) the need for on-site oversight of the development; and
(5) the need for public review and comment on individual development projects.

History Note: *Authority G.S. 113A-107; 113A-118.1; 113A-124(c)(5); 113-229(c)(1);*
Eff. September 1, 1983;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018.

15A NCAC 07J .1103 DESIGNATION PROCEDURES

The staff shall prepare all information needed to establish each category of general permit. This may include a generic description of the development, anticipated cumulative impacts, projected number of individual projects, and permit histories. The staff shall prepare a draft permit to include a clear and accurate description of the development to be authorized, implementation or processing procedures, general conditions, and special conditions. The draft permit shall be reviewed and issued according to provisions in in G.S. 113A-107.

Recommendations for consideration of specific activities for inclusion in a general permit category may be made in writing to the Commission by any individual, organization, or agency. The Commission will assign the request to the staff for evaluation according to the procedures of this Rule within 90 days of its receipt.

History Note: *Authority G.S. 113A-107; 113A-118.1; 113A-124(c)(5); 113-229(c)(1);*
Eff. September 1, 1983;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018.

15A NCAC 07J .1104 PERMIT MODIFICATION

The Commission may modify at any time any category of general permit. Modification shall be made according to the provisions of G.S. 113A-107. The Commission may also revoke any general permit at any time according to the provisions of G.S. 113A-107 if it is determined that the permit is no longer in the public interest.

History Note: *Authority G.S. 113A-107; 113A-118.1; 113A-124(c)(5); 113-229(c)(1);*
Eff. September 1, 1983;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018.

15A NCAC 07J .1105 APPLICATION PROCEDURES

Authorization to initiate development covered by the general permit shall comply with the procedures outlined in each permit. The procedures shall be established to explain in detail the application process, notification requirements, and permit fees.

History Note: *Authority G.S. 113A-107; 113A-118.1; 113-229(c2);*
Eff. September 1, 1983;
Readopted Eff. December 1, 2021.

15A NCAC 07J .1106 PERMIT CONDITIONS

Each general permit shall have a set of general and specific conditions. Additionally, the Division of Coastal Management may add conditions to each instrument of authorization if necessary to protect the public interest. The Division of Coastal Management may, on a case-by-case basis, override the general permit and require an individual application and review if this individual review is deemed to be in the public interest. Provisions for individual

review by State agencies of requests for general permit authorization may be made for each category if this review is deemed necessary to protect coastal resources or other aspects of public interest.

History Note: *Authority G.S. 113A-107; 113A-118.1; 113-229(c2); 113-229(e); 113A-120(b);*
Eff. September 1, 1983;
Readopted Eff. December 1, 2021.

15A NCAC 07J .1107 PERMIT COMPLIANCE

All development authorized through the general permit must be done in compliance with all conditions listed on the permit. Development undertaken without a Coastal Area Management Act or Dredge and Fill permit or in violation of permit conditions or failure to comply with operational permit conditions shall be a violation subject to the penalties set out in G.S. 113A-126 or G.S. 113-229.

History Note: *Authority G.S. 113A-107; 113A-118.1; 113-229(c2);*
Eff. September 1, 1983;
Amended Eff. March 1, 1985;
Readopted Eff. December 1, 2021.

15A NCAC 07J .1108 GENERAL PERMIT REVIEW

The Commission shall review each category of general permit on an annual basis. This review shall include compilation and evaluation of the number of projects approved in each category and the impacts of these projects. The Commission may modify or revoke any permit subject to this review according to the provisions of Rule .1104 of this Section. A written summary of this review shall be sent to each state and federal agency included in the normal permit review process.

History Note: *Authority G.S. 113A-107; 113A-118.1; 113-229(c1);*
Eff. September 1, 1983;
Amended Eff. December 1, 1991;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018.

SECTION .1200 – BEACH MANAGEMENT PLAN APPROVAL PROCEDURES

15A NCAC 07J .1201 BEACH MANAGEMENT PLAN APPROVAL

(a) A petitioner subject to a pre-project vegetation line pursuant to 15A NCAC 07H .0305 may petition the Coastal Resources Commission to approve a Beach Management Plan in accordance with the provisions of this Section. A "petitioner" shall be defined as:

(1) Any local government;
(2) Any group of local governments involved in a regional beach fill project; or
(3) Any qualified homeowner's association defined in G.S. 47F-1-103(3) that has the authority to approve the locations of structures on lots within the territorial jurisdiction of the association, and has jurisdiction over at least one mile of ocean shoreline.

(b) A petitioner shall be eligible to submit a request to approve a Beach Management Plan after the completion of construction of the initial large-scale beach fill project(s) as defined in 15A NCAC 07H .0305 that required the creation of a pre-project vegetation line(s). For a pre-project vegetation line in existence prior to the effective date of this Rule, the award-of-contract date of the initial large-scale beach fill project, or the date of the aerial photography or other survey data used to define the pre-project vegetation line, whichever is most recent, shall be used in lieu of the completion of construction date.

(c) A A Beach Management Plan applies to all pre-project vegetation lines within the Ocean Hazard Area of the petitioner's jurisdiction.

(d) A complete Beach Management Plan shall consist of a comprehensive document with supporting appendices and data that includes the following:

(1) A review of all beach fill projects in the area of the Beach Management Plan including the initial large-scale beach fill project associated with the pre-project vegetation line, subsequent maintenance of the initial large-scale project(s), and beach fill projects occurring prior to the initial large-scale projects(s). To the extent historical data allows, the summary shall include construction

dates, contract award dates, volume of sediment excavated, total cost of beach fill project(s), funding sources, maps, design schematics, pre-and post-project surveys, and a project footprint;

(2) A review of the maintenance needed to achieve a design life of no less than 30 years of shore protection. The plan shall include anticipated maintenance event volume triggers and schedules, long-term volumetric sand needs, annual monitoring protocols, an analysis of the impacts or any erosion control structures, and any relevant maps, tables, diagrams, studies, or reports. The plans and related materials shall be designed and prepared by the U.S. Army Corps of Engineers or persons meeting applicable State occupational licensing requirements for said work;

(3) Documentation, including maps, geophysical, and geological data, to delineate the planned location and volume of compatible sediment as defined in 15A NCAC 07H .0312 necessary to construct and maintain the large-scale beach fill project defined in Subparagraph (d)(2) of this Rule over its design life. This documentation shall be designed and prepared by the U.S. Army Corps of Engineers or persons meeting applicable State occupational licensing requirements for said work; and

(4) Identification of the financial resources or funding sources necessary to fund the large-scale beach fill project, over the project design life, such as a dedicated percentage of occupancy taxes, special tax districts, or anticipated federal funding.

(e) Public Comment Requirements. The local jurisdiction shall provide an opportunity for public comments on the Beach Management Plan prior to submission to the Coastal Resources Commission for approval. Written comments on the Beach Management Plan shall be submitted by the local jurisdiction to the Division along with the request to approve the Beach Management Plan.

(f) A request to approve a Beach Management Plan shall be submitted to the Director of the Division of Coastal Management, 400 Commerce Avenue, Morehead City, NC 28557. Written acknowledgement of the receipt of a completed request, including notification of the date of the meeting at which the request will be considered by the Coastal Resources Commission, shall be provided to the petitioner by the Division of Coastal Management.

(g) The Coastal Resources Commission shall consider a request to approve a Beach Management Plan no later than the second scheduled meeting following the date of receipt of a complete request by the Division of Coastal Management, except when the petitioner and the Division of Coastal Management agree upon a later date.

History Note: *Authority G.S. 113A-107; 113A-113(b)(6); 113A-124;*
Eff. March 23, 2009;
Amended Eff. April 1, 2016;
Readopted Eff. September 1, 2021;
Amended Eff. August 1, 2022.

15A NCAC 07J .1202 REVIEW OF THE BEACH MANAGEMENT PLAN APPROVAL REQUEST

(a) The Petitioner shall provide a summary of the Beach Management Plan to be presented to the Coastal Resources Commission. This summary shall include all of the elements required in 15A NCAC 07J .1201.

(b) The Division of Coastal Management shall provide the Commission a review of the Beach Management Plan including a recommendation to grant or deny the request. The Division shall provide the petitioner requesting the approval of a Beach Management Plan an opportunity to review the recommendation prepared by the Division of Coastal Management no less than 10 days prior to the meeting at which it is to be considered by the Coastal Resources Commission.

History Note: *Authority G.S. 113A-107; 113A-113(b)(6); 113A-124;*
Eff. March 23, 2009;
Readopted Eff. September 1, 2021;
Amended Eff. August 1, 2022.

15A NCAC 07J .1203 PROCEDURES FOR APPROVING A BEACH MANAGEMENT PLAN

(a) At the meeting at which approval of a Beach Management Plan is considered by the Coastal Resources Commission, the following shall occur:

(1) The Petitioner shall orally present a summary of the Beach Management Plan described in 15A NCAC 07J .1202; and

(2) The Division of Coastal Management shall orally present its review of the Beach Management Plan and its recommendation to grant or deny the approval request.

(b) The Coastal Resources Commission shall approve a Beach Management Plan if the request contains the information required and meets the criteria presented in 15A NCAC 07J .1201(d)(1) through (d)(4), the Division of Coastal Management recommendation, and public comments on the Beach Management Plan submitted with the request to approve the Beach Management Plan. The final decision of the Coastal Resources Commission shall be made at the meeting at which the matter is heard or in no case later than the next scheduled meeting. The final decision shall be transmitted to the petitioner by registered mail within 10 business days following the meeting at which the decision is reached.
(c) The decision to approve or deny a Beach Management Plan is a final agency decision and is subject to judicial review in accordance with G.S. 113A-123.

History Note: *Authority G.S. 113A-107; 113A-113(b)(6); 113A-124;*
Eff. March 23, 2009;
Readopted Eff. September 1, 2021;
Amended Eff. August 1, 2022.

15A NCAC 07J .1204 REVIEW OF BEACH MANAGEMENT PLANS
(a) Progress Reports. The petitioner that received a Beach Management Plan approval shall provide a progress report to the Coastal Resources Commission every five years from date the Beach Management Plan is approved. The progress report shall address the criteria defined in 15A NCAC 07J .1201(d)(1) through (d)(4) and be submitted in writing to the Director of the Division of Coastal Management, 400 Commerce Avenue, Morehead City, NC 28557. The Division of Coastal Management shall provide the petitioner with written acknowledgement of the receipt of a completed progress report, including notification of the meeting date at which the report will be presented to the Coastal Resources Commission.
(b) The Coastal Resources Commission shall review a Beach Management Plan approved under 15A NCAC 07J .1203 every five years from the initial authorization in order to renew its findings for the conditions defined in 15A NCAC 07J .1201(d) through (e). The Coastal Resources Commission shall also consider the following conditions:

(1) Updates to the Beach Management Plan, including performance of past projects and maintenance events, changes in conditions, and design changes to future projects, provided that the changes are designed and prepared by the U.S. Army Corps of Engineers or persons meeting applicable State occupational licensing requirements for the work;
(2) Design changes to the location and volume of compatible sediment, as defined by 15A NCAC 07H .0312, necessary to construct and maintain the large-scale beach fill project defined in 15A NCAC 07J .1201(d)(2), including design changes defined in this Rule provided that the changes have been designed and prepared by the U.S. Army Corps of Engineers or persons meeting applicable State occupational licensing requirements for the work; and
(3) Changes in the financial resources or funding sources necessary to fund the large-scale beach fill project(s)defined in 15A NCAC 07J .1201(d)(2). If the project has been amended to include design changes defined in this Rule, then the Coastal Resources Commission shall consider the financial resources or funding sources necessary to fund the changes.
(4) Local governments with an unexpired Static Line Exception approved by the Commission may petition the Commission for approval of a Beach Management Plan by supplementing information required under the Static Line Exception to be compliant with the provisions of 15A NCAC 07J .1200 prior to or upon the expiration of the previously approved Static Line Exception.

(c) The Petitioner shall orally present a summary of the progress report the Coastal Resources Commission no later than the second scheduled meeting following the date the report was received, except when a later meeting is agreed upon by the local government or community submitting the progress report and the Division of Coastal Management. The Division of Coastal Management shall provide the Coastal Resources Commission with a review and recommendation of the progress report on whether the conditions defined in 15A NCAC 07J .1201(d)(1) through (d)(4) have been met. The petitioner submitting the progress report shall be provided an opportunity to review the recommendation prepared by the Division of Coastal Management no less than 10 days prior to the meeting at which it is to be considered by the Coastal Resources Commission.

History Note: *Authority G.S. 113A-107; 113A-113(b)(6); 113A-124;*
Eff. March 23, 2009;
Readopted Eff. September 1, 2021;
Amended Eff. August 1, 2022.

15A NCAC 07J .1205 REVOCATION AND EXPIRATION OF BEACH MANAGEMENT PLAN APPROVAL

(a) Beach Management Plan approval shall be revoked if the Coastal Resources Commission determines, after the review of the petitioner's progress report identified in 15A NCAC 07J .1204, that any of the criteria under which the Beach Management Plan is authorized, as defined in 15A NCAC 07J .1201(d)(1) through (d)(4), are not being met.

(b) In the event a progress report is not received by the Division of Coastal Management five years from either the initial approval of the Beach Management Plan or the previous progress report, the Beach Management Plan approval shall be revoked automatically at the end of the five-year interval defined in 15A NCAC 07J .1204(b) for which the progress report was not received.

(c) The revocation or expiration of a Beach Management Plan approval shall be a final agency decision and is subject to judicial review in accordance with G.S. 113A-123.

History Note: *Authority G.S. 113A-107; 113A-113(b)(6); 113A-124;*
Eff. March 23, 2009;
Readopted Eff. September 1, 2021;
Amended Eff. August 1, 2022.

15A NCAC 07J .1206 LOCAL GOVERNMENTS AND COMMUNITIES WITH APPROVED BEACH MANAGEMENT PLANS

A list of CRC approved Beach Management Plans and the conditions under which the pre-project vegetation lines exist, including the date(s) the pre-project vegetation line was defined, shall be maintained by the Division of Coastal Management. A list of Beach Management Plans and the conditions under which the Plans exist, including the date the Plan was approved, the dates the progress reports were received, the design life of the large-scale beach fill project, and the potential expiration dates for the Beach Management Plans shall be maintained by the Division of Coastal Management. Both the pre-project vegetation line list and the Beach Management Plan list shall be available for inspection at the Division of Coastal Management, 400 Commerce Avenue, Morehead City, NC 28557.

History Note: *Authority G.S. 113A-107; 113A-113(b)(6); 113A-124;*
Eff. March 23, 2009;
Readopted Eff. September 1, 2021;
Amended Eff. August 1, 2022.

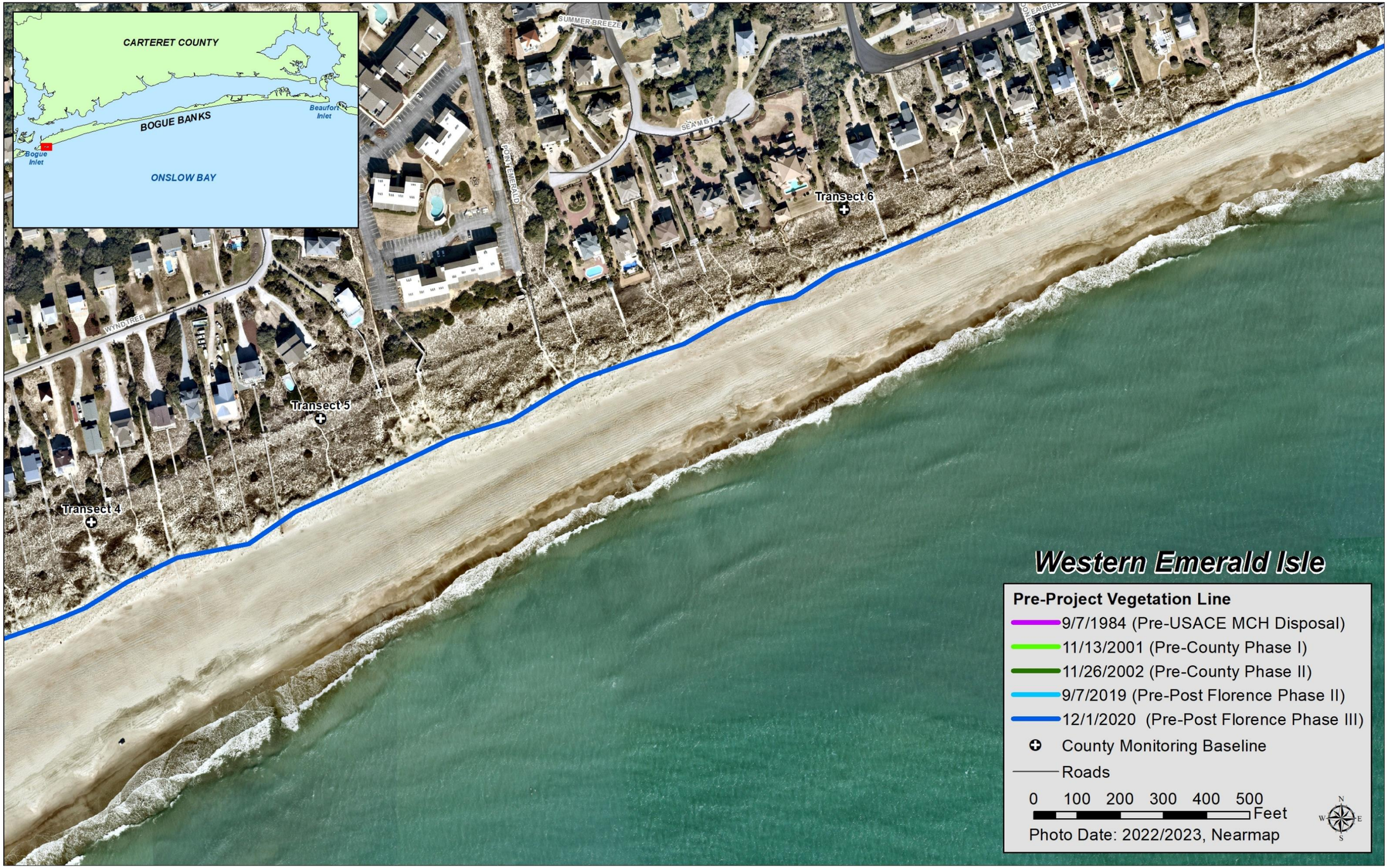
SECTION .1300 – DEVELOPMENT LINE PROCEDURES

15A NCAC 07J .1301 REQUESTING THE DEVELOPMENT LINE
15A NCAC 07J .1302 PROCEDURES FOR APPROVING THE DEVELOPMENT LINE
15A NCAC 07J .1303 LOCAL GOVERNMENTS AND COMMUNITIES WITH DEVELOPMENT LINES

History Note: *Authority G.S. 113A-107; 113A-113(b)(6); 113A-124;*
Eff. April 1, 2016;
Amended Eff. September 1, 2017;
Readopted Eff. September 1, 2021;
Amended Eff. December 1, 2021;
Repealed Eff. August 1, 2022.

APPENDIX B
Pre-Project Vegetation Line


CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
BOGUE
INLET
INLET
Transect 119
Transect 118
Transect 117
Transect 1
Transect 2
Transect 3
Transect 4
Western Emerald Isle
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
12/1/2020 (Pre-Post Florence Phase III)
County Monitoring Baseline
Roads
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Feet
Photo Date: 2022/2023, Nearmap
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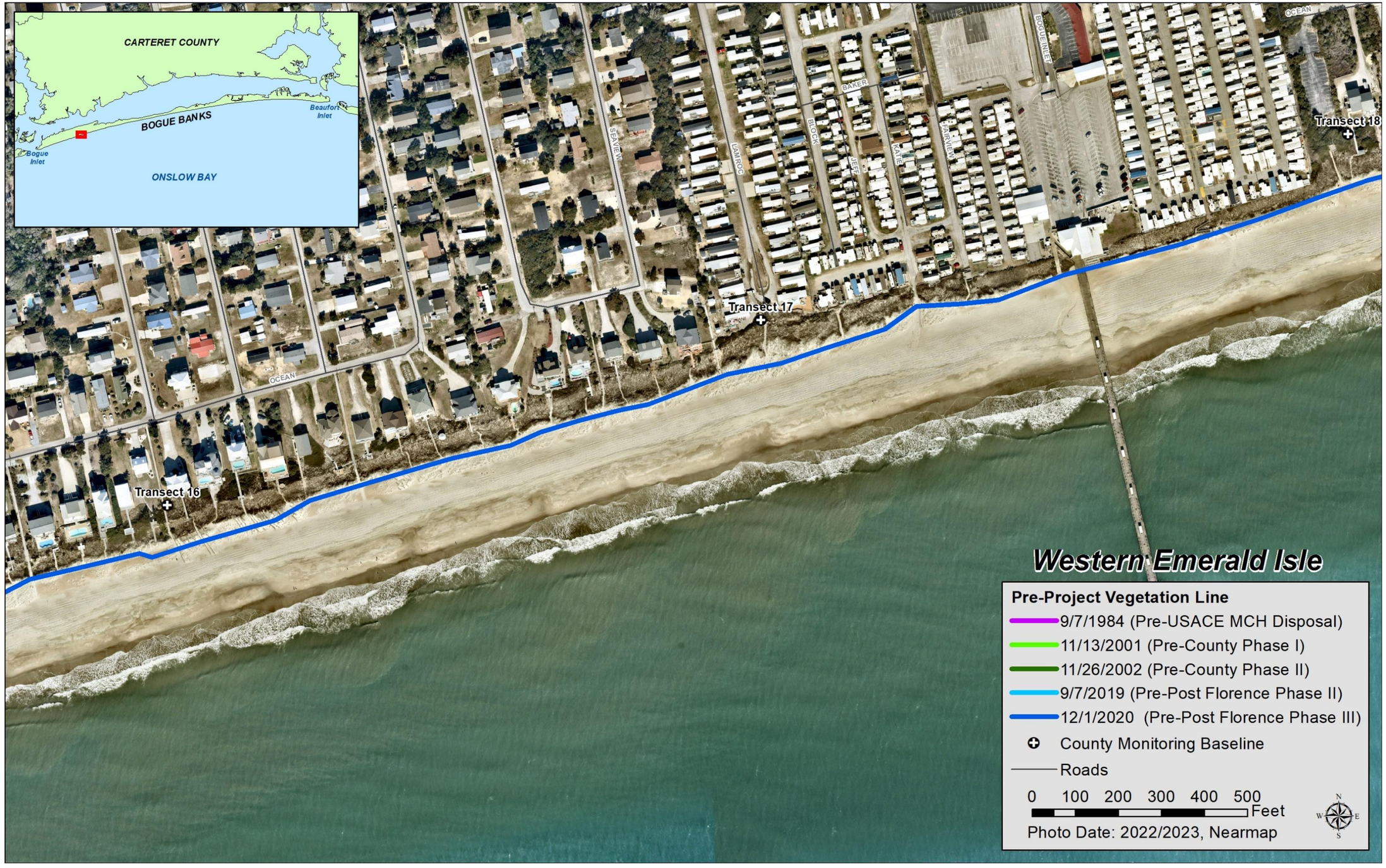

CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
SUMMER BREEZE
SEA MIST
POINT EMERALD
WYNDTREE
Transect 5
Transect 6
Transect 4
Western Emerald Isle
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
12/1/2020 (Pre-Post Florence Phase III)
County Monitoring Baseline
Roads
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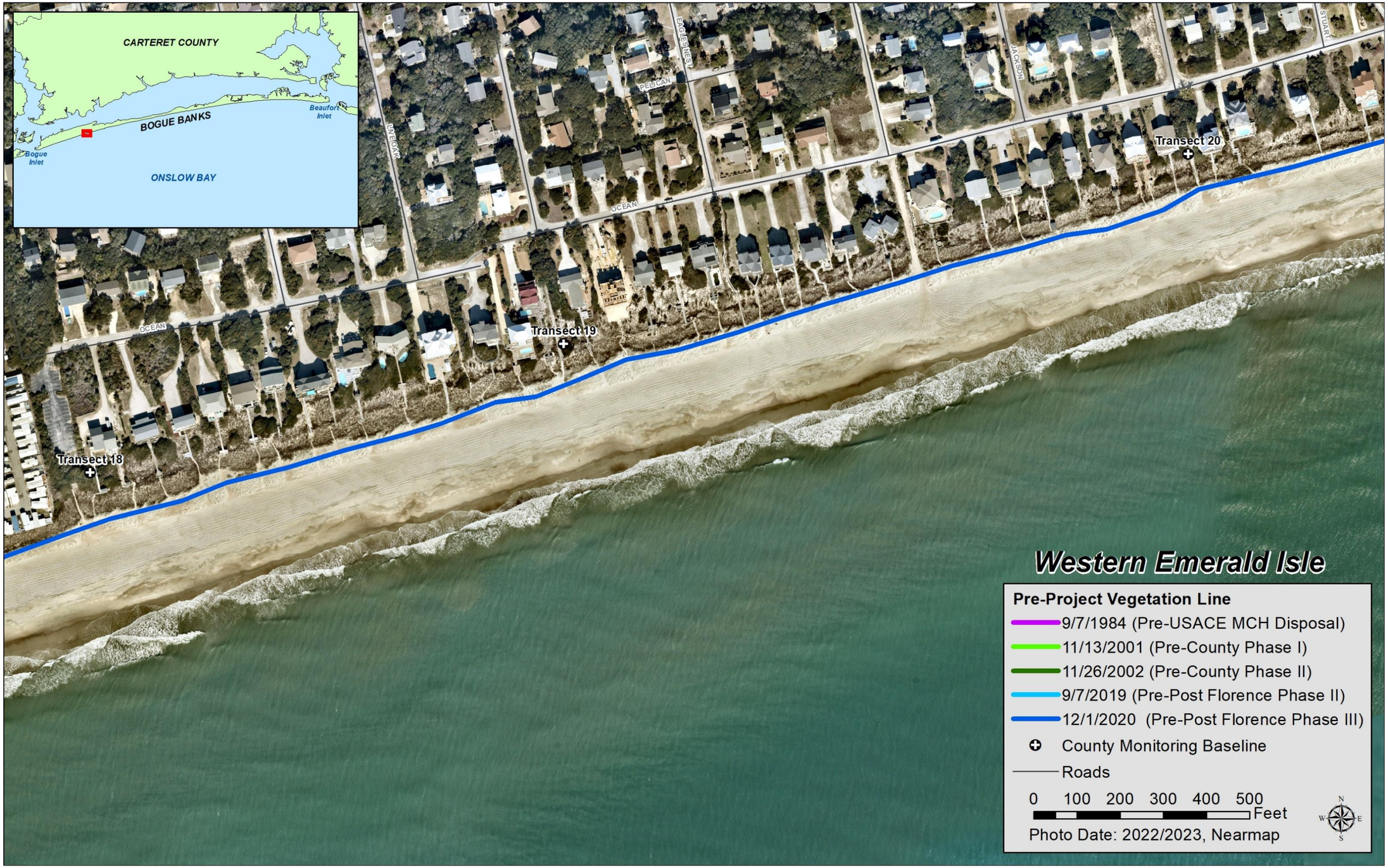

CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
CHRISSIE WRIGHT
SHIPWRECK
SANDY
DOLPHIN RIDGE
LOUISE HOWARD
STARFISH
SEABREEZE
SURF SCOOTER
WHITECAP
SEABREEZE
Transect 9
Transect 8
Transect 7
Western Emerald Isle
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
12/1/2020 (Pre-Post Florence Phase III)
County Monitoring Baseline
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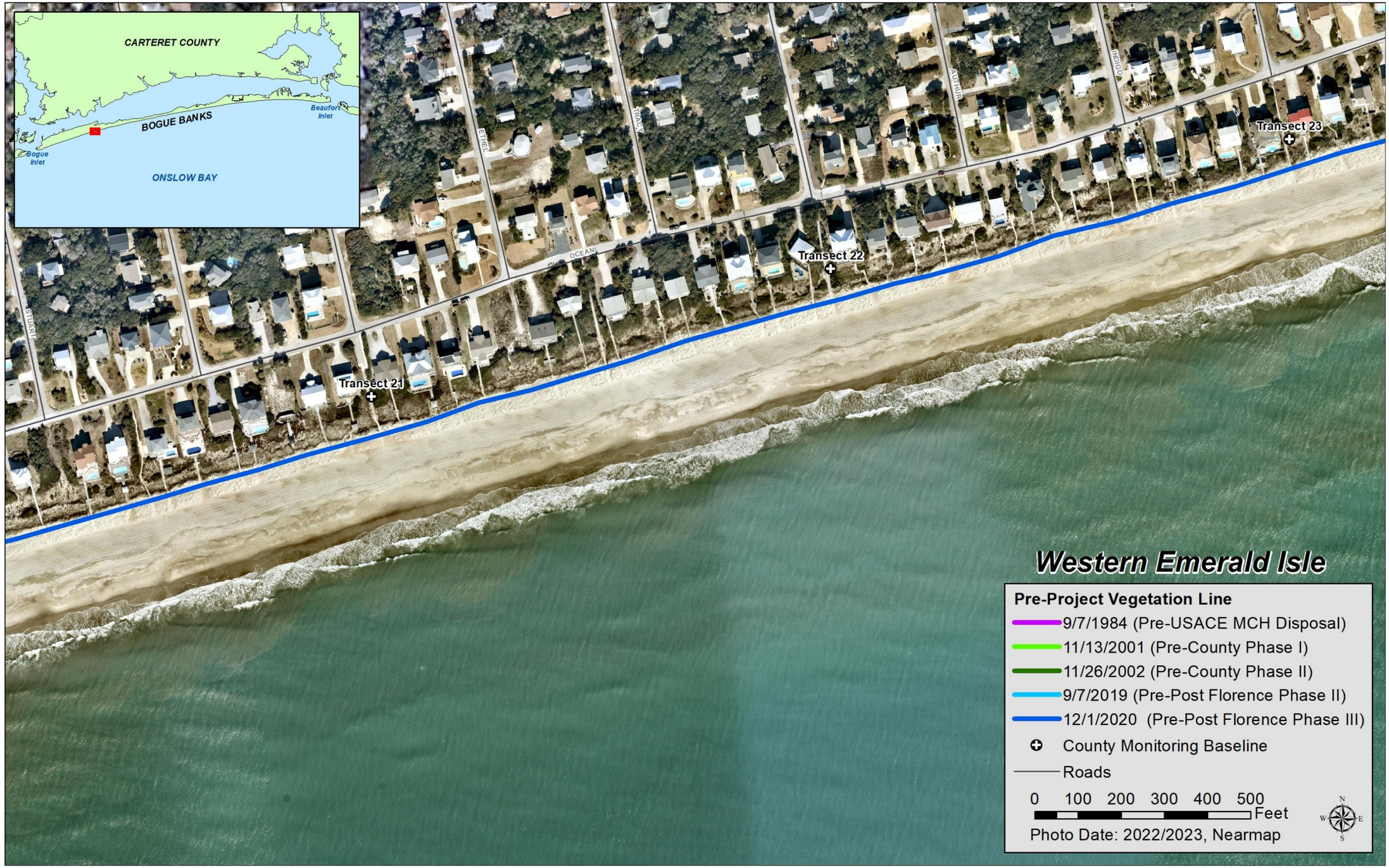

CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
PINEWOOD
CONCH
SEADUNES
SANDCASTLE
DOE
DEERHORN
FAWN
OCEAN
PAGE
RIDGE
Transect 9
Transect 10
Transect 11
Western Emerald Isle
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
12/1/2020 (Pre-Post Florence Phase III)
County Monitoring Baseline
Roads
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Feet
Photo Date: 2022/2023, Nearmap
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CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
FAWN
ISLANDER
LOUISE
JANELL
Transect 12
Transect 13
Western Emerald Isle
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
12/1/2020 (Pre-Post Florence Phase III)
County Monitoring Baseline
Roads
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CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
SHELL
YAUPON
OCEAN
SANDBUR
SEA OATS
JANELL
Transect 14
Transect 15
Western Emerald Isle
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
12/1/2020 (Pre-Post Florence Phase III)
County Monitoring Baseline
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Feet
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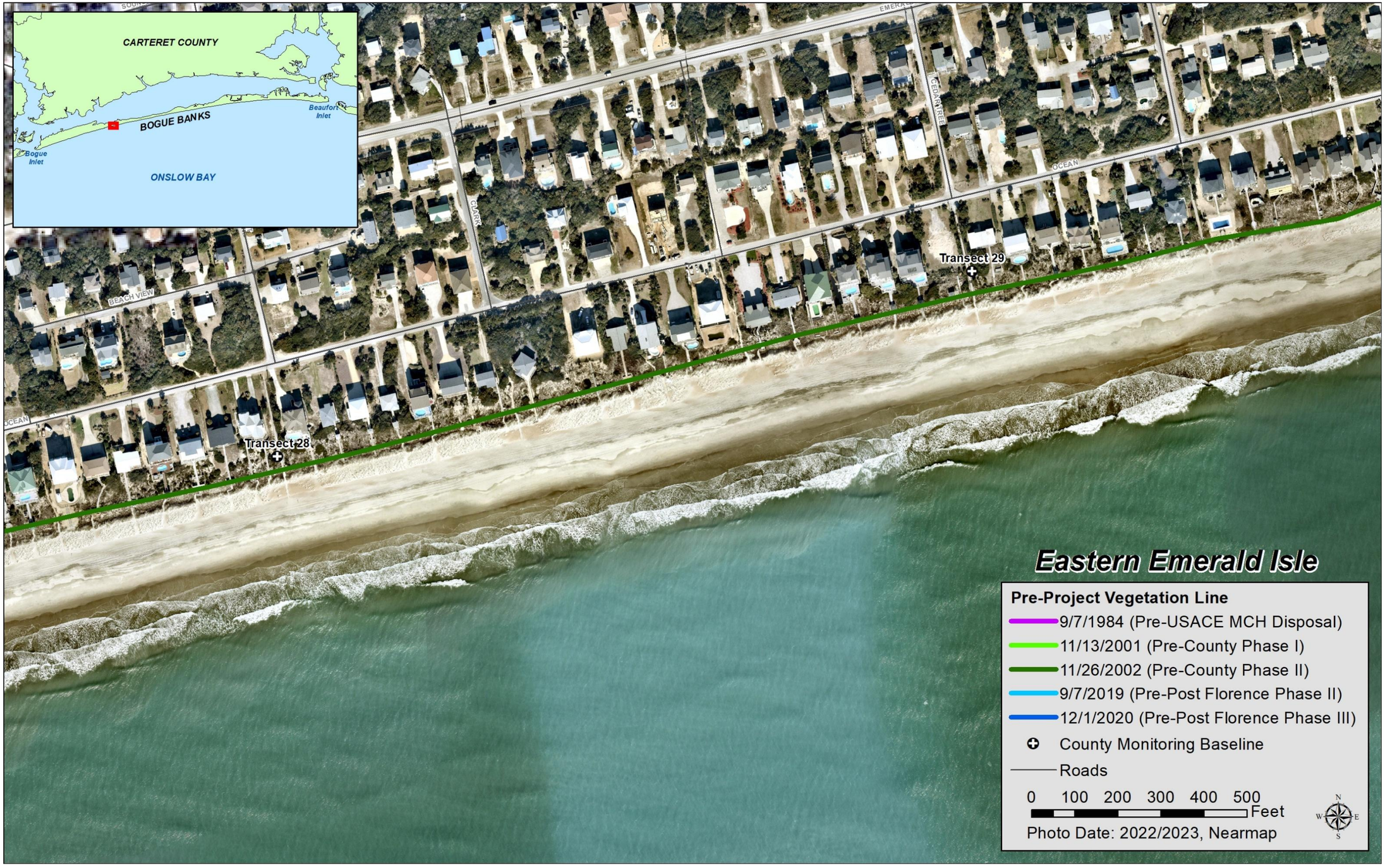

CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
OCEAN
SEAVIEW
LAMROC
BLOCK
BAKER
JEFF
KATIE
FAIRVIEW
BOGUE INLET
OCEAN
Transect 16
Transect 17
Transect 18
Western Emerald Isle
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
12/1/2020 (Pre-Post Florence Phase III)
County Monitoring Baseline
Roads
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CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
INLET BAR
EAGLES NEST
PELICAN
JACKSON
STUART
OCEAN
OCEAN
Transect 18
Transect 19
Transect 20
Western Emerald Isle
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
12/1/2020 (Pre-Post Florence Phase III)
County Monitoring Baseline
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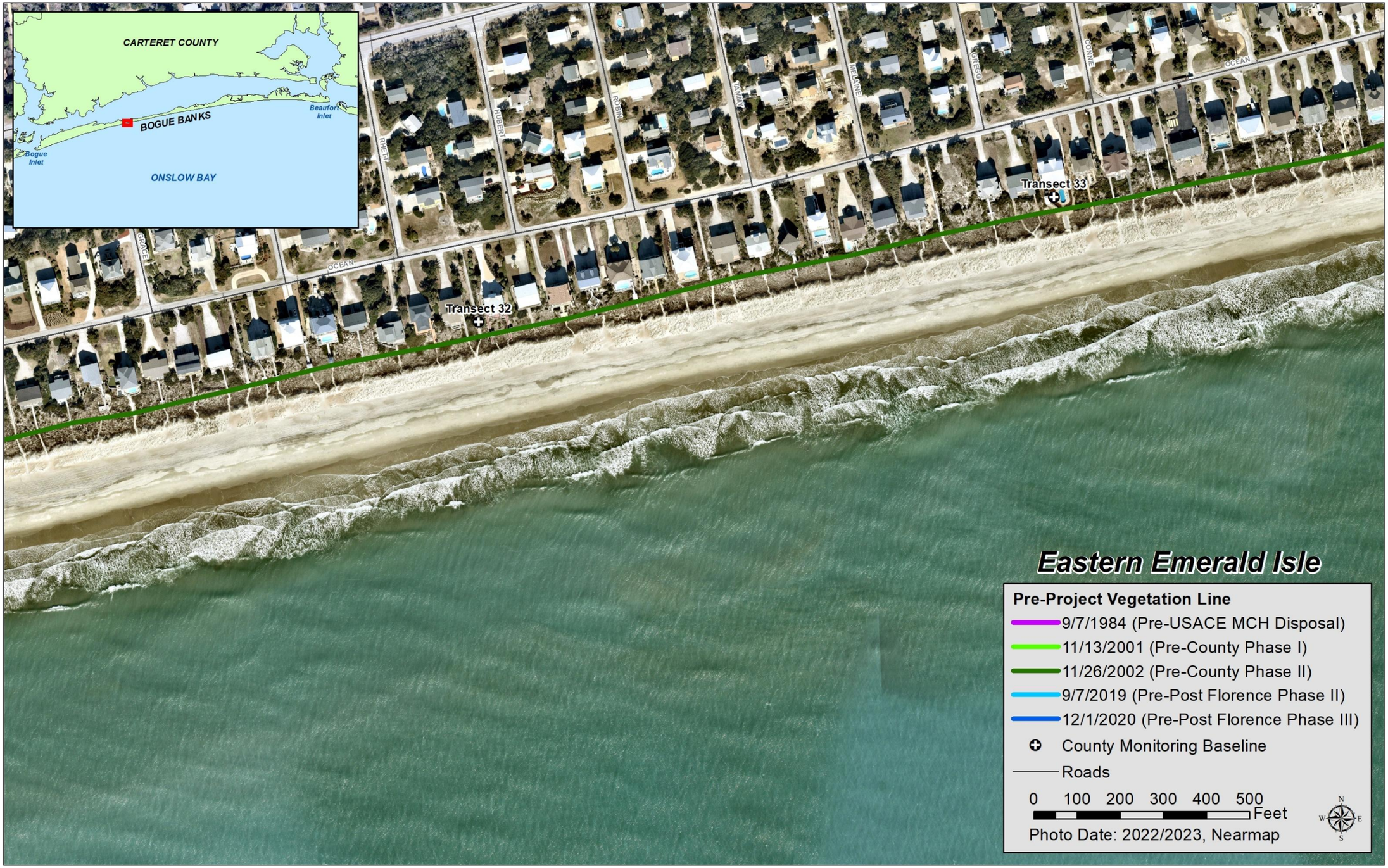

CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
ETHEL
TRACY
ARTHUR
INDIGO
OCEAN
STUART
Transect 21
Transect 22
Transect 23
Western Emerald Isle
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
12/1/2020 (Pre-Post Florence Phase III)
County Monitoring Baseline
Roads
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CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
PINTA
SANTA MARIA
COROLINA
PERIWINKLE
EBB TIDE
OCEAN
Transect 23
Transect 24
Transect 25
Western Emerald Isle
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
12/1/2020 (Pre-Post Florence Phase III)
County Monitoring Baseline
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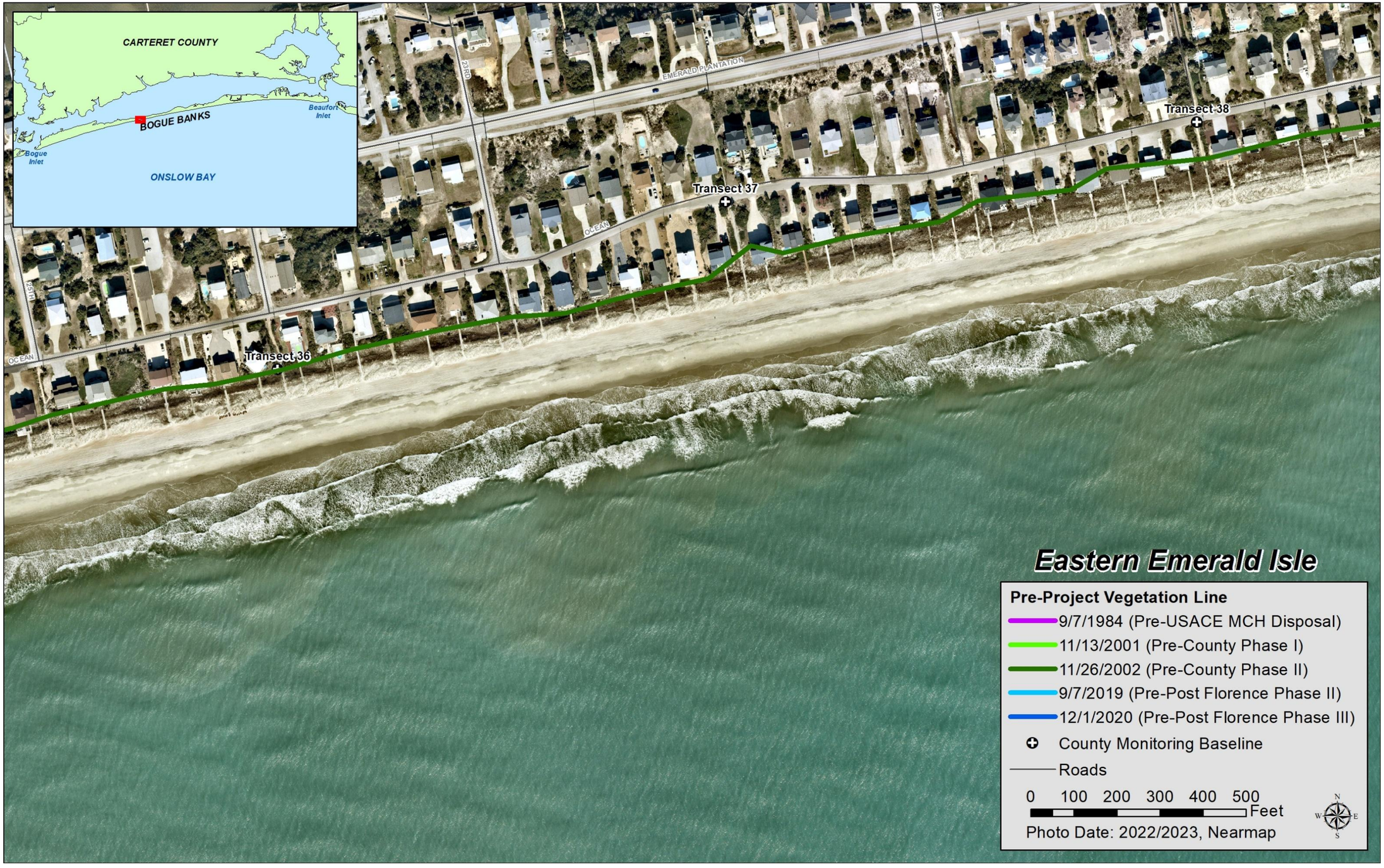

CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
EMERALD PLANTATION
EL COVE
SEA CREST
SUMMER
SURFVIEW
BEACHVIEW
LANDING
OCEAN
RIPTIDE
OCEAN
Transect 26
Transect 27
Eastern Emerald Isle
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
12/1/2020 (Pre-Post Florence Phase III)
County Monitoring Baseline
Roads
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Feet
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CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
BEACH VIEW
CLARK
CEDAR TREE
OCEAN
Transect 28
Transect 29
Eastern Emerald Isle
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
12/1/2020 (Pre-Post Florence Phase III)
County Monitoring Baseline
Roads
0 100 200 300 400 500
Feet
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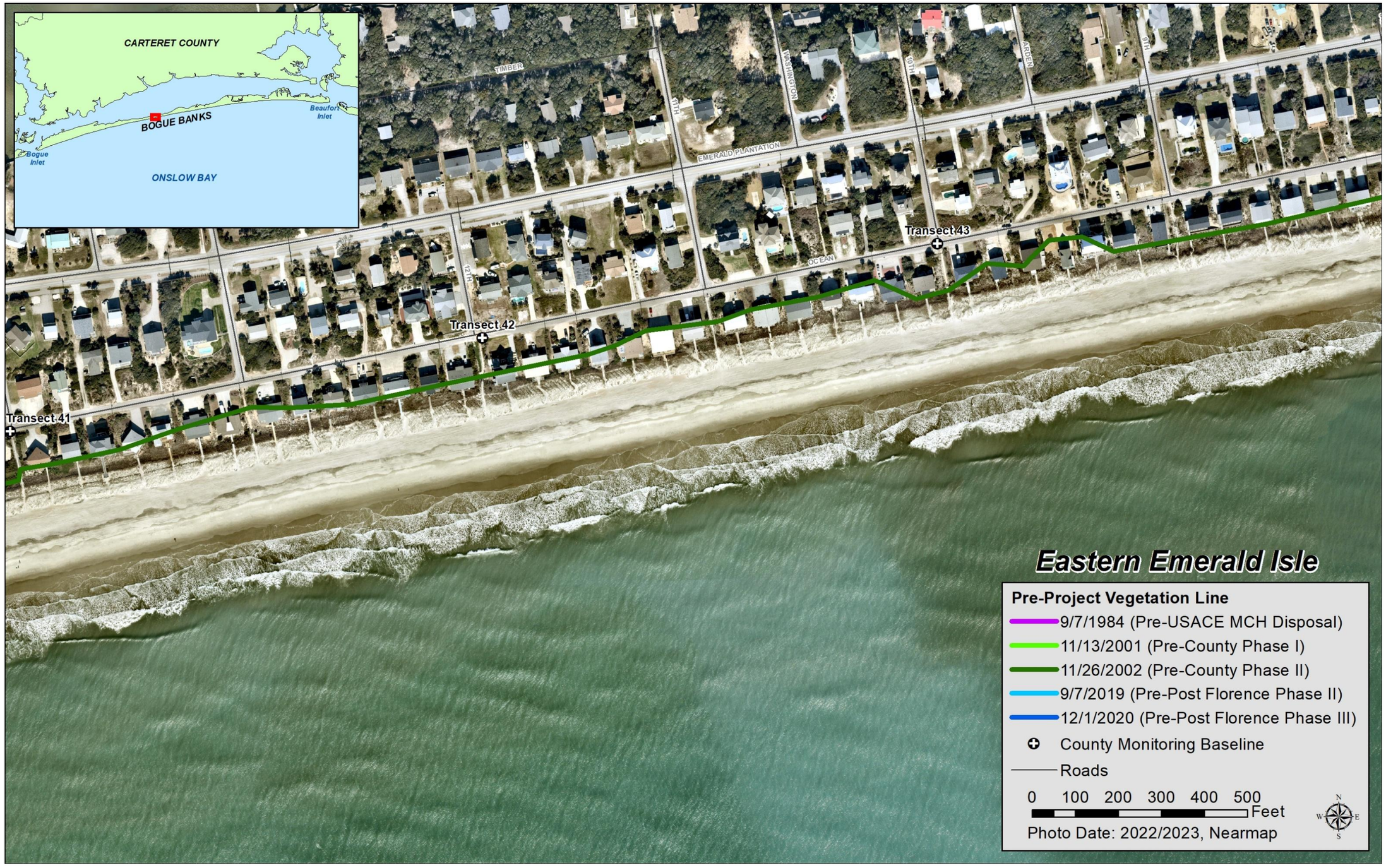

CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
EMERALD PLANTATION
JOEL
NINDIAN
EDNA
LAWRENCE
BRYAN
CAROLYN
ALEX
ROWE
ELIZABETH
KATIE
Transect 30
Transect 31
Eastern Emerald Isle
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
12/1/2020 (Pre-Post Florence Phase III)
County Monitoring Baseline
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CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
GRACE
OCEAN
RIVER
HUBERT
ROBIN
TAMMY
NELLANE
GREGG
CONNE
OCEAN
Transect 32
Transect 33
Eastern Emerald Isle
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
12/1/2020 (Pre-Post Florence Phase III)
County Monitoring Baseline
Roads
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Feet
Photo Date: 2022/2023, Nearmap
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CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
MISTY
DREW
PIER POINT
EMERALD PLANTATION
OCEAN
OCEAN
Transect 34
Transect 35
Eastern Emerald Isle
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
12/1/2020 (Pre-Post Florence Phase III)
County Monitoring Baseline
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CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
25TH
EMERALD PLANTATION
23RD
OCEAN
Transect 36
Transect 37
Transect 38
Eastern Emerald Isle
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
12/1/2020 (Pre-Post Florence Phase III)
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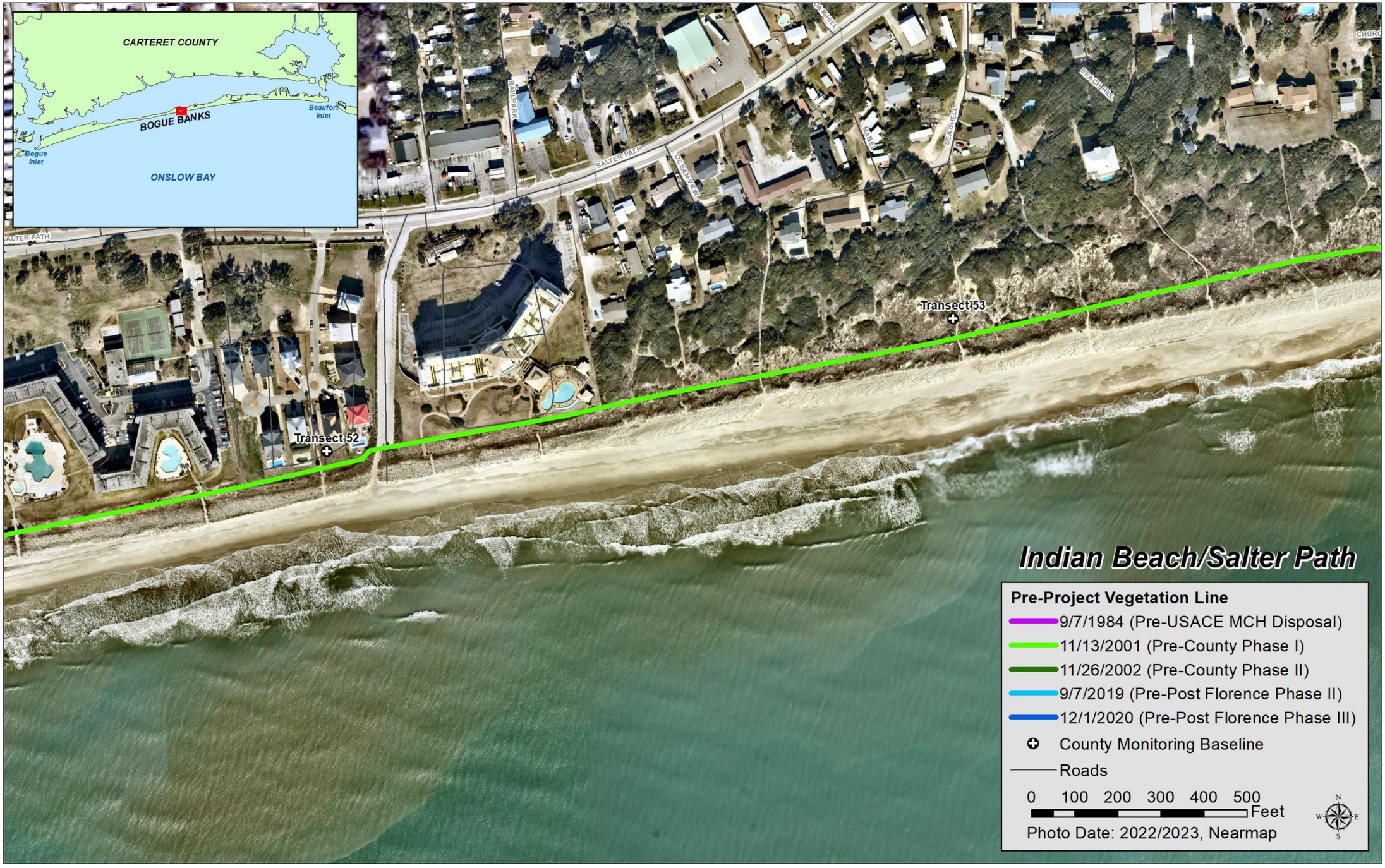

CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
EMERALD PLANTATION
OCEAN
15TH
16TH
17TH
Transect 39
Transect 40
Transect 41
Eastern Emerald Isle
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
12/1/2020 (Pre-Post Florence Phase III)
County Monitoring Baseline
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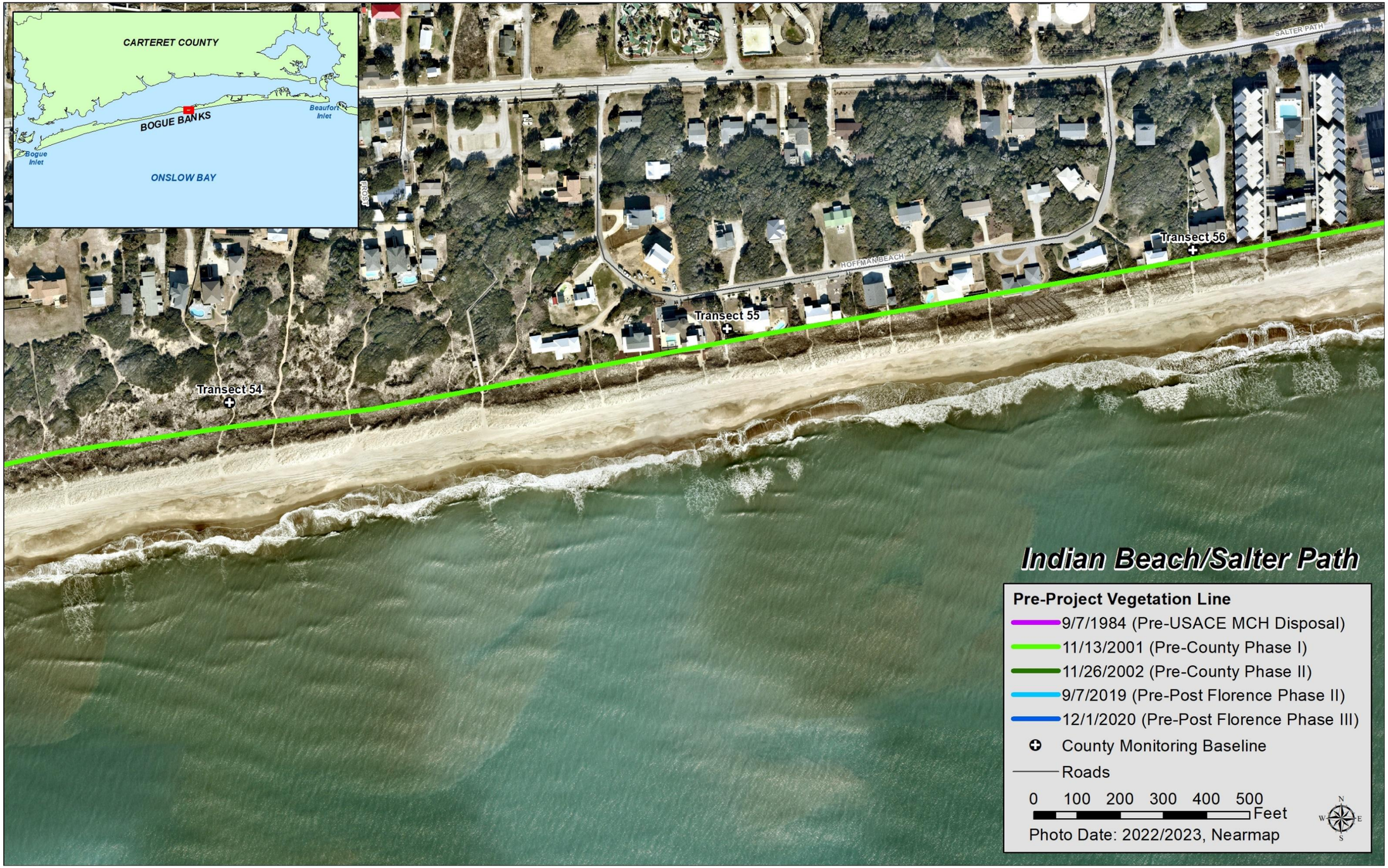

CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
TIMBER
11TH
EMERALD PLANTATION
WASHINGTON
10TH
ARDEN
9TH
12TH
OCEAN
Transect 41
Transect 42
Transect 43
Eastern Emerald Isle
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
12/1/2020 (Pre-Post Florence Phase III)
County Monitoring Baseline
Roads
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Feet
Photo Date: 2022/2023, Nearmap
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CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
EMERALD PLANTATION
OCEAN
Transect 44
Transect 45
Transect 46
Eastern Emerald Isle
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
12/1/2020 (Pre-Post Florence Phase III)
County Monitoring Baseline
Roads
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Feet
Photo Date: 2022/2023, Nearmap


CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
SALTER PATH
1ST
2ND
3RD
Transect 47
Transect 48
Transect 49
Eastern Emerald Isle
Indian Beach/Salter Path
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
12/1/2020 (Pre-Post Florence Phase III)
County Monitoring Baseline
Roads
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CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
SALTER PATH
Transect 49
Transect 50
Transect 51
Indian Beach/Salter Path
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
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County Monitoring Baseline
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CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
SALTER PATH
BARLPARK
SALTER PATH
OCEANVIEW
MABEL
SEA SHELL
BEACH HIL
CHURC
Transect 52
Transect 53
Indian Beach/Salter Path
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
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County Monitoring Baseline
Roads
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CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
ROOSY
SALTER PATH
HOFFMAN BEACH
Transect 54
Transect 55
Transect 56
Indian Beach/Salter Path
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
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County Monitoring Baseline
Roads
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CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
SALTER PATH
SEAISLE
SANDPIPER
Transect 57
Transect 58
Indian Beach/Salter Path
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
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County Monitoring Baseline
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CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
SALTER PATH
WESTPORT
CORAL
SALTER PATH
Transect 59
Transect 60
Pine Knoll Shores
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
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County Monitoring Baseline
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CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
CORAL RIDGE
MUREX
SALTER PATH
Transect 61
Transect 62
Transect 63
Pine Knoll Shores
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
12/1/2020 (Pre-Post Florence Phase III)
County Monitoring Baseline
Roads
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Feet
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CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
MARITIME
Transect 64
Transect 65
Pine Knoll Shores
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
12/1/2020 (Pre-Post Florence Phase III)
County Monitoring Baseline
Roads
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Feet
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CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
SALTER PATH
MARITIME
Transect 66
Transect 67
Pine Knoll Shores
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
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County Monitoring Baseline
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CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
SALTER PATH
DOGWOOD
Transect 68
Transect 69
Transect 70
Pine Knoll Shores
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
12/1/2020 (Pre-Post Florence Phase III)
County Monitoring Baseline
Roads
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Feet
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CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
SALTER PATH
DOGWOOD
Transect 71
Transect 72
Pine Knoll Shores
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
12/1/2020 (Pre-Post Florence Phase III)
County Monitoring Baseline
Roads
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Feet
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CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
MAPLE
CEDAR
HOLLY
WILLOW
VAUPON
PER
KNOLLWOOD
BAY
PINEWOOD
Transect 72
Transect 73
Transect 74
Pine Knoll Shores
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
12/1/2020 (Pre-Post Florence Phase III)
County Monitoring Baseline
Roads
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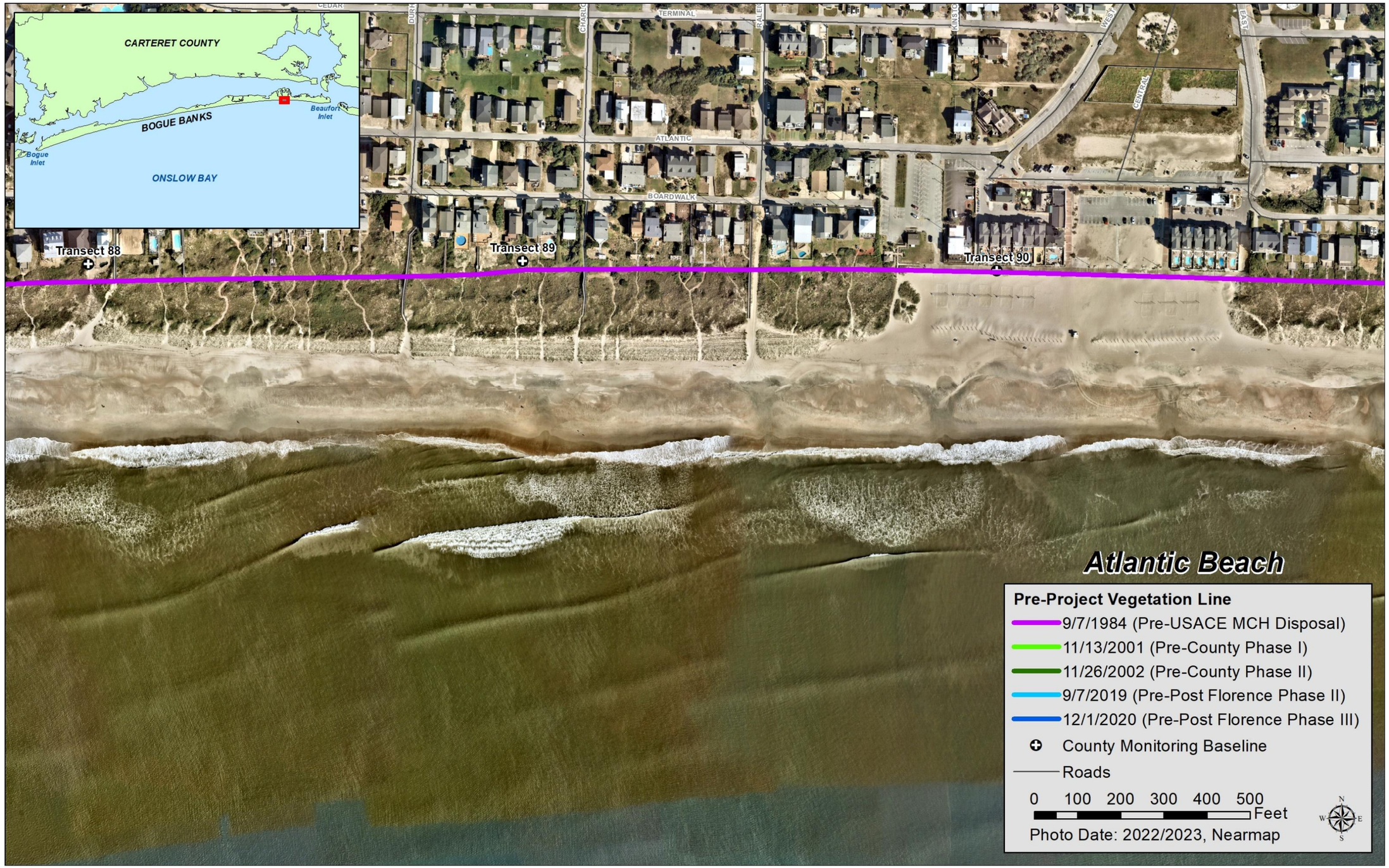

CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
BERMUDA GREENS
OAKLEAF
FORT MACON
KNOLLWOOD
BAY
Transect 75
Transect 76
Pine Knoll Shores
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
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County Monitoring Baseline
Roads
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CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
PELICAN
FORT MACON
Transect 77
Transect 78
Transect 79
Pine Knoll Shores
Atlantic Beach
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
12/1/2020 (Pre-Post Florence Phase III)
County Monitoring Baseline
Roads
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Feet
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CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
FORT MACON
Transect 79
Transect 80
Transect 81
Transect 82
Atlantic Beach
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
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County Monitoring Baseline
Roads
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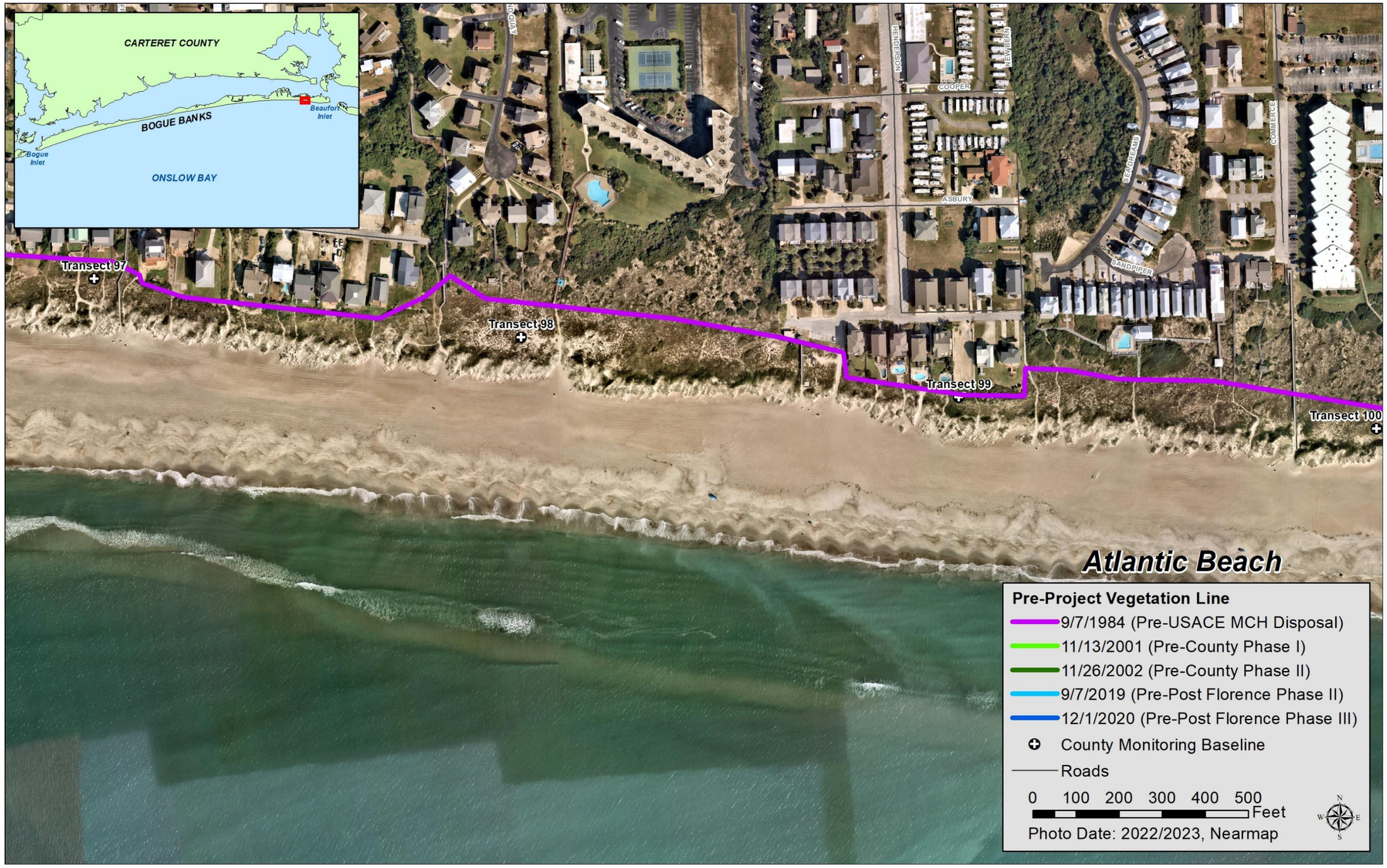

CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
FORT MACON
OAK FOREST
SANDRIDGE
OCEAN RIDGE
Transect 82
Transect 83
Transect 84
Transect 85
Atlantic Beach
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
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County Monitoring Baseline
Roads
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Feet
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CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
Transect 85
Transect 86
Transect 87
Transect 88
Atlantic Beach
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
12/1/2020 (Pre-Post Florence Phase III)
County Monitoring Baseline
Roads
0 100 200 300 400 500
Feet
Photo Date: 2022/2023, Nearmap
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CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
CEDAR
TERMINAL
ATLANTIC
BOARDWALK
CENTRAL
WEST
EAST
Transect 88
Transect 89
Transect 90
Atlantic Beach
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
12/1/2020 (Pre-Post Florence Phase III)
County Monitoring Baseline
Roads
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Feet
Photo Date: 2022/2023, Nearmap
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CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
Transect 91
Transect 92
Transect 93
Transect 94
Atlantic Beach
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
12/1/2020 (Pre-Post Florence Phase III)
County Monitoring Baseline
Roads
0 100 200 300 400 500
Feet
Photo Date: 2022/2023, Nearmap


CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
NEWBERN
DUNES
DUNES
ROBIN
WILLIS
CLUB COLONY
Transect 94
Transect 95
Transect 96
Transect 97
Atlantic Beach
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
12/1/2020 (Pre-Post Florence Phase III)
County Monitoring Baseline
Roads
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Feet
Photo Date: 2022/2023, Nearmap
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CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
Transect 97
Transect 98
Transect 99
Transect 100
ASBURY
COOPER
SANDPIPER
COMMERCE
Atlantic Beach
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
12/1/2020 (Pre-Post Florence Phase III)
County Monitoring Baseline
Roads
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Feet
Photo Date: 2022/2023, Nearmap


CARTERET COUNTY
BOGUE BANKS
Beaufort Inlet
Bogue Inlet
ONSLOW BAY
Transect 100
Transect 101
Transect 102
VARLANDING
Atlantic Beach
Pre-Project Vegetation Line
9/7/1984 (Pre-USACE MCH Disposal)
11/13/2001 (Pre-County Phase I)
11/26/2002 (Pre-County Phase II)
9/7/2019 (Pre-Post Florence Phase II)
12/1/2020 (Pre-Post Florence Phase III)
County Monitoring Baseline
Roads
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Feet
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APPENDIX C

Post-Florence Renourishment Project Construction Plans

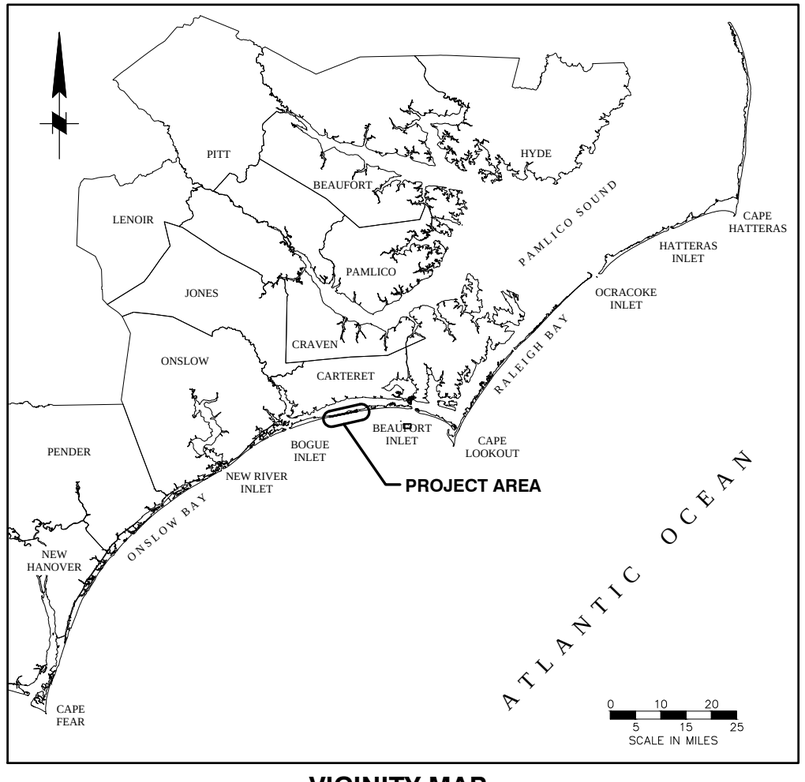
(Phase I, Phase II, and Phase III)

POST-FLORENCE RENOURISHMENT PROJECT
PHASE 1

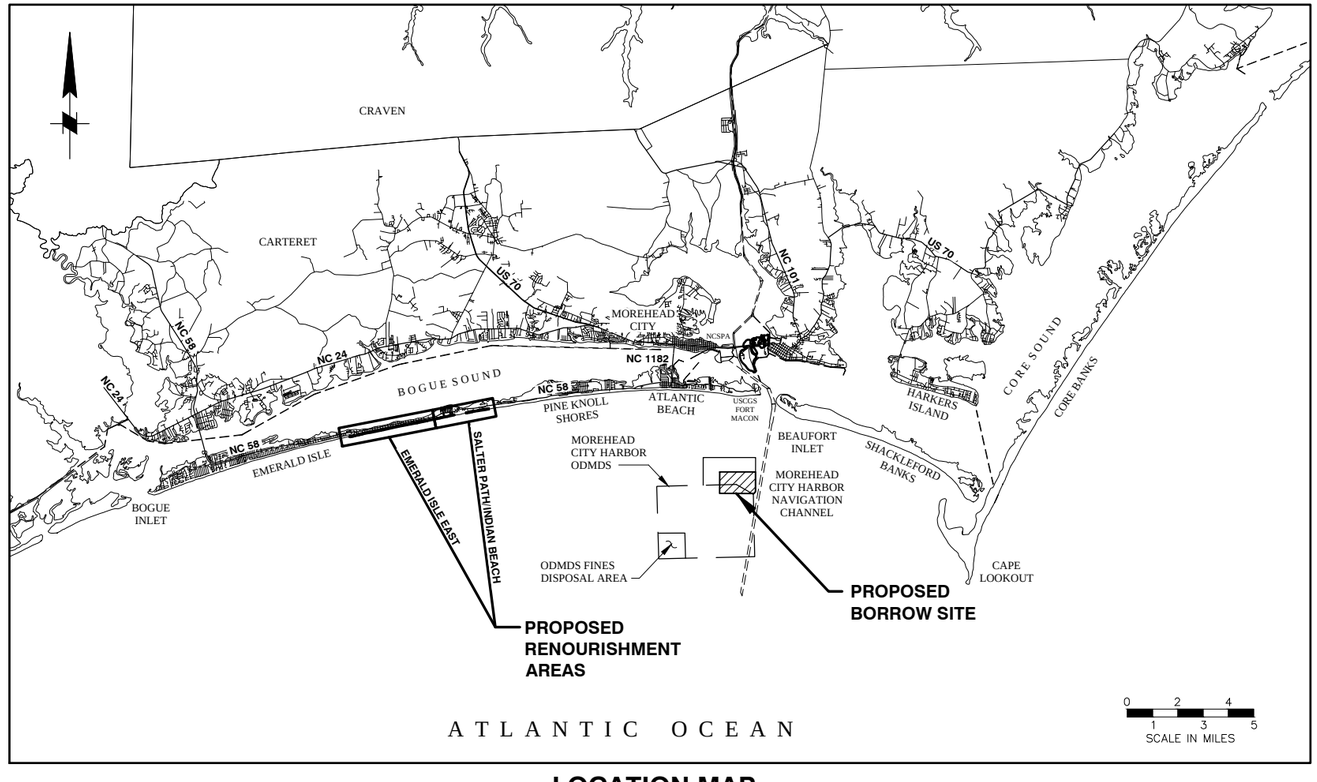
CARTERET COUNTY, NORTH CAROLINA

TOWN OF EMERALD ISLE
7500 EMERALD DRIVE
EMERALD ISLE, NC 28594

TOWN OF INDIAN BEACH
1400 SALTER PATH ROAD
INDIAN BEACH, NC 28512



VICINITY MAP



LOCATION MAP

No.	Mark	Description	Date	Appr.
0	BID DOCUMENTS	ISSUED FOR CONSTRUCTION	10/19/18	JM
			02/12/19	JM

POST-FLORENCE RENOURISHMENT PROJECT
PHASE 1
CARTERET COUNTY, NORTH CAROLINA

COVER SHEET

Designed by:	JM
Dwn by:	BDF
Ckd by:	SM
Reviewed by:	SM
Submitted by:	MOFFATT & NICHOL
Date:	FEB 2019
M&N Project No.	.
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (D SHEET)
Rev.	-

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

PREPARED FOR THE TOWNS OF
EMERALD ISLE AND INDIAN BEACH

NORTH CAROLINA
PROFESSIONAL
SEAL
23487
ENGINEER
JOHNNY D. MARTIN
SEAL

Sheet
Reference No.
G-001
Sheet 1 of 33

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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

INDEX OF DRAWINGS

SHEET NO.	SHEET TITLE
G-001	COVER SHEET
G-002	INDEX OF DRAWINGS, LEGEND, ABBREVIATIONS, AND GENERAL NOTES
C-100	PROJECT MAP AND KEY PLAN
C-101	PROJECT STAGING, ACCESS AND SURVEY CONTROL PLANS
C-102	ODMDS BORROW SITE DREDGE PLAN
C-103	ODMDS BORROW SITE VIBRACORE SUMMARY TABLE
C-104	ODMDS BORROW SITE DREDGE SECTIONS
C-110	REACHES 1 AND 2 – SHEET 1 OF 5
C-111	REACHES 1 AND 2 – SHEET 2 OF 5
C-112	REACHES 1 AND 2 – SHEET 3 OF 5
C-113	REACHES 1 AND 2 – SHEET 4 OF 5
C-114	REACHES 1 AND 2 – SHEET 5 OF 5
C-115	REACH 3 – SHEET 1 OF 1
C-300	BEACH RENOURISHMENT TYPICAL SECTIONS
C-301	RENOURISHMENT SECTIONS – SHEET 1 OF 18
C-302	RENOURISHMENT SECTIONS – SHEET 2 OF 18
C-303	RENOURISHMENT SECTIONS – SHEET 3 OF 18
C-304	RENOURISHMENT SECTIONS – SHEET 4 OF 18
C-305	RENOURISHMENT SECTIONS – SHEET 5 OF 18
C-306	RENOURISHMENT SECTIONS – SHEET 6 OF 18
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C-309	RENOURISHMENT SECTIONS – SHEET 9 OF 18
C-310	RENOURISHMENT SECTIONS – SHEET 10 OF 18
C-311	RENOURISHMENT SECTIONS – SHEET 11 OF 18
C-312	RENOURISHMENT SECTIONS – SHEET 12 OF 18
C-313	RENOURISHMENT SECTIONS – SHEET 13 OF 18
C-314	RENOURISHMENT SECTIONS – SHEET 14 OF 18
C-315	RENOURISHMENT SECTIONS – SHEET 15 OF 18
C-316	RENOURISHMENT SECTIONS – SHEET 16 OF 18
C-317	RENOURISHMENT SECTIONS – SHEET 17 OF 18
C-318	RENOURISHMENT SECTIONS – SHEET 18 OF 18
C-601	CONSTRUCTION BASELINE WORK POINT TABLES

LEGEND

EXISTING		PROPOSED
	MEAN HIGH WATER LINE	
	MEAN LOW WATER LINE	
	MEAN TIDE LEVEL LINE	
	PROPERTY LINE	
	MAJOR CONTOUR	
	MINOR CONTOUR	
	FILL SLOPE LIMIT	
	FILL SLOPE BREAK	
	CONSTRUCTION BASELINE WORK POINT	WP-##
NAME	NGS STATION	

ABBREVIATIONS

CY	CUBIC YARDS	No.	NUMBER
FT	FEET OR FOOT	ODMDS	OFFSHORE DREDGE MATERIAL DISPOSAL SITE
MHW	MEAN HIGH WATER		
MLW	MEAN LOW WATER	TYP	TYPICAL
MTL	MEAN TIDE LEVEL	WP	WORK POINT
NAD	NORTH AMERICAN DATUM	℄	BASELINE
NAVD	NORTH AMERICAN VERTICAL DATUM	@	AT
NGS	NATIONAL GEODETIC SURVEY	~	APPROXIMATELY
NOAA	NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION		

GENERAL NOTES:

1. ALL BEACH FILL, PLANTING AND DREDGING WORK SHALL CONFORM TO THE REQUIREMENTS OF THESE PLANS AND SPECIFICATIONS.
2. THE CONTRACTOR SHALL PLACE THE PERMIT PLACARDS ON THE JOB SITE AND SHALL COMPLY WITH ALL TERMS OF THE PERMITS PERTAINING TO THE PERFORMANCE OF THE WORK. SEE THE TECHNICAL SPECIFICATIONS.
3. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS BEFORE STARTING WORK. NOTIFY OWNER OF DISCREPANCIES.
4. ALL SAFETY REGULATIONS ARE TO BE STRICTLY FOLLOWED. METHODS OF CONSTRUCTION AND ERECTION OF STRUCTURAL MATERIAL ARE THE CONTRACTORS RESPONSIBILITY.
5. THE CONTRACTOR SHALL, ON A DAILY BASIS, REMOVE FROM THE SITE ANY UNSUITABLE EXCAVATED MATERIAL OR DEBRIS. DISPOSAL OF THE MATERIALS IS THE RESPONSIBILITY OF THE CONTRACTOR. ALL DEBRIS SHALL BE DISPOSED OF IN A PERMITTED LANDFILL.
6. THESE PLANS ARE INCOMPLETE WITHOUT THE PROJECT TECHNICAL SPECIFICATIONS. IF THERE ARE CONFLICTS BETWEEN THE PLANS AND SPECIFICATIONS, THE CONTRACTOR SHALL ALERT THE OWNER AND ENGINEER. THE TECHNICAL SPECIFICATIONS SHALL TAKE PRECEDENCE.
7. THE STAGING AND ACCESS AREAS SHOWN ON C-101 ARE OWNED BY THE TOWNS OF EMERALD ISLE AND INDIAN BEACH. COORDINATION WITH THE TOWN MANAGERS SHALL BE REQUIRED BEFORE USE. FOR THE STAGING AND ACCESS AREAS WITHIN REACH 1, THE POINT OF CONTACT IS MR. FRANK RUSH. FOR REACHES 2 & 3, THE POINT OF CONTACT IS MR. TIM WHITE.

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1400 SALTER PATH RD
INDIAN BEACH, NC 28512
(252) 247-3344
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SEE THE TECHNICAL SPECIFICATIONS FOR A DESCRIPTION AND PHOTOS OF STAGING AND ACCESS AREAS.

8. STAGING AREAS SHALL BE MAINTAINED BY THE CONTRACTOR. STAGING AREAS SHALL BE CLEARED OF DEBRIS AND CONTRACTOR INSTALLED AMENITIES AT THE COMPLETION AND ACCEPTANCE OF WORK IN THE AREA. THE CONTRACTOR SHALL RESTORE THE ACCESS AREAS TO THEIR ORIGINAL CONDITION AFTER WORK IN THE AREA IS COMPLETE. THIS WORK INCLUDES, BUT NOT LIMITED TO, REPLACEMENT OF FENCING, SIGNS, SAND FENCE, BEACH VEGETATION, WALKWAYS, DUNES, DUNE VEGETATION, PARKING FACILITIES, PAVED AREAS AND OTHER MISCELLANEOUS ITEMS. ALL REPLACEMENT MATERIALS SHALL BE APPROVED BY THE OWNER BEFORE INSTALLATION.
9. UNLESS OTHERWISE APPROVED BY THE OWNER, EXCESS EQUIPMENT MAY ONLY BE STORED IN APPROVED STORAGE/STAGING AREAS OR TEMPORARY AREAS IN THE IMMEDIATE VICINITY OF THE BEACHFILL PLACEMENT SITE. THE OWNER RESERVES THE RIGHT TO LIMIT SUCH AREAS AS DEEMED NECESSARY. OPERATION OF GRADING AND OTHER CONSTRUCTION EQUIPMENT WILL NOT BE PERMITTED OUTSIDE THE WORK AREA LIMITS EXCEPT FOR INGRESS AND EGRESS OF THE SITE AT APPROVED LOCATIONS. THE STACKING OF DISCHARGE PIPES IN LAYERS EXCEEDING TWO PIPES HIGH SHALL BE PROHIBITED IN ANY OF THE STORAGE OR STAGING AREAS INCLUDING THE TEMPORARY AREAS.
10. ANY EXISTING SIGNS, FENCES, OR OTHER STRUCTURES WITHIN THE WORK LIMITS SHALL BE PROTECTED AND/OR REMOVED AND LATER REPLACED BY THE CONTRACTOR AS DIRECTED.

PERMITS

1. IT IS THE INTENT OF THESE PLANS TO BE IN ACCORDANCE WITH APPLICABLE CODES AND AUTHORITIES HAVING JURISDICTION. ANY DISCREPANCIES BETWEEN THESE PLANS AND APPLICABLE CODES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER.
2. IT IS THE INTENT OF THESE PLANS AND THE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY WITH THE ENVIRONMENTAL PERMITS ISSUED FOR THIS PROJECT. THE PERMITS ARE HEREBY MADE PART OF THE CONTRACT DOCUMENTS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE AND GOVERN HIMSELF BY ALL PROVISIONS OF THESE PERMITS. SEE THE TECHNICAL SPECIFICATIONS.

BID QUANTITIES

1. THE FOLLOWING ESTIMATE OF SAND QUANTITIES REQUIRED FOR THE PROJECT IS:

   TOTAL PROJECT FILL . . . . . .956,000 CY

2. THE FOLLOWING ESTIMATE OF PLANTING QUANTITIES REQUIRED FOR THE PROJECT IS:

   TOTAL PROJECT PLANTING . . . . . .179,400 SY

DREDGING

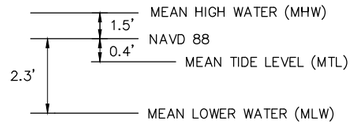
1. NO DREDGING WHATSOEVER SHALL OCCUR BELOW AN ELEVATION OF -52 FT NAVD 88.
2. ALL DREDGING SHALL BE PERFORMED WITHIN THE LIMITS OF THE PERMITTED DREDGING AREA AS SHOWN IN THE DRAWINGS.
3. PIPELINE CORRIDOR SHALL BE DELINEATED WITH BUOYS BY THE CONTRACTOR IN THE PRESENCE OF THE OWNER BEFORE PLACEMENT.

DREDGING

4. THE PLANE COORDINATES AND BEARINGS SHOWN FOR THE DREDGING SURVEYS ARE BASED ON THE NORTH CAROLINA STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM 83 (NAD 83).
5. ALL ELEVATIONS SHOWN ON THE DREDGING DRAWINGS ARE REFERENCED TO NORTH AMERICAN VERTICAL DATUM 1988 (NAVD 88).
6. THE BATHYMETRY PRESENTED ON THE DREDGING PLANS IS BASED ON A SURVEY COMPLETED IN MARCH 2018 BY GEODYNAMICS AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS AT THAT TIME.
7. A POST-DREDGE SURVEY OF THE BORROW AREA SHALL BE COMPLETED BY AN INDEPENDENT REGISTERED/CERTIFIED SURVEYOR COORDINATED AND PAID FOR BY THE CONTRACTOR TO STANDARDS OUTLINED IN THE TECHNICAL SPECIFICATIONS.

BEACH FILL

1. ALL SAND EXCAVATED FROM THE BORROW AREAS SHALL BE TRANSPORTED TO, AND DEPOSITED ON, THE BEACH BETWEEN THE LINES, GRADES, AND CROSS-SECTIONS SHOWN ON THE DRAWINGS.
2. AFTER NOTIFICATION BY THE CONTRACTOR OF THEIR INTENT TO COMMENCE DREDGING AND SAND PLACEMENT, A CURRENT BEACH SURVEY WILL BE PERFORMED BY THE OWNER. THE CONTRACTOR SHALL NOTIFY THE OWNER AT LEAST 4 WEEKS PRIOR TO THE COMMENCEMENT OF BEACH FILL PLACEMENT. THE UPDATED BEACH SURVEY WILL BE USED TO ADJUST THE LIMITS AND GRADE LINES TO MEET THE FILL DENSITIES PROVIDED WITH THE SECTIONS ON SHEETS C-301 THUR C-318.
3. SAND SHALL BE PLACED WITHIN THESE LIMITS AND GRADE LINES AS PRACTICALLY AS POSSIBLE. TOLERANCE SHALL BE WITHIN ±0.5 FOOT FOR BERM ELEVATION AND WIDTHS OUT TO THE MEAN TIDE LEVEL (MTL) AS SHOWN ON SHEET C-300. PAYMENT WILL BE MADE FOR THE CY/FT SHOWN ON THE PLANS WITH A TOLERANCE OF ±10%. EVERY ATTEMPT WILL BE MADE BY THE CONTRACTOR TO FILL WITHIN THE PRESCRIBED TEMPLATE. SEE TECHNICAL SPECIFICATIONS. THE BEACH FILL SHALL BE PLACED BY REACH FROM EAST TO WEST.
4. THE OWNER MAY MAKE ALTERATIONS IN THE PLAN DIMENSIONS, GRADE OF SLOPES, OR VOLUME OF FILL PER FOOT OF BEACH IN ORDER TO ACCOUNT FOR CHANGED CONDITIONS SINCE THE TIME OF THE EXISTING CONDITIONS SURVEY. THE CONTRACTOR SHALL WORK CLOSELY WITH THE OWNER TO ENSURE THAT THE TOTAL QUANTITY OF SAND ALLOWED UNDER THE CONTRACT IS PLACED AS EFFECTIVELY AS POSSIBLE.
5. CONTRACTOR SHALL TAKE CARE TO GRADE THE DUNE AND BERM SO THAT PONDING LANDWARD OF THE CRESTS IS MINIMIZED.
6. EXISTING WALKWAYS SHALL REMAIN AND NOT BE DAMAGED BEYOND CURRENT CONDITIONS. ANY ADDITIONAL DAMAGE WILL BE REPAIRED OR REPLACED AT THE CONTRACTORS COST AS DIRECTED BY THE OWNER OR THE ENGINEER. FILL SHALL BE PLACED COMPLETELY UNDERNEATH AND/OR AROUND STRUCTURES.
7. THE PLANE COORDINATES AND BEARINGS SHOWN FOR THE BEACH FILL SURVEYS ARE BASED ON THE NORTH CAROLINA STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM 83 (NAD 83).
8. ALL ELEVATIONS SHOWN ON THE BEACH FILL DRAWINGS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM (NAVD 88).
9. THE BATHYMETRY/TOPOGRAPHY PRESENTED ON THE BEACH FILL PLANS AND SECTIONS IS BASED ON A SURVEY COMPLETED IN JANUARY 2019 BY GEODYNAMICS AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS AT THAT TIME.
10. THE MEAN HIGH WATER ELEVATION AND MEAN LOW WATER ELEVATION SHOWN ON THE BEACH FILL DRAWINGS AND BELOW WERE PROVIDED BY CARTERET COUNTY AND ARE BASED ON NOAA TIDAL DATUMS AT THE ATLANTIC BEACH TRIPLE S PIER AND THE DUKE MARINE LAB.



11. HORIZONTAL AND VERTICAL CONTROL FOR THE BEACH FILL SURVEY WAS BASED ON NUMEROUS RANGE MONUMENTS AS FOUND BY GEODYNAMICS.
12. CONTOURS FOR THE BEACH FILL PLANS ARE SHOWN AT 1 FT INTERVALS.
13. PRE- AND POST-CONSTRUCTION SURVEYS OF THE BEACH AREA SHALL BE COMPLETED BY AN INDEPENDENT REGISTERED/CERTIFIED SURVEYOR COORDINATED AND PAID FOR BY THE CONTRACTOR. TRANSECTS SHALL BE AT 100-FOOT INTERVALS. ADDITIONAL ELEVATIONS SHALL BE TAKEN AS NECESSARY TO ACCURATELY REPRESENT TOPOGRAPHY OF THE BEACH AREA.
14. BEACH FILL SLOPES CALLED OUT ON PLANS ARE HORIZONTAL : VERTICAL.
15. SEE TECHNICAL SPECIFICATION FOR ADDITIONAL PLACEMENT REQUIREMENTS.
16. THE CONTRACTOR SHALL PROVIDE TEMPORARY SAND RAMPS OVER THE PIPELINE FOR PEDESTRIAN AND EMERGENCY VEHICLE ACCESS ALONG THE BEACH. THE MAXIMUM DISTANCE BETWEEN THESE TEMPORARY SAND RAMPS SHALL BE 500 FEET. THESE TEMPORARY SAND RAMPS SHALL BE LEVELED ONCE THE PIPELINE HAS BEEN MOVED. THE CONTRACTOR SHALL ALSO CONSTRUCT A BARRIER TO KEEP THE PUBLIC AT LEAST 250 FEET FROM THE DISCHARGE PIPE IN BOTH DIRECTIONS UP AND DOWN THE BEACH. SEE THE TECHNICAL SPECIFICATIONS.

No.	Description	Date	Appr.
0	ISSUED FOR CONSTRUCTION	02/12/19	JM
	BID DOCUMENTS	10/19/18	JM

POST-FLORENCE RENOURISHMENT PROJECT
PHASE 1
CARTERET COUNTY, NORTH CAROLINA

INDEX OF DRAWINGS, LEGEND, ABBREVIATIONS, AND GENERAL NOTES

Rev. -
Date: FEB 2019
M&N Project No. .
Drawing code:
Drawing Scale:
Plot scale: 1:1 (0 SHEET)

Designed by: JM
Dwn by: BDF
Cad by: SM
Reviewed by: SM
Submitted by: .

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

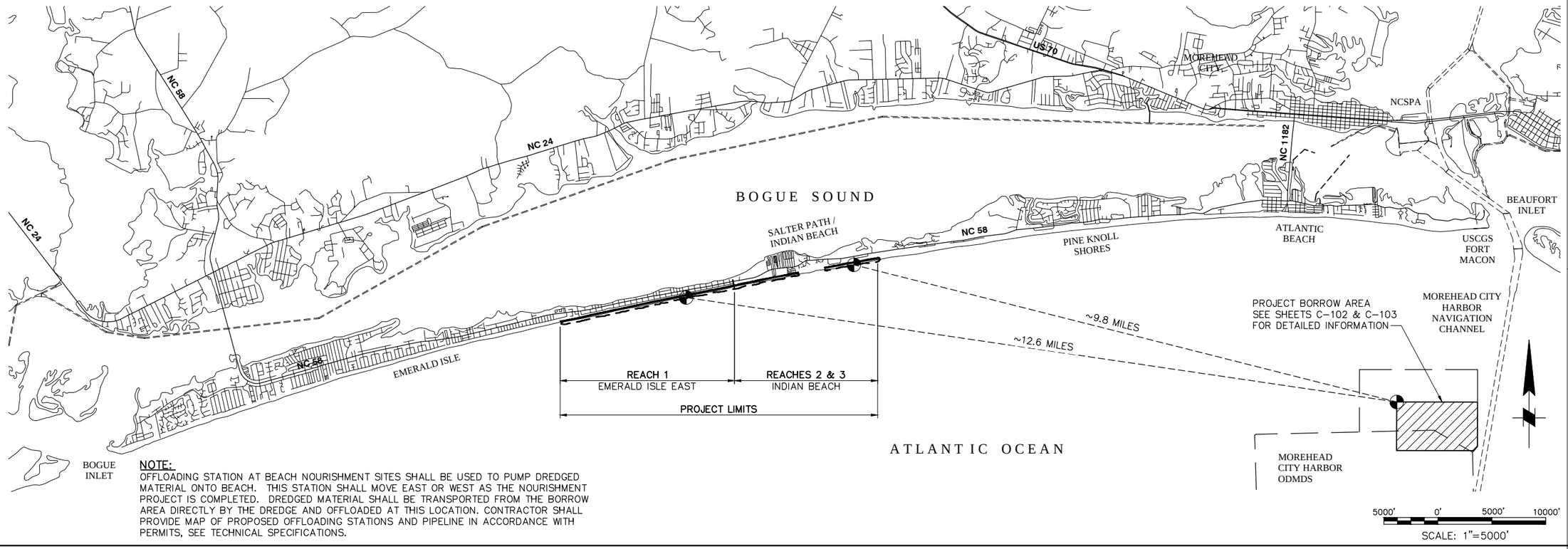
PREPARED FOR THE TOWNS OF EMERALD ISLE AND INDIAN BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

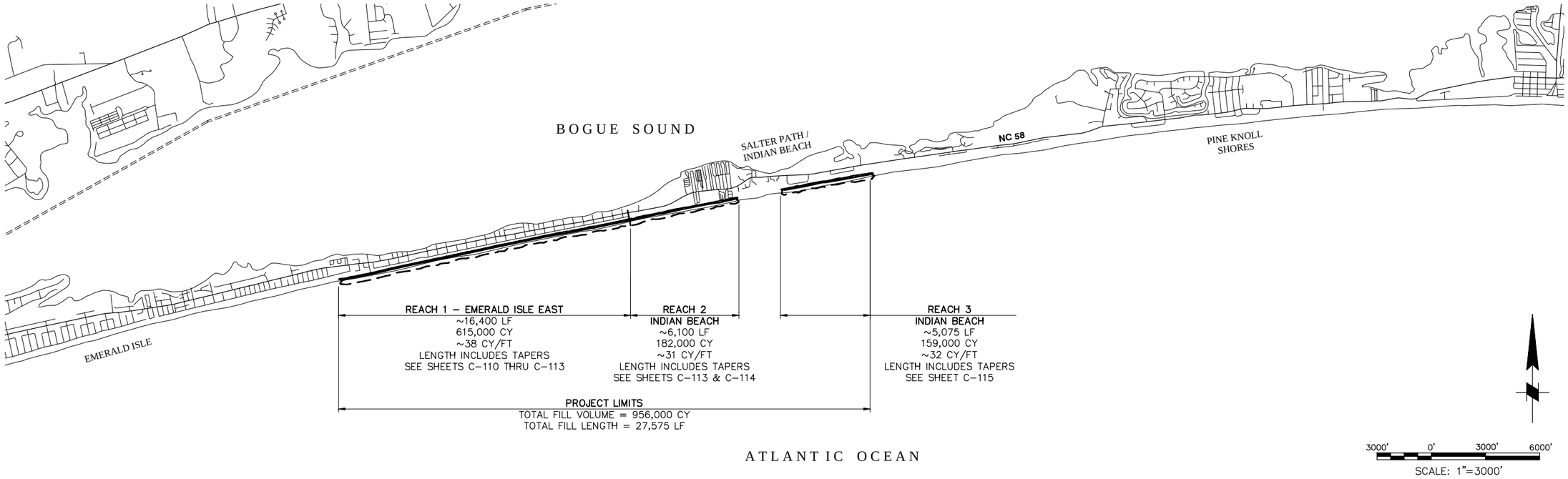
Sheet Reference No.
G-002
Sheet 2 of 33

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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTE:
OFFLOADING STATION AT BEACH NOURISHMENT SITES SHALL BE USED TO PUMP DREDGED MATERIAL ONTO BEACH. THIS STATION SHALL MOVE EAST OR WEST AS THE NOURISHMENT PROJECT IS COMPLETED. DREDGED MATERIAL SHALL BE TRANSPORTED FROM THE BORROW AREA DIRECTLY BY THE DREDGE AND OFFLOADED AT THIS LOCATION. CONTRACTOR SHALL PROVIDE MAP OF PROPOSED OFFLOADING STATIONS AND PIPELINE IN ACCORDANCE WITH PERMITS, SEE TECHNICAL SPECIFICATIONS.



No.	Mark	Description	Date	Appr.
		ISSUED FOR CONSTRUCTION	02/12/19	JM
		BID DOCUMENTS	10/19/18	JM

POST-FLORENCE RENOURISHMENT PROJECT
PHASE 1
CARTERET COUNTY, NORTH CAROLINA

PROJECT MAP AND KEY PLAN

Rev. -
Date: FEB 2019
M&N Project No. .
Drawing code:
Designed by: JM
Dwn by: BDF
Ckd by: SM
Reviewed by: SM
Submitted by: MOFFATT & NICHOL
Drawing Scale:
Plot scale: 1:1 (D SHEET)

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moffatt & nichol

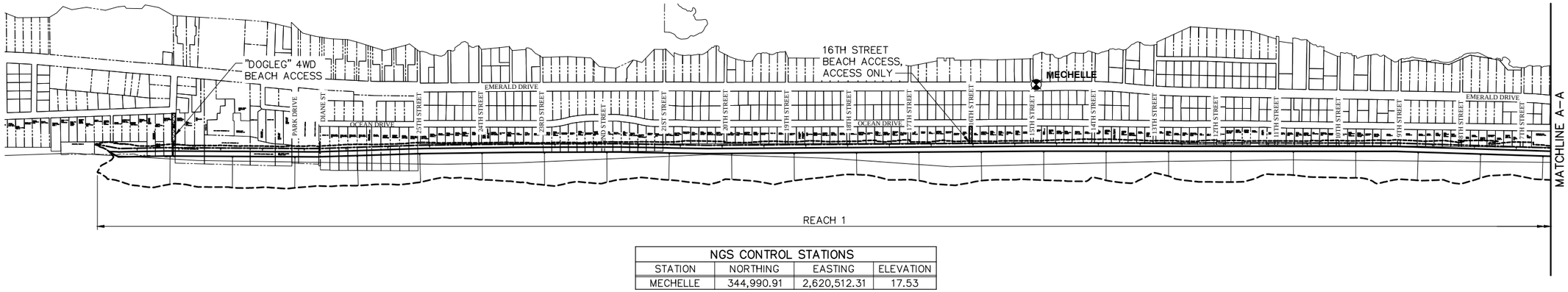
PREPARED FOR THE TOWNS OF
EMERALD ISLE AND INDIAN BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

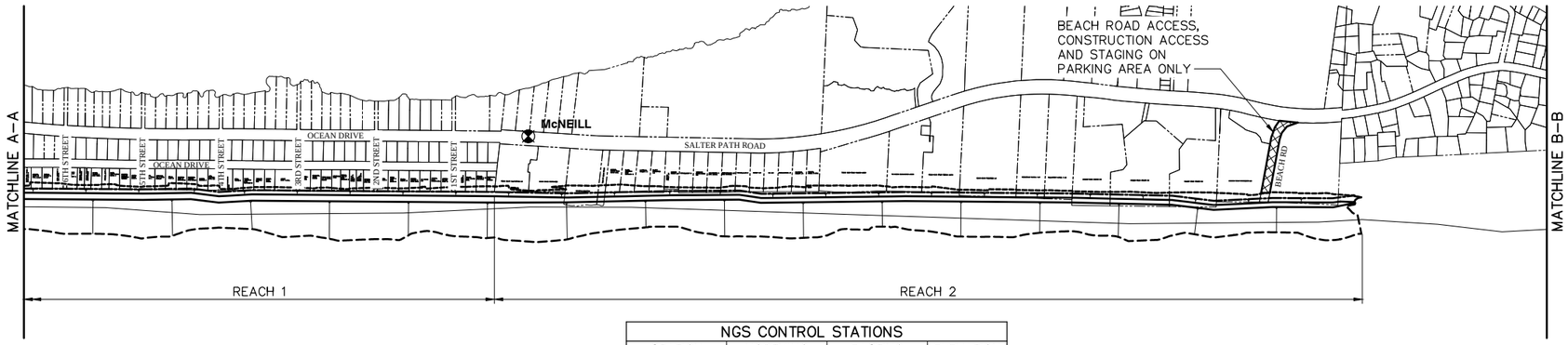
Sheet Reference No.
C-100
Sheet 3 of 33

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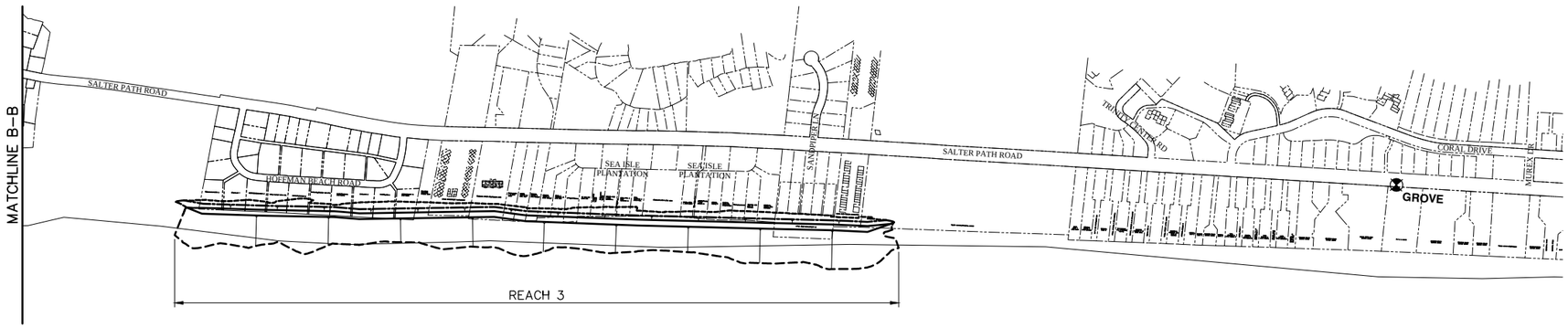
DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NGS CONTROL STATIONS			
STATION	NORTHING	EASTING	ELEVATION
MECHELLE	344,990.91	2,620,512.31	17.53



NGS CONTROL STATIONS			
STATION	NORTHING	EASTING	ELEVATION
McNEILL	346,476.28	2,628,573.13	18.49



NGS CONTROL STATIONS			
STATION	NORTHING	EASTING	ELEVATION
GROVE	349,629.16	2,645,424.90	11.54

NOTES:

1. THE NORTHINGS AND EASTINGS SHOWN ARE BASED ON THE NORTH CAROLINA STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM 1983 (NAD 83) (FEET).
2. THE ELEVATIONS SHOWN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM 1988 (NAVD 88) (FEET).
3. SEE TECHNICAL SPECIFICATIONS FOR DESCRIPTIONS AND PHOTOS OF STAGING AND ACCESS AREAS.
4. CONTRACTOR SHALL BE ABLE TO UTILIZE BEACH ROAD ACCESS IN REACH 2 FOR REACH 3 INGRESS AND EGRESS.

500' 0' 500' 1000'

SCALE: 1"=500'

Rev.	Description	Date	Appr.
0	ISSUED FOR CONSTRUCTION	02/12/19	JM
1	BID DOCUMENTS	10/19/18	JM

POST-FLORENCE RENOURISHMENT PROJECT
PHASE 1
CARTERET COUNTY, NORTH CAROLINA

PROJECT STAGING, ACCESS AND SURVEY CONTROL PLANS

Date: FEB 2019
M&N Project No. -
Drawing code:
Drawing Scale: Plot scale: 1:1 (0 SHEET)

Designed by: JM
Drwn by: BDF
Cad by: SM
Reviewed by: SM
Submitted by: MOFFATT & NICHOL

4700 FALLS OF THE NEUSE ROAD
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NC FIRM LICENSE No. F-0105

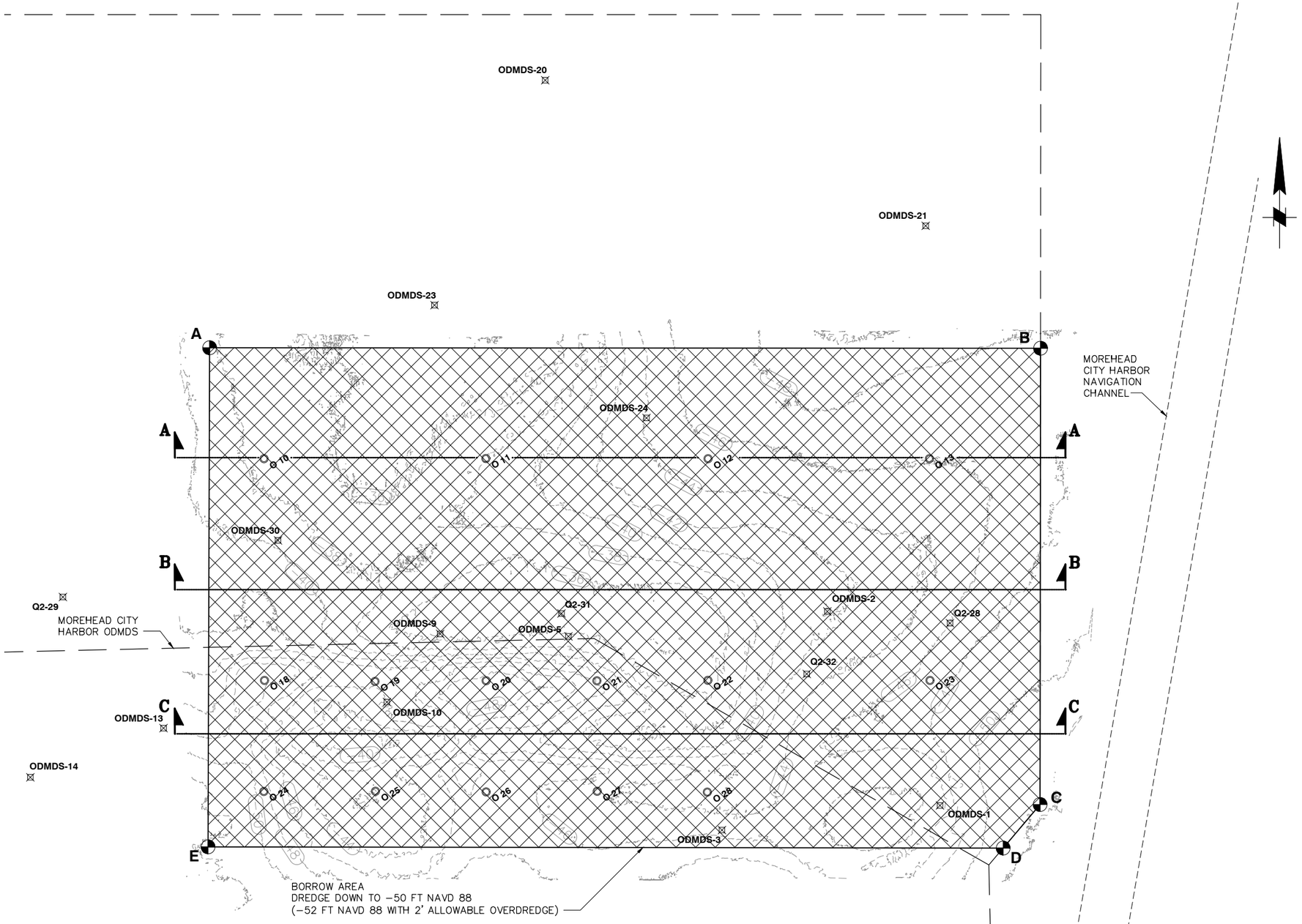
PREPARED FOR THE TOWNS OF
EMERALD ISLE AND INDIAN BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-101
Sheet 4 of 33

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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



PROPOSED BORROW AREA
COORDINATE TABLE

POINT	NORTHING	EASTING
A	335251.00	2689873.17
B	335246.38	2697361.70
C	331134.26	2697357.83
D	330742.17	2697024.91
E	330752.97	2689859.35

LEGEND

A — PROPOSED BORROW AREA CONTROL POINT

O## — 2011 VIBRACORE LOCATION (SEE TECHNICAL SPECIFICATIONS FOR DATA SUMMARY)

ID — REMOTE SENSING TARGET

NOTES

1. BATHYMETRY CONTOURS SHOWN IN FEET REFERENCED TO NAVD 88 ARE BASED ON MULTIBEAM SURVEYS PERFORMED BY GEODYNAMICS IN MARCH 2018 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS AT THE TIME OF THE SURVEY.
2. BORROW AREA COORDINATES ARE NORTH CAROLINA STATE PLANE, NAD 83 (FEET).
3. THE MEAN HIGH WATER ELEVATION AND MEAN LOW WATER ELEVATION SHOWN ON THE DREDGE SECTIONS WERE PROVIDED BY CARTERET COUNTY AND ARE BASED ON NOAA TIDAL DATUMS AT THE ATLANTIC BEACH TRIPLE S PIER AND THE DUKE MARINE LAB.
4. OTHER CONTRACTORS MAY BE PRESENT IN AREAS WHERE DREDGING OF BEACH FILL MATERIALS IS TO OCCUR. CONTRACTOR IS RESPONSIBLE FOR COORDINATING ACTIVITIES.
5. SEE TECHNICAL SPECIFICATIONS FOR DATA SUMMARY OF THE ARCHAEOLOGICAL REMOTE SENSING AND TARGET IDENTIFICATION STUDY. THE STUDY CONCLUDES THAT THE TARGETS CONSIST OF MODERN DEBRIS (WIRE ROPE, PIPE, ETC.) THAT APPEARS TO BE RELATED TO THE ODMDS OR ARTIFICIAL REEF SYSTEMS BUILT IN THE 1970'S. NO CULTURAL RESOURCES OR HISTORICAL ARTIFACTS WERE FOUND.
6. THE CONTRACTOR SHALL LEAVE UNDISTURBED FURROWS BETWEEN DREDGING PASSES WITHIN THE ODMDS BORROW SITE.
7. FOR VIBRACORE SUMMARY TABLE, SEE SHEET C−103.

REMOTE SENSING TARGET
COORDINATE TABLE

TARGET ID	NORTHING	EASTING
ODMDS−1	331,126	2,696,456
ODMDS−2	332,875	2,695,144
ODMDS−3	330,904	2,694,491
ODMDS−5	332,650	2,693,107
ODMDS−9	332,672	2,691,951
ODMDS−10	332,058	2,691,471
ODMDS−13	331,823	2,689,458
ODMDS−14	331,380	2,688,258
ODMDS−20	337,662	2,692,898
ODMDS−21	336,350	2,696,327
ODMDS−23	335,635	2,691,900
ODMDS−24	334,618	2,693,811
ODMDS−30	333,515	2,690,490
Q2−28	332,769	2,696,546
Q2−29	333,005	2,688,551
Q2−31	332,856	2,693,045
Q2−32	332,311	2,695,255

500' 0' 500' 1000'
SCALE: 1"=500' HORIZONTAL

Mark	Description	Date	Appr.
0	ISSUED FOR CONSTRUCTION	02/12/19	JM
	BID DOCUMENTS	10/19/18	JM

POST-FLORENCE RENOURISHMENT PROJECT
PHASE 1
CARTERET COUNTY, NORTH CAROLINA

ODMDS BORROW SITE DREDGE
PLAN

Designed by: JM	Date: FEB 2019
Drwn by: BDF	Ckd by: SM
Reviewed by: SM	Submitted by: MOFFATT & NICHOL
Drawing code:	M&N Project No. -
Drawing Scale: Plot scale: 1:1 (0 SHEET)	Rev. -

4700 FALLS OF THE NEUSE ROAD
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moffatt & nichol

PREPARED FOR THE TOWNS OF
EMERALD ISLE AND INDIAN BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-102
Sheet 5 of 33

File: Q:\RA\P Boque Banks MBNP\CADD_Active_Sheets\MBNP-C102; Plotted: 2/11/2019 5:17 PM by FORD, BRIAN; Saved: 9/12/2018 12:16 PM by BFORD

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

Bogue Banks Sediment Compatibility

Native Sediment Characteristics

Reference - (CSE, 2001 - EA for Phases 1 & 2 and CAMA Permit #124-01)

Mean	1.76 phi	0.30 mm
Standard Deviation	0.77 phi	0.59 mm

Borrow Area Sediment Characteristics ODMDS

Reference - (Alpine, February 2012)

Mean	1.71	phi	0.31	mm
Standard Deviation	1.10	phi	0.81	mm

Percent Fines 0.5%

Percent Sand 98.0%

Precent Gravel 1.5%

Overfill Factor

Mean Difference	Sorting Ratio
-0.07	1.42

Summary of ODMDS Borrow Area Sediment Characteristics

Vibracore	Sample Number	Depth (ft)	Bed Elevation (ft NAVD)	Sample Elevation (ft NAVD)			Sample Depth (ft)	Gravel	Sand	<#200	<#230	Carbonate	Mean (mm)	Mean (phi)
O10	1	0-5	-38.2	-38.2	-	-43.2	5.0	1.18	98.64	0.18	0.12	11.8	0.27	1.89
O10	2	5-10	-38.2	-43.2	-	-48.2	5.0	0.22	99.43	0.35	0.29	12.9	0.28	1.84
O10	3	10-15	-38.2	-48.2	-	-53.2	5.0	0.18	99.50	0.32	0.25	10.0	0.26	1.94
O11	1	0-2	-37.6	-37.6	-	-39.6	2.0	2.7	96.48	0.82	0.63	15.5	0.34	1.56
O11	2	2-5	-37.6	-39.6	-	-42.6	3.0	0.43	99.28	0.29	0.27	13.7	0.33	1.60
O11	3	5-10	-37.6	-42.6	-	-47.6	5.0	0.07	99.66	0.27	0.26	13.8	0.26	1.94
O11	4	10-15	-37.6	-47.6	-	-52.6	5.0	1.93	97.92	0.15	0.12	14.1	0.29	1.79
O12	1	0-5	-46.6	-46.6	-	-51.6	5.0	4.59	95.09	0.32	0.26	23.3	0.45	1.15
O12	2	5-9	-46.6	-51.6	-	-55.6	4.0	1.32	98.39	0.29	0.21	14.2	0.32	1.64
O13	1	0-6	-47.3	-47.3	-	-53.3	6.0	0.08	99.53	0.39	0.28	11.5	.29	1.79
O18	1	0-6	-44.1	-44.1	-	-50.1	6.0	1.22	98.07	0.71	0.53	12.1	0.28	1.84
O18	2	6-12	-44.1	-50.1	-	-56.1	6.0	0.21	99.39	0.4	0.29	12.6	0.28	1.84
O19	1	0-6	-36.1	-36.1	-	-42.1	6.0	0	99.82	0.18	0.08	10.6	0.25	2.00
O19	2	6-12	-36.1	-42.1	-	-48.1	6.0	1.69	98.27	0.04	0	13.5	0.29	1.79
O19	3	12-17	-36.1	-48.1	-	-53.1	5.0	1.63	98.19	0.18	0.12	12.8	0.32	1.64
O19	4	17-19.3	-36.1	-53.1	-	-55.4	2.3	0	99.3	0.7	0.49	9.5	0.24	2.06
O20	1	0-5	-36.4	-36.4	-	-41.4	5.0	2.55	97.31	0.14	0.12	17.8	0.35	1.51
O20	2	5-10	-36.4	-41.4	-	-46.4	5.0	1.28	97.83	0.89	0.72	21.2	0.31	1.69
O20	3	10-13.9	-36.4	-46.4	-	-50.3	3.9	2.31	97.24	0.45	0.39	9.3	0.3	1.74
O21	1	0-5	-37	-37.0	-	-42.0	5.0	0.36	99.34	0.3	0.28	16.2	0.3	1.74
O21	2	5-10	-37	-42.0	-	-47.0	5.0	1.77	97.72	0.51	0.46	11.7	0.36	1.47
O21	3	10-15	-37	-47.0	-	-52.0	5.0	1.66	98.11	0.23	0.16	12.3	0.31	1.69
O22	1	0-5	-32.7	-32.7	-	-37.7	5.0	2.14	97.72	0.14	0.13	16.2	0.34	1.56
O22	2	5-10	-32.7	-37.7	-	-42.7	5.0	2.12	97.68	0.2	0.14	12.3	0.31	1.69
O22	3	10-15	-32.7	-42.7	-	-47.7	5.0	1.58	98.04	0.38	0.37	11.7	0.29	1.79
O22	4	15-20	-32.7	-47.7	-	-52.7	5.0	1.06	98.53	0.41	0.4	14.7	0.34	1.56
O23	1	0-6	-47.8	-47.8	-	-53.8	6.0	1.88	97.98	0.14	0.11	13.3	0.36	1.47
O24	1	0-4.9	-49.3	-49.3	-	-54.2	4.9	4.78	90.03	5.19	4.81	13	0.24	2.06
O24	2	4.9-6.8	-49.3	-54.2	-	-56.1	1.9	0.32	99.38	0.3	0.2	10.4	0.26	1.94
O25	1	0-6	-42	-42.0	-	-48.0	6.0	0.9	98.65	0.45	0.36	13.6	0.33	1.60
O25	2	6-12	-42	-48.0	-	-54.0	6.0	2.05	96.99	0.96	0.83	18	0.33	1.60
O25	3	12-17.9	-42	-54.0	-	-59.9	5.9	1.79	98.06	0.15	0.12	19.2	0.32	1.64
O26	1	0-5	-45.7	-45.7	-	-50.7	5.0	5.01	94.52	0.47	0.37	12.7	0.36	1.47
O26	2	5-9.3	-45.7	-50.7	-	-55.0	4.3	0.97	98.79	0.24	0.21	11.9	0.3	1.74
O27	1	0-4	-43.6	-43.6	-	-47.6	4.0	0.56	99.24	0.2	0.2	16.7	0.4	1.32
O27	2	4-8	-43.6	-47.6	-	-51.6	4.0	0.67	98.95	0.38	0.35	12	0.32	1.64
O27	3	8-12.9	-43.6	-51.6	-	-56.5	4.9	0.16	99.35	0.49	0.41	11.8	0.29	1.79
O28	1	0-6	-42.7	-42.7	-	-48.7	6.0	0.59	99.29	0.12	0.09	12.8	0.28	1.84
O28	2	6-11.6	-42.7	-48.7	-	-54.3	5.6	0.41	99.34	0.25	0.16	13.4	0.3	1.74
							average	1.44	98.04	0.52	0.44	13.56	0.31	1.71
							median	1.28	98.19	0.30	0.28	12.80	0.31	1.74

No.	Description	Date	Appr.
0	ISSUED FOR CONSTRUCTION	02/12/19	JM
Mark	BID DOCUMENTS	10/19/18	JM

POST-FLORENCE RENOURISHMENT PROJECT
PHASE 1
CARTERET COUNTY, NORTH CAROLINA

ODMDS BORROW SITE
VIBRACORE SUMMARY TABLE

Designed by: JM | Dwn. by: BDF | Ckd by: SM | Reviewed by: SM | Submitted by: MOFFATT & NICHOL | Date: FEB 2019 | M&N Project No. . | Drawing code: . | Drawing Scale: Plot scale: 1:1 (D SHEET) | Rev. –

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

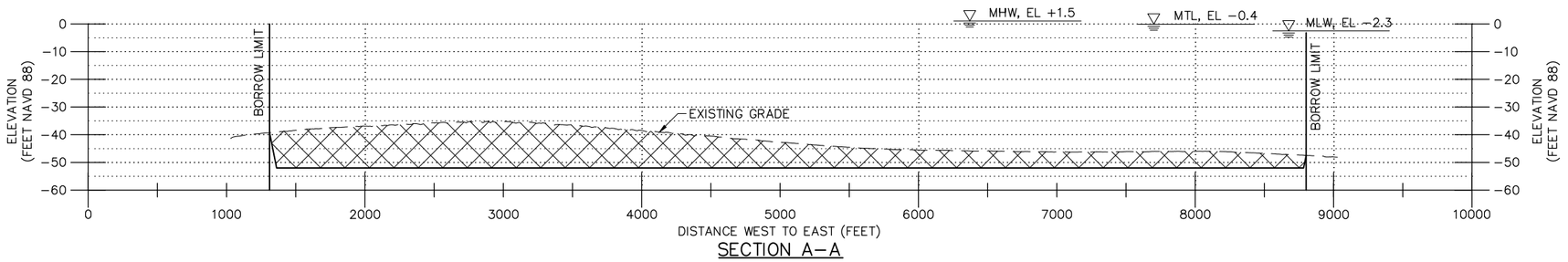
PREPARED FOR THE TOWNS OF
EMERALD ISLE AND INDIAN BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

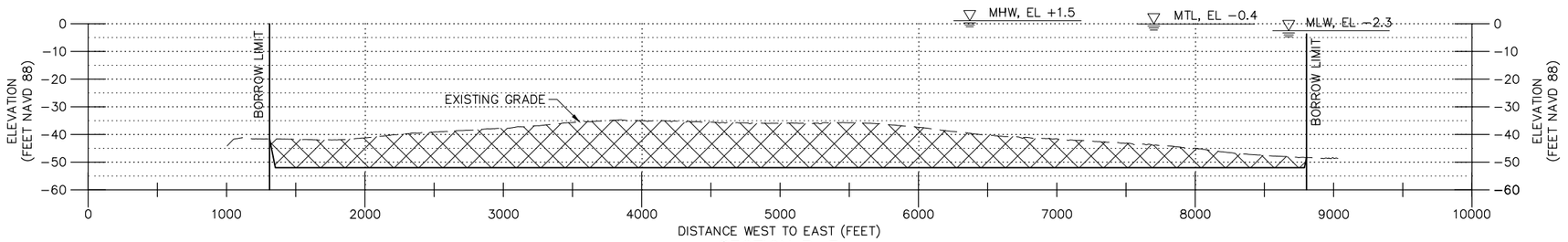
Sheet Reference No.
C-103
Sheet 6 of 33

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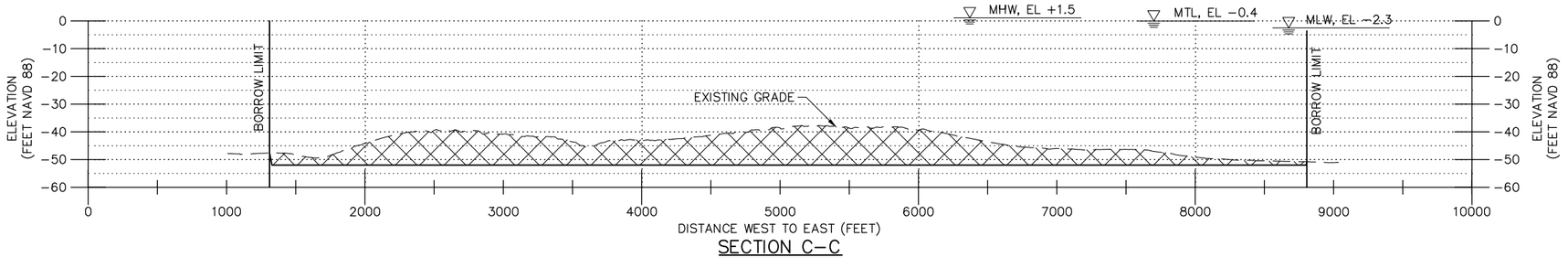
DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



SECTION A–A



SECTION B–B



SECTION C–C

25' 0' 25' 50'
SCALE: 1"=25' VERTICAL

500' 0' 500' 1000'
SCALE: 1"=500' HORIZONTAL

Mark	Description	Date	Appr.
0	ISSUED FOR CONSTRUCTION	02/12/19	JM
	BID DOCUMENTS	10/19/18	JM

POST-FLORENCE RENOURISHMENT PROJECT
PHASE 1
CARTERET COUNTY, NORTH CAROLINA

ODMDS BORROW SITE DREDGE SECTIONS

Rev. –
Date: FEB 2019
M&N Project No. .
Drawing code:
Drawing Scale: Plot scale: 1:1 (0 SHEET)
Designed by: JM
Drawn by: BDF
Qcd by: SM
Reviewed by: SM
Submitted by: MOFFATT & NICHOL

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

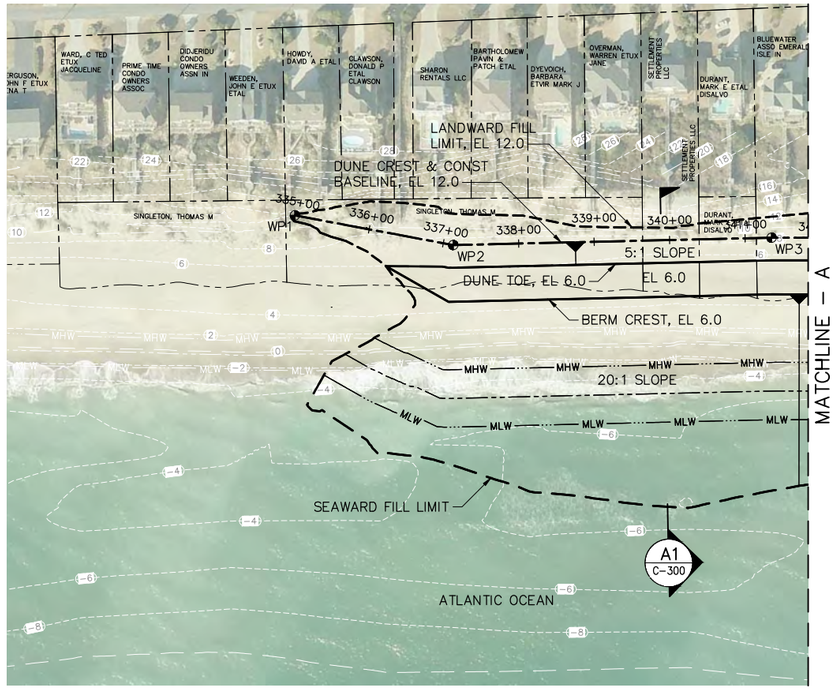
PREPARED FOR THE TOWNS OF
EMERALD ISLE AND INDIAN BEACH

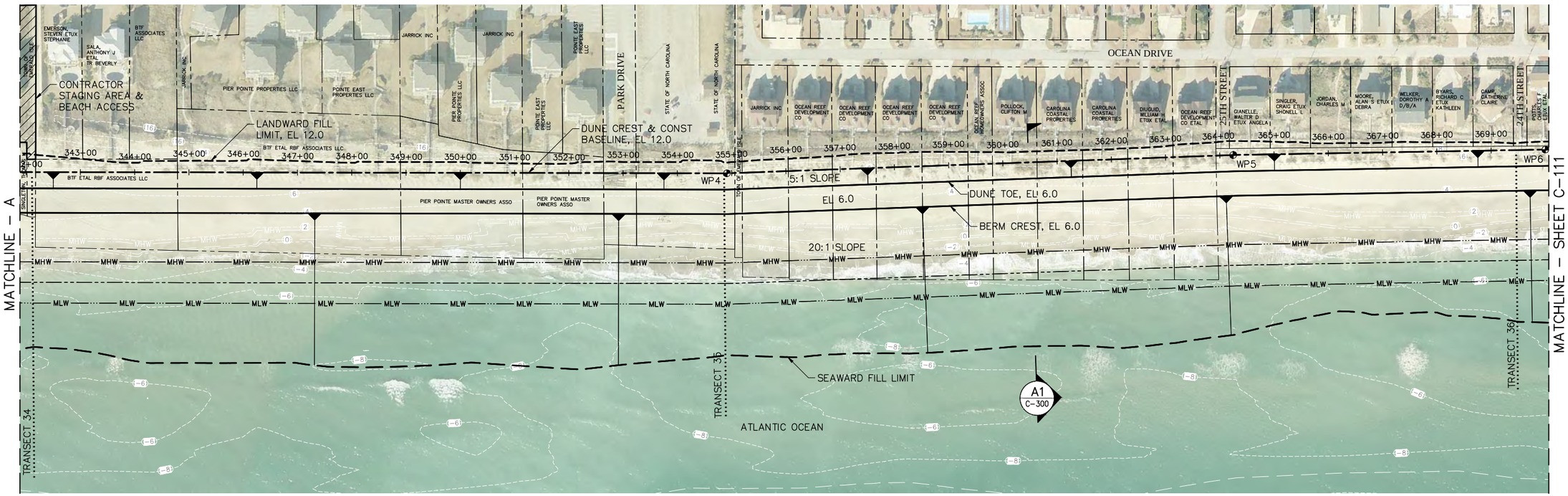
NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-104
Sheet 7 of 33

File: Q:\124\P Bogue Banks MBNP\CADD_Active_Sheets\MBNP–C104; Plotted: 2/11/2019 5:17 PM by FORD, BRIAN; Saved: 9/12/2018 12:03 PM by BFORD

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING





NOTES:
1. SEE SHEET C-601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C-301 THRU C-314 FOR CROSS SECTIONS.

100' 0' 100' 200'
SCALE: 1"=100'

Mark	Description	Date	Appr.
0	ISSUED FOR CONSTRUCTION	02/12/19	JM
1	BID DOCUMENTS	10/19/18	JM

POST-FLORENCE RENOURISHMENT PROJECT
PHASE 1
CARTERET COUNTY, NORTH CAROLINA

REACHES 1 AND 2 - SHEET 1 OF 5

Rev.	Date:	Designed by:	Drawn by:	Reviewed by:	Submitted by:	Drawing Scale:
-	FEB 2019	JM	BDF	SM	MOFFATT & NICHOL	Plot scale: 1:1 (0 SHEET)

M&N Project No.: .
Drawing code:

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

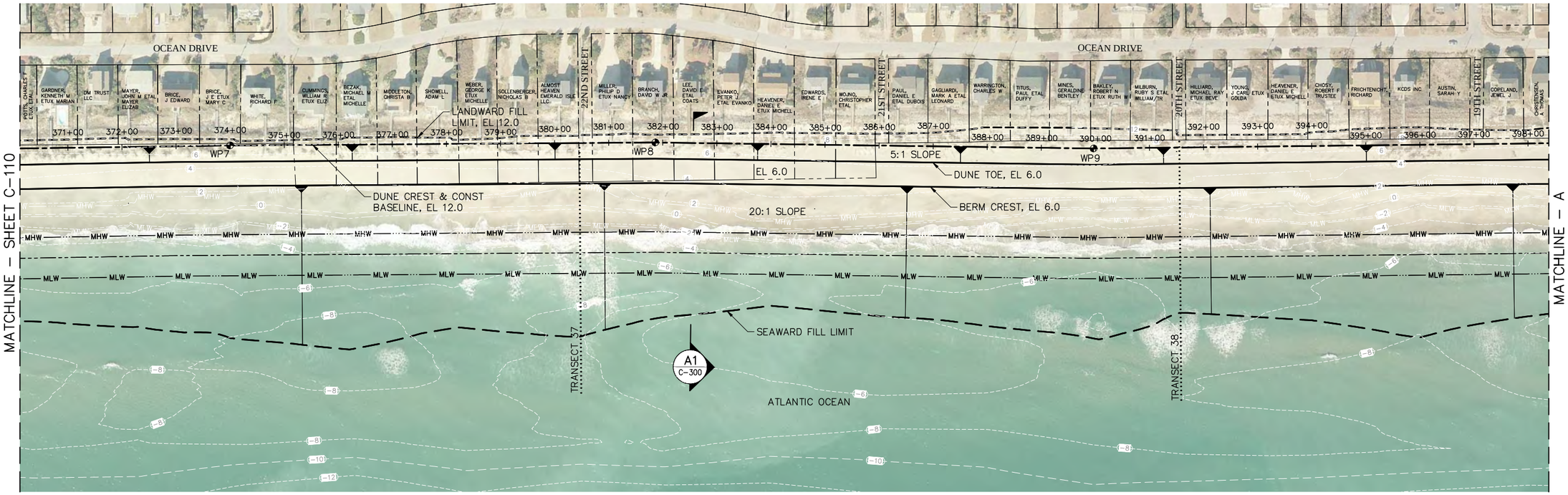
PREPARED FOR THE TOWNS OF EMERALD ISLE AND INDIAN BEACH

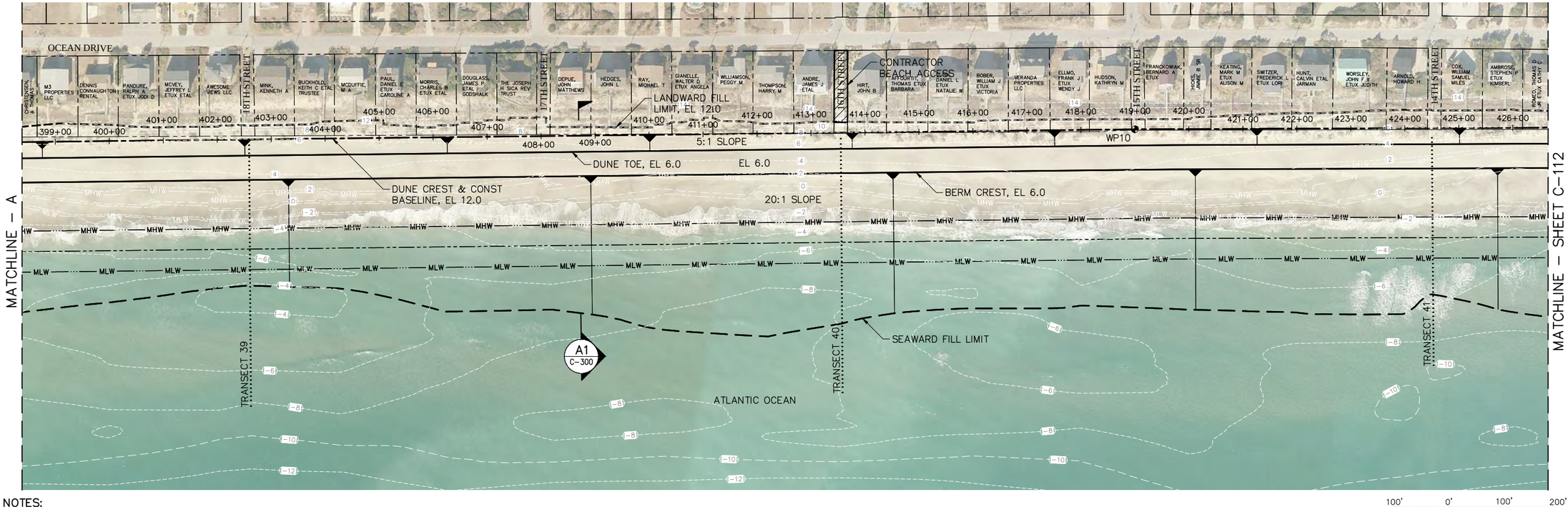
NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-110
Sheet 8 of 33

File: C:\RA\P Bogue Banks MBNP\CADD_Active_Sheets\MBNP-C110; Plotted: 2/11/2019 5:17 PM by FORD, BRIAN; Saved: 2/8/2019 9:47 AM by BFORD

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING





NOTES:
1. SEE SHEET C-601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C-301 THRU C-314 FOR CROSS SECTIONS.

100' 0' 100' 200'
SCALE: 1"=100'

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

Mark	Description	Date	Appr.
0	BID DOCUMENTS	10/19/18	JM
1	ISSUED FOR CONSTRUCTION	02/12/19	JM

POST-FLORENCE RENOURISHMENT PROJECT
PHASE 1
CARTERET COUNTY, NORTH CAROLINA

REACHES 1 AND 2 - SHEET 2 OF 5

Rev.	-
Date:	FEB 2019
M&N Project No.	-
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (D SHEET)
Designed by:	JM
Dwn by:	BDF
Ckd by:	SM
Reviewed by:	SM
Submitted by:	MOFFATT & NICHOL

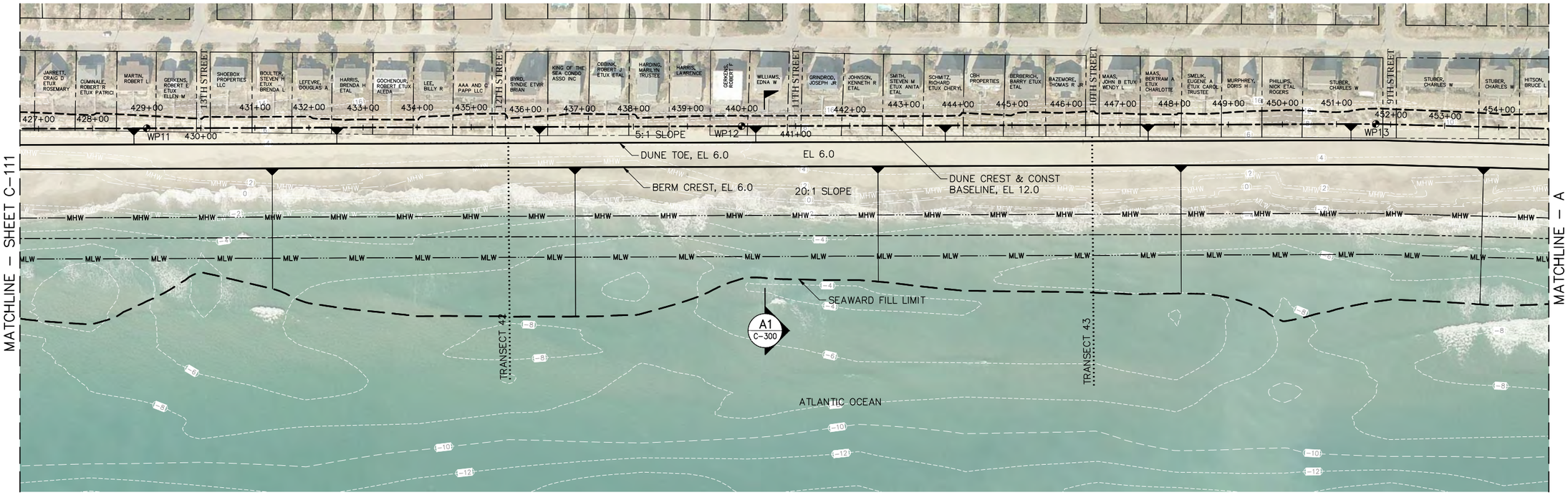
4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

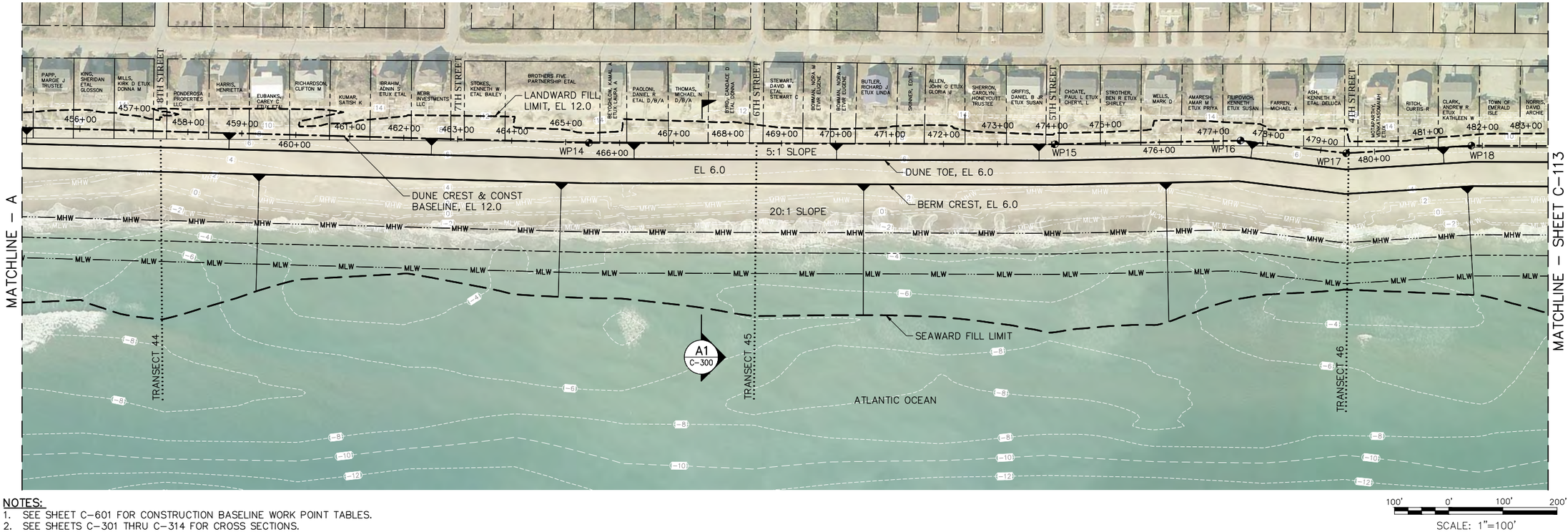
PREPARED FOR THE TOWNS OF EMERALD ISLE AND INDIAN BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-111
Sheet 9 of 33

File: Q:\RAL\P Bogue Banks MBNP\CADD_Active_Sheets\MBNP-C111; Plotted: 2/11/2019 5:18 PM by FORD, BRIAN; Saved: 10/18/2018 11:16 AM by BFORD





NOTES:
1. SEE SHEET C–601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C–301 THRU C–314 FOR CROSS SECTIONS.

100' 0' 100' 200'
SCALE: 1"=100'

Mark	Description	Date	Appr.
0	ISSUED FOR CONSTRUCTION	02/12/19	JM
1	BID DOCUMENTS	10/19/18	JM

POST-FLORENCE RENOURISHMENT PROJECT
PHASE 1
CARTERET COUNTY, NORTH CAROLINA

REACHES 1 AND 2 - SHEET 3 OF 5

Rev. –
Date: FEB 2019
M&N Project No. .
Drawing code:
Designed by: JM
Dwn by: BDF
Chkd by: SM
Reviewed by: SM
Drawing Scale:
Submitted by:
Plot scale: 1:1 (0 SHEET)

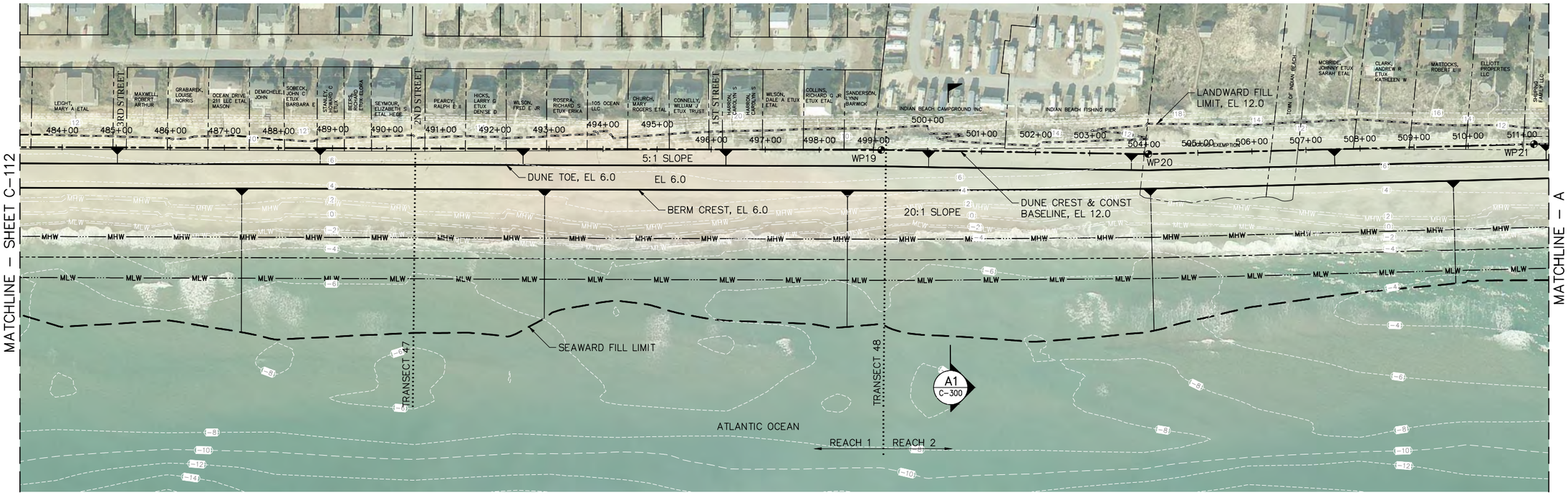
4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol
PREPARED FOR THE TOWNS OF
EMERALD ISLE AND INDIAN BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-112
Sheet 10 of 33

File: Q:\CA\P Bogue Banks M&NP\CADD_Active_Sheets\M&NP–C112; Plotted: 2/11/2019 5:18 PM by FORD, BRIAN; Saved: 10/18/2018 11:16 AM by BFORD

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:
1. SEE SHEET C-601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C-301 THRU C-314 FOR CROSS SECTIONS.

100' 0' 100' 200'
SCALE: 1"=100'

Mark	Description	Date	Appr.
0	ISSUED FOR CONSTRUCTION	02/12/19	JM
1	BID DOCUMENTS	10/19/18	JM

POST-FLORENCE RENOURISHMENT PROJECT
PHASE 1
CARTERET COUNTY, NORTH CAROLINA

REACHES 1 AND 2 - SHEET 4 OF 5

Rev. -
Date: FEB 2019
M&N Project No. .
Drawing code:
Designed by: JM
Dwn by: BDF
Chd by: SM
Reviewed by: SM
Drawing Scale:
Submitted by: MOFFATT & NICHOL
Plot scale: 1:1 (0 SHEET)

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

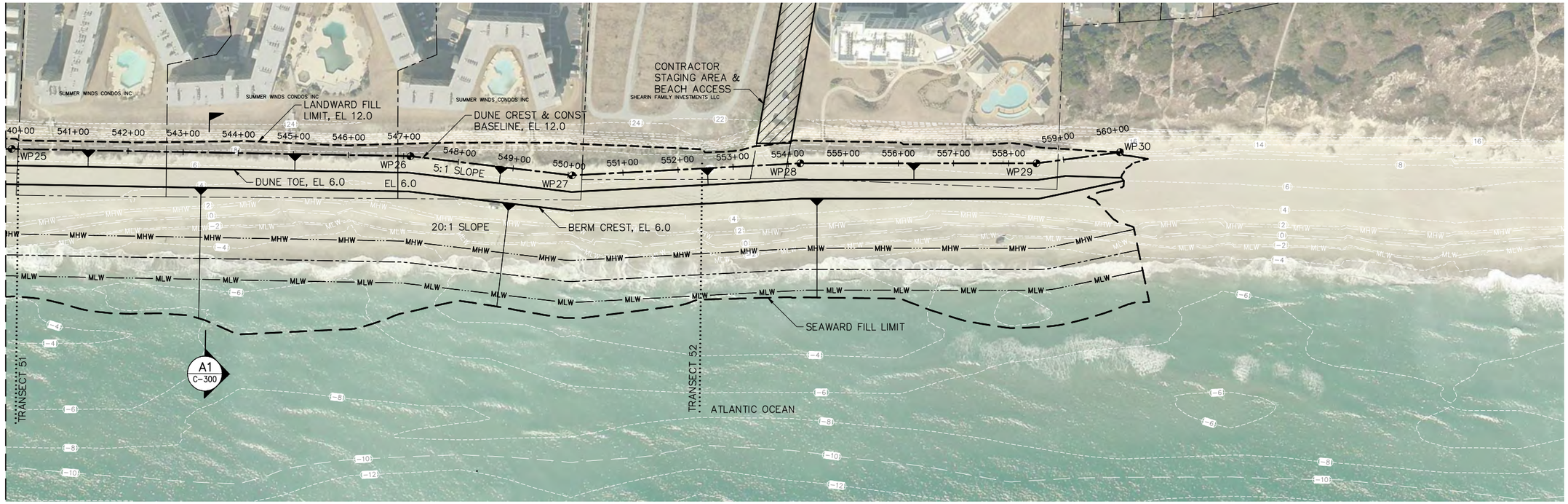
PREPARED FOR THE TOWNS OF
EMERALD ISLE AND INDIAN BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-113
Sheet 11 of 33

File: Q:\PA\P Bogue Banks MBNP\CADD_Active_Sheets\MBNP-C113; Plotted: 2/11/2019 5:18 PM by FORD, BRIAN; Saved: 10/18/2018 11:16 AM by BFORD

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:
1. SEE SHEET C–601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C–301 THRU C–314 FOR CROSS SECTIONS.

100' 0' 100' 200'
SCALE: 1"=100'

Mark	Description	Date	Appr.
0	ISSUED FOR CONSTRUCTION	02/12/19	JM
0	BID DOCUMENTS	10/19/18	JM

POST-FLORENCE RENOURISHMENT PROJECT
PHASE 1
CARTERET COUNTY, NORTH CAROLINA

REACHES 1 AND 2 - SHEET 5 OF 5

Rev. –
Date: FEB 2019
M&N Project No. .
Drawing code: .
Drawing Scale: Plot scale: 1:1 (0 SHEET)
Designed by: JM
Cad by: SM
Dwn by: BDF
Reviewed by: SM
Submitted by: MOFFATT & NICHOL

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

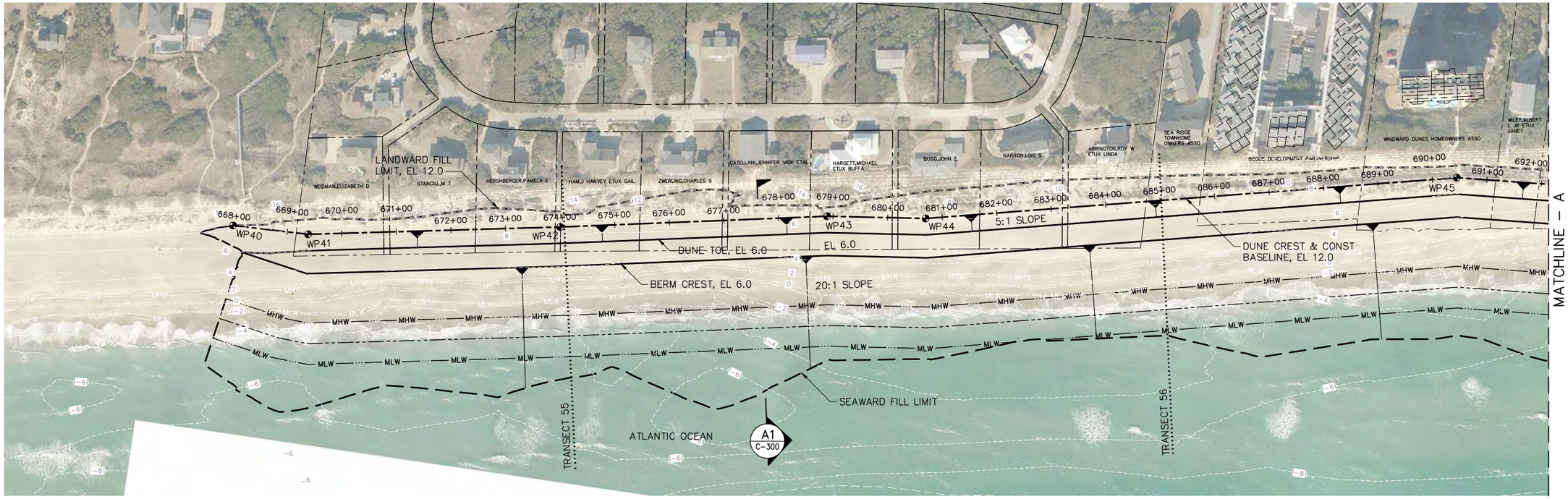
PREPARED FOR THE TOWNS OF
EMERALD ISLE AND INDIAN BEACH

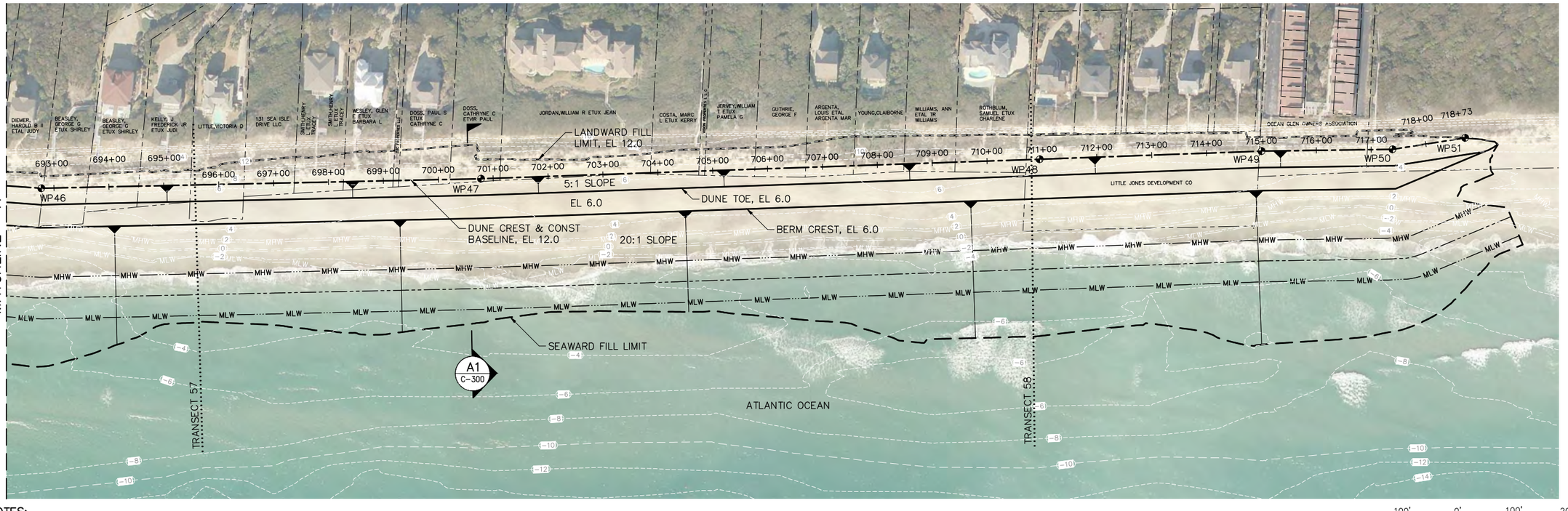
NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-114
Sheet 12 of 33

File: G:\RA\P Bogue Banks MBNP\CADD_Active_Sheets\MBNP-C114; Plotted: 2/11/2019 5:19 PM by FORD, BRIAN; Saved: 10/18/2018 11:16 AM by BFORD

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING





NOTES:
1. SEE SHEET C-601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C-315 THRU C-318 FOR CROSS SECTIONS.

100' 0' 100' 200'
SCALE: 1"=100'

No.	Mark	Description	Date	Appr.
0	BID DOCUMENTS	ISSUED FOR CONSTRUCTION	10/19/18	JM
			02/12/19	JM

POST-FLORENCE RENOURISHMENT PROJECT
PHASE 1
CARTERET COUNTY, NORTH CAROLINA

REACH 3 - SHEET 1 OF 1

Rev. -
Date: FEB 2019
Designed by: JM
Dwn by: BDF
Ckd by: SM
Reviewed by: SM
Submitted by: MOFFATT & NICHOL
M&N Project No. .
Drawing code: .
Drawing Scale: Plot scale: 1:1 (D SHEET)

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

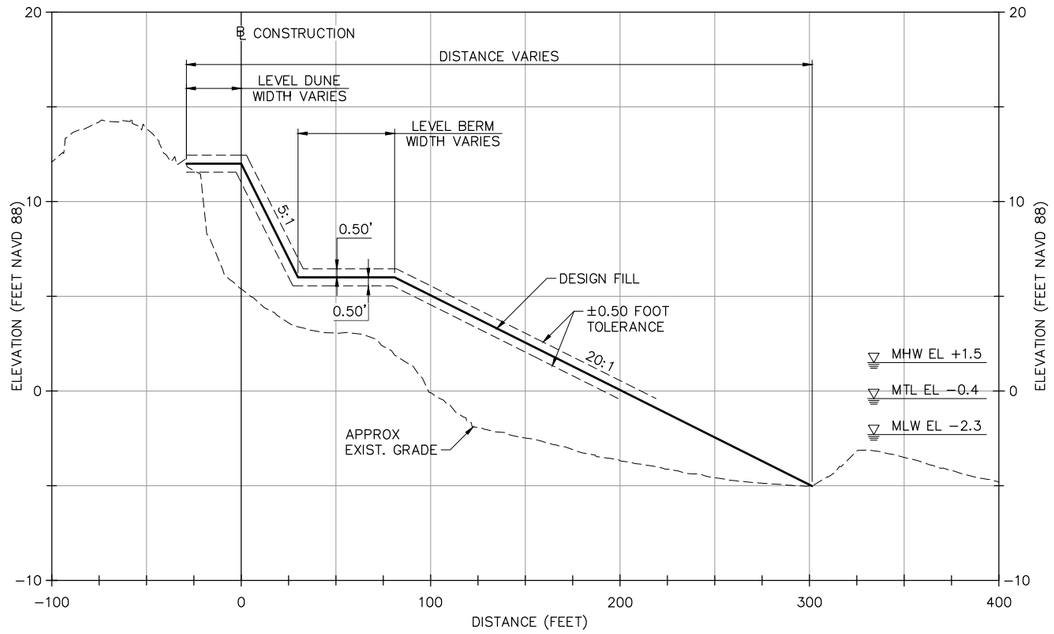
PREPARED FOR THE TOWNS OF
EMERALD ISLE AND INDIAN BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

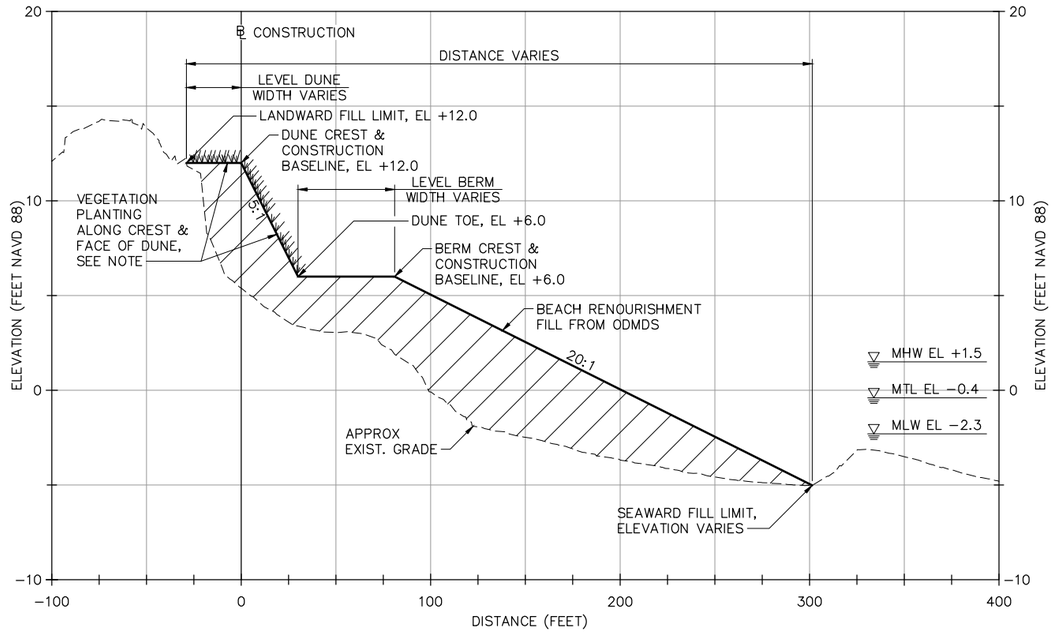
Sheet Reference No.
C-115
Sheet 13 of 33

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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



C1 / G-002 BEACH NOURISHMENT FILL TOLERANCE TYPICAL SECTION
SCALE: AS SHOWN



A1 / C-110 BEACH NOURISHMENT TYPICAL SECTION
SCALE: AS SHOWN
C-110 THRU C-115

NOTE:
SEE TECHNICAL SPECIFICATIONS FOR PLANTING, FERTILIZING AND WATERING REQUIREMENTS.

4' 0' 4' 8'
SCALE: 1"=4' VERTICAL

40' 0' 40' 80'
SCALE: 1"=40' HORIZONTAL

Mark	Description	Date	Appr.
0	ISSUED FOR CONSTRUCTION	02/12/19	JM
0	BID DOCUMENTS	10/19/18	JM

POST-FLORENCE RENOURISHMENT PROJECT
PHASE 1
CARTERET COUNTY, NORTH CAROLINA

BEACH RENOURISHMENT TYPICAL SECTIONS

Rev. –
Date: FEB 2019
M&N Project No. .
Drawing code: .
Drawing Scale: Plot scale: 1:1 (0 SHEET)
Designed by: JM
Drawn by: BDF
Cad by: SM
Reviewed by: SM
Submitted by: .

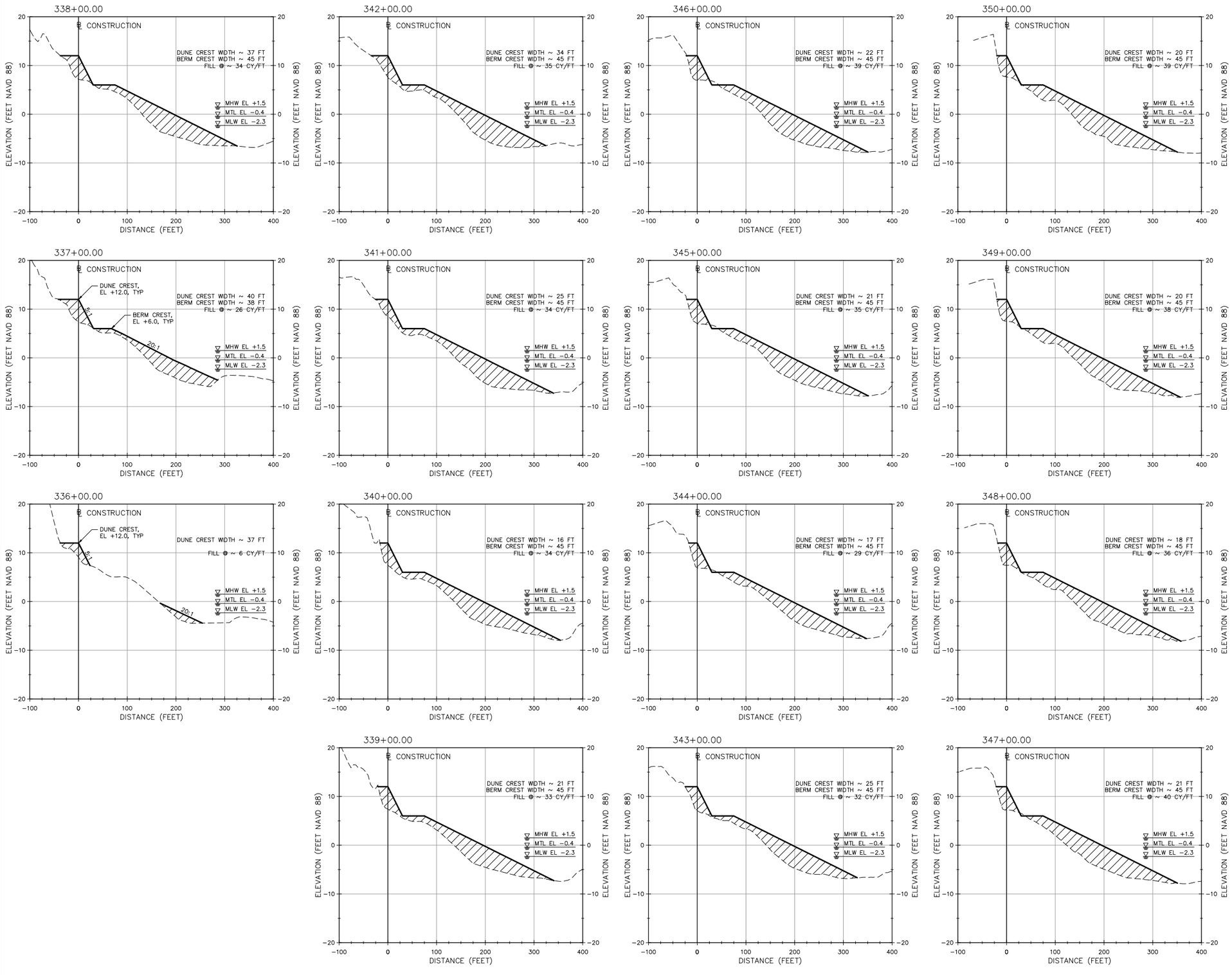
4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105
PREPARED FOR THE TOWNS OF EMERALD ISLE AND INDIAN BEACH
MOFFATT & NICHOL

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-300
Sheet 14 of 33

File: C:\RA1\P Bogue Banks WBNP\CADD_Active_Sheets\WBNP-C300; Plotted: 2/11/2019 5:19 PM by FORD, BRIAN; Saved: 10/18/2018 12:12 PM by BFORD

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON JANUARY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- – – – – APPROXIMATE EXISTING GROUND
- ——— PROPOSED RENOURISHMENT

10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

No.	Mark	Description	Date	Appr.
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POST-FLORENCE RENOURISHMENT PROJECT
PHASE 1
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS - SHEET 1 OF 18

Rev. –
Date: FEB 2019
M&N Project No. .
Drawing code:
Drawing Scale: Plot scale: 1:1 (D SHEET)
Designed by: JM
Drawn by: BDF
Chkd by: SM
Reviewed by: SM
Submitted by: MOFFATT & NICHOL

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

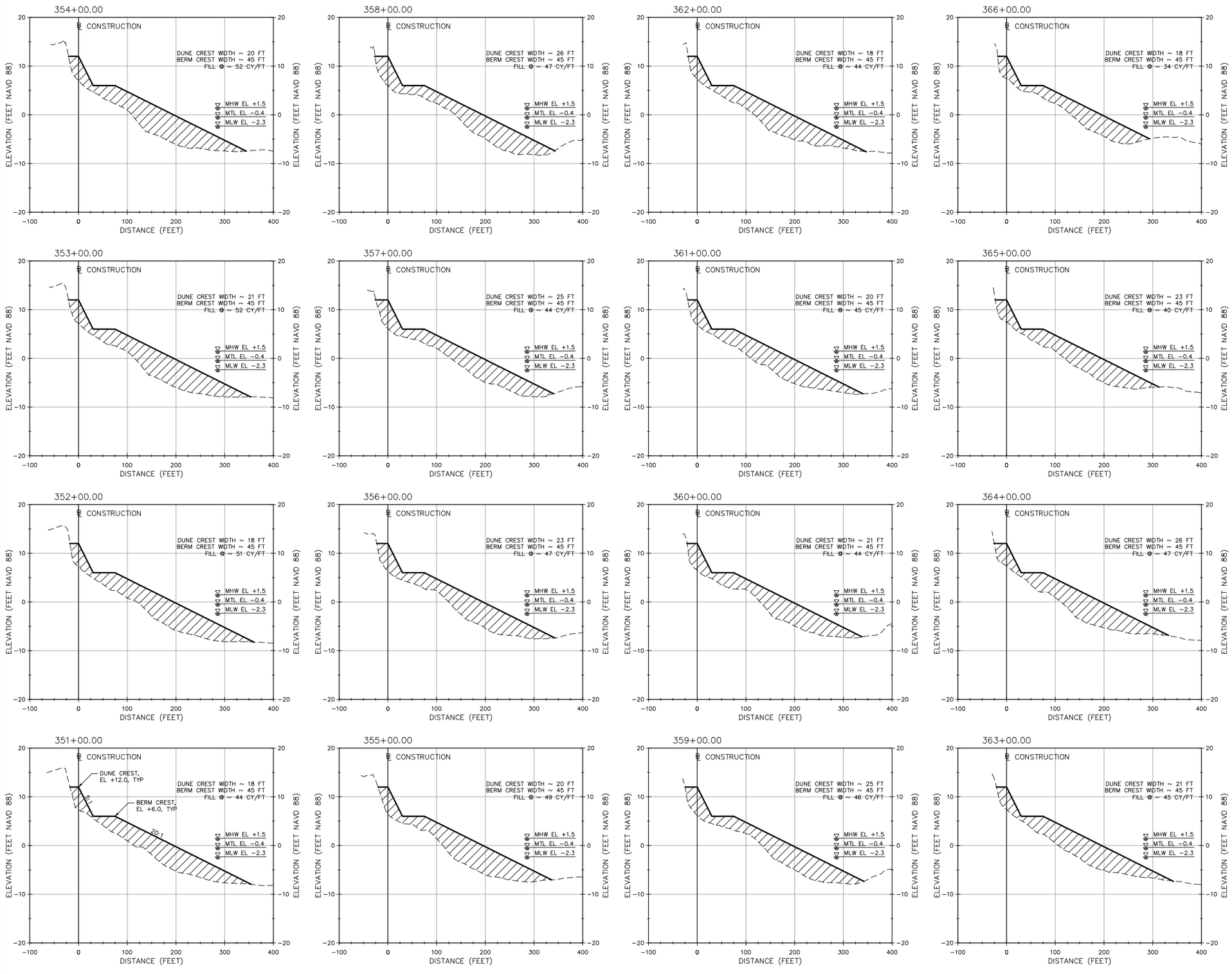
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NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-301
Sheet 15 of 33

File: Q:\RA\P Bogue Banks MBNP\CADD_Active_Sheets\MBNP-C301; Plotted: 2/11/2019 5:19 PM by FORD, BRIAN; Saved: 2/7/2019 6:42 PM by BFORD

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POST-FLORENCE RENOURISHMENT PROJECT
PHASE 1
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS - SHEET 2 OF 18

Designed by:	JM
Drawn by:	BDF
Checked by:	SM
Reviewed by:	SM
Submitted by:	MOFFATT & NICHOL
Date:	FEB 2019
M&N Project No.	.
Drawing code:	.
Drawing Scale:	Plot scale: 1:1 (0 SHEET)
Rev.	-

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

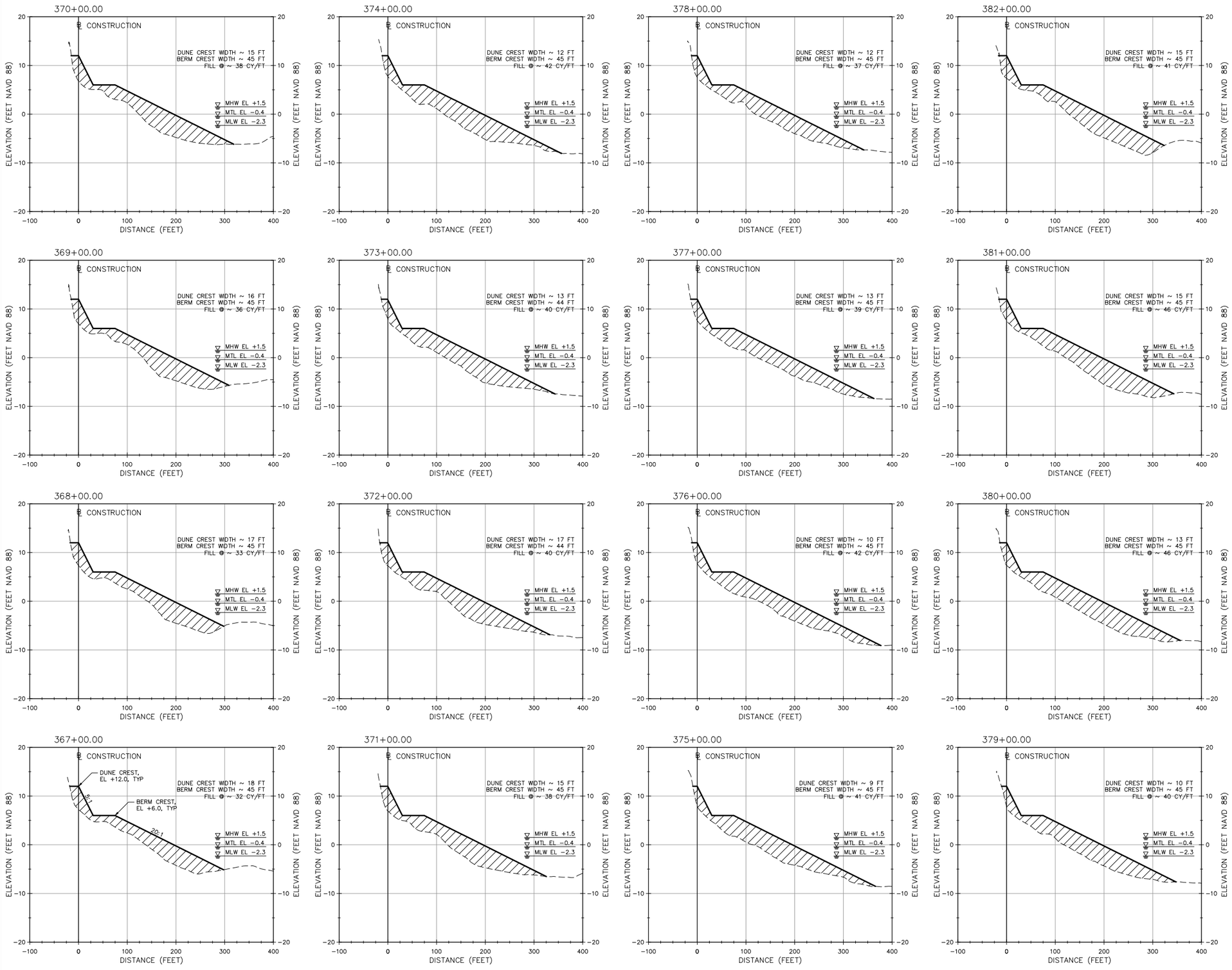
PREPARED FOR THE TOWNS OF
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NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-302
Sheet 16 of 33

File: Q:\24\P Bogue Banks M&NP\CADD_Active_Sheets\M&NP-C302; Plotted: 2/11/2019 5:19 PM by FORD, BRIAN; Saved: 10/17/2018 11:19 AM by BFORD

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
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PHASE 1
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RENOURISHMENT SECTIONS - SHEET 3 OF 18

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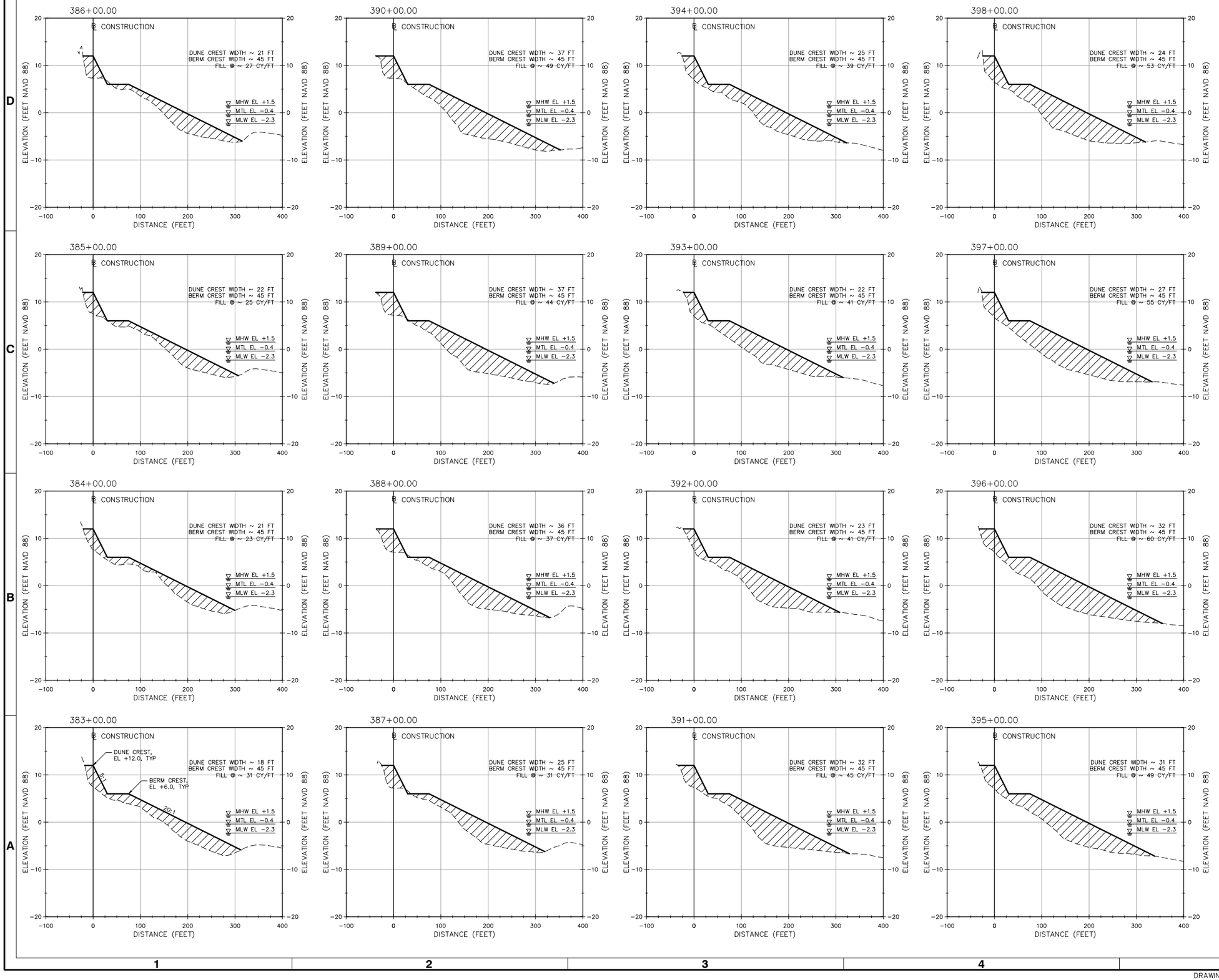
Designed by:	JM
Dwn by:	BDF
Ckd by:	SM
Reviewed by:	SM
Submitted by:	MOFFATT & NICHOL
Date:	FEB 2019
M&N Project No.	.
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (0 SHEET)
Rev.	-

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-303
Sheet 17 of 33

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File: O:\CA\P Bogue Banks MBNP\CADD_Active_Sheets\MBNP-C303; Plotted: 2/11/2019 5:19 PM by FORD, BRIAN; Saved: 10/17/2018 11:19 AM by BFORD



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PHASE 1
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS - SHEET 4 OF 18

Designed by:	JM
Drawn by:	BDF
Cad by:	SM
Reviewed by:	SM
Submitted by:	MOFFATT & NICHOL
Date:	FEB 2019
M&N Project No.	.
Drawing code:	.
Drawing Scale:	Plot scale: 1:1 (9 SHEET)
Rev.	-

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SUITE 300
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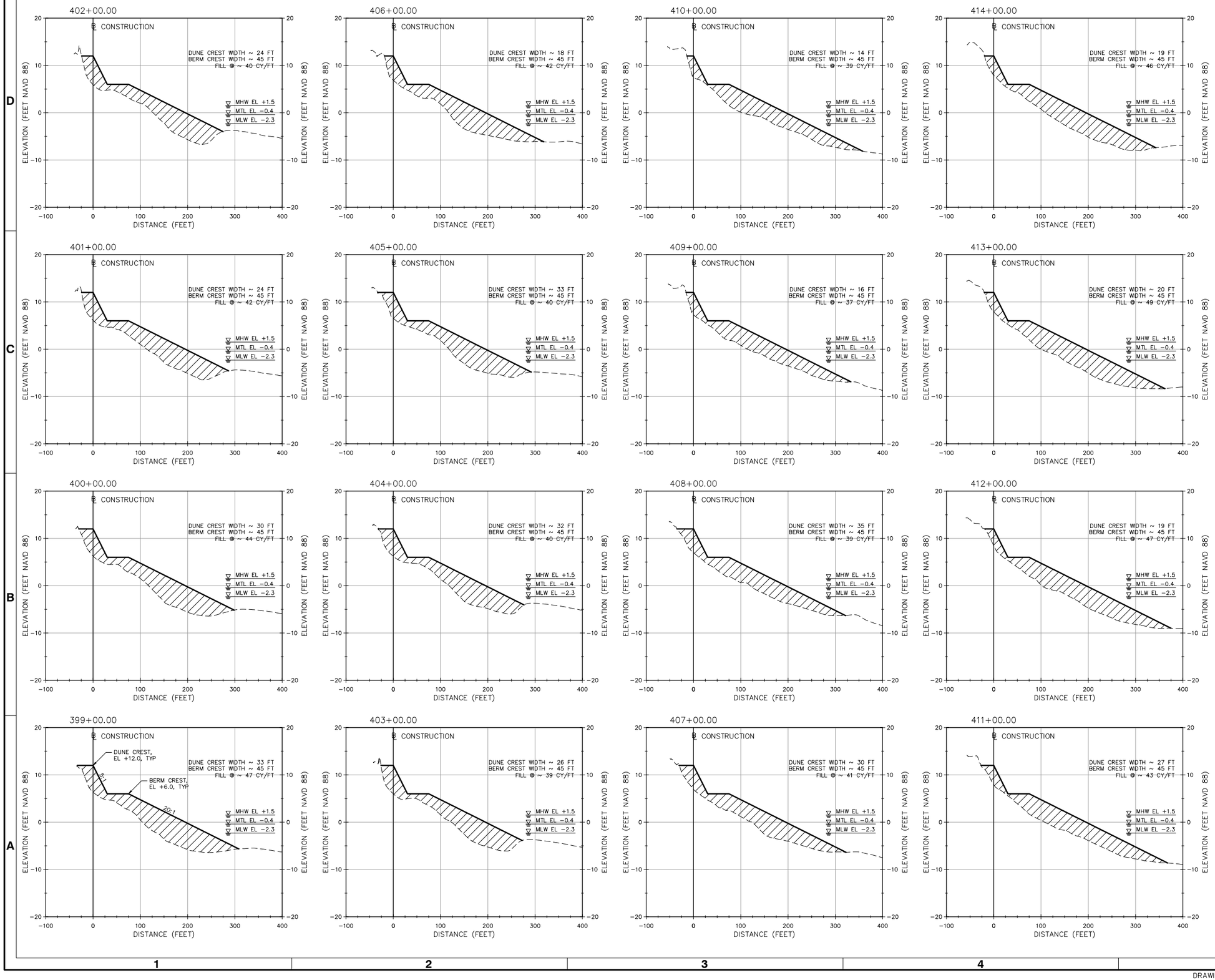
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SEAL

Sheet Reference No.
C-304
Sheet 18 of 33

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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



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POST-FLORENCE RENOURISHMENT PROJECT
PHASE 1
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS - SHEET 5 OF 18

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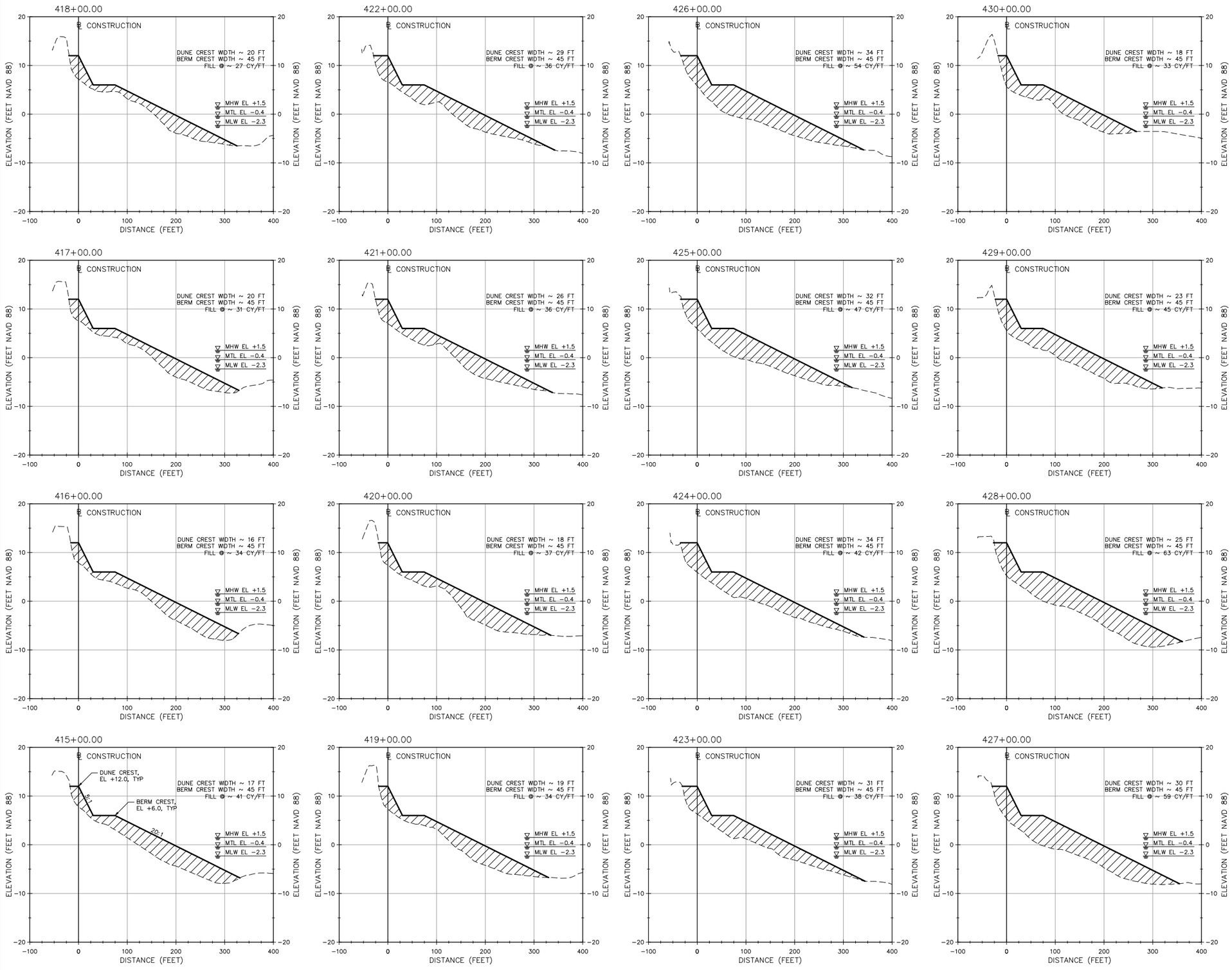
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Drawn by:	BDF
Checked by:	SM
Reviewed by:	SM
Submitted by:	MOFFATT & NICHOL
Date:	FEB 2019
M&N Project No.	.
Drawing code:	.
Drawing Scale:	Plot scale: 1:1 (0 SHEET)
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NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-305
Sheet 19 of 33

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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

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PHASE 1
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS - SHEET 6 OF 18

Rev. -
Date: FEB 2019
M&N Project No. .
Drawing code: .
Drawing Scale: 1:1 (9 SHEET)
Designed by: JM
Dwn by: BDF
Ckd by: SM
Reviewed by: SM
Submitted by: MOFFATT & NICHOL
Plot scale: 1:1 (9 SHEET)

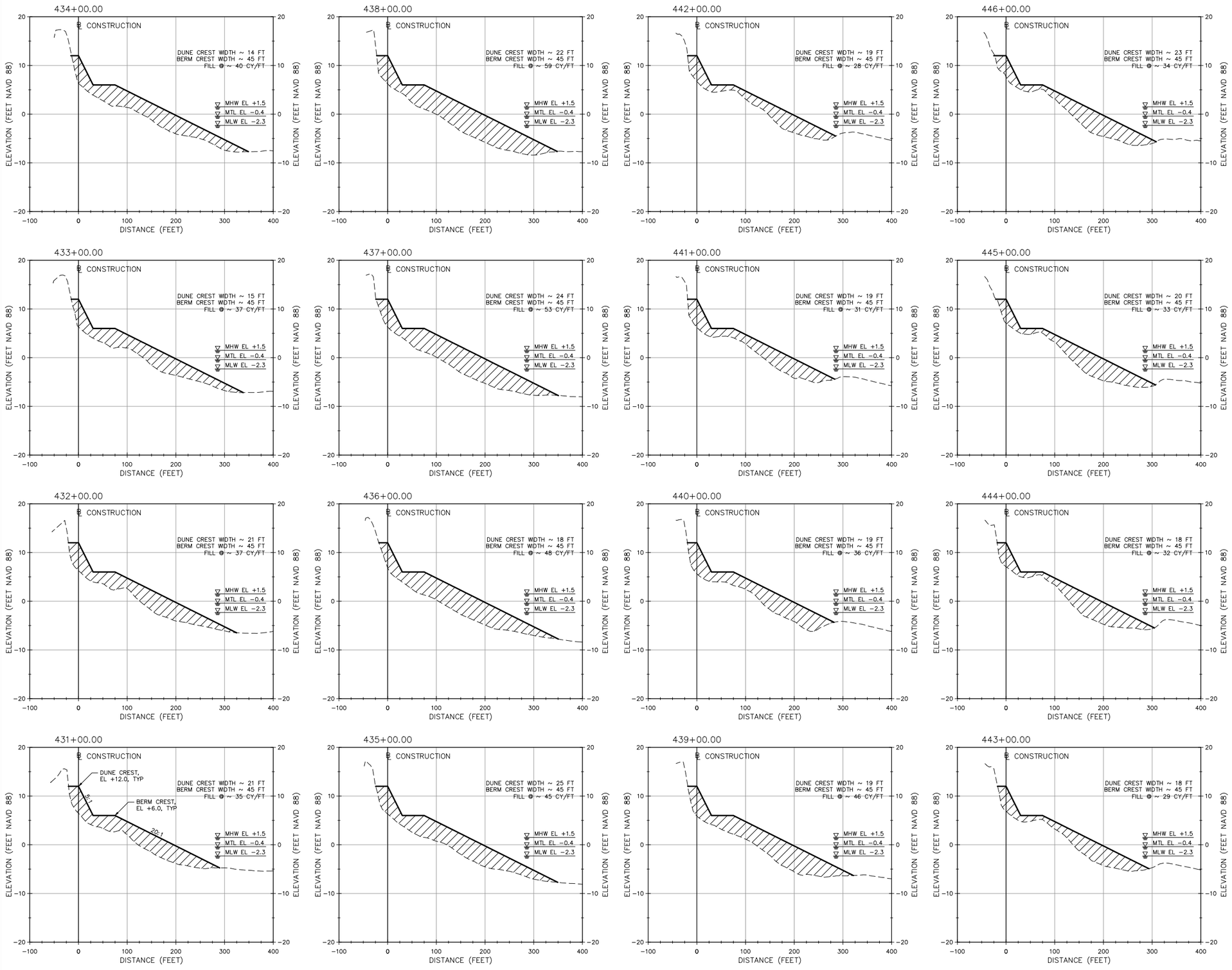
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Sheet Reference No.
C-306
Sheet 20 of 33

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PHASE 1
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS - SHEET 7 OF 18

Designed by:	JM
Drawn by:	BDF
Cad by:	SM
Reviewed by:	SM
Submitted by:	MOFFATT & NICHOL
Date:	FEB 2019
M&N Project No.	.
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (9 SHEET)
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919-781-4626
NC FIRM LICENSE No. F-0105
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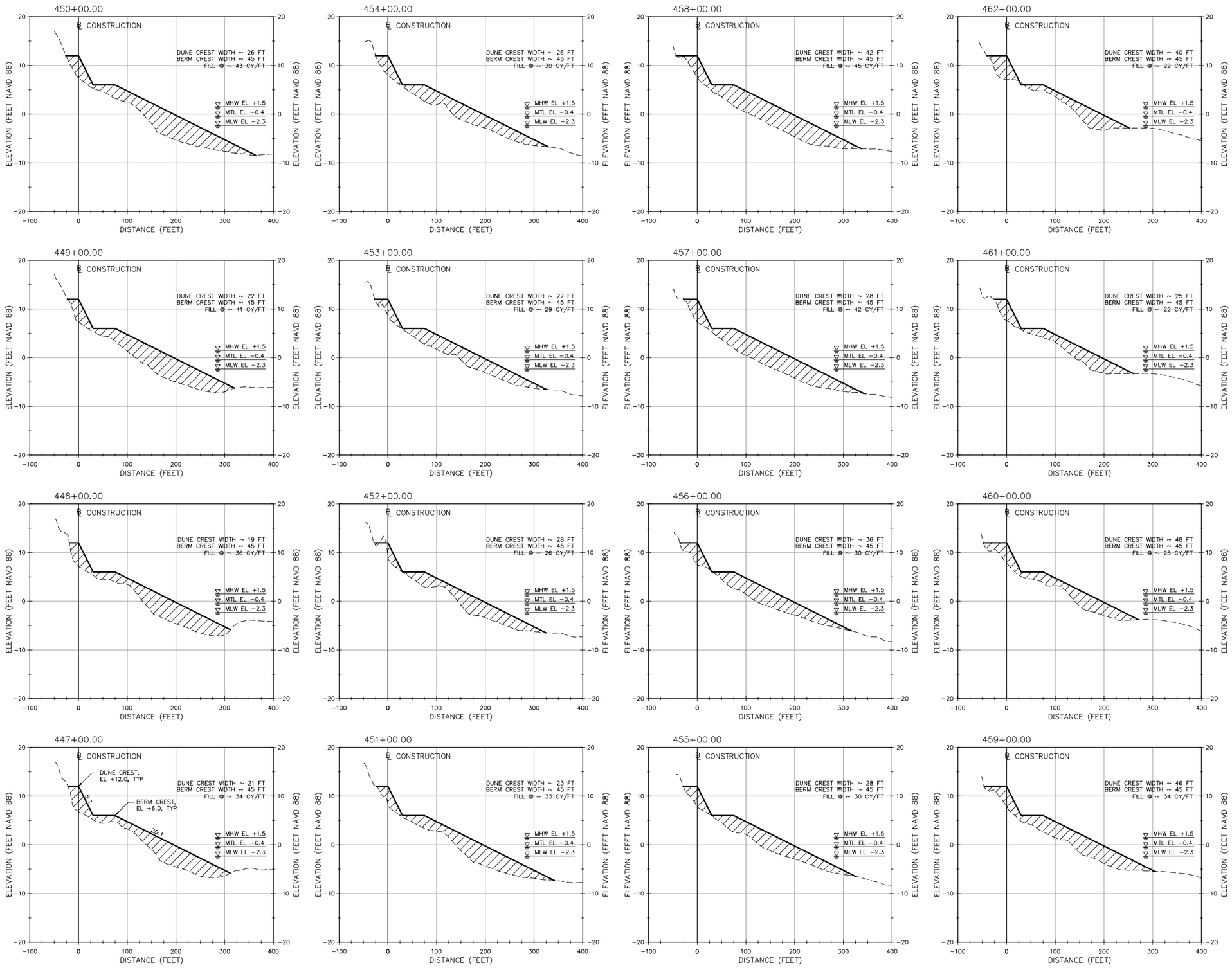
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SEAL

Sheet Reference No.
C-307
Sheet 21 of 33

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PHASE 1
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS - SHEET 8 OF 18

Rev. -
Date: FEB 2019
M&N Project No. .
Drawing code: .
Drawing Scale: Plot scale: 1:1 (0 SHEET)
Designed by: JM
Dwn by: BDF
Cad by: SM
Reviewed by: SM
Submitted by: MOFFATT & NICHOL

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NC FIRM LICENSE No. F-0105
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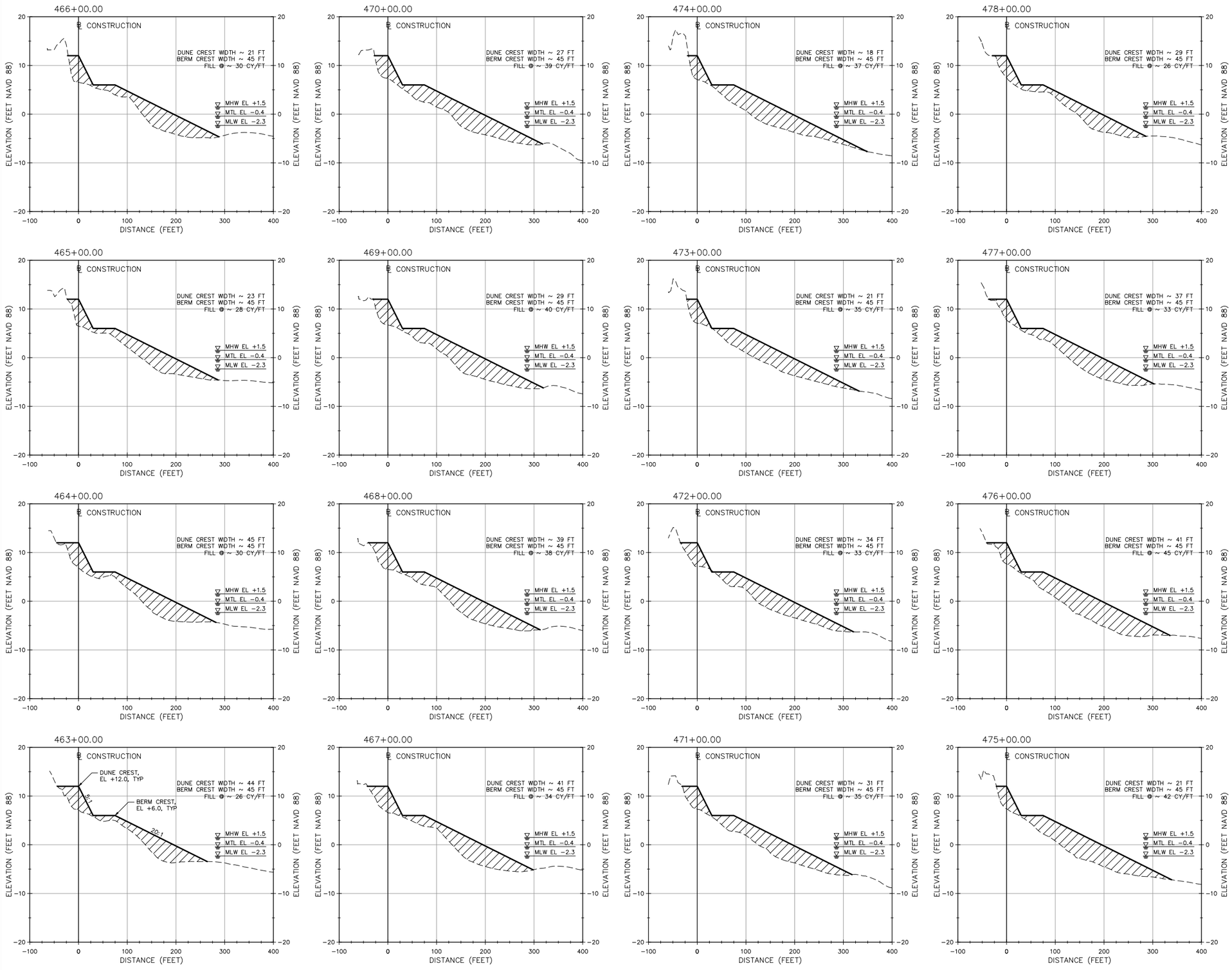
PREPARED FOR THE TOWNS OF EMERALD ISLE AND INDIAN BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-308
Sheet 22 of 33

File: C:\2A\P Bogue Banks MBNP\CADD_Active_Sheets\MBNP-C308; Plotted: 2/11/2019 5:20 PM by FORD, BRIAN; Saved: 10/17/2018 11:19 AM by BFORD

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



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POST-FLORENCE RENOURISHMENT PROJECT
PHASE 1
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS - SHEET 9 OF 18

Designed by:	JM
Drawn by:	BDF
Cad by:	SM
Reviewed by:	SM
Submitted by:	MOFFATT & NICHOL
Date:	FEB 2019
M&N Project No.	.
Drawing code:	.
Drawing Scale:	Plot scale: 1:1 (9 SHEET)
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4700 FALLS OF THE NEUSE ROAD
SUITE 300
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919-781-4626
NC FIRM LICENSE No. F-0105
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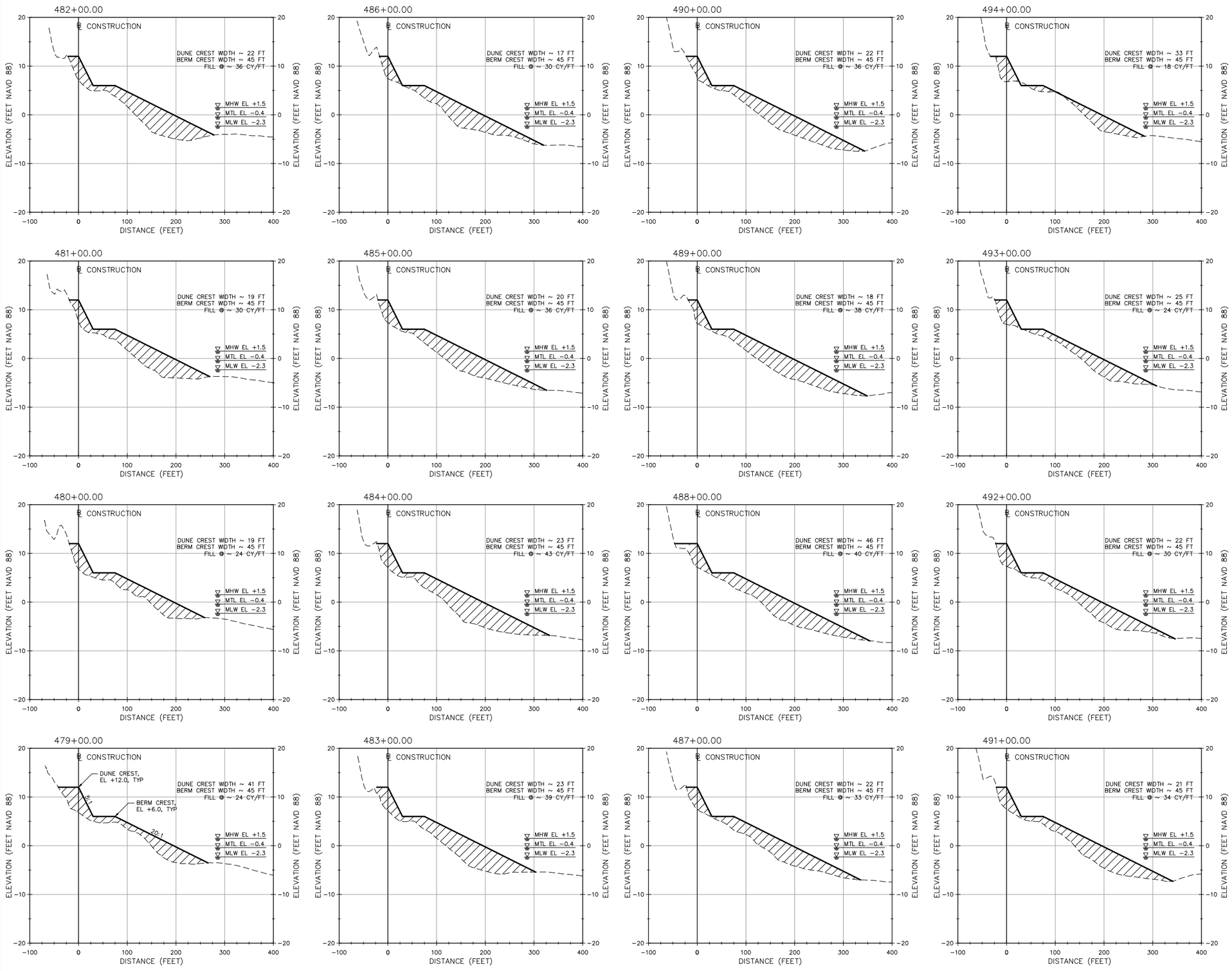
PREPARED FOR THE TOWNS OF EMERALD ISLE AND INDIAN BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-309
Sheet 23 of 33

File: C:\2A\P Bogue Banks MBNP\CADD_Active_Sheets\MBNP-C309; Plotted: 2/11/2019 5:20 PM by FORD, BRIAN; Saved: 10/17/2018 11:19 AM by BFORD

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



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POST-FLORENCE RENOURISHMENT PROJECT
PHASE 1
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS - SHEET 10 OF 18

Designed by:	JM
Drawn by:	BDF
Checked by:	SM
Reviewed by:	SM
Submitted by:	MOFFATT & NICHOL
Date:	FEB 2019
M&N Project No.	.
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (9 SHEET)
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4700 FALLS OF THE NEUSE ROAD
SUITE 300
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919-781-4626
NC FIRM LICENSE No. F-0105
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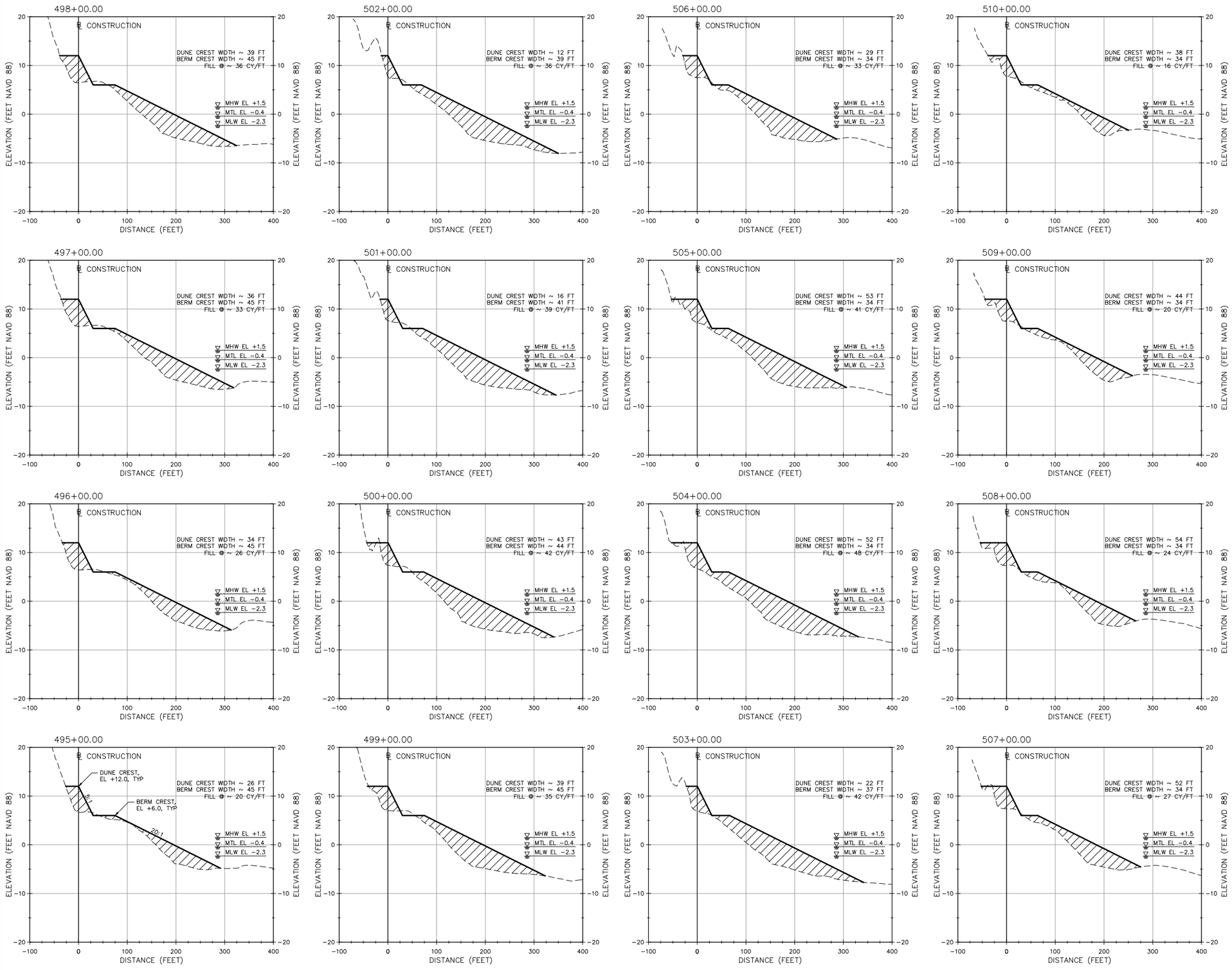
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NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-310
Sheet 24 of 33

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POST-FLORENCE RENOURISHMENT PROJECT
PHASE 1
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RENOURISHMENT SECTIONS - SHEET 11 OF 18

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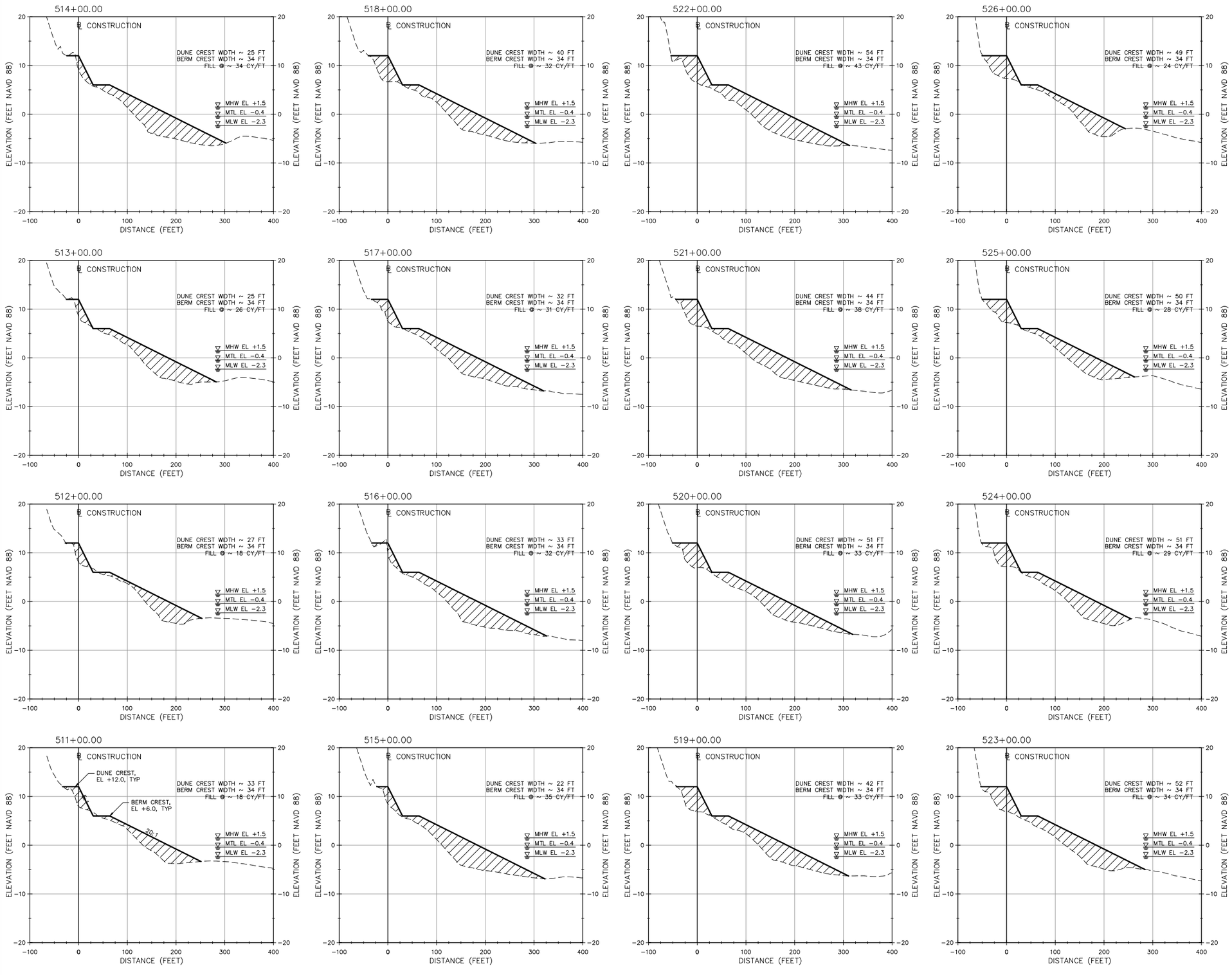
Designed by:	JM
Dwn by:	BDF
Ckd by:	SM
Reviewed by:	SM
Submitted by:	MOFFATT & NICHOL
Date:	FEB 2019
M&N Project No.	.
Drawing code:	
Drawing Scale:	
Plot scale: 1:1 (0 SHEET)	
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NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-311
Sheet 25 of 33

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

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POST-FLORENCE RENOURISHMENT PROJECT
PHASE 1
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS - SHEET 12 OF 18

Rev. –
Date: FEB 2019
M&N Project No. .
Drawing code:
Drawing Scale:
Plot scale: 1:1 (D SHEET)
Designed by: JM
Dwn by: BDF
Dsd by: SM
Reviewed by: SM
Submitted by: MOFFATT & NICHOL

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SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
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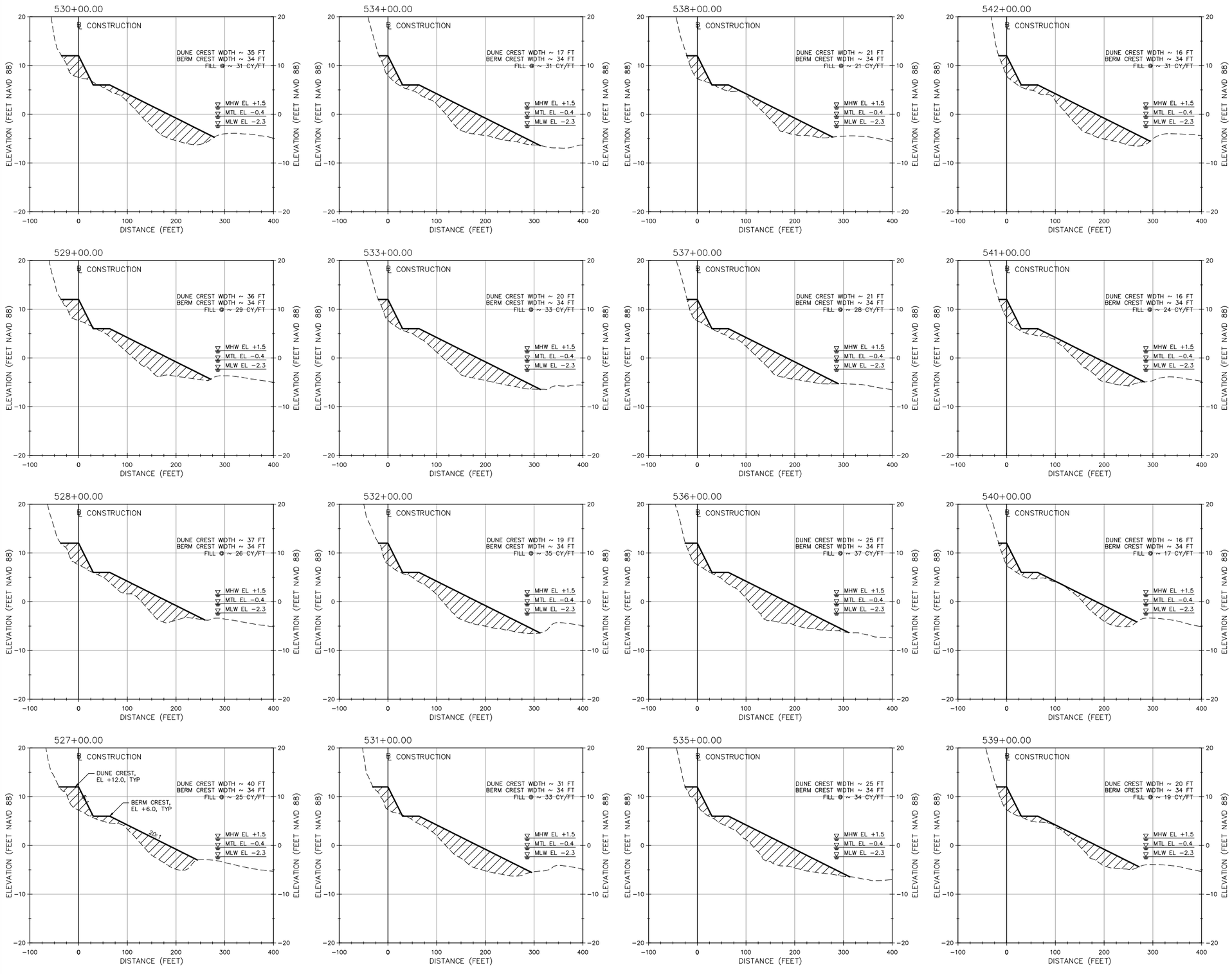
PREPARED FOR THE TOWNS OF EMERALD ISLE AND INDIAN BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-312
Sheet 26 of 33

File: Q:\PA\P Bogue Banks MBNP\CADD_Active_Sheets\MBNP-C312; Plotted: 2/11/2019 5:20 PM by FORD, BRIAN; Saved: 10/17/2018 11:19 AM by BFORD

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



Mark	Description	Date	Appr.
0	ISSUED FOR CONSTRUCTION	02/12/19	JM
	BID DOCUMENTS	10/19/18	JM

POST-FLORENCE RENOURISHMENT PROJECT
PHASE 1
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS - SHEET 13 OF 18

Date:	FEB 2019
Designed by:	JM
Dwn by:	BDF
Rvwd by:	SM
Submitted by:	MOFFATT & NICHOL
M&N Project No.	.
Dsgn by:	SM
Drawing code:	.
Drawing Scale:	Plot scale: 1:1 (D SHEET)
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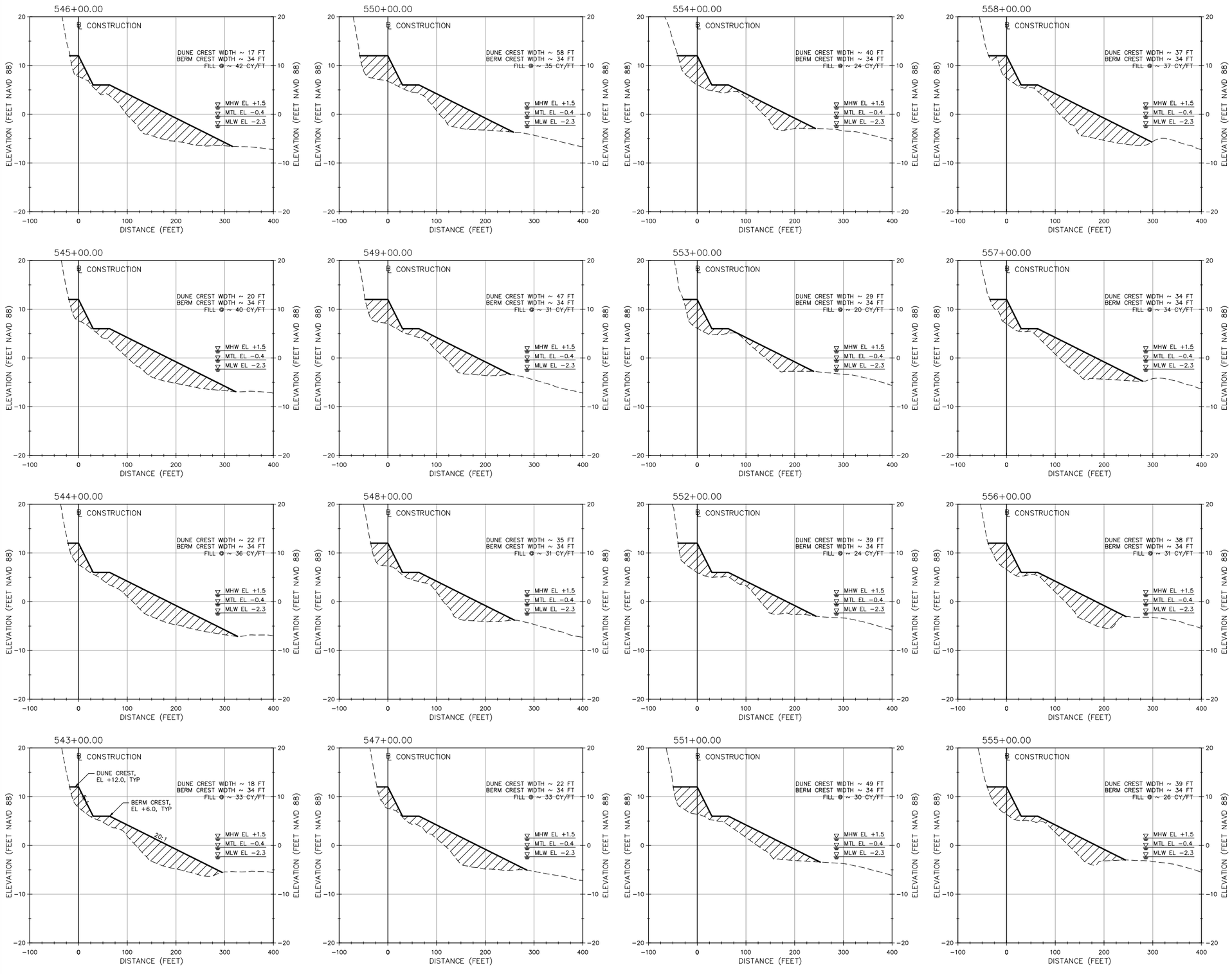
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SEAL

Sheet Reference No.
C-313
Sheet 27 of 33

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POST-FLORENCE RENOURISHMENT PROJECT
PHASE 1
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS - SHEET 14 OF 18

Rev.	–
Date:	FEB 2019
M&N Project No.	.
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (D SHEET)
Designed by:	JM
Dwn by:	BDF
Ckd by:	SM
Reviewed by:	SM
Submitted by:	MOFFATT & NICHOL

PREPARED FOR THE TOWNS OF EMERALD ISLE AND INDIAN BEACH

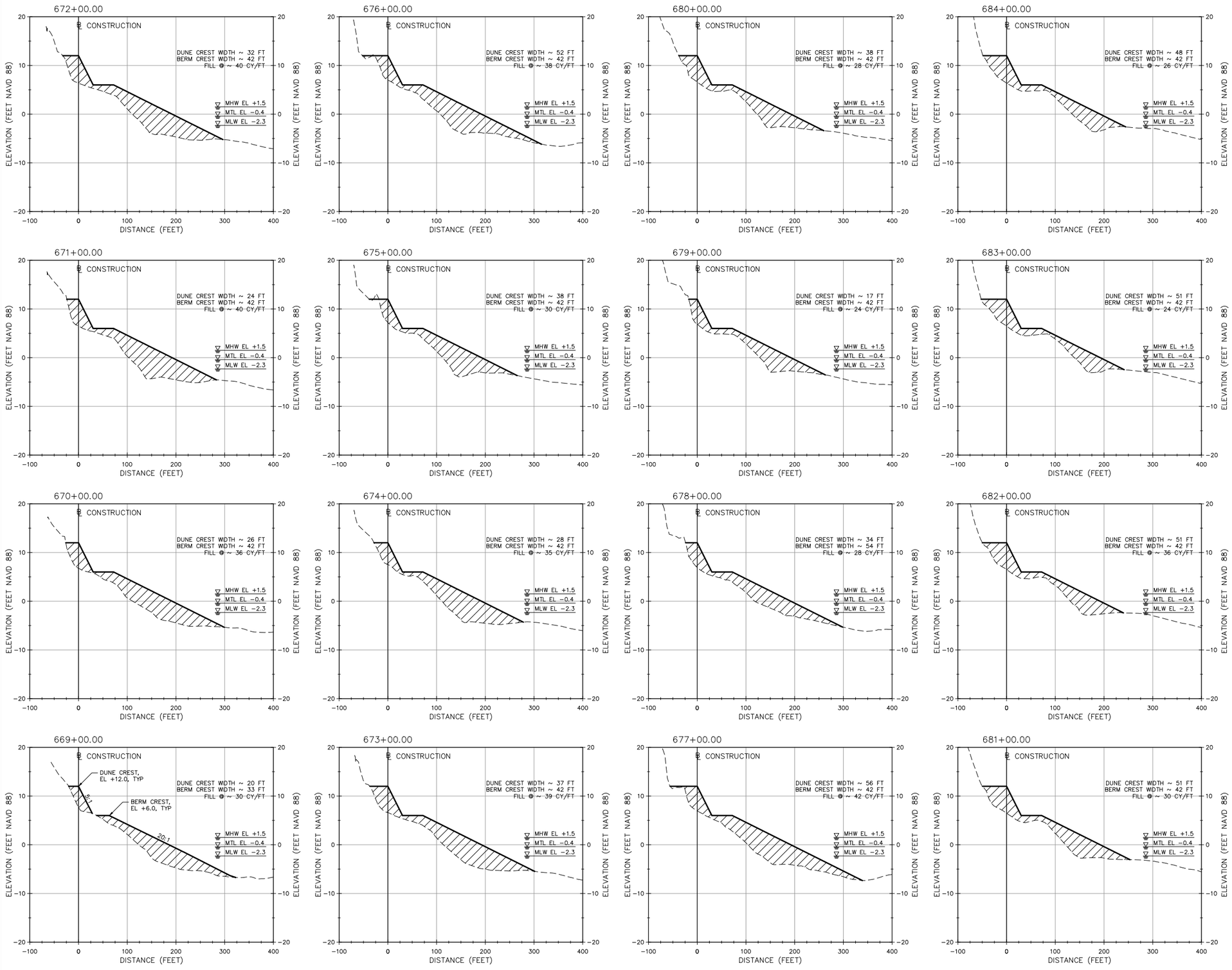
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SEAL

Sheet Reference No.
C-314
Sheet 28 of 33

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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



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	BID DOCUMENTS	10/19/18	JM

POST-FLORENCE RENOURISHMENT PROJECT
PHASE 1
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS - SHEET 15 OF 18

Designed by:	JM
Drawn by:	BDF
Cked by:	SM
Reviewed by:	SM
Submitted by:	MOFFATT & NICHOL
Date:	FEB 2019
M&N Project No.	.
Drawing code:	
Drawing Scale:	
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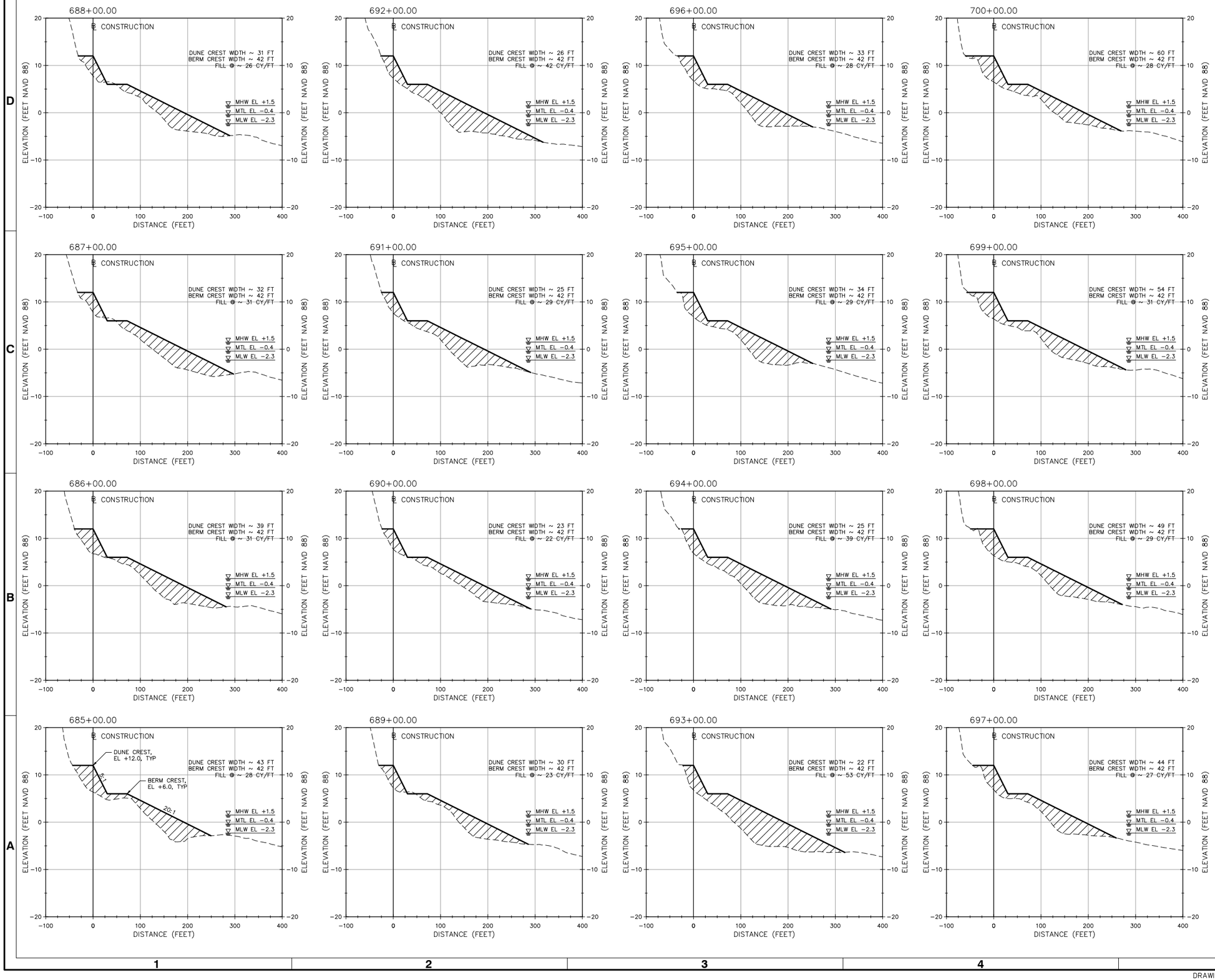
PREPARED FOR THE TOWNS OF
EMERALD ISLE AND INDIAN BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-315
Sheet 29 of 33

File: O:\CA\P Bogue Banks MBNP\CADD_Active_Sheets\MBNP-C315; Plotted: 2/11/2019 5:21 PM by FORD, BRIAN; Saved: 10/17/2018 11:19 AM by BFORD

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



Mark	Description	Date	Appr.
0	ISSUED FOR CONSTRUCTION	02/12/19	JM
	BID DOCUMENTS	10/19/18	JM

POST-FLORENCE RENOURISHMENT PROJECT
PHASE 1
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS - SHEET 16 OF 18

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

PREPARED FOR THE TOWNS OF EMERALD ISLE AND INDIAN BEACH

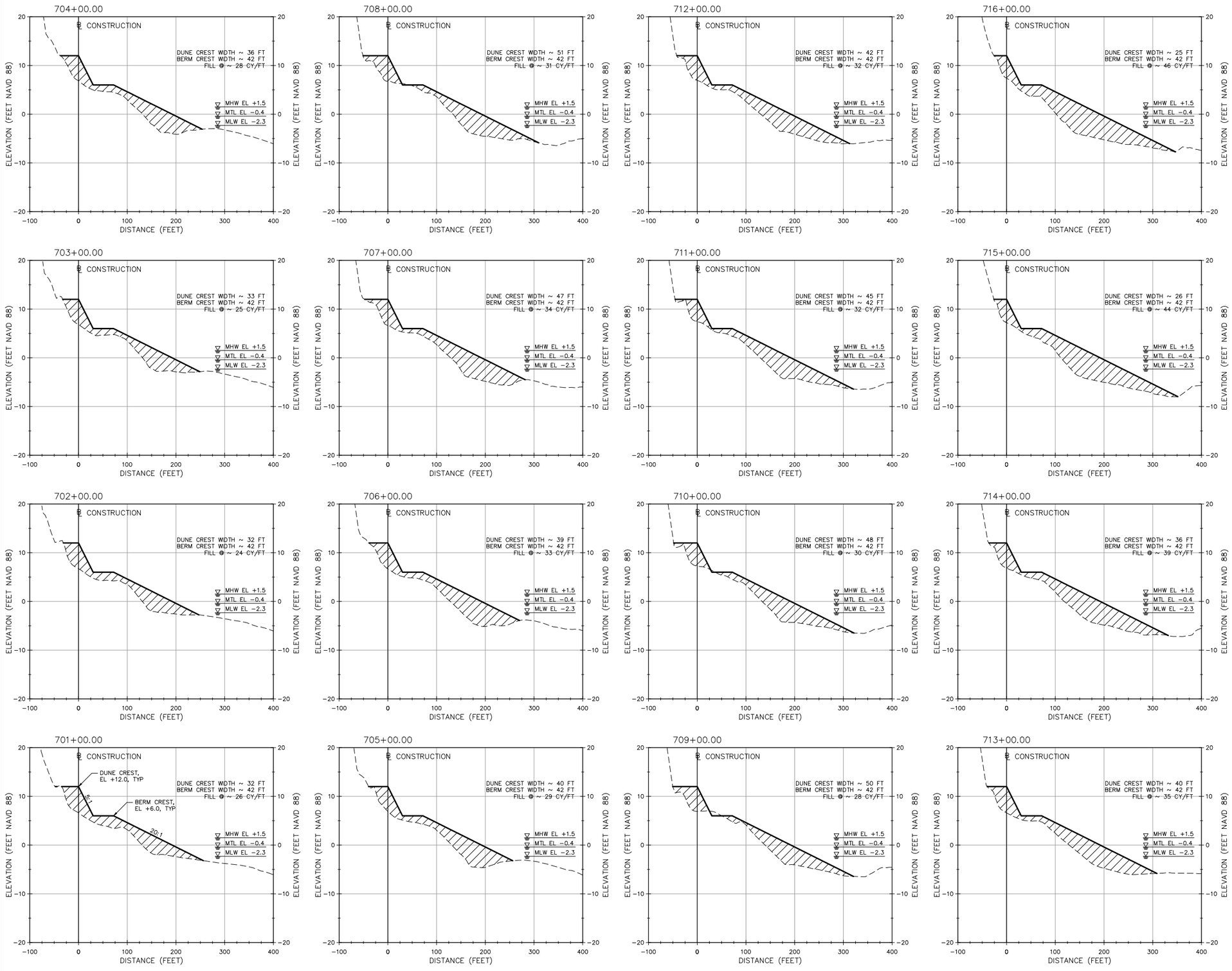
Designed by:	JM
Dwn by:	BDF
Qcd by:	SM
Reviewed by:	SM
Submitted by:	MOFFATT & NICHOL
Date:	FEB 2019
M&N Project No.	.
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (0 SHEET)
Rev.	-

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-316
Sheet 30 of 33

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

File: O:\CA\P Bogue Banks MBNP\CADD_Active_Sheets\MBNP-C316; Plotted: 2/11/2019 5:21 PM by FORD, BRIAN; Saved: 10/17/2018 11:20 AM by BFORD



Mark	Description	Date	Appr.
0	ISSUED FOR CONSTRUCTION	02/12/19	JM
1	BID DOCUMENTS	10/19/18	JM

POST-FLORENCE RENOURISHMENT PROJECT
PHASE 1
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS - SHEET 17 OF 18

Designed by: JM	Date: FEB 2019
Drawn by: BDF	Chkd by: SM
Reviewed by: SM	Submitted by: MOFFATT & NICHOL
M&N Project No. .	Rev. –
Drawing code: .	Drawing Scale: Plot scale: 1:1 (D SHEET)

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

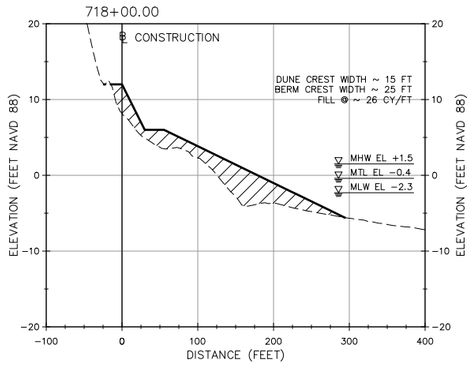
PREPARED FOR THE TOWNS OF EMERALD ISLE AND INDIAN BEACH

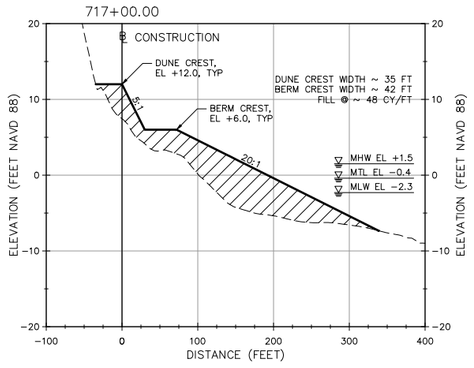
NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-317
Sheet 31 of 33

File: Q:\RA\P Bogue Banks MBNP\CADD_Active_Sheets\MBNP-C317; Plotted: 2/11/2019 5:21 PM by FORD, BRIAN; Saved: 10/17/2018 11:20 AM by BFORD

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING





10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

POST-FLORENCE RENOURISHMENT PROJECT
PHASE 1
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS - SHEET 18 OF 18

Mark	Description	Date	Appr.
0	ISSUED FOR CONSTRUCTION	02/12/19	JM
	BID DOCUMENTS	10/19/18	JM

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

PREPARED FOR THE TOWNS OF
EMERALD ISLE AND INDIAN BEACH

Designed by: JM	Rev. –
Dwn. by: BDF	Cad by: SM
Reviewed by: SM	Submitted by: MOFFATT & NICHOL
Date: FEB 2019	M&N Project No. .
Drawing code:	Drawing Scale:
Plot scale: 1:1 (0 SHEET)	

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-318
Sheet 32 of 33

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

File: G:\RA\P Bogue Banks MBNP\CADD_Active_Sheets\MBNP-C318; Plotted: 2/11/2019 5:21 PM by FORD, BRIAN; Saved: 10/17/2018 11:21 AM by BFORD

REACHES 1 & 2 WORK POINT TABLE			
WORK POINT	NORTHING	EASTING	ELEVATION
WP1	342740.84	2612361.09	12.0
WP2	342744.48	2612574.39	12.0
WP3	342838.69	2612985.47	12.0
WP4	343108.60	2614314.47	12.0
WP5	343328.85	2615221.70	12.0
WP6	343454.13	2615783.10	12.0
WP7	343540.18	2616173.74	12.0
WP8	343703.36	2616942.84	12.0
WP9	343855.15	2617739.01	12.0
WP10	344470.50	2620576.31	12.0
WP11	344675.18	2621555.14	12.0
WP12	344899.75	2622631.97	12.0
WP20	345139.12	2623779.78	12.0
WP21	345377.89	2625129.49	12.0
WP22	345548.47	2625975.71	12.0
WP23	345624.27	2626311.14	12.0
WP17	345640.52	2626507.64	12.0
WP18	345700.83	2626731.90	12.0
WP19	346043.52	2628432.62	12.0
WP20	346135.16	2628917.83	12.0
WP21	346296.35	2629612.71	12.0
WP22	346406.73	2630120.50	12.0
WP23	346415.53	2630274.68	12.0
WP24	346636.81	2631270.62	12.0
WP25	346866.89	2632420.75	12.0
WP26	346999.15	2633131.89	12.0
WP27	347024.00	2633426.19	12.0
WP28	347128.48	2633827.31	12.0
WP29	347214.42	2634247.10	12.0
WP30	347264.63	2634391.23	12.0

REACH 3 WORK POINT TABLE			
WORK POINT	NORTHING	EASTING	ELEVATION
WP40	347728.35	2636883.11	12.0
WP41	347732.41	2637021.59	12.0
WP42	347812.76	2637476.00	12.0
WP43	347903.33	2637956.53	12.0
WP44	347925.55	2638135.74	12.0
WP45	348140.95	2639086.97	12.0
WP46	348158.02	2639318.38	12.0
WP47	348291.69	2640108.01	12.0
WP48	348474.87	2641109.49	12.0
WP49	348548.27	2641507.11	12.0
WP50	348586.27	2641742.61	12.0
WP51	348626.07	2641870.42	12.0

No.	Mark	Description	Date	Appr.
0		ISSUED FOR CONSTRUCTION	02/12/19	JM
		BID DOCUMENTS	10/19/18	JM

POST-FLORENCE RENOURISHMENT PROJECT
PHASE 1
CARTERET COUNTY, NORTH CAROLINA

CONSTRUCTION BASELINE
WORK POINT TABLES

Designed by: JM
Drawn by: BDF
Chkd by: SM
Reviewed by: SM
Submitted by: MOFFATT & NICHOL
Date: FEB 2019
M&N Project No. -
Drawing code: -
Drawing Scale: Plot scale: 1:1 (D SHEET)
Rev. -

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

PREPARED FOR THE TOWNS OF
EMERALD ISLE AND INDIAN BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-601
Sheet 33 of 33

File: Q:\RA\P Bogue Banks MBNP\CADD_Active_Sheets\MBNP-C601; Plotted: 2/11/2019 5:21 PM by FORD, BRIAN; Saved: 2/8/2019 8:07 AM by BFORD

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

POST-FLORENCE RENOURISHMENT PROJECT
PHASE 2

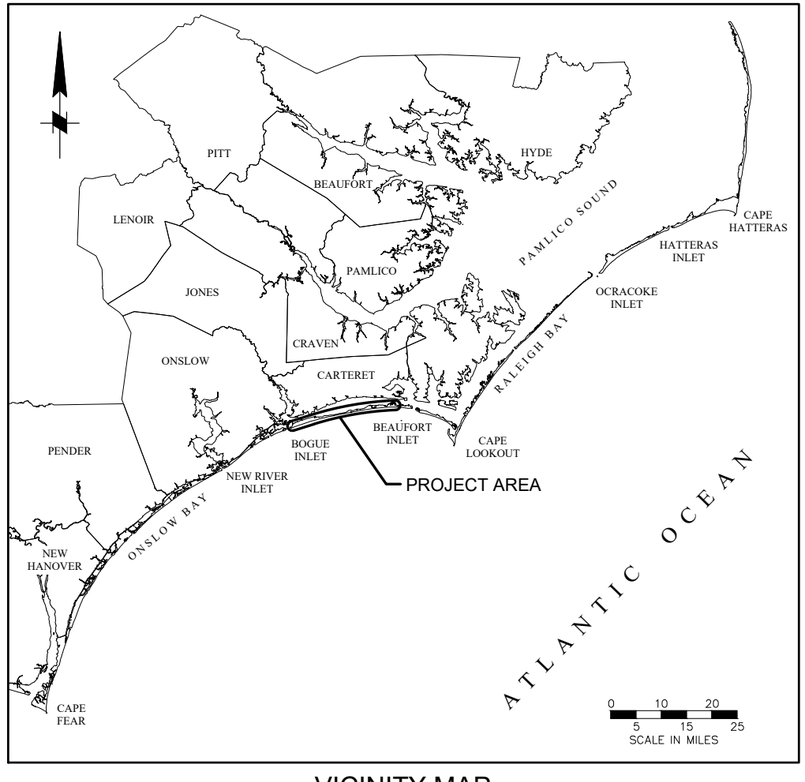
CARTERET COUNTY, NORTH CAROLINA

TOWN OF EMERALD ISLE
7500 EMERALD DRIVE
EMERALD ISLE, NC 28594

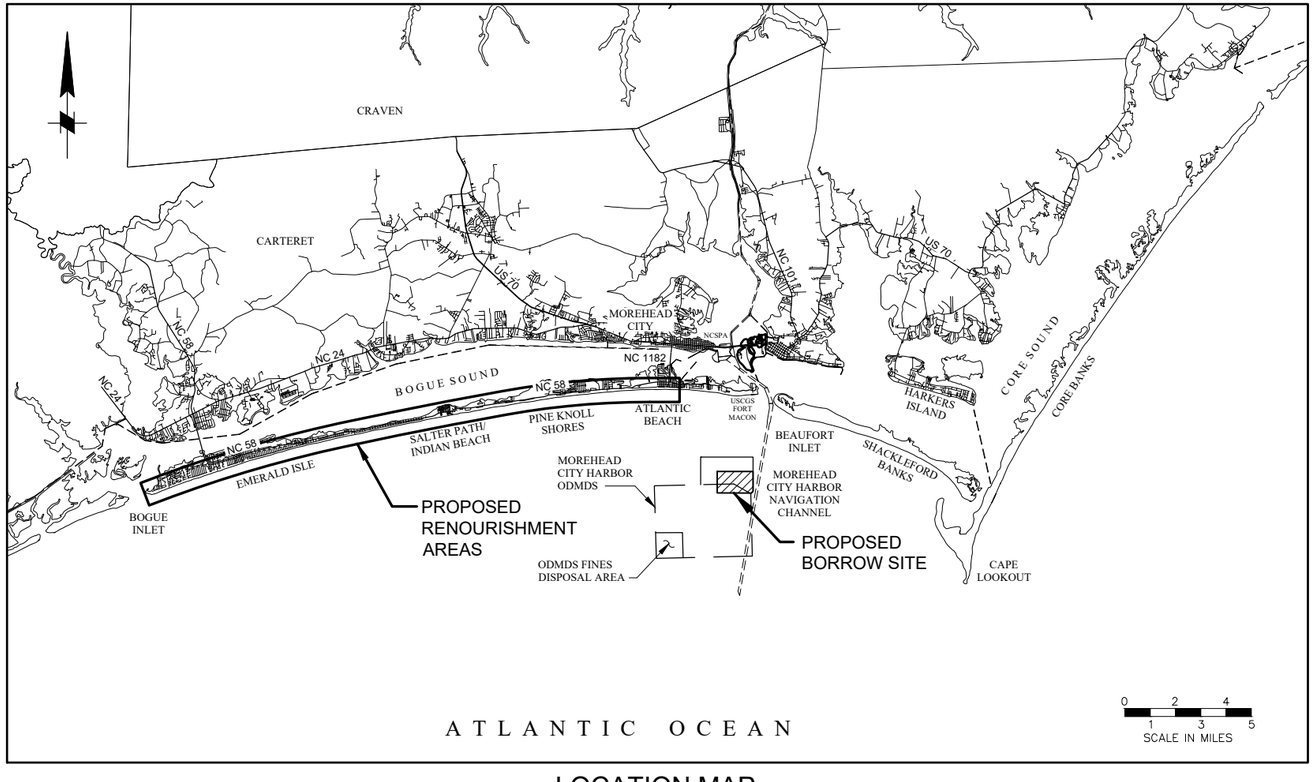
TOWN OF INDIAN BEACH
1400 SALTER PATH ROAD
INDIAN BEACH, NC 28512

TOWN OF PINE KNOLL SHORES
100 MUNICIPAL CIRCLE
PINE KNOLL SHORES, NC 28512

TOWN OF ATLANTIC BEACH
125 WEST FORT MACON ROAD
ATLANTIC BEACH, NC 28512



VICINITY MAP



LOCATION MAP

Mark	Description	Date	Appr.
1	PRE-CONSTRUCTION DESIGN REVISION	02/14/20	JM
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

COVER SHEET

Designed by: NCV
Drawn by: BDF
Checked by: SRM
Reviewed by: JDM
Submitted by: MOFFATT & NICHOL

Date: AUGUST 2019
M&N Project No. 10611
Drawing code:
Drawing Scale: Plot scale: 1:1 (D SHEET)

Rev. 1

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
G-001
Sheet 1 of 66

REVISION 1
FEBRUARY 14, 2020

File: Q:\RA\10611\0500_CAD_Active_10611 Bouge Banks 2020\10611000-001; Plotted: 2/14/2020 10:24 AM by FORD, BRIAN; Saved: 2/12/2020 2:42 PM by BFORD

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

INDEX OF DRAWINGS	
SHEET NO.	SHEET TITLE
G-001	COVER SHEET
G-002	INDEX OF DRAWINGS, ABBREVIATIONS, AND GENERAL NOTES
C-100	PROJECT MAP AND KEY PLAN
C-101	PROJECT SURVEY CONTROL PLANS
C-102	PROJECT STAGING AND ACCESS PLANS
C-103	ODMDS BORROW SITE DREDGE PLAN
C-104	ODMDS BORROW SITE DREDGE SECTIONS
C-105	ODMDS BORROW SITE VIBRACORE SUMMARY TABLE
C-110	BEACH RENOURISHMENT PLAN – SHEET 1 OF 20
C-111	BEACH RENOURISHMENT PLAN – SHEET 2 OF 20
C-112	BEACH RENOURISHMENT PLAN – SHEET 3 OF 20
C-113	BEACH RENOURISHMENT PLAN – SHEET 4 OF 20
C-114	BEACH RENOURISHMENT PLAN – SHEET 5 OF 20
C-115	BEACH RENOURISHMENT PLAN – SHEET 6 OF 20
C-116	BEACH RENOURISHMENT PLAN – SHEET 7 OF 20
C-117	BEACH RENOURISHMENT PLAN – SHEET 8 OF 20
C-118	BEACH RENOURISHMENT PLAN – SHEET 9 OF 20
C-119	BEACH RENOURISHMENT PLAN – SHEET 10 OF 20
C-120	BEACH RENOURISHMENT PLAN – SHEET 11 OF 20
C-121	BEACH RENOURISHMENT PLAN – SHEET 12 OF 20
C-122	BEACH RENOURISHMENT PLAN – SHEET 13 OF 20
C-123	BEACH RENOURISHMENT PLAN – SHEET 14 OF 20
C-124	BEACH RENOURISHMENT PLAN – SHEET 15 OF 20
C-125	BEACH RENOURISHMENT PLAN – SHEET 16 OF 20
C-126	BEACH RENOURISHMENT PLAN – SHEET 17 OF 20
C-127	BEACH RENOURISHMENT PLAN – SHEET 18 OF 20
C-128	BEACH RENOURISHMENT PLAN – SHEET 19 OF 20
C-129	BEACH RENOURISHMENT PLAN – SHEET 20 OF 20
C-300	BEACH NOURISHMENT TYPICAL SECTIONS
C-301	RENOURISHMENT SECTIONS SHEET 1 OF 35
C-302	RENOURISHMENT SECTIONS SHEET 2 OF 35
C-303	RENOURISHMENT SECTIONS SHEET 3 OF 35
C-304	RENOURISHMENT SECTIONS SHEET 4 OF 35
C-305	RENOURISHMENT SECTIONS SHEET 5 OF 35
C-306	RENOURISHMENT SECTIONS SHEET 6 OF 35
C-307	RENOURISHMENT SECTIONS SHEET 7 OF 35
C-308	RENOURISHMENT SECTIONS SHEET 8 OF 35
C-309	RENOURISHMENT SECTIONS SHEET 9 OF 35
C-310	RENOURISHMENT SECTIONS SHEET 10 OF 35
C-311	RENOURISHMENT SECTIONS SHEET 11 OF 35
C-312	RENOURISHMENT SECTIONS SHEET 12 OF 35
C-313	RENOURISHMENT SECTIONS SHEET 13 OF 35
C-314	RENOURISHMENT SECTIONS SHEET 14 OF 35
C-315	RENOURISHMENT SECTIONS SHEET 15 OF 35
C-316	RENOURISHMENT SECTIONS SHEET 16 OF 35
C-317	RENOURISHMENT SECTIONS SHEET 17 OF 35
C-318	RENOURISHMENT SECTIONS SHEET 18 OF 35
C-319	RENOURISHMENT SECTIONS SHEET 19 OF 35
C-320	RENOURISHMENT SECTIONS SHEET 20 OF 35
C-321	RENOURISHMENT SECTIONS SHEET 21 OF 35
C-322	RENOURISHMENT SECTIONS SHEET 22 OF 35
C-323	RENOURISHMENT SECTIONS SHEET 23 OF 35
C-324	RENOURISHMENT SECTIONS SHEET 24 OF 35
C-325	RENOURISHMENT SECTIONS SHEET 25 OF 35
C-326	RENOURISHMENT SECTIONS SHEET 26 OF 35
C-327	RENOURISHMENT SECTIONS SHEET 27 OF 35
C-328	RENOURISHMENT SECTIONS SHEET 28 OF 35
C-329	RENOURISHMENT SECTIONS SHEET 29 OF 35
C-330	RENOURISHMENT SECTIONS SHEET 30 OF 35
C-331	RENOURISHMENT SECTIONS SHEET 31 OF 35
C-332	RENOURISHMENT SECTIONS SHEET 32 OF 35
C-333	RENOURISHMENT SECTIONS SHEET 33 OF 35
C-334	RENOURISHMENT SECTIONS SHEET 34 OF 35
C-335	RENOURISHMENT SECTIONS SHEET 35 OF 35
C-501	MISCELLANEOUS DETAILS
C-601	CONSTRUCTION BASELINE WORK POINT TABLES

ABBREVIATIONS

CY	CUBIC YARDS	No.	NUMBER
FT	FEET OR FOOT	ODMDS	OFFSHORE DREDGE MATERIAL DISPOSAL SITE
MHW	MEAN HIGH WATER		
MLW	MEAN LOW WATER	TYP	TYPICAL
MTL	MEAN TIDE LEVEL	WP	WORK POINT
NAD	NORTH AMERICAN DATUM	℄	BASELINE
NAVD	NORTH AMERICAN VERTICAL DATUM	@	AT
NGS	NATIONAL GEODETIC SURVEY	~	APPROXIMATELY
NOAA	NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	NIC	NOT IN CONTRACT

GENERAL NOTES:

1. ALL BEACH FILL, PLANTING AND DREDGING WORK SHALL CONFORM TO THE REQUIREMENTS OF THESE PLANS AND SPECIFICATIONS.

2. THE CONTRACTOR SHALL PLACE THE PERMIT PLACARDS ON THE JOB SITE AND SHALL COMPLY WITH ALL TERMS OF THE PERMITS PERTAINING TO THE PERFORMANCE OF THE WORK. SEE THE TECHNICAL SPECIFICATIONS.

GENERAL NOTES:

3. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS BEFORE STARTING WORK. NOTIFY OWNER OF DISCREPANCIES.

4. ALL SAFETY REGULATIONS ARE TO BE STRICTLY FOLLOWED. METHODS OF CONSTRUCTION AND ERECTION OF STRUCTURAL MATERIAL ARE THE CONTRACTORS RESPONSIBILITY.

5. THE CONTRACTOR SHALL, ON A DAILY BASIS, REMOVE FROM THE SITE ANY UNSUITABLE EXCAVATED MATERIAL OR DEBRIS. DISPOSAL OF THE MATERIALS IS THE RESPONSIBILITY OF THE CONTRACTOR. ALL DEBRIS SHALL BE DISPOSED OF IN A PERMITTED LANDFILL.

6. THESE PLANS ARE INCOMPLETE WITHOUT THE PROJECT TECHNICAL SPECIFICATIONS. IF THERE ARE CONFLICTS BETWEEN THE PLANS AND SPECIFICATIONS, THE CONTRACTOR SHALL ALERT THE OWNER AND ENGINEER. THE TECHNICAL SPECIFICATIONS SHALL TAKE PRECEDENCE.

7. THE STAGING AND ACCESS AREAS SHOWN ON C-102 ARE OWNED BY THE TOWNS OF EMERALD ISLE, INDIAN BEACH, PINE KNOLL SHORES, AND ATLANTIC BEACH. COORDINATION WITH THE TOWN MANAGERS SHALL BE REQUIRED BEFORE USE. FOR THE STAGING AND ACCESS AREAS WITHIN REACHES THE POINTS OF CONTACT ARE AS FOLLOWS.

REACHES 1-5
MR. MATT ZAPP
TOWN MANAGER
TOWN OF EMERALD ISLE
7500 EMERALD DRIVE
EMERALD ISLE, NC 28594
(252) 354-3424
mzapp@emeraldisle-nc.org

REACHES 6-8
MR. TIM WHITE
TOWN MANAGER
TOWN OF INDIAN BEACH
1400 SALTER PATH RD
INDIAN BEACH, NC 28512
(252) 247-3344
admin@indianbeach.org

REACH 9
MR. BRIAN KRAMER
TOWN MANAGER
TOWN OF PINE KNOLL SHORES
100 MUNICIPAL CIRCLE
PINE KNOLL SHORES, NC 28512
(252) 247-4353
manager@townofpks.com

REACH 10
MR. DAVID WALKER
TOWN MANAGER
TOWN OF ATLANTIC BEACH
125 WEST FORT MACON RD
ATLANTIC BEACH, NC 28512
(252) 726-212
townmanager@atlanticbeach-nc.com

SEE THE TECHNICAL SPECIFICATIONS FOR A DESCRIPTION AND PHOTOS OF STAGING AND ACCESS AREAS.

8. STAGING AREAS SHALL BE MAINTAINED BY THE CONTRACTOR. STAGING AREAS SHALL BE CLEARED OF DEBRIS AND CONTRACTOR INSTALLED AMENITIES AT THE COMPLETION AND ACCEPTANCE OF WORK IN THE AREA. THE CONTRACTOR SHALL RESTORE THE ACCESS AREAS TO THEIR ORIGINAL CONDITION AFTER WORK IN THE AREA IS COMPLETE. THIS WORK INCLUDES, BUT NOT LIMITED TO, REPLACEMENT OF FENCING, SIGNS, SAND FENCE, BEACH VEGETATION, WALKWAYS, DUNES, DUNE VEGETATION, PARKING FACILITIES, PAVED AREAS AND OTHER MISCELLANEOUS ITEMS. ALL REPLACEMENT MATERIALS SHALL BE APPROVED BY THE ENGINEER/OWNER BEFORE INSTALLATION.

9. UNLESS OTHERWISE APPROVED BY THE OWNER, EXCESS EQUIPMENT MAY ONLY BE STORED IN APPROVED STORAGE/STAGING AREAS OR TEMPORARY AREAS IN THE IMMEDIATE VICINITY OF THE BEACHFILL PLACEMENT SITE. THE OWNER RESERVES THE RIGHT TO LIMIT SUCH AREAS AS DEEMED NECESSARY. OPERATION OF GRADING AND OTHER CONSTRUCTION EQUIPMENT WILL NOT BE PERMITTED OUTSIDE THE WORK AREA LIMITS EXCEPT FOR INGRESS AND EGRESS OF THE SITE AT APPROVED LOCATIONS. THE STACKING OF DISCHARGE PIPES IN LAYERS EXCEEDING TWO PIPES HIGH SHALL BE PROHIBITED IN ANY OF THE STORAGE OR STAGING AREAS INCLUDING THE TEMPORARY AREAS.

10. ANY EXISTING SIGNS, FENCES, OR OTHER STRUCTURES WITHIN THE WORK LIMITS SHALL BE PROTECTED AND/OR REMOVED AND LATER REPLACED BY THE CONTRACTOR AS DIRECTED.

PERMITS

1. IT IS THE INTENT OF THESE PLANS TO BE IN ACCORDANCE WITH APPLICABLE CODES AND AUTHORITIES HAVING JURISDICTION. ANY DISCREPANCIES BETWEEN THESE PLANS AND APPLICABLE CODES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER. THE APPLICABLE CODES SHALL TAKE PRECEDENCE.

2. IT IS THE INTENT OF THESE PLANS, AND THE RESPONSIBILITY OF THE CONTRACTOR, TO COMPLY WITH THE ENVIRONMENTAL PERMITS ISSUED FOR THIS PROJECT. THE PERMITS ARE HEREBY MADE PART OF THE CONTRACT DOCUMENTS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE AND GOVERN HIMSELF BY ALL PROVISIONS OF THESE PERMITS. SEE THE TECHNICAL SPECIFICATIONS.

BID QUANTITIES

1. THE FOLLOWING ESTIMATE OF SAND QUANTITIES REQUIRED FOR THE PROJECT IS:

   TOTAL PROJECT FILL . . . . . 1,995,000 CY (1)

2. THE FOLLOWING ESTIMATE OF PLANTING QUANTITIES REQUIRED FOR THE PROJECT IS:

   TOTAL PROJECT PLANTING . . . . . 230,500 SY

DREDGING

1. NO DREDGING WHATSOEVER SHALL OCCUR BELOW AN ELEVATION OF -52 FT NAVD 88.

2. ALL DREDGING SHALL BE PERFORMED WITHIN THE LIMITS OF THE PERMITTED DREDGING AREA AS SHOWN IN THE DRAWINGS.

3. PIPELINE CORRIDOR SHALL BE DELINEATED WITH BUOYS BY THE CONTRACTOR IN THE PRESENCE OF THE ENGINEER/OWNER BEFORE PLACEMENT.

DREDGING

4. THE PLANE COORDINATES AND BEARINGS SHOWN FOR THE DREDGING SURVEYS ARE BASED ON THE NORTH CAROLINA STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM 83 (NAD 83).

5. ALL ELEVATIONS SHOWN ON THE DREDGING DRAWINGS ARE REFERENCED TO NORTH AMERICAN VERTICAL DATUM 1988 (NAVD 88).

6. THE BATHYMETRY PRESENTED ON THE DREDGING PLANS IS BASED ON A SURVEY COMPLETED IN MAY 2019 BY GEODYNAMICS AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS AT THAT TIME.

7. A POST-DREDGE SURVEY OF THE BORROW AREA SHALL BE COMPLETED BY AN INDEPENDENT REGISTERED/CERTIFIED SURVEYOR COORDINATED AND PAID FOR BY THE CONTRACTOR TO STANDARDS OUTLINED IN THE TECHNICAL SPECIFICATIONS.

BEACH FILL

1. ALL SAND EXCAVATED FROM THE BORROW AREAS SHALL BE TRANSPORTED TO, AND DEPOSITED ON, THE BEACH BETWEEN THE LINES, GRADES, AND CROSS-SECTIONS SHOWN ON THE DRAWINGS OR AS ADJUSTED BY THE ENGINEER.

2. AFTER NOTIFICATION BY THE CONTRACTOR OF THEIR INTENT TO COMMENCE DREDGING AND SAND PLACEMENT, A CURRENT BEACH SURVEY WILL BE PERFORMED BY THE OWNER. THE CONTRACTOR SHALL NOTIFY THE OWNER AT LEAST 4 WEEKS PRIOR TO THE COMMENCEMENT OF BEACH FILL PLACEMENT. THE UPDATED BEACH SURVEY WILL BE USED TO ADJUST THE LIMITS AND GRADE LINES TO MEET THE FILL DENSITIES PROVIDED WITH THE SECTIONS ON SHEETS C-301 THRU C-335.

3. SAND SHALL BE PLACED WITHIN THESE LIMITS AND GRADE LINES AS PRACTICALLY AS POSSIBLE. TOLERANCE SHALL BE WITHIN ±0.5 FOOT FOR BERM ELEVATION AND WIDTHS OUT TO THE MEAN TIDE LEVEL (MTL) AS SHOWN ON SHEET C-300. PAYMENT WILL BE MADE FOR THE CY/FT SHOWN ON THE PLANS WITH A TOLERANCE OF ±10%. EVERY ATTEMPT WILL BE MADE BY THE CONTRACTOR TO FILL WITHIN THE PRESCRIBED TEMPLATE. SEE TECHNICAL SPECIFICATIONS. THE BEACH FILL SHALL BE PLACED BY REACH GENERALLY FROM EAST TO WEST.

4. THE OWNER MAY MAKE ALTERATIONS IN THE PLAN DIMENSIONS, GRADE OF SLOPES, OR VOLUME OF FILL PER FOOT OF BEACH IN ORDER TO ACCOUNT FOR CHANGED CONDITIONS SINCE THE TIME OF THE EXISTING CONDITIONS SURVEY. THE CONTRACTOR SHALL WORK CLOSELY WITH THE OWNER TO ENSURE THAT THE TOTAL QUANTITY OF SAND ALLOWED UNDER THE CONTRACT IS PLACED AS EFFECTIVELY AS POSSIBLE.

5. CONTRACTOR SHALL TAKE CARE TO GRADE THE DUNE AND BERM SO THAT PONDING LANDWARD OF THE CRESTS IS MINIMIZED.

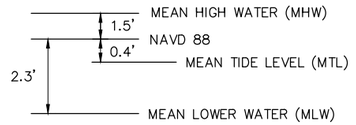
6. EXISTING WALKWAYS SHALL REMAIN AND NOT BE DAMAGED BEYOND CURRENT CONDITIONS. ANY ADDITIONAL DAMAGE WILL BE REPAIRED OR REPLACED AT THE CONTRACTORS COST AS DIRECTED BY THE OWNER OR THE ENGINEER. FILL SHALL BE PLACED COMPLETELY UNDERNEATH AND/OR AROUND STRUCTURES.

7. THE PLANE COORDINATES AND BEARINGS SHOWN FOR THE BEACH FILL SURVEYS ARE BASED ON THE NORTH CAROLINA STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM 83 (NAD 83).

8. ALL ELEVATIONS SHOWN ON THE BEACH FILL DRAWINGS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM (NAVD 88).

9. THE BATHYMETRY/TOPOGRAPHY PRESENTED ON THE BEACH FILL PLANS AND SECTIONS IS BASED ON A SURVEY COMPLETED IN MAY 2019 BY GEODYNAMICS AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS AT THAT TIME.

10. THE MEAN HIGH WATER ELEVATION AND MEAN LOW WATER ELEVATION SHOWN ON THE BEACH FILL DRAWINGS AND BELOW WERE PROVIDED BY CARTERET COUNTY AND ARE BASED ON NOAA TIDAL DATUMS AT THE ATLANTIC BEACH TRIPLE S PIER AND THE DUKE MARINE LAB.



11. HORIZONTAL AND VERTICAL CONTROL FOR THE BEACH FILL SURVEY WAS BASED ON NUMEROUS RANGE MONUMENTS AS FOUND BY GEODYNAMICS.

12. CONTOURS FOR THE BEACH FILL PLANS ARE SHOWN AT 1 FT INTERVALS.

13. PRE- AND POST-CONSTRUCTION SURVEYS OF THE BEACH AREA SHALL BE COMPLETED BY AN INDEPENDENT REGISTERED/CERTIFIED SURVEYOR COORDINATED AND PAID FOR BY THE CONTRACTOR. TRANSECTS SHALL BE AT 100-FOOT INTERVALS. ADDITIONAL ELEVATIONS SHALL BE TAKEN AS NECESSARY TO ACCURATELY REPRESENT TOPOGRAPHY OF THE BEACH AREA.

14. BEACH FILL SLOPES CALLED OUT ON PLANS ARE HORIZONTAL : VERTICAL.

15. SEE TECHNICAL SPECIFICATION FOR ADDITIONAL PLACEMENT REQUIREMENTS.

16. THE CONTRACTOR SHALL PROVIDE TEMPORARY SAND RAMPS OVER THE PIPELINE FOR PEDESTRIAN AND EMERGENCY VEHICLE ACCESS ALONG THE BEACH. THE MAXIMUM DISTANCE BETWEEN THESE TEMPORARY SAND RAMPS SHALL BE 500 FEET. THESE TEMPORARY SAND RAMPS SHALL BE LEVELED ONCE THE PIPELINE HAS BEEN MOVED. THE CONTRACTOR SHALL ALSO CONSTRUCT A BARRIER TO KEEP THE PUBLIC AT LEAST 250 FEET FROM THE DISCHARGE PIPE IN BOTH DIRECTIONS UP AND DOWN THE BEACH. SEE THE TECHNICAL SPECIFICATIONS.

Mark	Description	Date	Appr.
1	ADDENDUM 1	08/27/19	JM
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

INDEX OF DRAWINGS, ABBREVIATIONS, AND GENERAL NOTES

Designed by: NCV	Drawn by: BDF	Reviewed by: JDM	Submitted by: MOFFATT & NICHOL
Date: AUGUST 2019	Qad by: SRM	Drawing code:	Drawing Scale: Plot scale: 1:1 (0 SHEET)
M&N Project No. 10611			

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

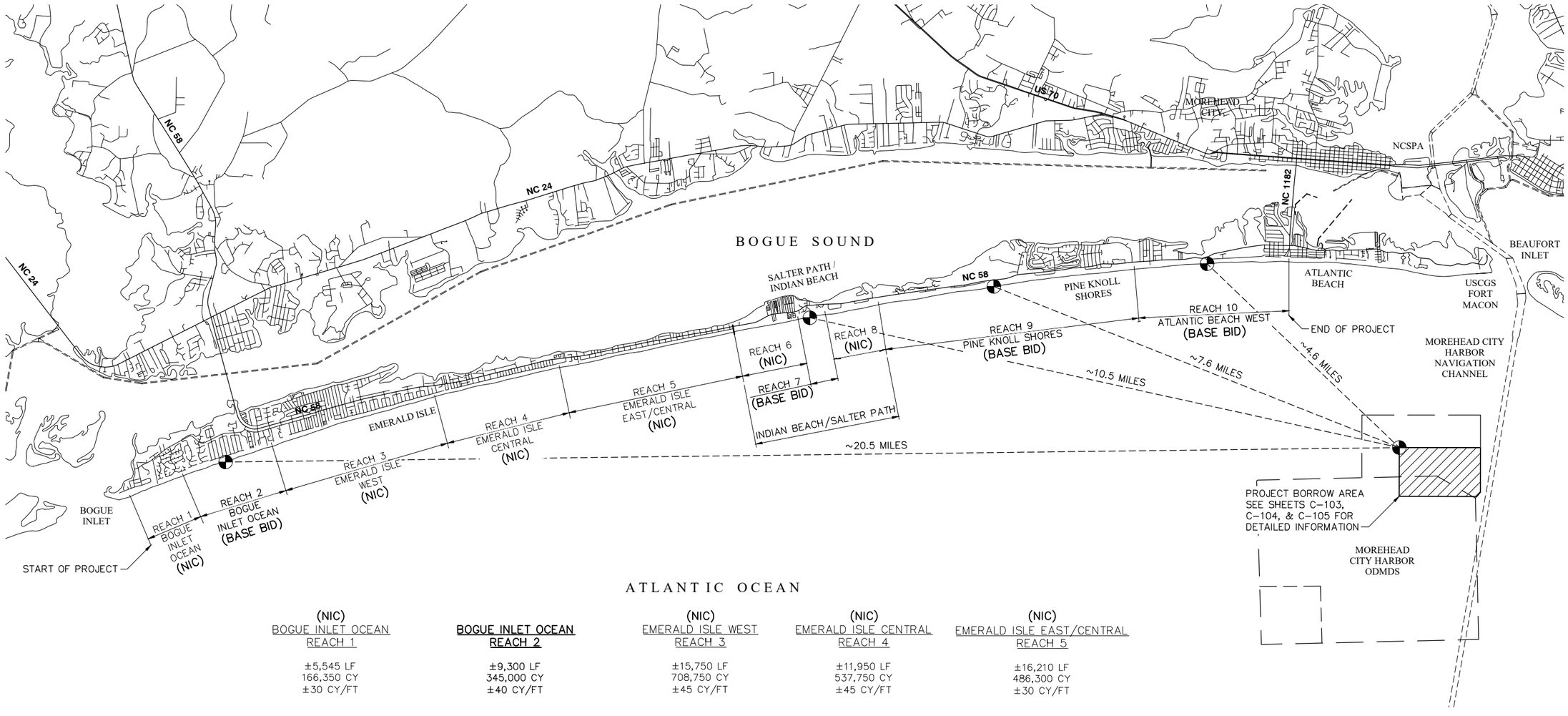
PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
G-002
Sheet 2 of 66

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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



(NIC) BOGUE INLET OCEAN REACH 1	BOGUE INLET OCEAN REACH 2	(NIC) EMERALD ISLE WEST REACH 3	(NIC) EMERALD ISLE CENTRAL REACH 4	(NIC) EMERALD ISLE EAST/CENTRAL REACH 5
±5,545 LF 166,350 CY ±30 CY/FT	±9,300 LF 345,000 CY ±40 CY/FT	±15,750 LF 708,750 CY ±45 CY/FT	±11,950 LF 537,750 CY ±45 CY/FT	±16,210 LF 486,300 CY ±30 CY/FT

(NIC) INDIAN BEACH/SALTER PATH REACH 6	INDIAN BEACH/SALTER PATH REACH 7	(NIC) INDIAN BEACH/SALTER PATH REACH 8	PINE KNOLL SHORES REACH 9	ATLANTIC BEACH WEST REACH 10
±6,025 LF 180,750 CY ±30 CY/FT	±3,800 LF 140,000 CY ±40 CY/FT (1)	±4,900 LF 147,000 CY ±30 CY/FT	±24,400 LF 990,000 CY ±40 CY/FT (1)	±14,900 LF 520,000 CY ±35 CY/FT (1)

NOTES:
1. OFFLOADING STATION AT BEACH NOURISHMENT SITES SHALL BE USED TO PUMP DREDGED MATERIAL ONTO BEACH. THIS STATION SHALL MOVE EAST OR WEST AS THE NOURISHMENT PROJECT IS COMPLETED. DREDGED MATERIAL SHALL BE TRANSPORTED FROM THE BORROW AREA DIRECTLY BY THE DREDGE AND OFFLOADED AT THIS LOCATION. CONTRACTOR SHALL PROVIDE MAP OF PROPOSED OFFLOADING STATIONS AND PIPELINE IN ACCORDANCE WITH PERMITS, SEE TECHNICAL SPECIFICATIONS.
2. BASE BID REACHES 2 , 7, AND 9 REQUIRE A 500 FOOT TAPER TO BE PLACED WITHIN ADJACENT (NOT IN CONTRACT) REACHES.
3. REACHES 2, 7, 9, AND 10 ARE CONSIDERED PART OF THE BASE BID. REACHES 1, 3 THRU 6, AND 8 ARE CURRENTLY NOT IN CONTRACT (NIC) DUE TO DELAYS IN FEMA FUNDING.

Mark	Description	Date	Appr.
1	ADDENDUM 1	08/27/19	JM
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

PROJECT MAP AND KEY PLAN

Date: AUGUST 2019 | Rev.
Designed by: NCV | Drawn by: BDF | Exd by: SRM
M&N Project No. 10611
Reviewed by: JDM
Drawing code:
Submitted by: MOFFATT & NICHOL
Drawing Scale: Plot scale: 1:1 (0 SHEET)

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol
NC FIRM LICENSE No. F-0105

PREPARED FOR THE TOWNS OF EMERALD ISLE, INDIAN BEACH, PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

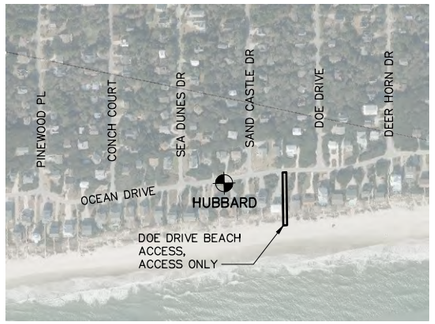
Sheet Reference No.
C-100
Sheet 3 of 66

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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NGS CONTROL STATION			
STATION	NORTHING	EASTING	ELEVATION
BEAR	331243.42	2572100.58	16.08



NGS CONTROL STATION			
STATION	NORTHING	EASTING	ELEVATION
HUBBARD	334559.51	2581884.14	14.99



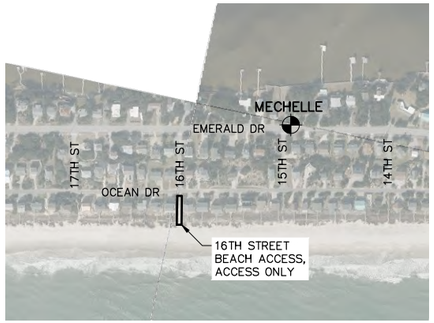
NGS CONTROL STATION			
STATION	NORTHING	EASTING	ELEVATION
SEAVIEW	338492.52	2589895.22	15.43



NGS CONTROL STATION			
STATION	NORTHING	EASTING	ELEVATION
COQUINA	339814.76	2599077.46	17.82



NGS CONTROL STATION			
STATION	NORTHING	EASTING	ELEVATION
EMERALD RM2	343122.52	2612927.40	16.79



NGS CONTROL STATION			
STATION	NORTHING	EASTING	ELEVATION
MECHELLE	344990.91	2620512.31	17.51



NGS CONTROL STATION			
STATION	NORTHING	EASTING	ELEVATION
McNEILL	346476.28	2628573.13	18.47



NGS CONTROL STATION			
STATION	NORTHING	EASTING	ELEVATION
SALTER	348063.64	2637673.57	25.21



NGS CONTROL STATION			
STATION	NORTHING	EASTING	ELEVATION
GROVE	349629.16	2645424.90	11.53



NGS CONTROL STATION			
STATION	NORTHING	EASTING	ELEVATION
VERRANZZANO	351254.18	2654624.71	10.71



NGS CONTROL STATION			
STATION	NORTHING	EASTING	ELEVATION
WEEPING	351818.98	2659539.89	18.66



NGS CONTROL STATION			
STATION	NORTHING	EASTING	ELEVATION
SHERATON	352583.33	2667932.37	9.81



NGS CONTROL STATION			
STATION	NORTHING	EASTING	ELEVATION
RIDGE	352747.25	2673936.72	13.31



NGS CONTROL STATION			
STATION	NORTHING	EASTING	ELEVATION
POLICE RM5	354033.16	2679512.54	5.26

NOTES:

1. THE NORTHINGS AND EASTINGS SHOWN ARE BASED ON THE NORTH CAROLINA STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM 1983 (NAD 83) (FEET).
2. THE ELEVATIONS SHOWN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM 1988 (NAVD 88) (FEET).

0	BID DOCUMENTS	08/19/19	JM
Mark	Description	Date	Appr.

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

PROJECT SURVEY CONTROL PLANS

Rev.
Date: AUGUST 2019
Designed by: NCV
Drawn by: BDF
Checked by: SRM
Reviewed by: JDM
Submitted by: MOFFATT & NICHOL
M&N Project No. 10611
Drawing code:
Drawing Scale:
Plot scale: 1:1 (0 SHEET)

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-101
Sheet 4 of 66

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

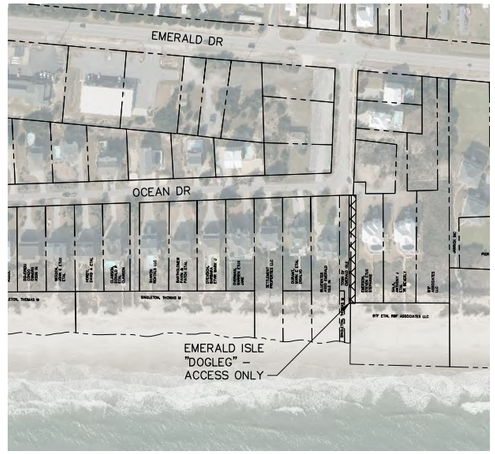
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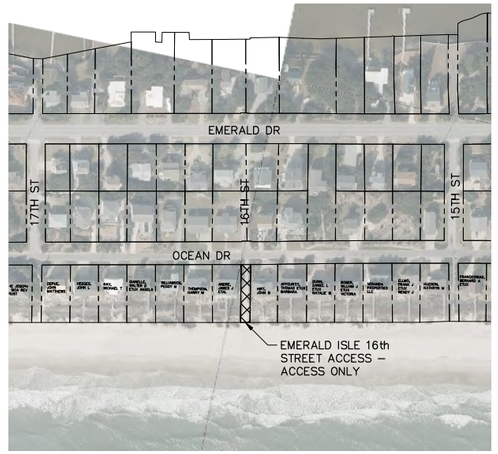
STAGING & ACCESS SITE 1
NOT TO SCALE



STAGING & ACCESS SITE 2
NOT TO SCALE



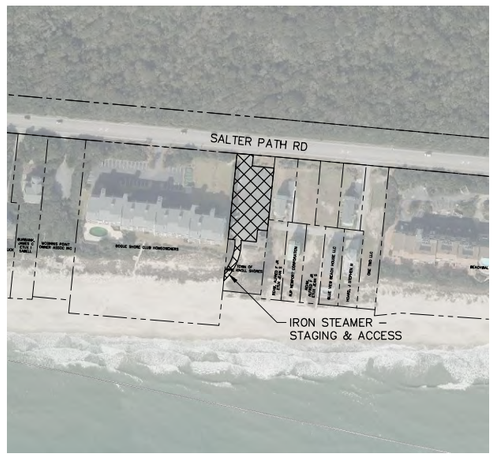
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STAGING & ACCESS SITE 4
NOT TO SCALE



STAGING & ACCESS SITE 5
NOT TO SCALE



STAGING & ACCESS SITE 6
NOT TO SCALE



STAGING & ACCESS SITE 7
NOT TO SCALE



STAGING & ACCESS SITE 8
NOT TO SCALE

NOTES:

1. SEE TECHNICAL SPECIFICATIONS FOR ADDITIONAL INFORMATION.
2. SEE TECHNICAL SPECIFICATIONS FOR DESCRIPTIONS AND PHOTOS OF STAGING AND ACCESS AREAS.

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

Mark	Description	Date	Appr.
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

PROJECT STAGING AND ACCESS PLANS

Designed by: .
Drawn by: BDF
Checked by: .
Reviewed by: .
Submitted by: MOFFATT & NICHOL
Date: AUGUST 2019
M&N Project No. 10611
Drawing code: .
Drawing Scale: .
Plot scale: 1:1 (0 SHEET)
Rev.

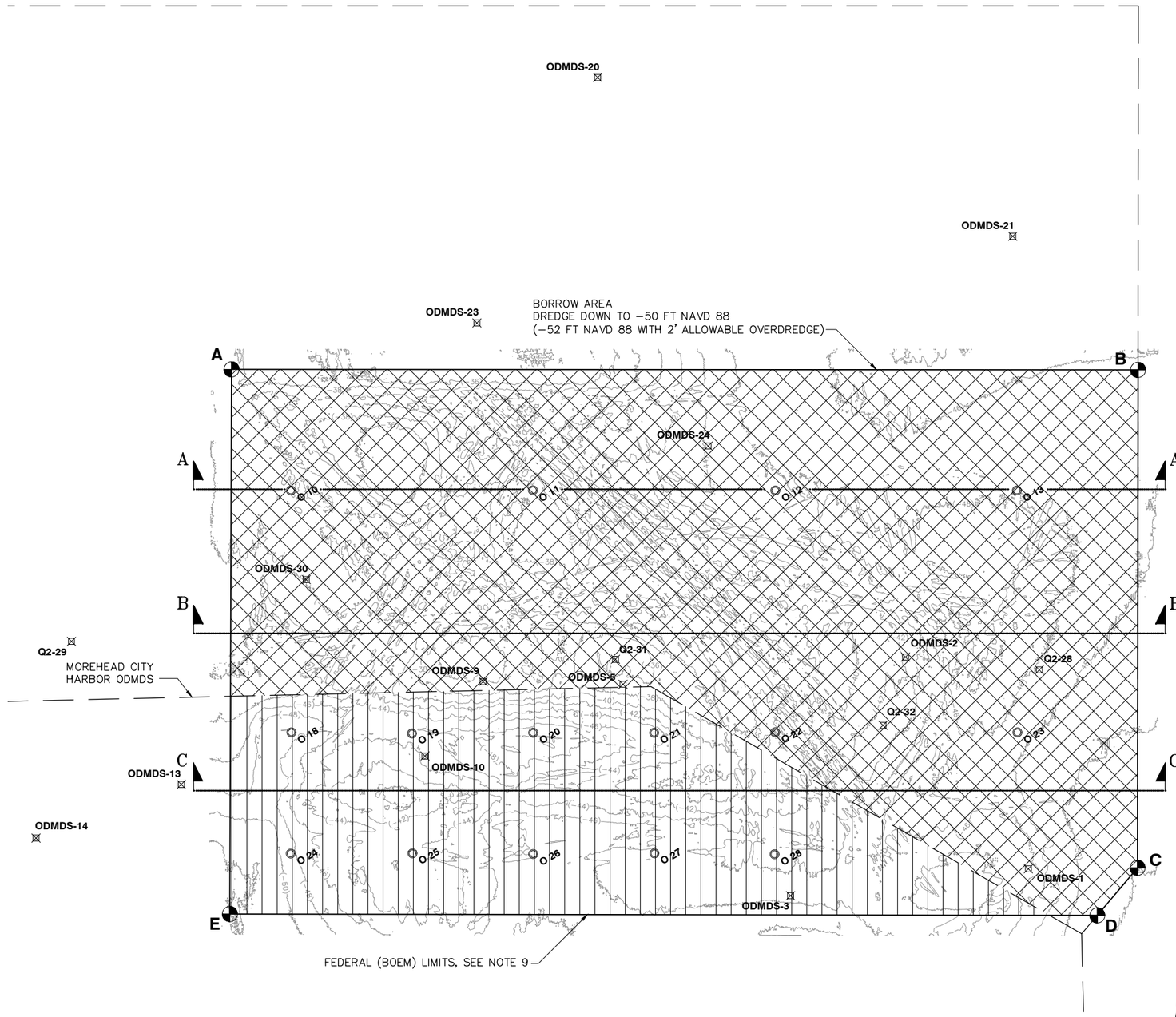
4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
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Sheet
Reference No.
C-102
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PROPOSED BORROW AREA COORDINATE TABLE

POINT	NORTHING	EASTING
A	335251.00	2689873.17
B	335246.38	2697361.70
C	331134.26	2697357.83
D	330742.17	2697024.91
E	330752.97	2689859.35

LEGEND

- A — PROPOSED BORROW AREA CONTROL POINT
- O## — 2011 VIBRACORE LOCATION (SEE TECHNICAL SPECIFICATIONS FOR DATA SUMMARY)
- ID — REMOTE SENSING TARGET

NOTES

1. BATHYMETRY CONTOURS SHOWN IN FEET REFERENCED TO NAVD 88 ARE BASED ON MULTIBEAM SURVEYS PERFORMED BY GEODYNAMICS IN MAY 2019 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS AT THE TIME OF THE SURVEY.
2. BORROW AREA COORDINATES ARE NORTH CAROLINA STATE PLANE, NAD 83 (FEET).
3. THE MEAN HIGH WATER ELEVATION AND MEAN LOW WATER ELEVATION SHOWN ON THE DREDGE SECTIONS WERE PROVIDED BY CARTERET COUNTY AND ARE BASED ON NOAA TIDAL DATUMS AT THE ATLANTIC BEACH TRIPLE S PIER AND THE DUKE MARINE LAB.
4. OTHER CONTRACTORS MAY BE PRESENT IN AREAS WHERE DREDGING OF BEACH FILL MATERIALS IS TO OCCUR. CONTRACTOR IS RESPONSIBLE FOR COORDINATING ACTIVITIES.
5. SEE TECHNICAL SPECIFICATIONS FOR DATA SUMMARY OF THE ARCHAEOLOGICAL REMOTE SENSING AND TARGET IDENTIFICATION STUDY. THE STUDY CONCLUDES THAT THE TARGETS CONSIST OF MODERN DEBRIS (WIRE ROPE, PIPE, ETC.) THAT APPEARS TO BE RELATED TO THE ODMDS OR ARTIFICIAL REEF SYSTEMS BUILT IN THE 1970'S. NO CULTURAL RESOURCES OR HISTORICAL ARTIFACTS WERE FOUND.
6. THE CONTRACTOR SHALL LEAVE UNDISTURBED FURROWS BETWEEN DREDGING PASSES WITHIN THE ODMDS BORROW SITE.
7. FOR ODMDS BORROW SITE DREDGE SECTIONS, SEE SHEET C−104.
8. FOR ODMDS BORROW SITE VIBRACORE SUMMARY TABLE, SEE SHEET C−105.
9. THE CONTRACTOR WILL BE LIMITED TO 1,750,000 CUBIC YARDS OF DREDGE MATERIAL REMOVAL, BY SURVEY, FROM WITHIN THE BOEM LIMITS.

REMOTE SENSING TARGET COORDINATE TABLE

TARGET ID	NORTHING	EASTING
ODMDS−1	331,126	2,696,456
ODMDS−2	332,875	2,695,144
ODMDS−3	330,904	2,694,491
ODMDS−5	332,650	2,693,107
ODMDS−9	332,672	2,691,951
ODMDS−10	332,058	2,691,471
ODMDS−13	331,823	2,689,458
ODMDS−14	331,380	2,688,258
ODMDS−20	337,662	2,692,898
ODMDS−21	336,350	2,696,327
ODMDS−23	335,635	2,691,900
ODMDS−24	334,618	2,693,811
ODMDS−30	333,515	2,690,490
Q2−28	332,769	2,696,546
Q2−29	333,005	2,688,551
Q2−31	332,856	2,693,045
Q2−32	332,311	2,695,255

500' 0' 500' 1000'

SCALE: 1"=500' HORIZONTAL

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

No.	Mark	BID DOCUMENTS Description	Date	Appr.
0			08/19/19	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

ODMDS BORROW SITE DREDGE PLAN

Rev.			
Date: AUGUST 2019	M&N Project No. 10611	Drawing code:	Drawing Scale: Plot scale:1:1 (0 SHEET)
Designed by: NCV	Dsd by: SRM	Reviewed by: JDM	Submitted by: MOFFATT & NICHOL
Dwn by: BDF			

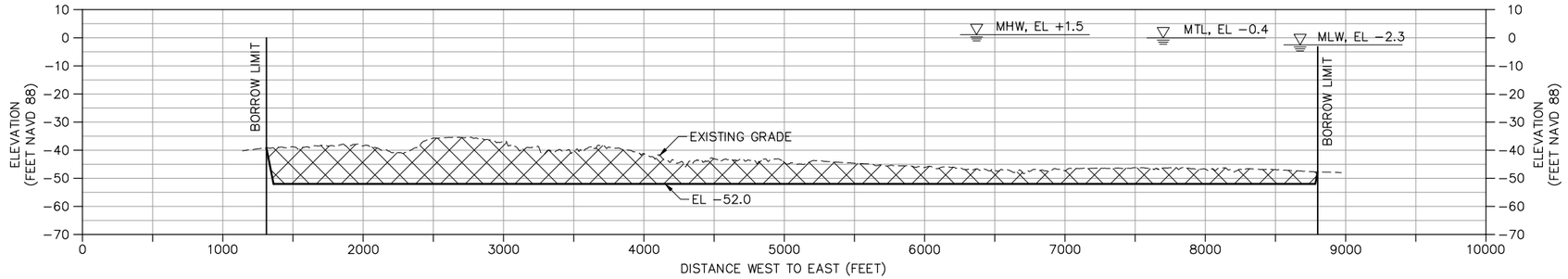
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919−781−4626
moffatt & nichol NC FIRM LICENSE No. F−0105

PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
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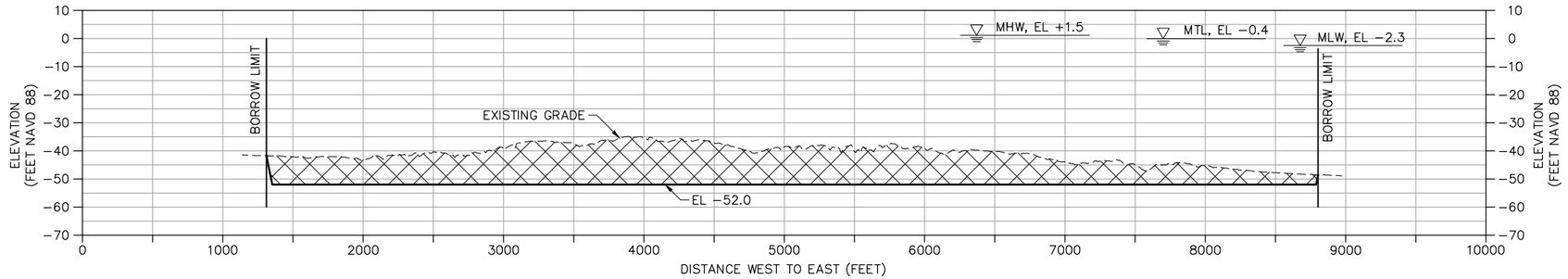
NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-103
Sheet 6 of 66

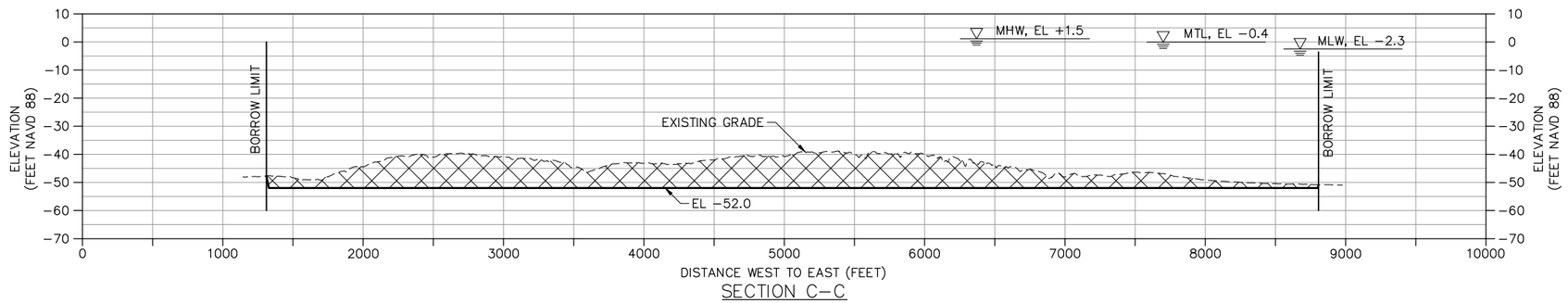
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SECTION A–A



SECTION B–B



SECTION C–C

25' 0' 25' 50'
SCALE: 1"=25' VERTICAL

500' 0' 500' 1000'
SCALE: 1"=500' HORIZONTAL

No.	Mark	Description	Date	Appr.
0	BID	DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

ODMDS BORROW SITE DREDGE SECTIONS

Date: AUGUST 2019 | Rev.
M&N Project No. 10611
Drawing code:
Designed by: NCV | Dwn by: BDF | Chd by: SRM
Reviewed by: JDM
Submitted by: MOFFATT & NICHOL
Drawing Scale:
Plot scale: 1:1 (0 SHEET)

4700 FALLS OF THE NEUSE ROAD
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moffatt & nichol NC FIRM LICENSE No. F-0105

PREPARED FOR THE TOWNS OF
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PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
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Sheet 7 of 66

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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

Bogue Banks Sediment Compatibility

Native Sediment Characteristics

Reference - (CSE, 2001 - EA for Phases 1 & 2 and CAMA Permit #124-01)

Mean	1.76 phi	0.30 mm
Standard Deviation	0.77 phi	0.59 mm

Borrow Area Sediment Characteristics ODMDS

Reference - (Alpine, February 2012)

Mean	1.71	phi	0.31	mm
Standard Deviation	1.10	phi	0.81	mm

Percent Fines 0.5%

Percent Sand 98.0%

Precent Gravel 1.5%

Overfill Factor

Mean Difference	Sorting Ratio
-0.07	1.42

Summary of ODMDS Borrow Area Sediment Characteristics

Vibracore	Sample Number	Depth (ft)	Bed Elevation (ft NAVD)	Sample Elevation (ft NAVD)			Sample Depth (ft)	Gravel	Sand	<#200	<#230	Carbonate	Mean (mm)	Mean (phi)
O10	1	0-5	-38.2	-38.2	-	-43.2	5.0	1.18	98.64	0.18	0.12	11.8	0.27	1.89
O10	2	5-10	-38.2	-43.2	-	-48.2	5.0	0.22	99.43	0.35	0.29	12.9	0.28	1.84
O10	3	10-15	-38.2	-48.2	-	-53.2	5.0	0.18	99.50	0.32	0.25	10.0	0.26	1.94
O11	1	0-2	-37.6	-37.6	-	-39.6	2.0	2.7	96.48	0.82	0.63	15.5	0.34	1.56
O11	2	2-5	-37.6	-39.6	-	-42.6	3.0	0.43	99.28	0.29	0.27	13.7	0.33	1.60
O11	3	5-10	-37.6	-42.6	-	-47.6	5.0	0.07	99.66	0.27	0.26	13.8	0.26	1.94
O11	4	10-15	-37.6	-47.6	-	-52.6	5.0	1.93	97.92	0.15	0.12	14.1	0.29	1.79
O12	1	0-5	-46.6	-46.6	-	-51.6	5.0	4.59	95.09	0.32	0.26	23.3	0.45	1.15
O12	2	5-9	-46.6	-51.6	-	-55.6	4.0	1.32	98.39	0.29	0.21	14.2	0.32	1.64
O13	1	0-6	-47.3	-47.3	-	-53.3	6.0	0.08	99.53	0.39	0.28	11.5	.29	1.79
O18	1	0-6	-44.1	-44.1	-	-50.1	6.0	1.22	98.07	0.71	0.53	12.1	0.28	1.84
O18	2	6-12	-44.1	-50.1	-	-56.1	6.0	0.21	99.39	0.4	0.29	12.6	0.28	1.84
O19	1	0-6	-36.1	-36.1	-	-42.1	6.0	0	99.82	0.18	0.08	10.6	0.25	2.00
O19	2	6-12	-36.1	-42.1	-	-48.1	6.0	1.69	98.27	0.04	0	13.5	0.29	1.79
O19	3	12-17	-36.1	-48.1	-	-53.1	5.0	1.63	98.19	0.18	0.12	12.8	0.32	1.64
O19	4	17-19.3	-36.1	-53.1	-	-55.4	2.3	0	99.3	0.7	0.49	9.5	0.24	2.06
O20	1	0-5	-36.4	-36.4	-	-41.4	5.0	2.55	97.31	0.14	0.12	17.8	0.35	1.51
O20	2	5-10	-36.4	-41.4	-	-46.4	5.0	1.28	97.83	0.89	0.72	21.2	0.31	1.69
O20	3	10-13.9	-36.4	-46.4	-	-50.3	3.9	2.31	97.24	0.45	0.39	9.3	0.3	1.74
O21	1	0-5	-37	-37.0	-	-42.0	5.0	0.36	99.34	0.3	0.28	16.2	0.3	1.74
O21	2	5-10	-37	-42.0	-	-47.0	5.0	1.77	97.72	0.51	0.46	11.7	0.36	1.47
O21	3	10-15	-37	-47.0	-	-52.0	5.0	1.66	98.11	0.23	0.16	12.3	0.31	1.69
O22	1	0-5	-32.7	-32.7	-	-37.7	5.0	2.14	97.72	0.14	0.13	16.2	0.34	1.56
O22	2	5-10	-32.7	-37.7	-	-42.7	5.0	2.12	97.68	0.2	0.14	12.3	0.31	1.69
O22	3	10-15	-32.7	-42.7	-	-47.7	5.0	1.58	98.04	0.38	0.37	11.7	0.29	1.79
O22	4	15-20	-32.7	-47.7	-	-52.7	5.0	1.06	98.53	0.41	0.4	14.7	0.34	1.56
O23	1	0-6	-47.8	-47.8	-	-53.8	6.0	1.88	97.98	0.14	0.11	13.3	0.36	1.47
O24	1	0-4.9	-49.3	-49.3	-	-54.2	4.9	4.78	90.03	5.19	4.81	13	0.24	2.06
O24	2	4.9-6.8	-49.3	-54.2	-	-56.1	1.9	0.32	99.38	0.3	0.2	10.4	0.26	1.94
O25	1	0-6	-42	-42.0	-	-48.0	6.0	0.9	98.65	0.45	0.36	13.6	0.33	1.60
O25	2	6-12	-42	-48.0	-	-54.0	6.0	2.05	96.99	0.96	0.83	18	0.33	1.60
O25	3	12-17.9	-42	-54.0	-	-59.9	5.9	1.79	98.06	0.15	0.12	19.2	0.32	1.64
O26	1	0-5	-45.7	-45.7	-	-50.7	5.0	5.01	94.52	0.47	0.37	12.7	0.36	1.47
O26	2	5-9.3	-45.7	-50.7	-	-55.0	4.3	0.97	98.79	0.24	0.21	11.9	0.3	1.74
O27	1	0-4	-43.6	-43.6	-	-47.6	4.0	0.56	99.24	0.2	0.2	16.7	0.4	1.32
O27	2	4-8	-43.6	-47.6	-	-51.6	4.0	0.67	98.95	0.38	0.35	12	0.32	1.64
O27	3	8-12.9	-43.6	-51.6	-	-56.5	4.9	0.16	99.35	0.49	0.41	11.8	0.29	1.79
O28	1	0-6	-42.7	-42.7	-	-48.7	6.0	0.59	99.29	0.12	0.09	12.8	0.28	1.84
O28	2	6-11.6	-42.7	-48.7	-	-54.3	5.6	0.41	99.34	0.25	0.16	13.4	0.3	1.74
							average	1.44	98.04	0.52	0.44	13.56	0.31	1.71
							median	1.28	98.19	0.30	0.28	12.80	0.31	1.74

No.	Description	Date	Appr.
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

ODMDS BORROW SITE
VIBRACORE SUMMARY TABLE

Designed by: NCV
Dwn by: BDF
Ckd by: SRM
Reviewed by: JDM
Submitted by: MOFFATT & NICHOL
Date: AUGUST 2019
M&N Project No. 10611
Drawing code:
Drawing Scale:
Plot scale: 1:1 (D SHEET)
Rev.

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

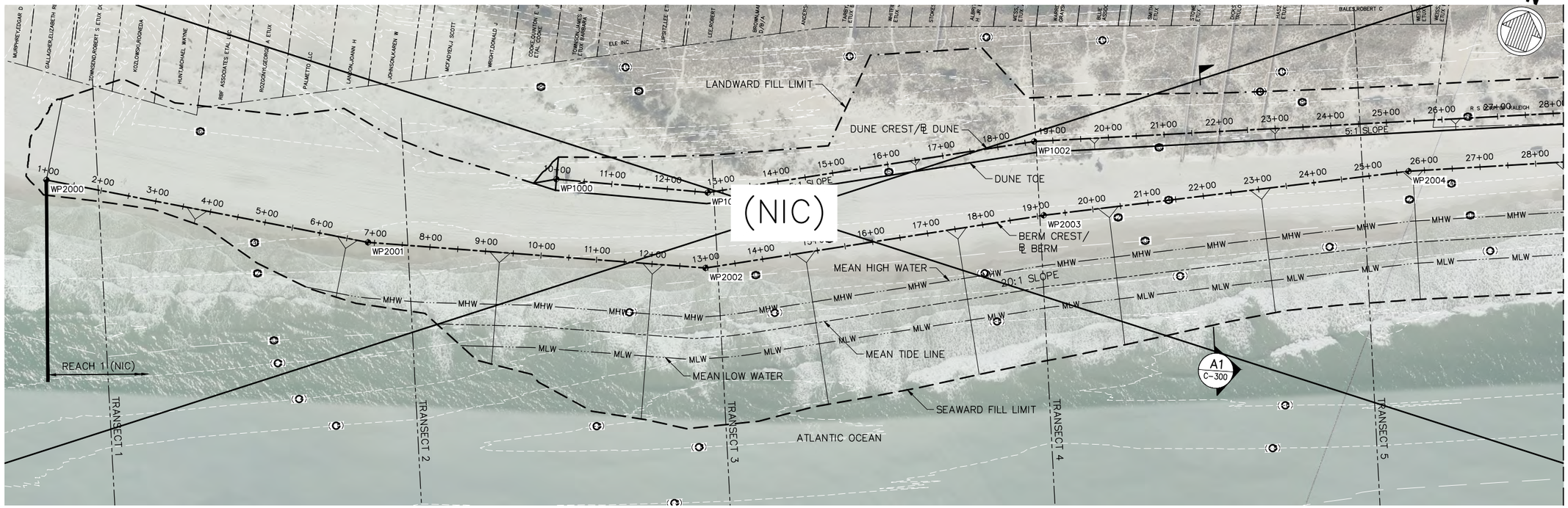
PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

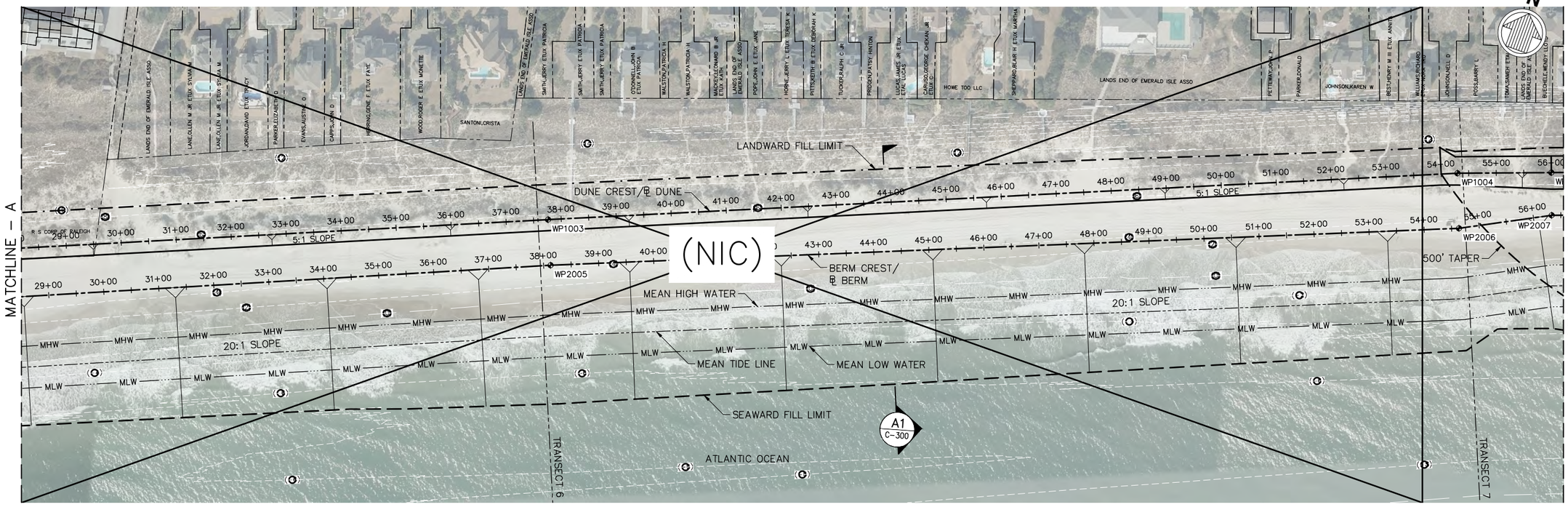
NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-105
Sheet 8 of 66

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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING





NOTES:
1. SEE SHEET C-601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C-301 THRU C-335 FOR CROSS SECTIONS.

100' 0' 100' 200'
SCALE: 1"=100'

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

Mark	Description	Date	Appr.
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

BEACH RENOURISHMENT PLAN - SHEET 1 OF 20

Designed by: NCV
Drawn by: BDF
Reviewed by: JDM
Submitted by: MOFFATT & NICHOL
Date: JANUARY 2020
Chkd by: SRM
M&N Project No. 10611
Drawing code:
Drawing Scale:
Plot scale: 1:1 (0 SHEET)

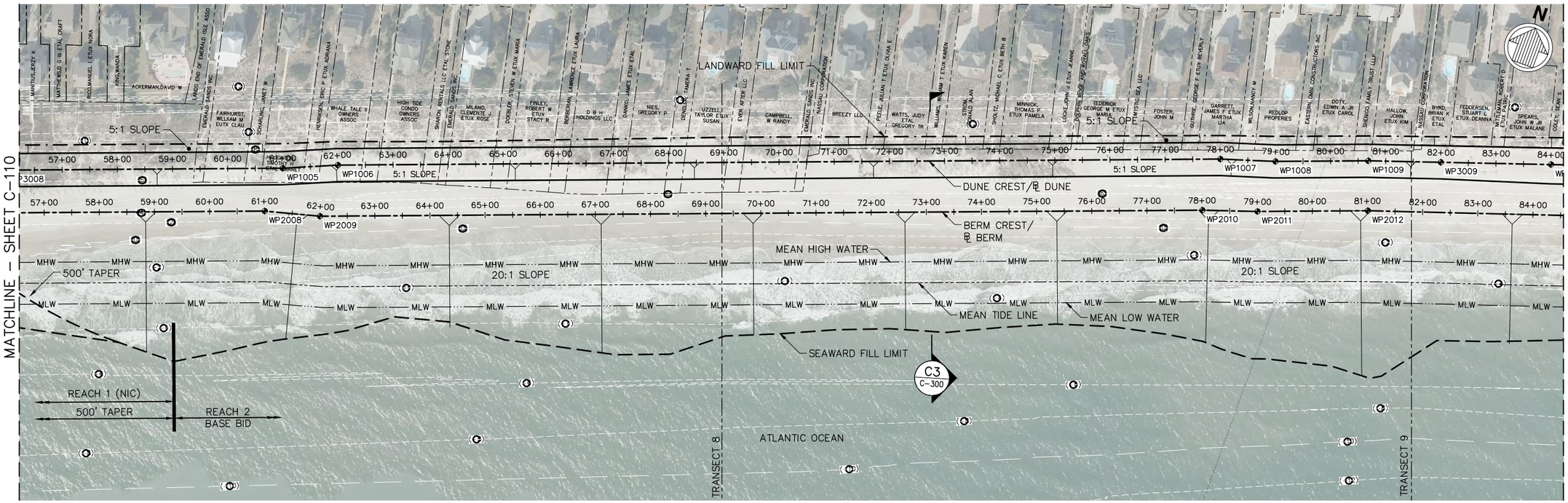
4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

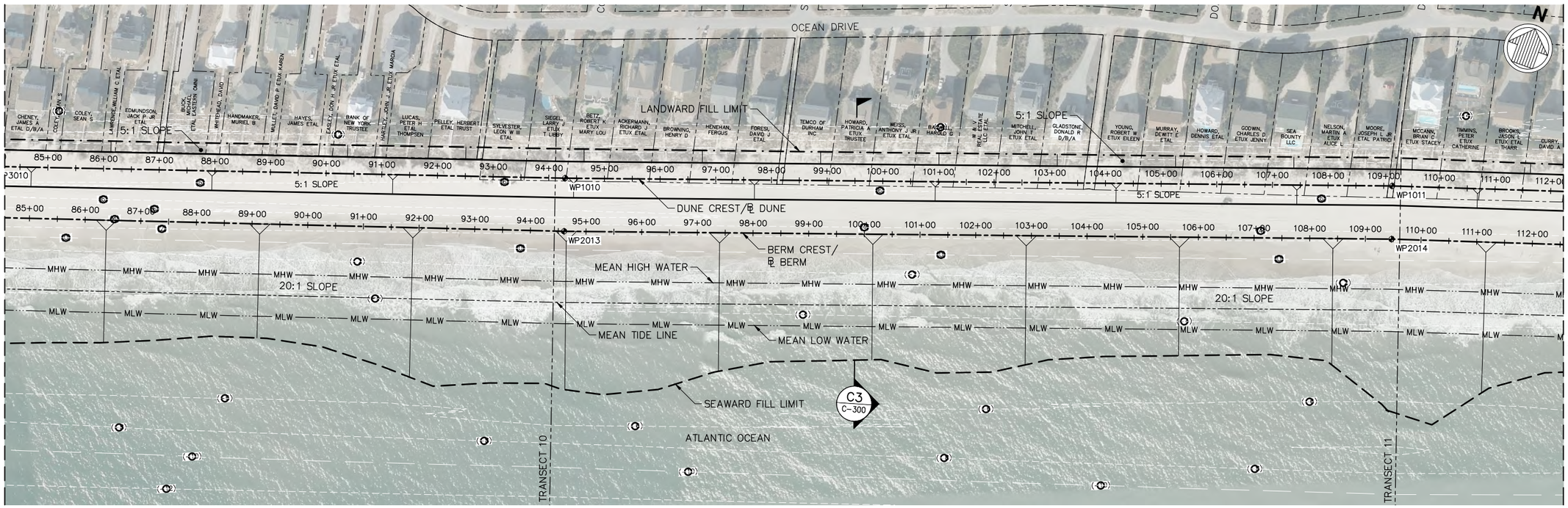
PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-110
Sheet 9 of 66

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NOTES:
1. SEE SHEET C–601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C–301 THRU C–335 FOR CROSS SECTIONS.

100' 0' 100' 200'
SCALE: 1"=100'

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

Mark	Description	Date	Appr.
1	PRE–CONSTRUCTION DESIGN REVISION	02/14/20	JM
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

BEACH RENOURISHMENT PLAN - SHEET 2 OF 20

Rev. 1
Date: JANUARY 2020
M&N Project No. 10611
Drawing code:
Drawing Scale: Plot scale: 1:1 (0 SHEET)
Designed by: NCV
Dwn by: BDF
Chkd by: SRM
Reviewed by: JDM
Submitted by: MOFFATT & NICHOL

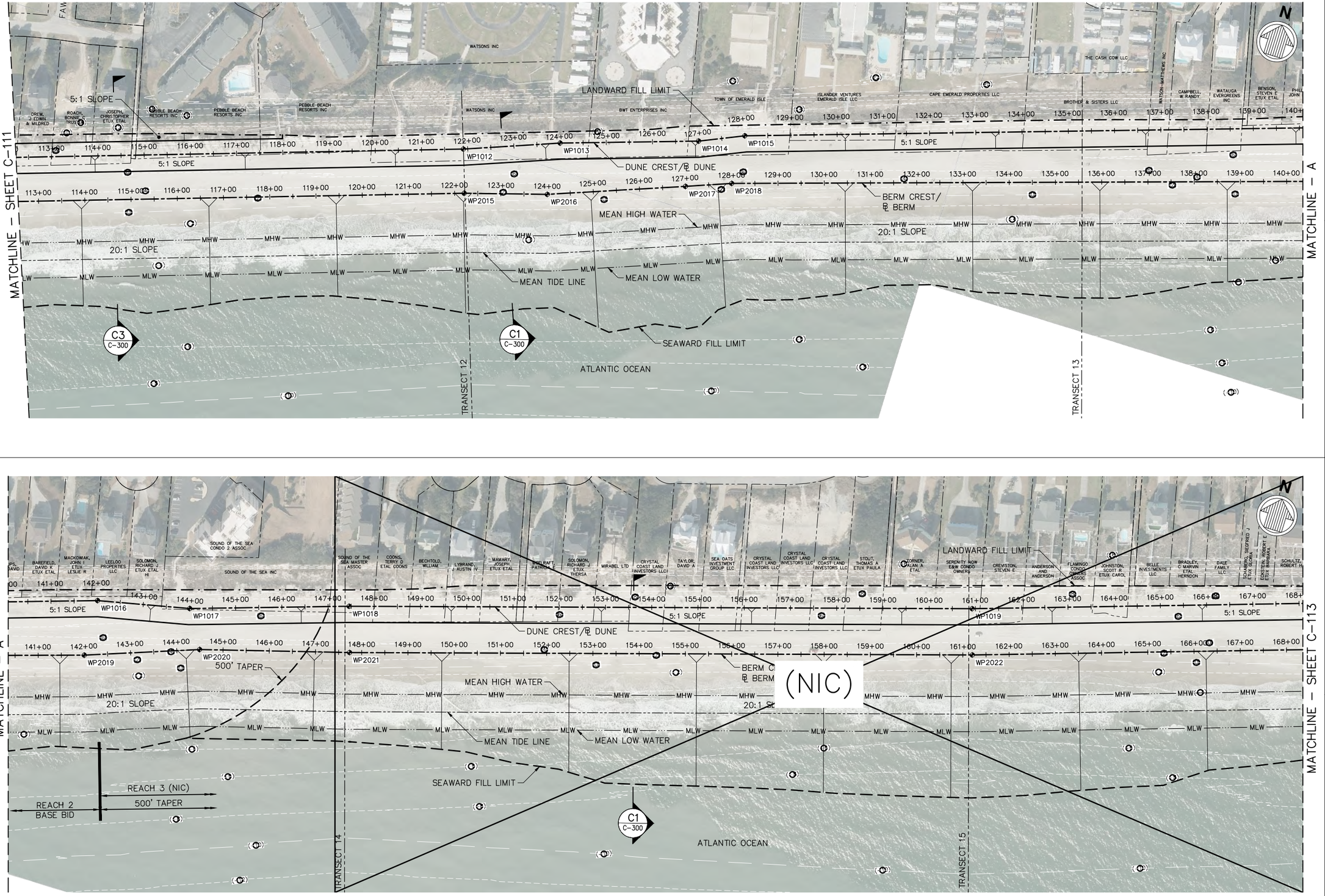
4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-111
Sheet 10 of 66

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NOTES:
1. SEE SHEET C–601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C–301 THRU C–335 FOR CROSS SECTIONS.

Mark	Description	Date	Appr.
1	PRE–CONSTRUCTION DESIGN REVISION	02/14/20	JM
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

BEACH RENOURISHMENT PLAN - SHEET 3 OF 20

Rev.: 1
Date: JANUARY 2020
M&N Project No. 10611
Drawing code:
Designed by: NCV
Dwn by: BDF
Chd by: SRM
Reviewed by:
Submitted by: JDM
Drawing Scale:
Plot scale: 1:1 (0 SHEET)

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

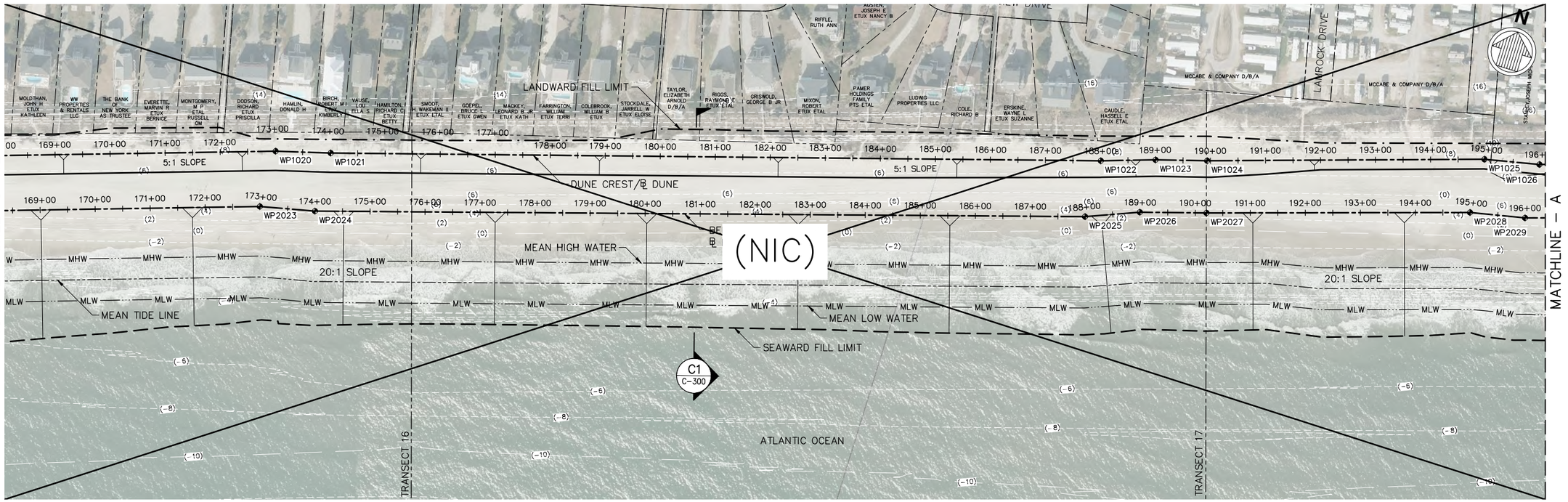
PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

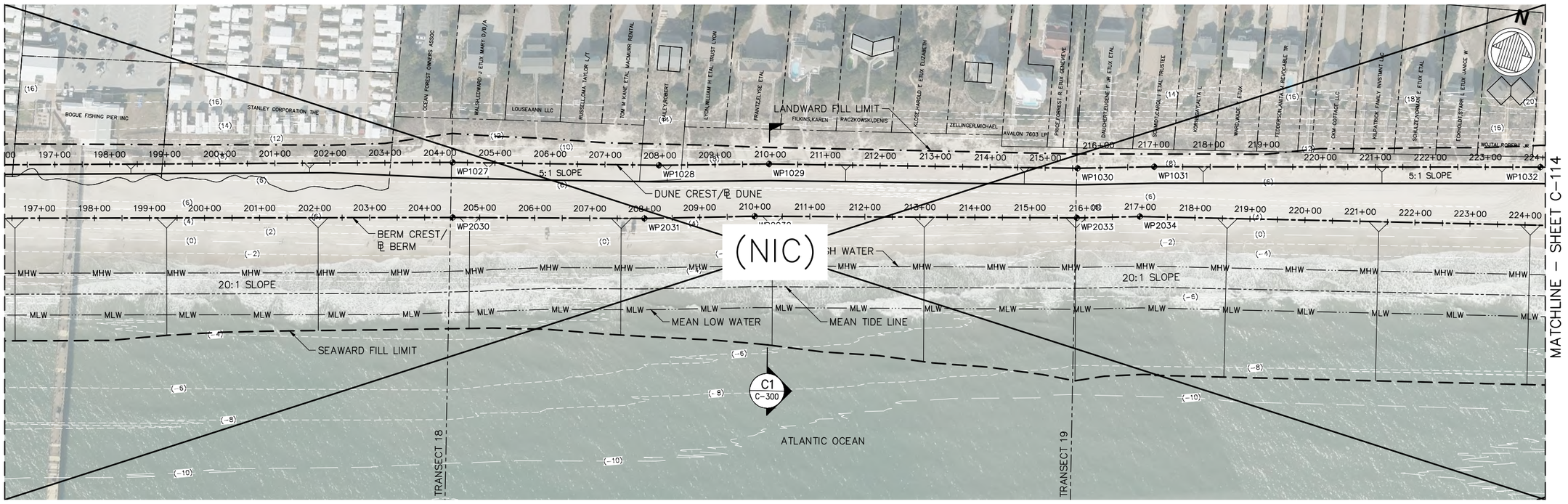
NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-112
Sheet 11 of 66

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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING





NOTES:
1. SEE SHEET C–601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C–301 THRU C–335 FOR CROSS SECTIONS.

100' 0' 100' 200'
SCALE: 1"=100'

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

Mark	Description	Date	Appr.
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

BEACH RENOURISHMENT PLAN - SHEET 4 OF 20

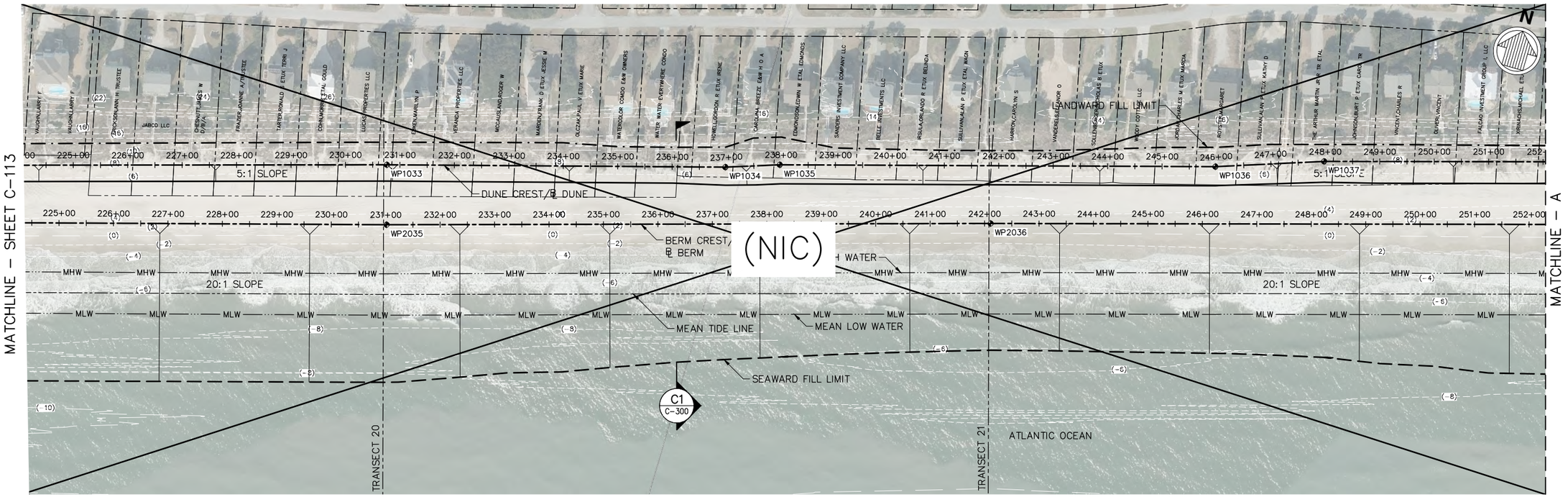
Rev.	
Date:	AUGUST 2019
Designed by:	NCV
Dwn by:	BDF
Chd by:	SRM
Reviewed by:	JDM
Submitted by:	
M&N Project No.	10611
Drawing code:	
Drawing Scale:	
Plot scale: 1:1 (0 SHEET)	

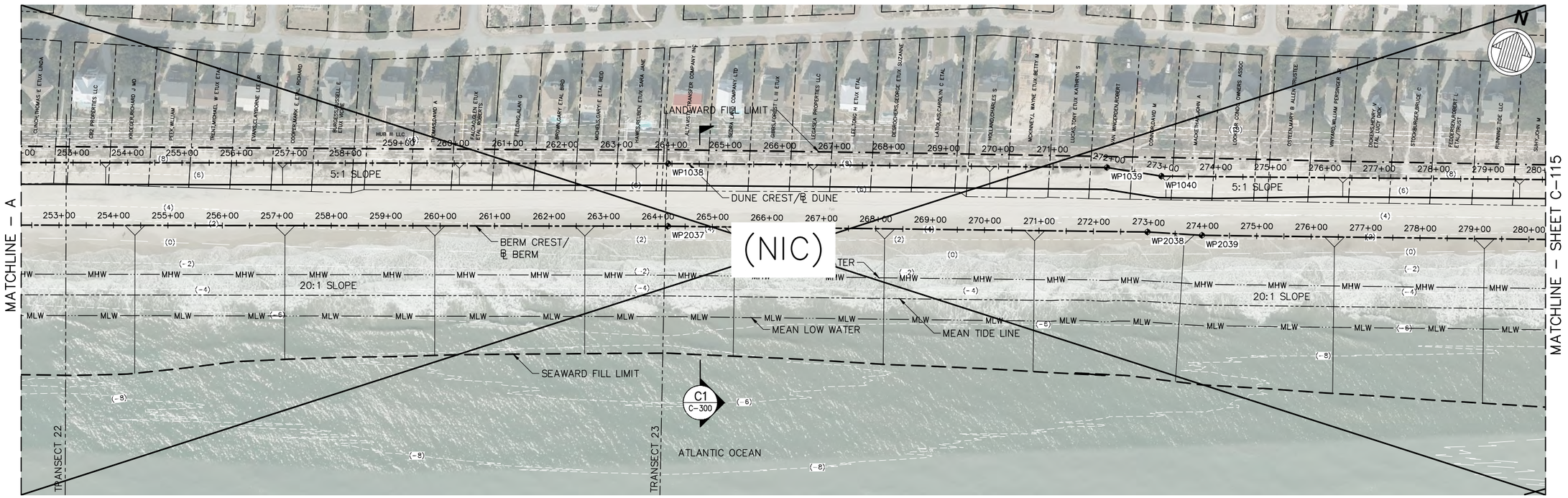
4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105
PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-113
Sheet 12 of 66

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NOTES:
1. SEE SHEET C–601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C–301 THRU C–335 FOR CROSS SECTIONS.

100' 0' 100' 200'
SCALE: 1"=100'

Rev.	Date	By	Description
0	08/19/19	JM	BID DOCUMENTS

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2 CARTERET COUNTY, NORTH CAROLINA

BEACH RENOURISHMENT PLAN - SHEET 5 OF 20

Date: AUGUST 2019
M&N Project No. 10611
Designed by: NCV
Dwn by: BDF
Chkd by: SRM
Drawing code:
Reviewed by: JDM
Submitted by: MOFFATT & NICHOL
Drawing Scale:
Plot scale: 1:1 (0 SHEET)

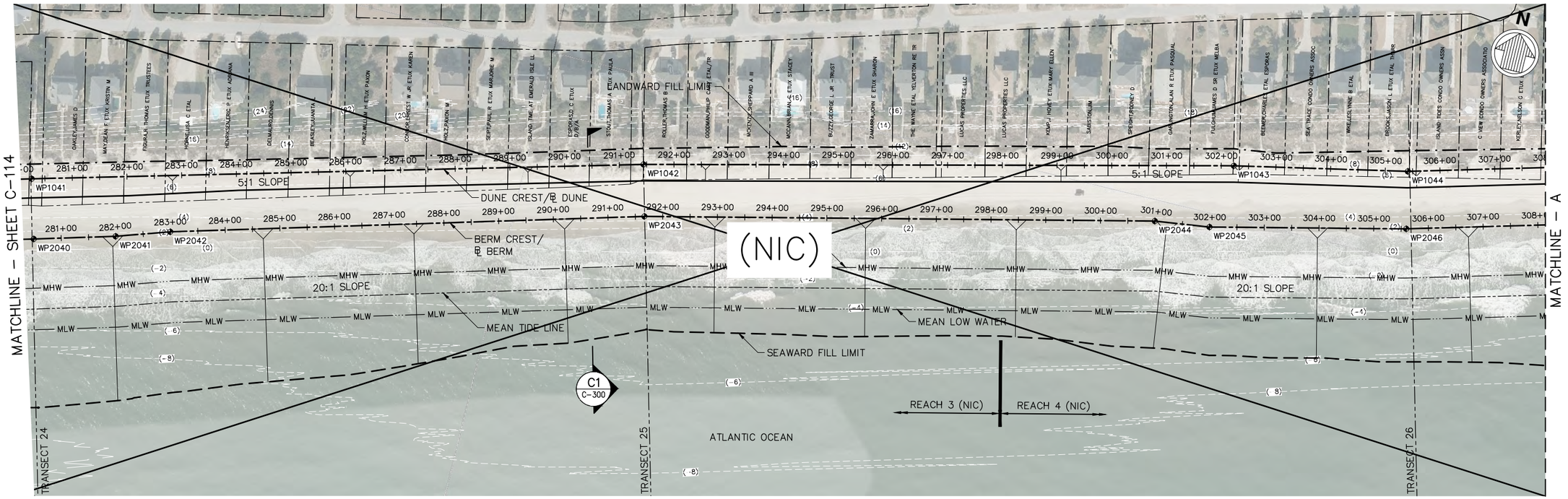
4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol
PREPARED FOR THE TOWNS OF EMERALD ISLE, INDIAN BEACH, PINE KNOLL SHORES, AND ATLANTIC BEACH

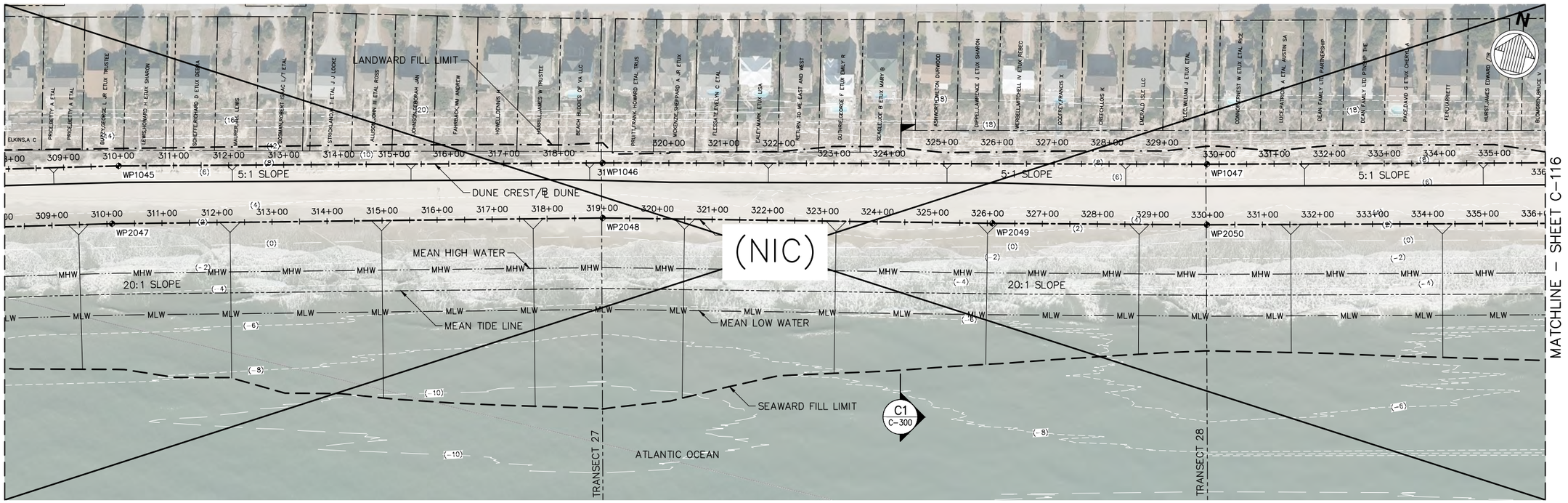
NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-114
Sheet 13 of 66

File: G:\PA\10611\0500_CAD_Active_10611 Bouge Banks 2022\10611C00C–114; Plotted: 2/14/2020 10:27 AM by FORD, BRIAN; Saved: 8/16/2019 5:45 PM by BFORD

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING





NOTES:
1. SEE SHEET C–601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C–301 THRU C–335 FOR CROSS SECTIONS.

100' 0' 100' 200'
SCALE: 1"=100'

Mark	Description	Date	Appr.
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

BEACH RENOURISHMENT PLAN - SHEET 6 OF 20

Designed by: NCV | Drawn by: BDF | Reviewed by: JDM | Submitted by: MOFFATT & NICHOL
Date: AUGUST 2019 | Rev.
M&N Project No. 10611
Drawing code:
Drawing Scale: Plot scale: 1:1 (0 SHEET)

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

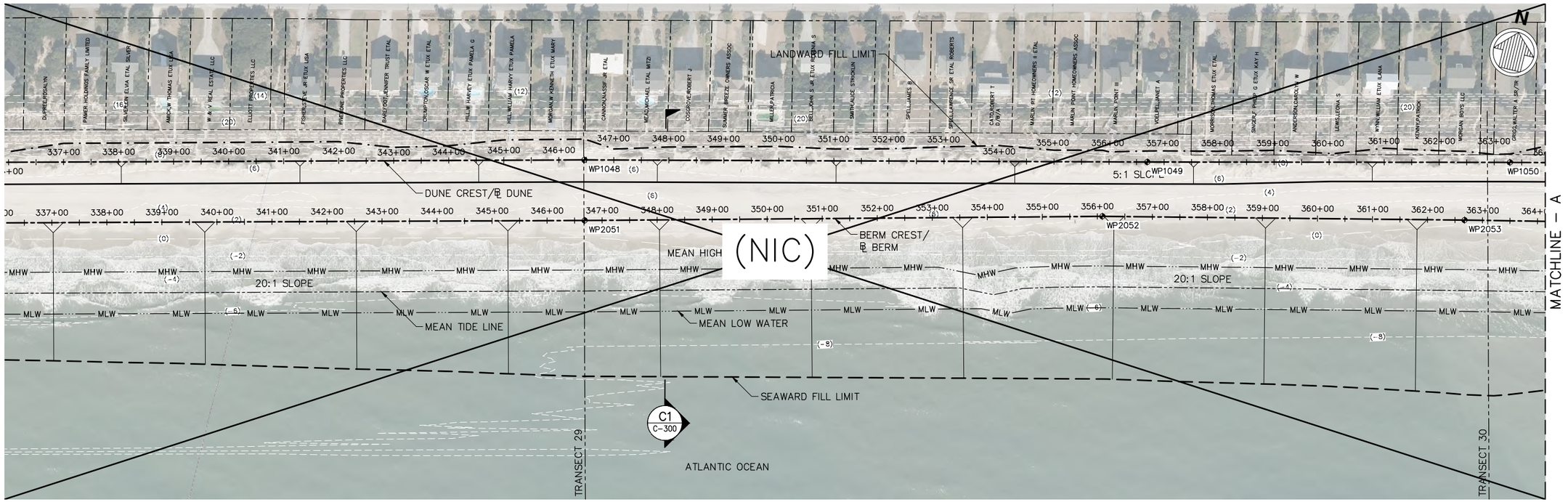
PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

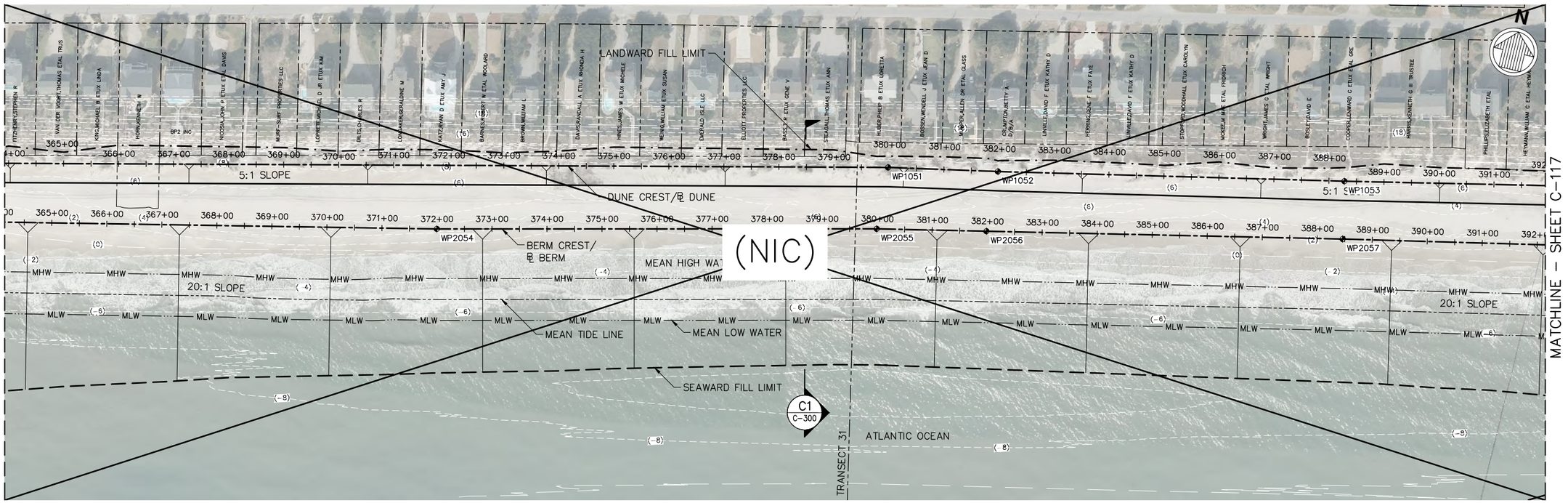
NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-115
Sheet 14 of 66

File: G:\PA\10611\0500_CAD_Active_10611 Bouge Banks 2022\10611C00C–115; Plotted: 2/14/2020 10:27 AM by FORD, BRIAN; Saved: 8/16/2019 5:45 PM by BFORD

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING





NOTES:
1. SEE SHEET C–601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C–301 THRU C–335 FOR CROSS SECTIONS.

100' 0' 100' 200'
SCALE: 1"=100'

Mark	Description	Date	Appr.
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

BEACH RENOURISHMENT PLAN - SHEET 7 OF 20

Rev.	
Date:	AUGUST 2019
M&N Project No.	10611
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (0 SHEET)
Designed by:	NCV
Dwn by:	BDF
Chkd by:	SRM
Reviewed by:	JDM
Submitted by:	MOFFATT & NICHOL

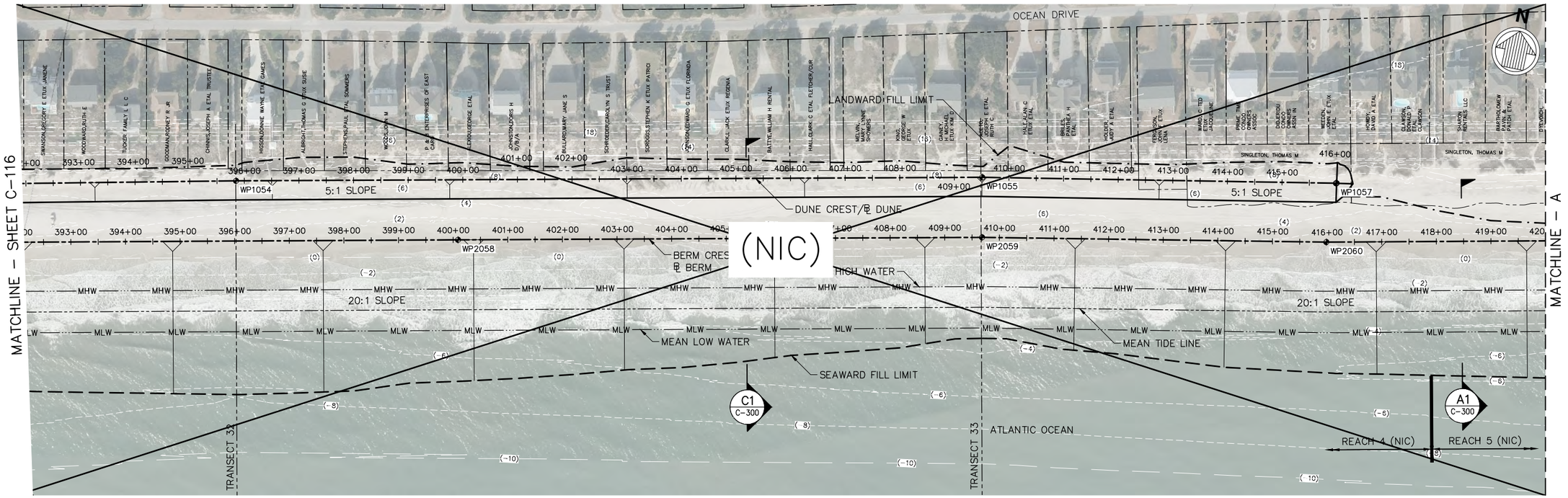
4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105
PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

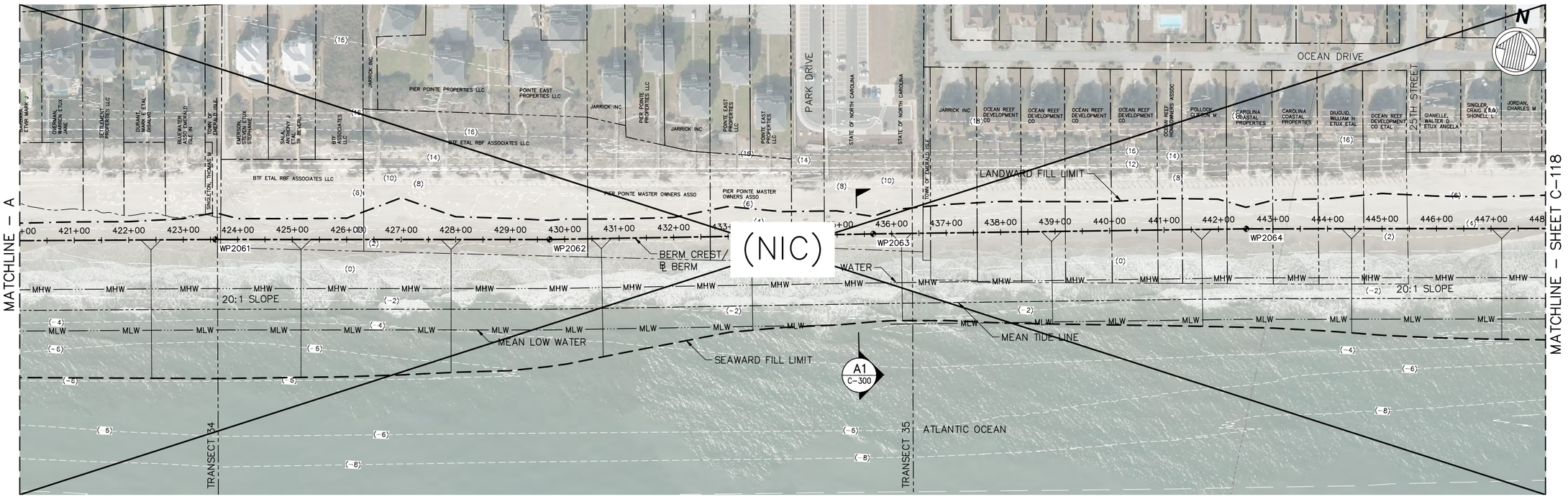
NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-116
Sheet 15 of 66

File: G:\PA\10611\0500_CAD_Active_10611 Bouge Banks 2022\10611C-116.dgn Plotted: 2/14/2020 10:28 AM by FORD, BRIAN; Saved: 8/16/2019 5:45 PM by BFORD

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING





NOTES:
1. SEE SHEET C–601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C–301 THRU C–335 FOR CROSS SECTIONS.

100' 0' 100' 200'
SCALE: 1"=100'

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

No.	Mark	Description	Date	Appr.
0	BID DOCUMENTS		08/19/19	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

BEACH RENOURISHMENT PLAN - SHEET 8 OF 20

Rev.			
Date:	AUGUST 2019	M&N Project No.	10611
Designed by:	NCV	Drawing code:	
Dwn by:	BDF	Chkd by:	SRM
Reviewed by:	JDM	Drawing Scale:	
Submitted by:	MOFFATT & NICHOL	Plot scale: 1:1 (0 SHEET)	

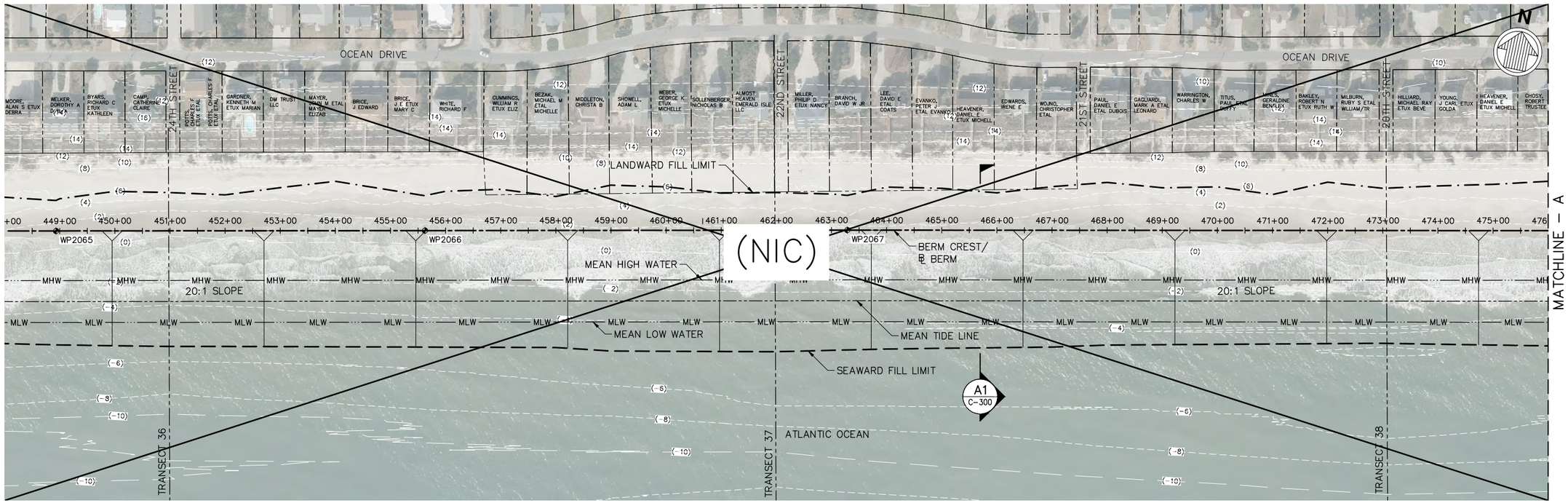
4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

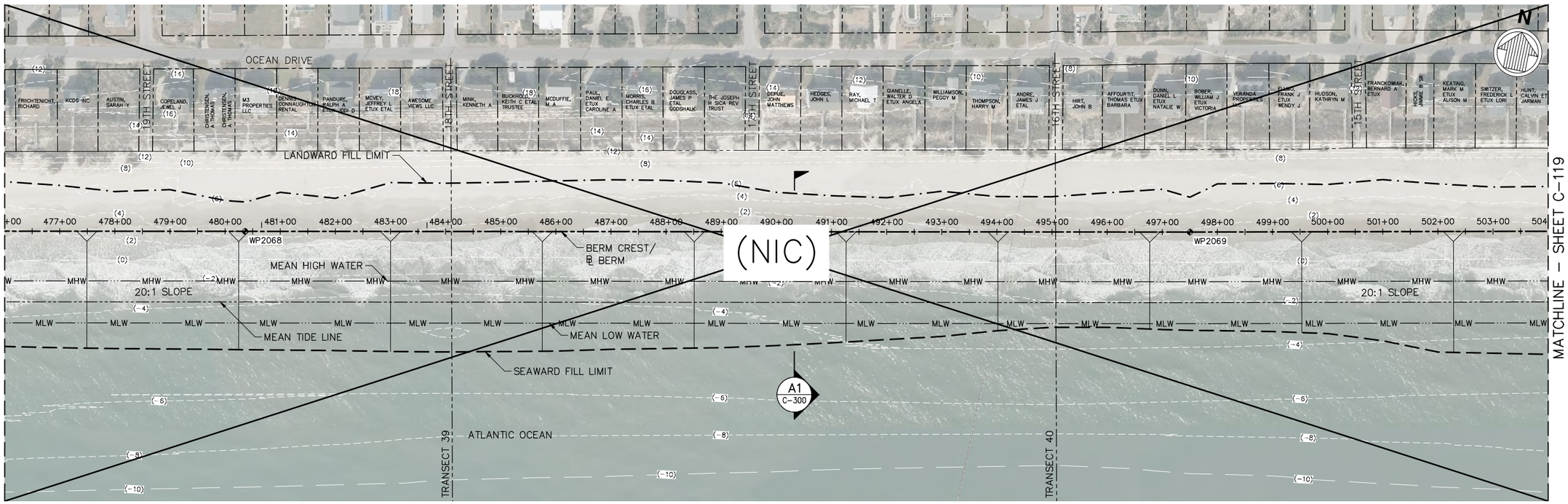
PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-117
Sheet 16 of 66

File: G:\PA\10611\0500_CAD_Active_10611 Bouge Banks 2020\10611C00C–117; Plotted: 2/14/2020 10:28 AM by FORD, BRIAN; Saved: 8/16/2019 5:44 PM by BFORD





NOTES:
1. SEE SHEET C-601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C-301 THRU C-335 FOR CROSS SECTIONS.

100' 0' 100' 200'
SCALE: 1"=100'

Rev.	Date	Description	By	Appr.
0	08/19/19	BID DOCUMENTS	JM	

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

BEACH RENOURISHMENT PLAN - SHEET 9 OF 20

Designed by: NCV
Dwn by: BDF
Reviewed by: JDM
Submitted by: MOFFATT & NICHOL
Date: AUGUST 2019
M&N Project No. 10611
Drawing code:
Drawing Scale:
Plot scale: 1:1 (0 SHEET)

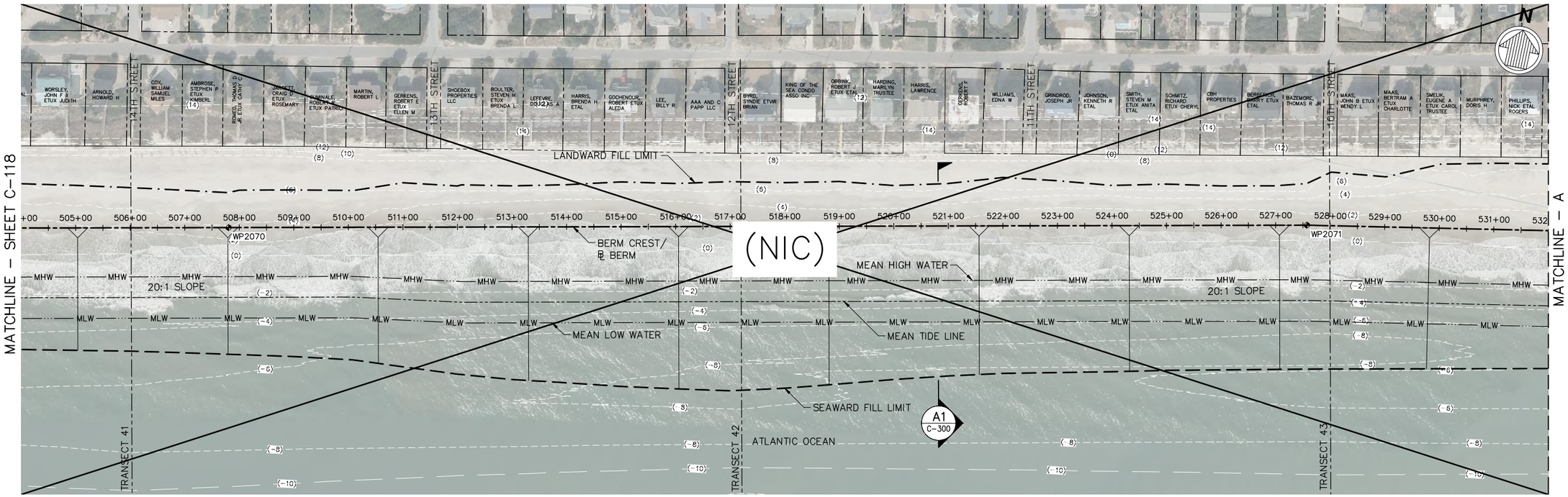
4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105
PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-118
Sheet 17 of 66

File: G:\PA\10611\0500_CAD_Active_10611 Bouge Banks 2022\10611C00C-118; Plotted: 2/14/2020 10:28 AM by FORD, BRIAN; Saved: 8/16/2019 5:43 PM by: BFORD

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:
1. SEE SHEET C–601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C–301 THRU C–335 FOR CROSS SECTIONS.

Mark	Description	Date	Appr.
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

BEACH RENOURISHMENT PLAN - SHEET 10 OF 20

Rev.	Date: AUGUST 2019	M&N Project No. 10611	Drawing code:	Drawing Scale: Plot scale: 1:1 (0 SHEET)
	Designed by: NCV	Dwn by: BDF	Reviewed by: JDM	Submitted by: MOFFATT & NICHOL

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

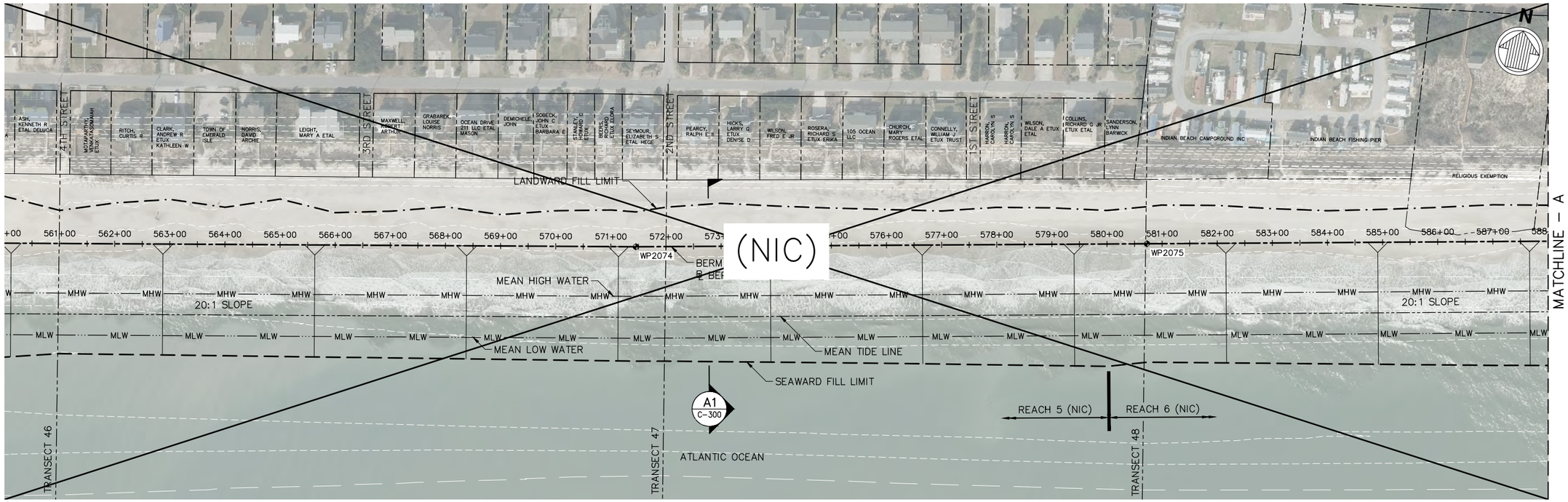
PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-119
Sheet 18 of 66

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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:
1. SEE SHEET C–601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C–301 THRU C–335 FOR CROSS SECTIONS.

100' 0' 100' 200'
SCALE: 1"=100'

Mark	Description	Date	Appr.
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

BEACH RENOURISHMENT PLAN - SHEET 11 OF 20

Rev.			
Date:	AUGUST 2019	M&N Project No.	10611
Designed by:	NCV	Drawn by:	BDF
Checked by:	SRM	Drawing code:	
Reviewed by:	JDM	Drawing Scale:	Plot scale: 1:1 (0 SHEET)
Submitted by:	MOFFATT & NICHOL		

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

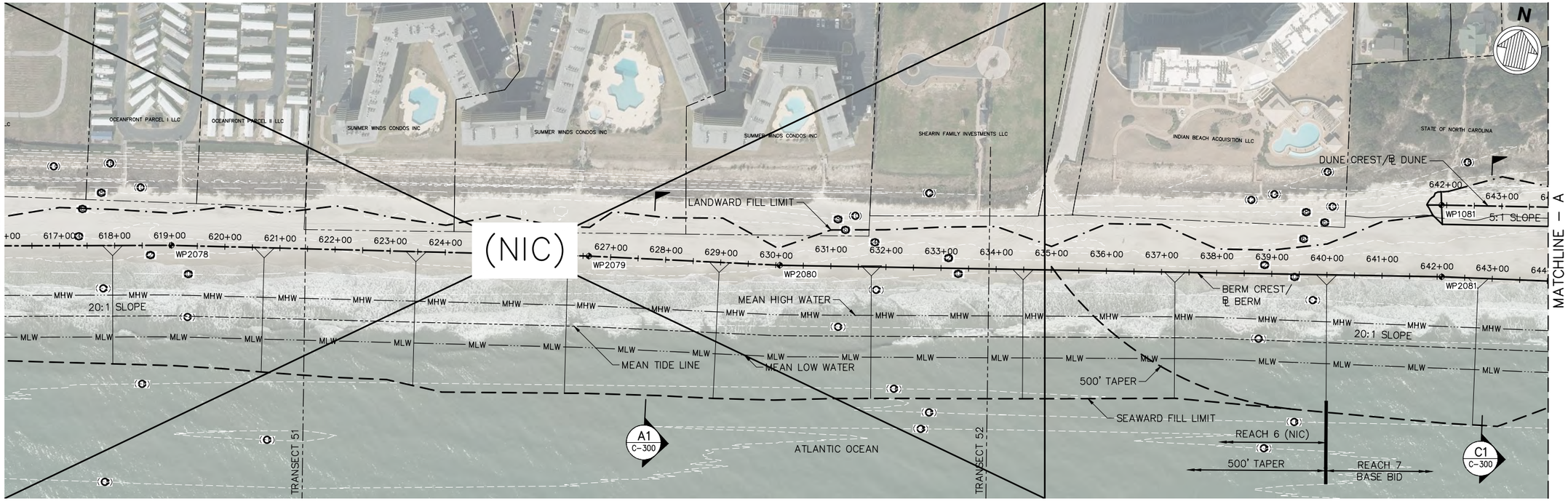
PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

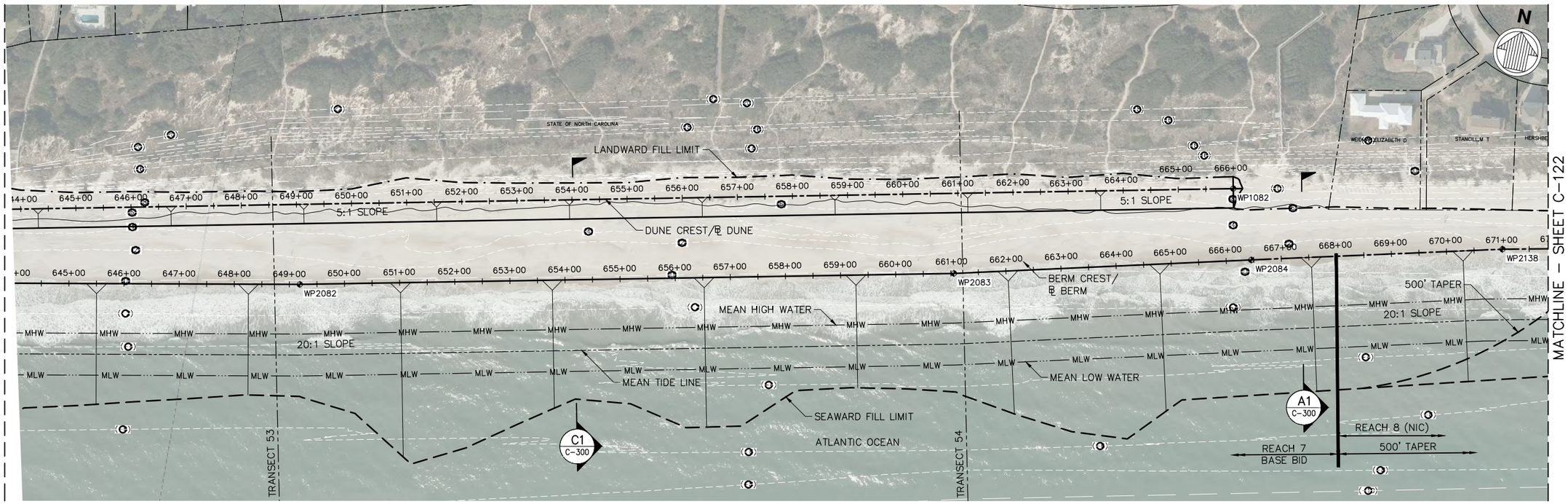
NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-120
Sheet 19 of 66

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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING





NOTES:
1. SEE SHEET C–601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C–301 THRU C–335 FOR CROSS SECTIONS.

100' 0' 100' 200'
SCALE: 1"=100'

Mark	Description	Date	Appr.
1	PRE–CONSTRUCTION DESIGN REVISION	02/14/20	JM
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

BEACH RENOURISHMENT PLAN - SHEET 12 OF 20

Rev.	1
Date:	JANUARY 2020
M&N Project No.	10611
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (0 SHEET)
Designed by:	NCV
Dwn by:	BDF
Chd by:	SRM
Reviewed by:	JDM
Submitted by:	MOFFATT & NICHOL

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

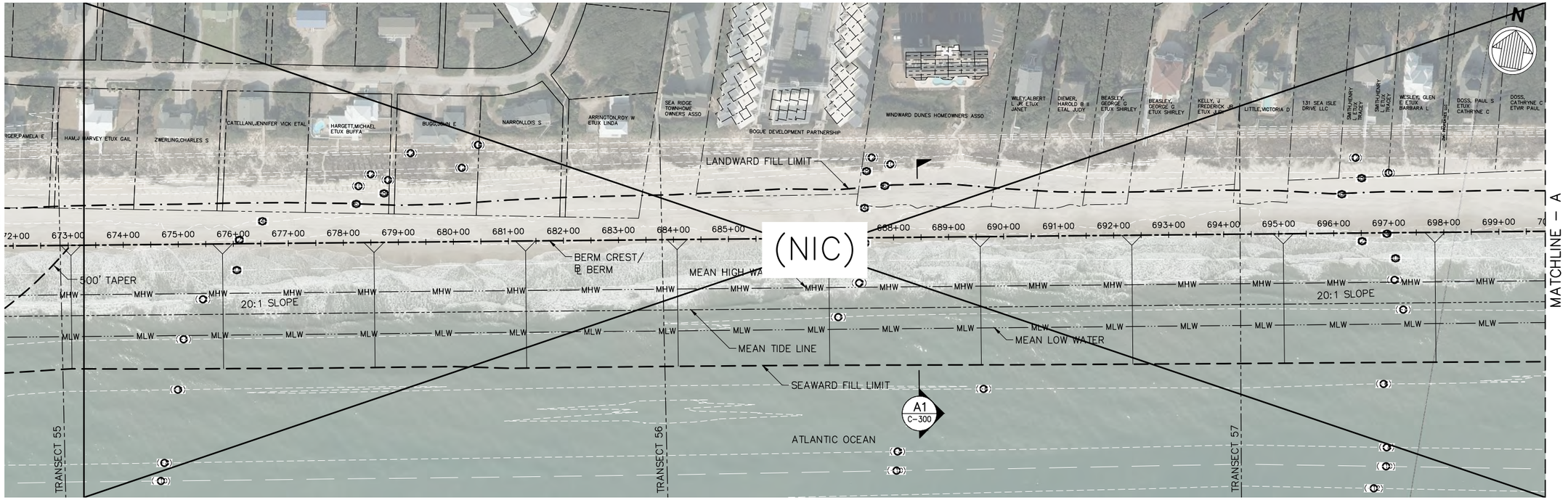
PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

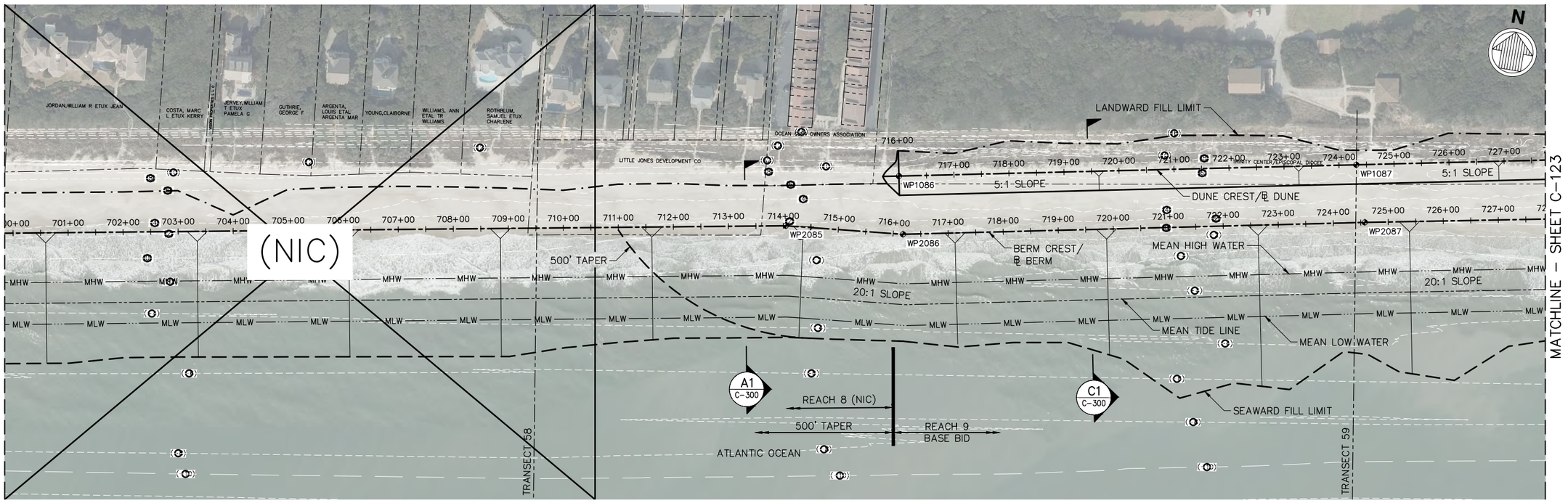
NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-121
Sheet 20 of 66

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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING





NOTES:
1. SEE SHEET C–601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C–301 THRU C–335 FOR CROSS SECTIONS.

100' 0' 100' 200'
SCALE: 1"=100'

Mark	Description	Date	Appr.
1	PRE–CONSTRUCTION DESIGN REVISION	02/14/20	JM
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

BEACH RENOURISHMENT PLAN - SHEET 13 OF 20

Rev.	1
Date:	JANUARY 2020
M&N Project No.	10611
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (0 SHEET)
Designed by:	NCV
Dwn by:	BDF
Chd by:	SRM
Reviewed by:	JDM
Submitted by:	MOFFATT & NICHOL

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

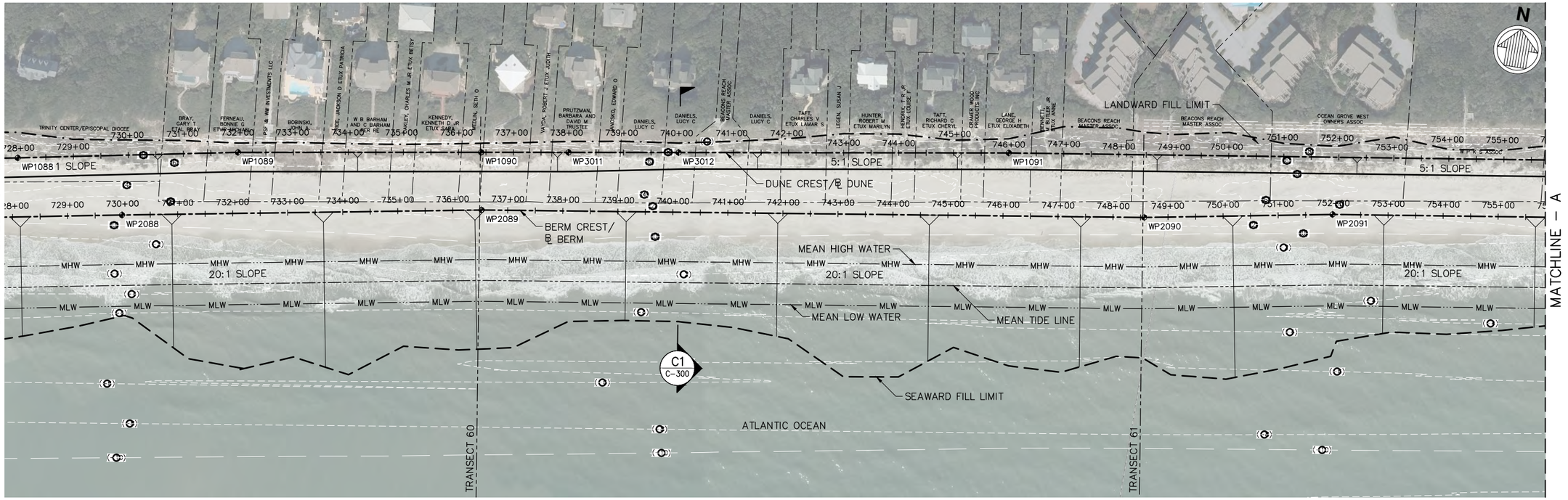
PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

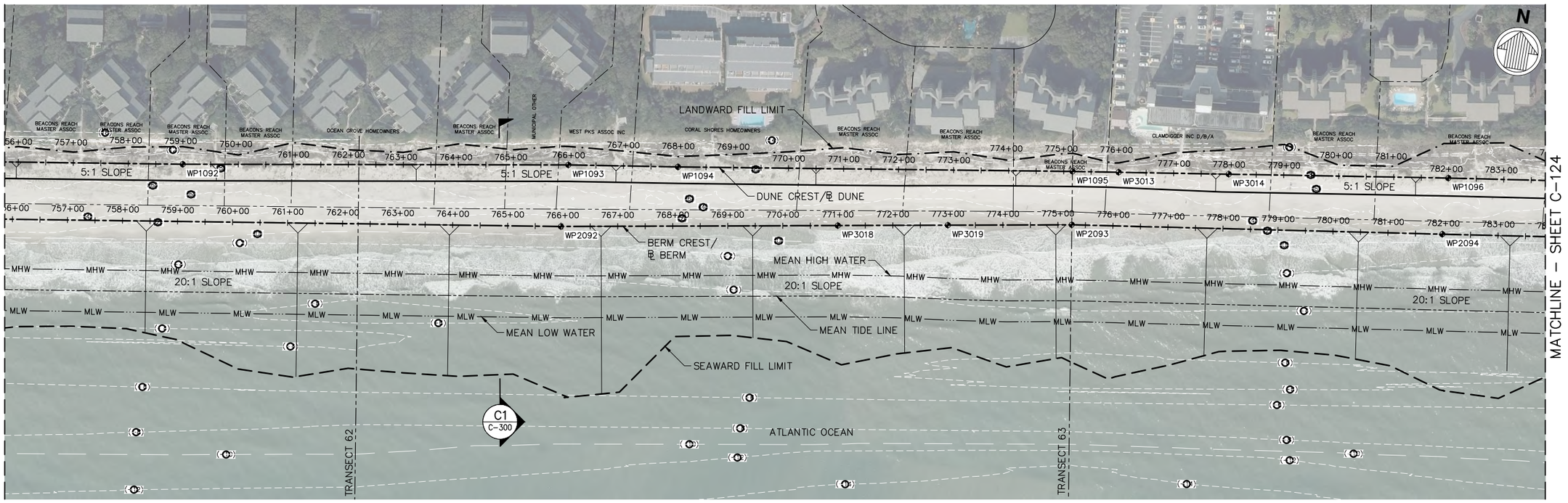
NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-122
Sheet 21 of 66

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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING





NOTES:
1. SEE SHEET C–601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C–301 THRU C–335 FOR CROSS SECTIONS.

100' 0' 100' 200'
SCALE: 1"=100'

Rev.	Description	Date	Appr.
1	PRE–CONSTRUCTION DESIGN REVISION	02/14/20	JM
0	BID DOCUMENTS	08/19/19	JM
Mark			

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

BEACH RENOURISHMENT PLAN - SHEET 14 OF 20

Rev.	1
Date:	JANUARY 2020
M&N Project No.	10611
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (0 SHEET)
Designed by:	NCV
Dwn by:	BDF
Chd by:	SRM
Reviewed by:	JDM
Submitted by:	MOFFATT & NICHOL

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

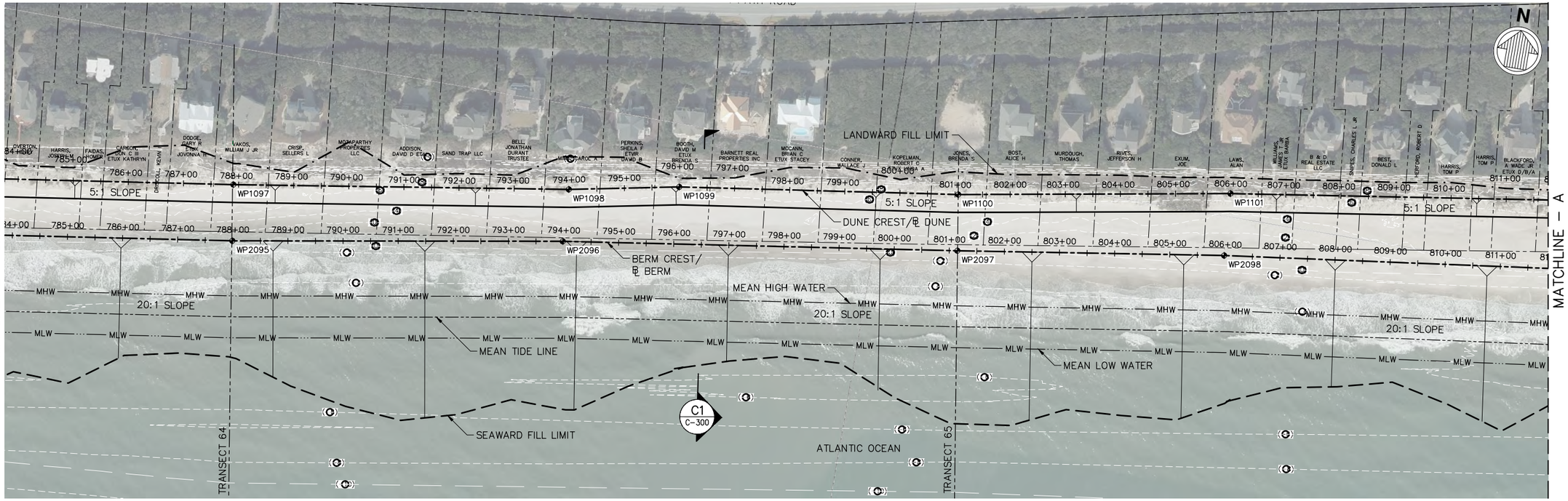
PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-123
Sheet 22 of 66

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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:
1. SEE SHEET C–601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C–301 THRU C–335 FOR CROSS SECTIONS.

100' 0' 100' 200'
SCALE: 1"=100'

Rev.	Date	Description	By	Appr.
1	02/14/20	PRE–CONSTRUCTION DESIGN REVISION	JM	JM
0	08/19/19	BID DOCUMENTS		

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

BEACH RENOURISHMENT PLAN - SHEET 15 OF 20

Designed by: NCV
Dwn by: BDF
Reviewed by: JDM
Submitted by: MOFFATT & NICHOL
Date: JANUARY 2020
Chkd by: SRM
M&N Project No. 10611
Drawing code:
Drawing Scale:
Plot scale: 1:1 (D SHEET)

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

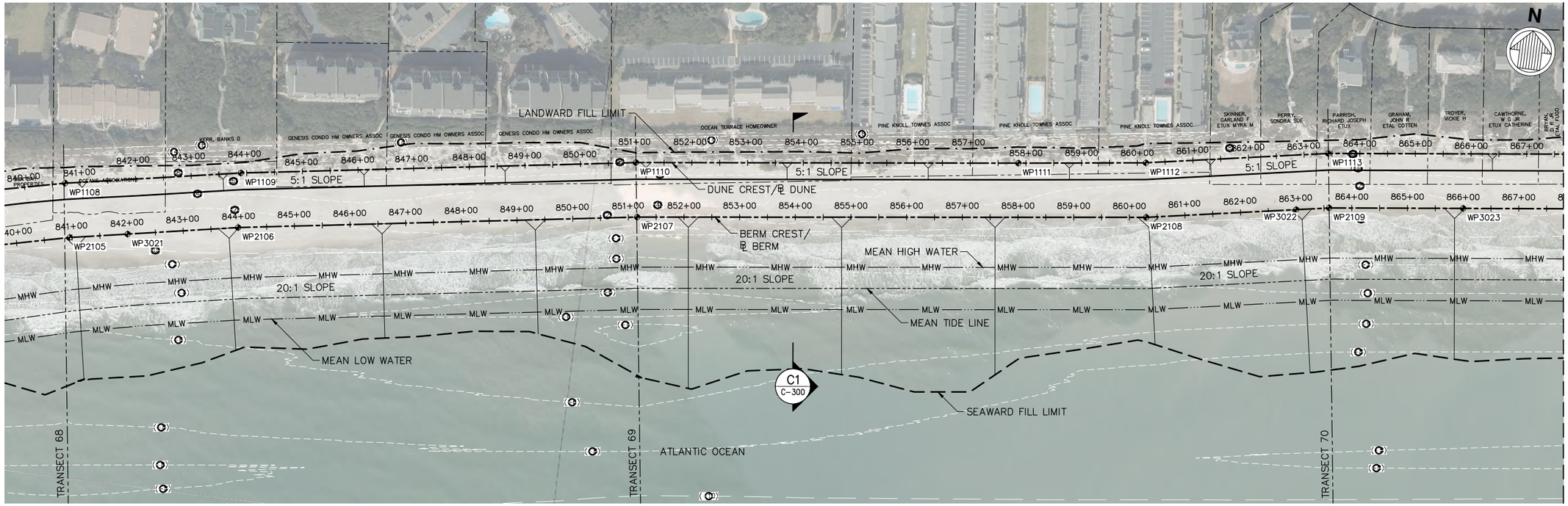
PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

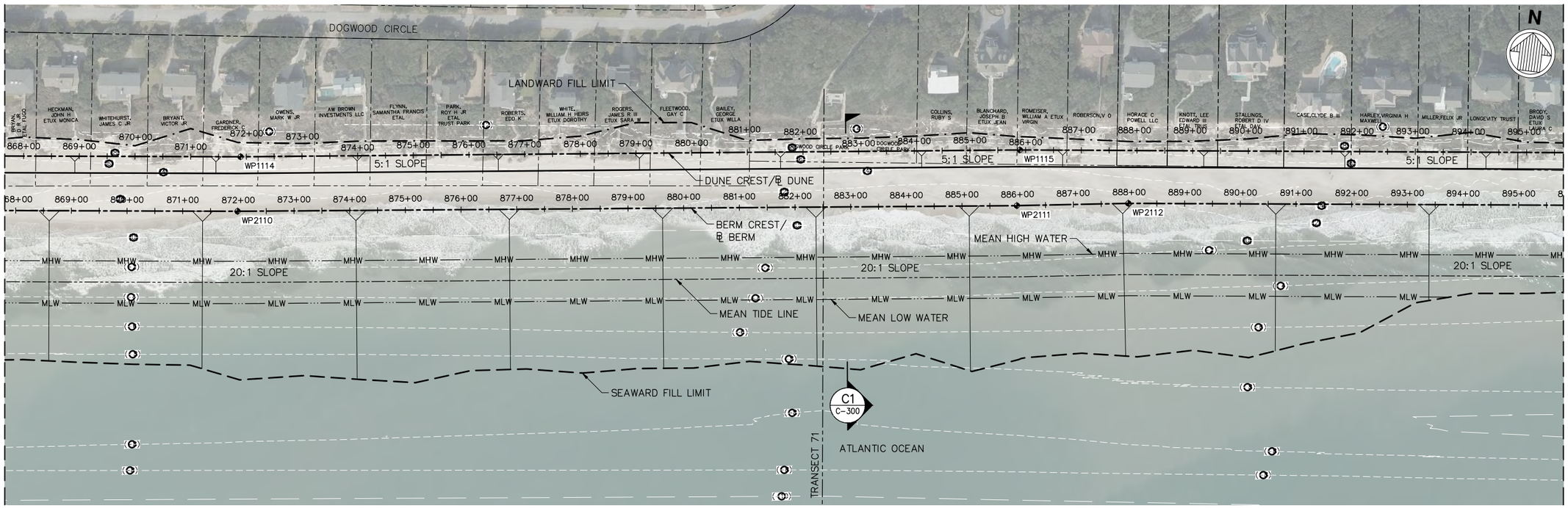
NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-124
Sheet 23 of 66

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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING





NOTES:
1. SEE SHEET C–601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C–301 THRU C–335 FOR CROSS SECTIONS.

100' 0' 100' 200'
SCALE: 1"=100'

Rev.	Mark	Description	Date	Appr.
1	PRE–CONSTRUCTION DESIGN REVISION		02/14/20	JM
0	BID DOCUMENTS		08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

BEACH RENOURISHMENT PLAN - SHEET 16 OF 20

Date: JANUARY 2020
Rev.: 1
Designed by: NCV
Dwn by: BDF
Chd by: SRM
Reviewed by: JDM
Submitted by: MOFFATT & NICHOL
M&N Project No. 10611
Drawing code:
Drawing Scale:
Plot scale: 1:1 (0 SHEET)

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

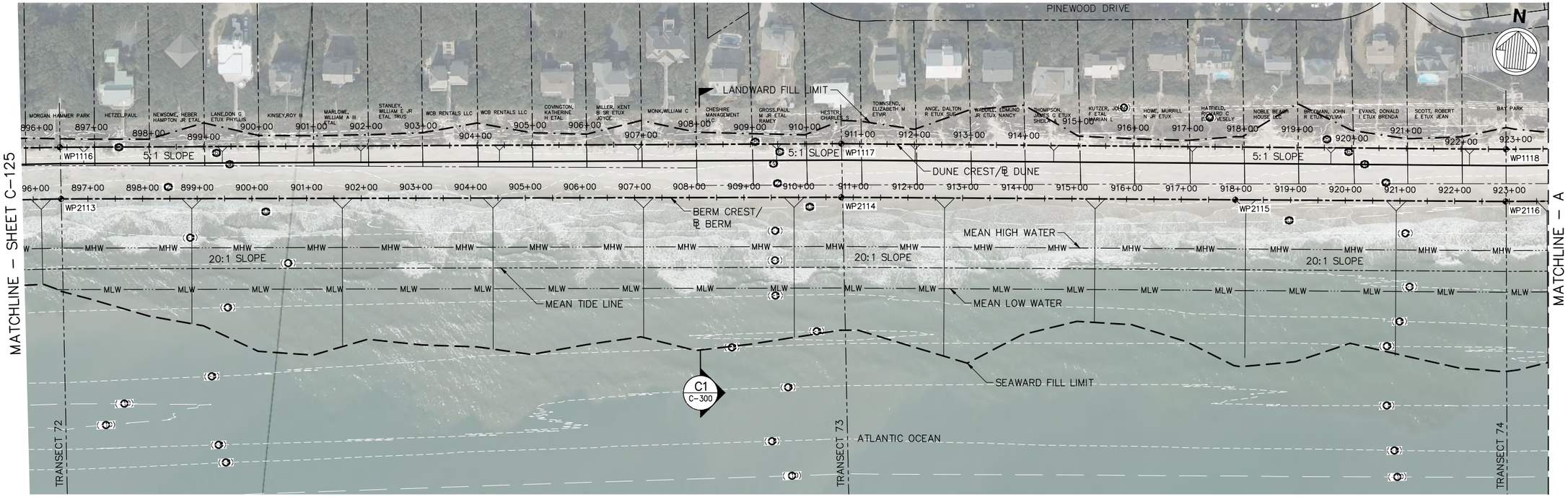
PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

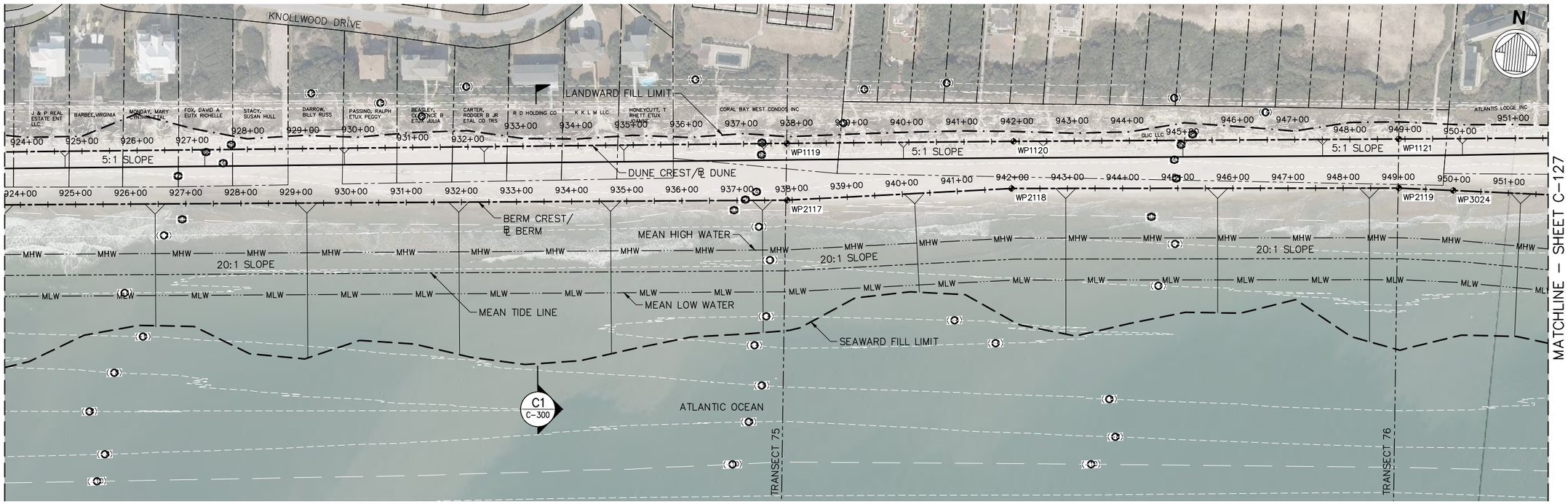
NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-125
Sheet 24 of 66

File: G:\PA\10611\0500_CAD_Active_10611 Bouge Banks 2020\10611C00C–125; Plotted: 2/14/2020 10:31 AM by FORD, BRIAN; Saved: 2/14/2020 10:16 AM by BFORD

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING





NOTES:
1. SEE SHEET C–601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C–301 THRU C–335 FOR CROSS SECTIONS.

100' 0' 100' 200'
SCALE: 1"=100'

Mark	Description	Date	Appr.
1	PRE–CONSTRUCTION DESIGN REVISION	02/14/20	JM
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

BEACH RENOURISHMENT PLAN - SHEET 17 OF 20

Rev.	Date:	M&N Project No.	Drawing Scale:
1	JANUARY 2020	10611	Plot scale: 1:1 (0 SHEET)

Designed by:	Dwn by:	Chd by:	Reviewed by:	Submitted by:
NCV	BDF	SRM	JDM	MOFFATT & NICHOL

Drawing code:

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

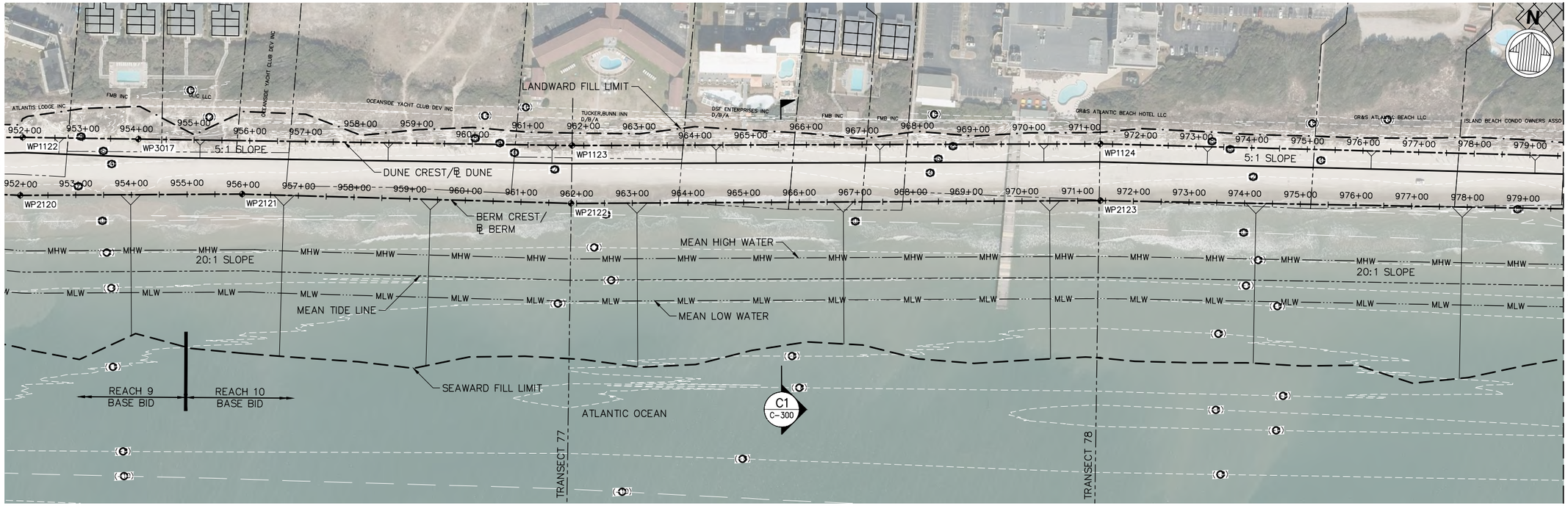
PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

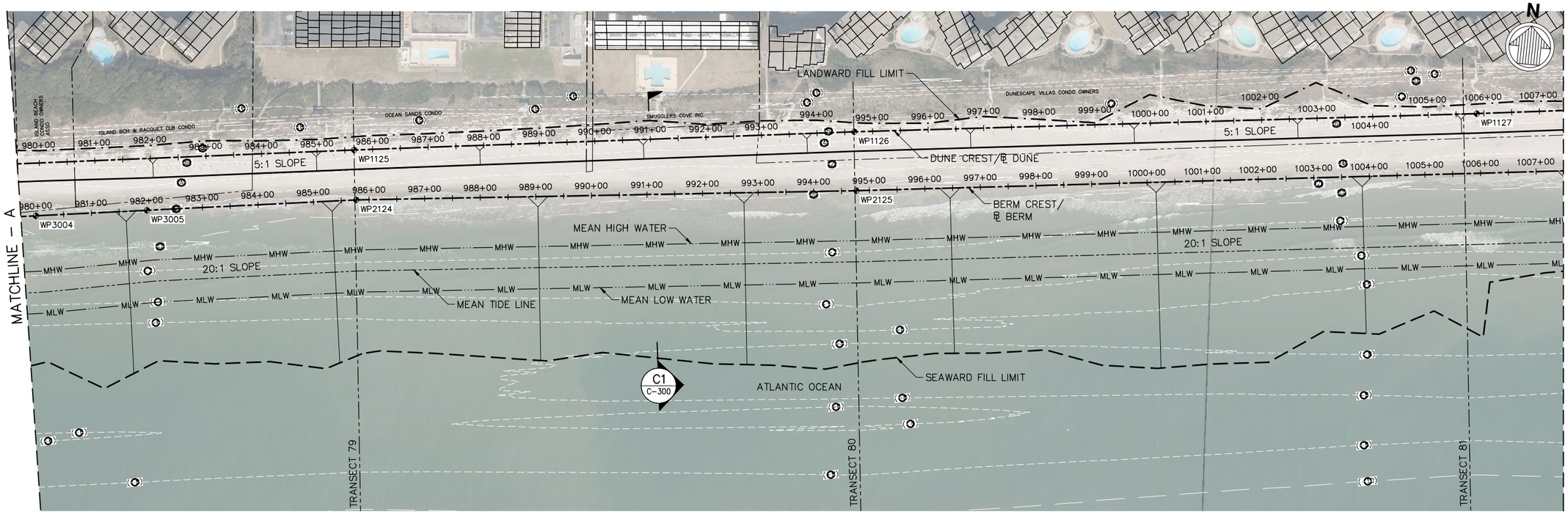
NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-126
Sheet 25 of 66

File: G:\PA\10611\0500_CAD_Active_10611 Bouge Banks 2020\10611C00-126; Plotted: 2/14/2020 10:31 AM by FORD, BRIAN; Saved: 2/14/2020 10:13 AM by BFORD

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING





NOTES:
1. SEE SHEET C–601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C–301 THRU C–335 FOR CROSS SECTIONS.

100' 0' 100' 200'
SCALE: 1"=100'

Rev.	Mark	Description	Date	Appr.
1	PRE–CONSTRUCTION DESIGN REVISION		02/14/20	JM
0	BID DOCUMENTS		08/19/19	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

BEACH RENOURISHMENT PLAN - SHEET 18 OF 20

Designed by: NCV
Drawn by: BDF
Reviewed by: JDM
Submitted by: MOFFATT & NICHOL
Date: JANUARY 2020
Scale:
Drawing code:
M&N Project No. 10611
Rev. 1
Plot scale: 1:1 (0 SHEET)

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

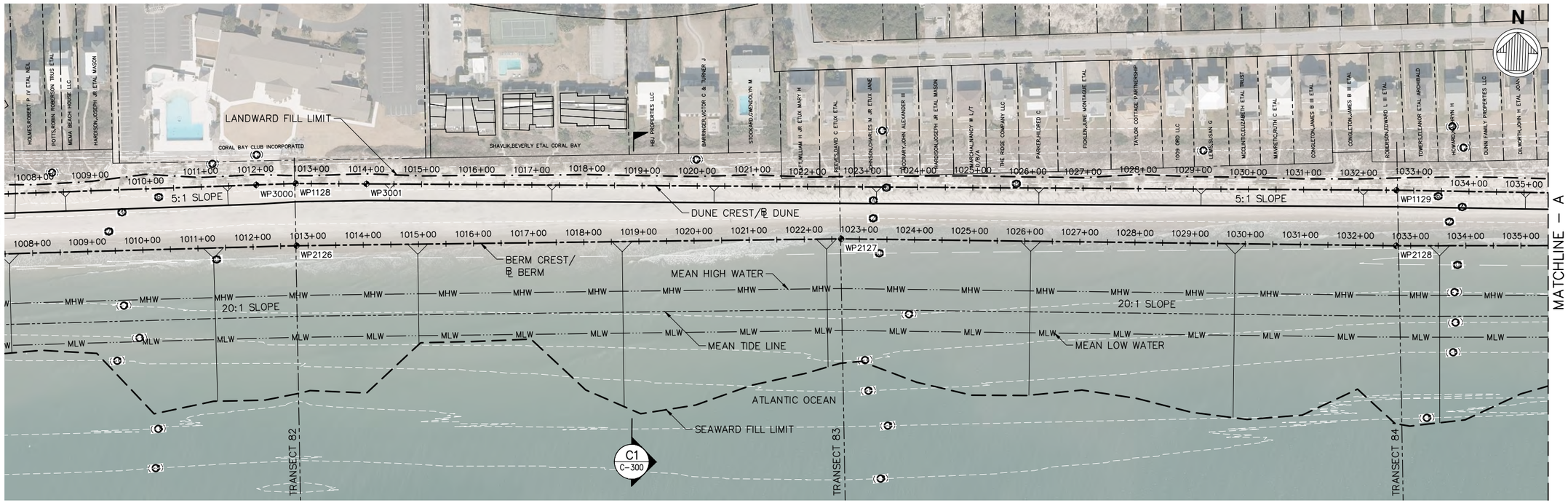
PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

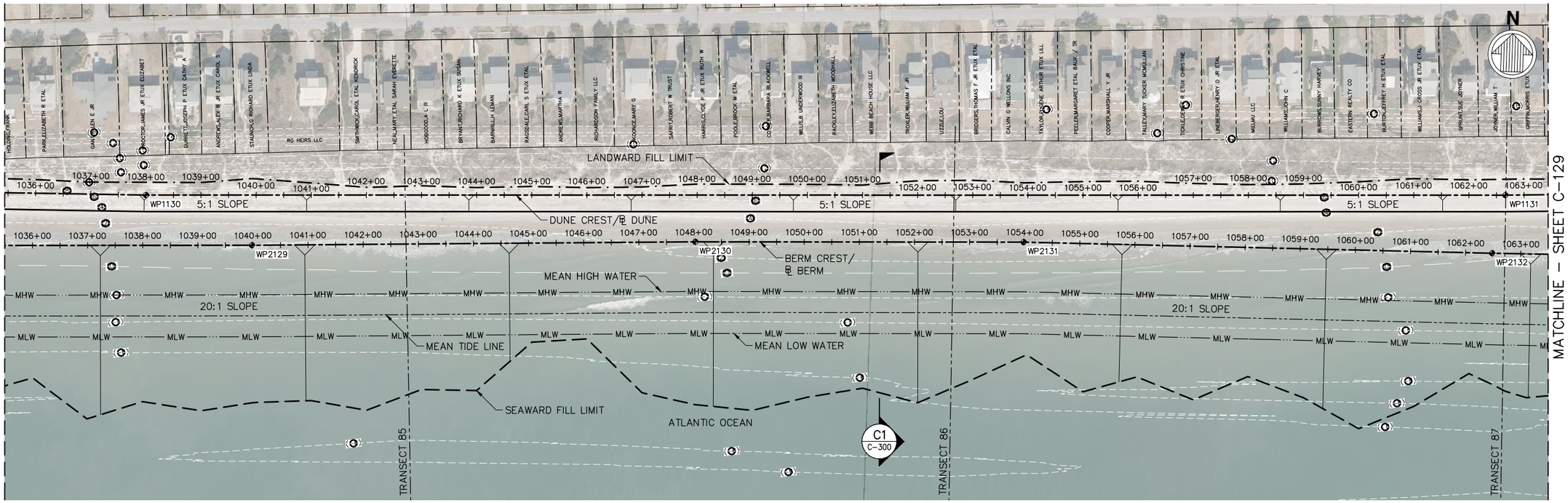
NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-127
Sheet 26 of 66

File: c:\RA1\10611\0500_CAD_Active_10611 Bouge Banks 2020\10611C00C–127; Plotted: 2/14/2020 10:32 AM by FORD, BRIAN; Saved: 2/11/2020 5:51 PM by BFORD

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING





NOTES:
1. SEE SHEET C–601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C–301 THRU C–335 FOR CROSS SECTIONS.

100' 0' 100' 200'
SCALE: 1"=100'

Mark	Description	Date	Appr.
1	PRE–CONSTRUCTION DESIGN REVISION	02/14/20	JM
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

BEACH RENOURISHMENT PLAN - SHEET 19 OF 20

Rev.	Date:	M&N Project No.	Drawing code:	Drawing Scale:	Plot scale: 1:1 (0 SHEET)
1	JANUARY 2020	10611			

Designed by:	Dwn by:	Chkd by:	Reviewed by:	Submitted by:
NCV	BDF	SRM	JDM	MOFFATT & NICHOL

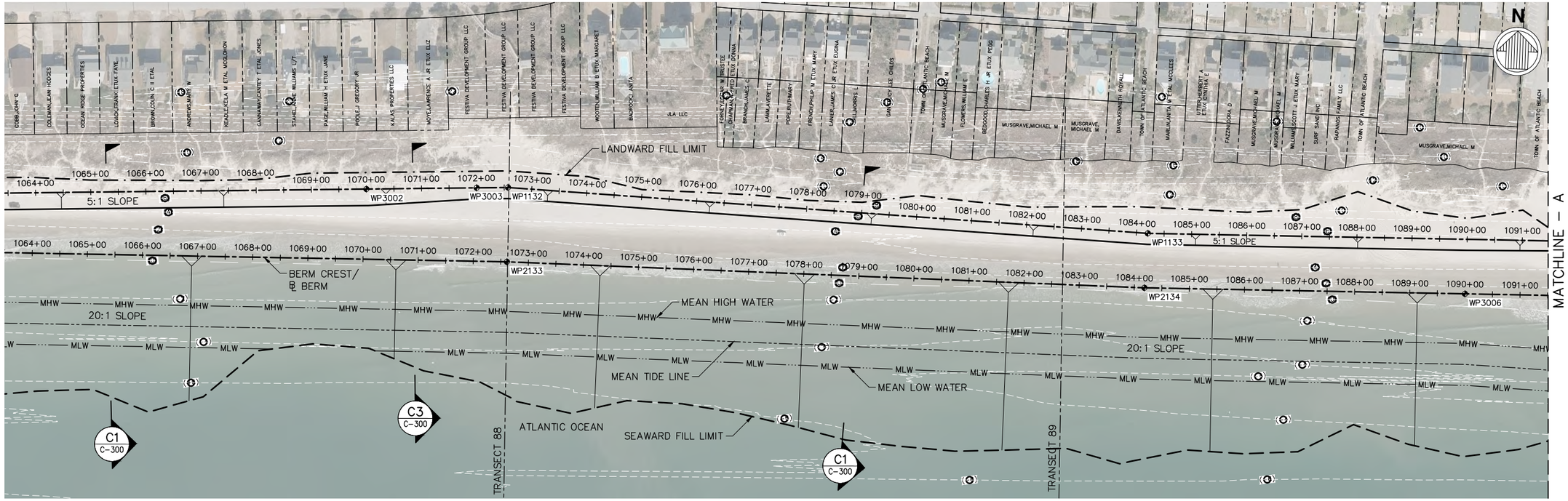
4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105
PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

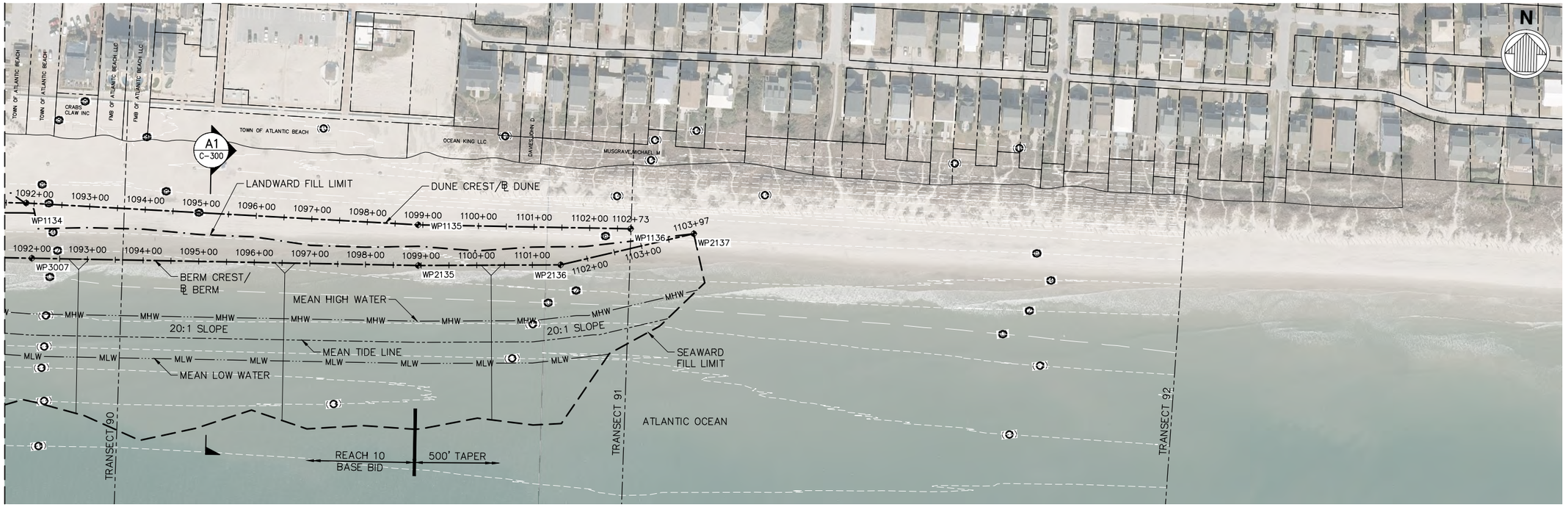
NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-128
Sheet 27 of 66

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

File: C:\RA\10611\0500_CAD_Active_10611 Bouge Banks 2020\10611C00-128; Plotted: 2/14/2020 10:32 AM by FORD, BRIAN; Saved: 2/11/2020 5:50 PM by BFORD





NOTES:
1. SEE SHEET C–601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C–301 THRU C–335 FOR CROSS SECTIONS.

100' 0' 100' 200'
SCALE: 1"=100'

Mark	Description	Date	Appr.
1	PRE–CONSTRUCTION DESIGN REVISION	02/14/20	JM
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

BEACH RENOURISHMENT PLAN -
SHEET 20 OF 20

Rev. 1
Date: JANUARY 2020
M&N Project No. 10611
Drawing code:
Drawing Scale: Plot scale: 1:1 (0 SHEET)
Designed by: NCV
Dwn by: BDF
Chd by: SRM
Reviewed by: JDM
Submitted by: MOFFATT & NICHOL

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

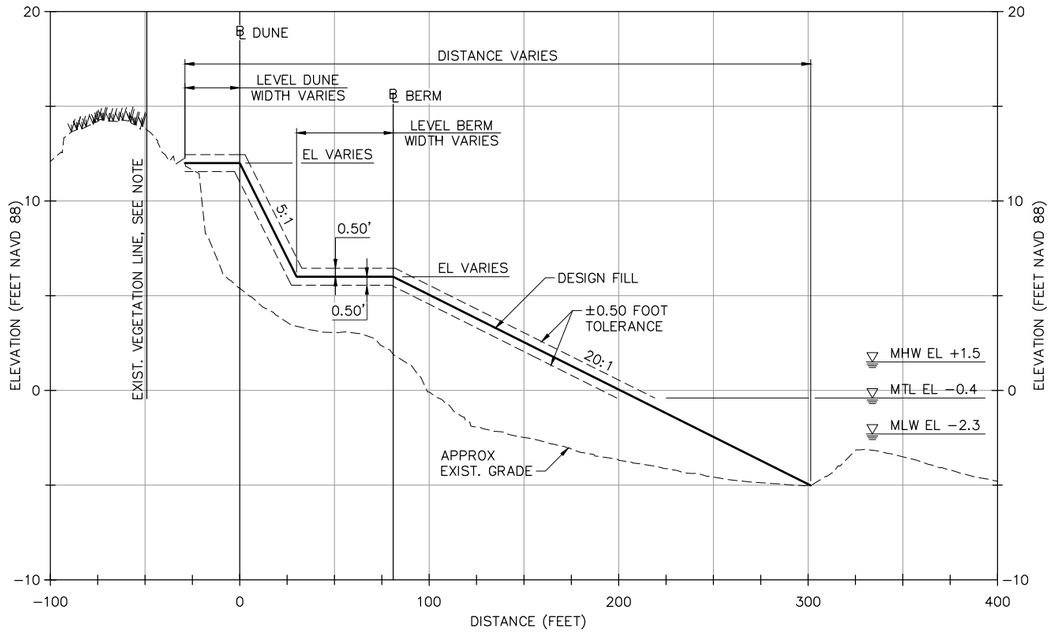
PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-129
Sheet 28 of 66

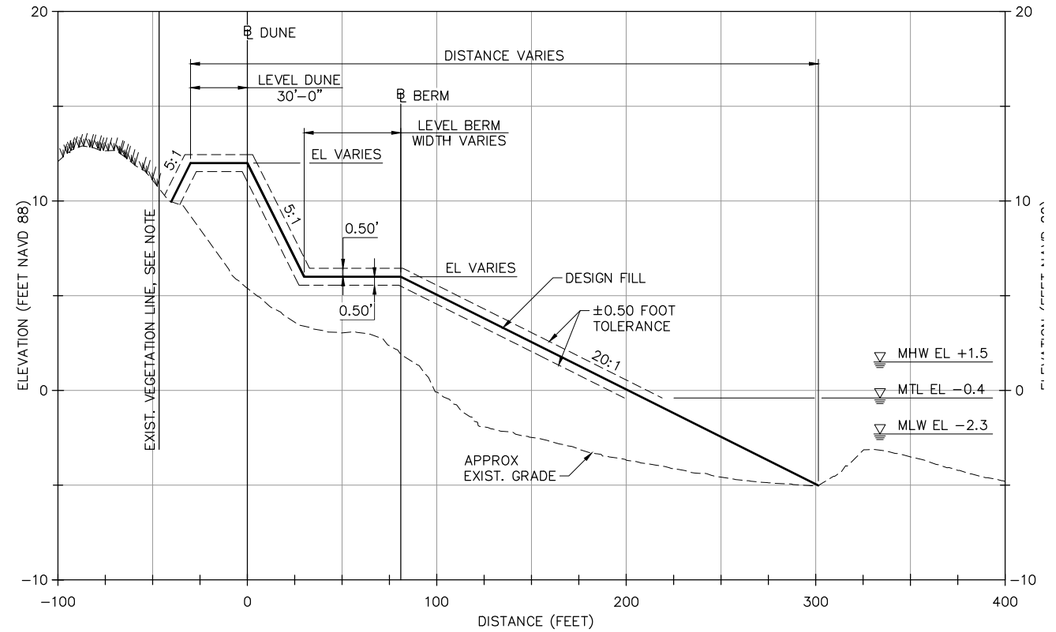
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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



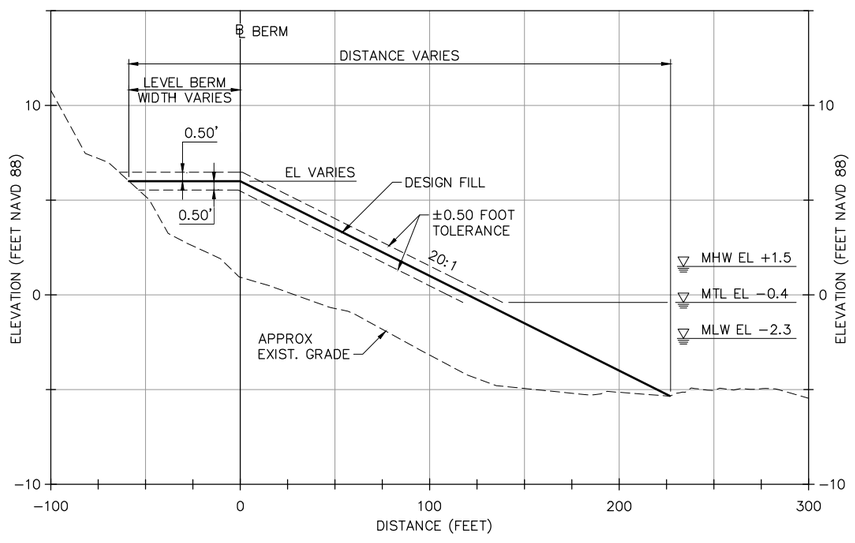
NOTE:
FIELD FIT THE LANDWARD DUNE CREST TIE IN, IF ELEVATION OF THE EXISTING VEGETATION LINE IS HIGHER THAN THE FINAL ELEVATION OF THE DUNE CREST DESIGN, THE DUNE CREST WILL BE CONSTRUCTED TO TIE IN AT THE ELEVATION OF THE CONSTRUCTED DUNE CREST. IF ELEVATION OF THE EXISTING VEGETATION LINE IS LOWER THAN THE FINAL ELEVATION OF THE DUNE CREST DESIGN, THE DUNE WILL BE CONSTRUCTED TO TIE INTO THE VEGETATION LINE WITH A 1:5 BACK SLOPE UP TO THE FINAL ELEVATION OF THE CONSTRUCTED DUNE.

C1 C-300 LEVEL DUNE BEACH NOURISHMENT FILL TOLERANCE SECTION
SCALE: 1"=40'

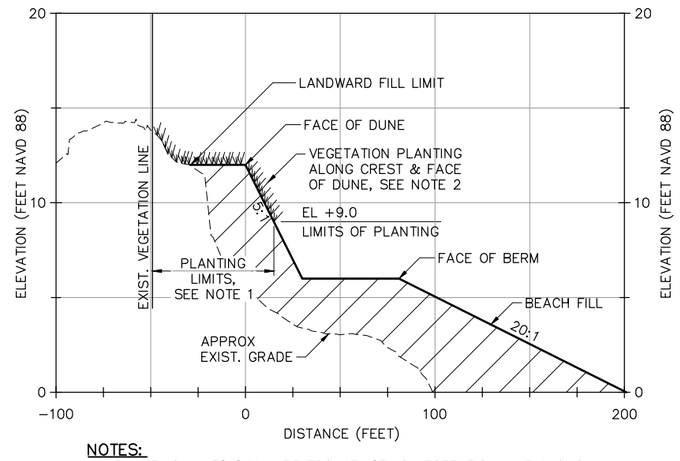


NOTE:
FIELD FIT THE LANDWARD DUNE CREST TIE IN, IF ELEVATION OF THE EXISTING VEGETATION LINE IS HIGHER THAN THE FINAL ELEVATION OF THE DUNE CREST DESIGN, THE DUNE CREST WILL BE CONSTRUCTED TO TIE IN AT THE ELEVATION OF THE CONSTRUCTED DUNE CREST. IF ELEVATION OF THE EXISTING VEGETATION LINE IS LOWER THAN THE FINAL ELEVATION OF THE DUNE CREST DESIGN, THE DUNE WILL BE CONSTRUCTED TO TIE INTO THE VEGETATION LINE WITH A 1:5 BACK SLOPE UP TO THE FINAL ELEVATION OF THE CONSTRUCTED DUNE.

C3 C-300 LEVEL DUNE WITH BACK SLOPE NOURISHMENT FILL TOLERANCE SECTION
SCALE: 1"=40'



A1 C-300 BERM BEACH NOURISHMENT FILL TOLERANCE SECTION
SCALE: 1"=40'



NOTES:
1. PLANTING LIMITS SHALL BE FROM EXISTING VEGETATION LINE ALONG EXISTING GRADE TO ELEVATION +9.0 ON FACE OF DUNE.
2. LEVEL DUNE SHOWN, PLANTING FOR DUNE WITH 5:1 BACK SLOPE SIMILAR.
3. SEE TECHNICAL SPECIFICATIONS FOR PLANTING, FERTILIZING AND WATERING REQUIREMENTS.

A3 C-300 BEACH NOURISHMENT FILL PLANTING SECTION
SCALE: 1"=40'

4' 0' 4' 8'
SCALE: 1"=4' VERTICAL

40' 0' 40' 80'
SCALE: 1"=40' HORIZONTAL

No.	Mark	BID DOCUMENTS Description	Date	Appr.
0			08/19/19	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

BEACH NOURISHMENT TYPICAL SECTIONS

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

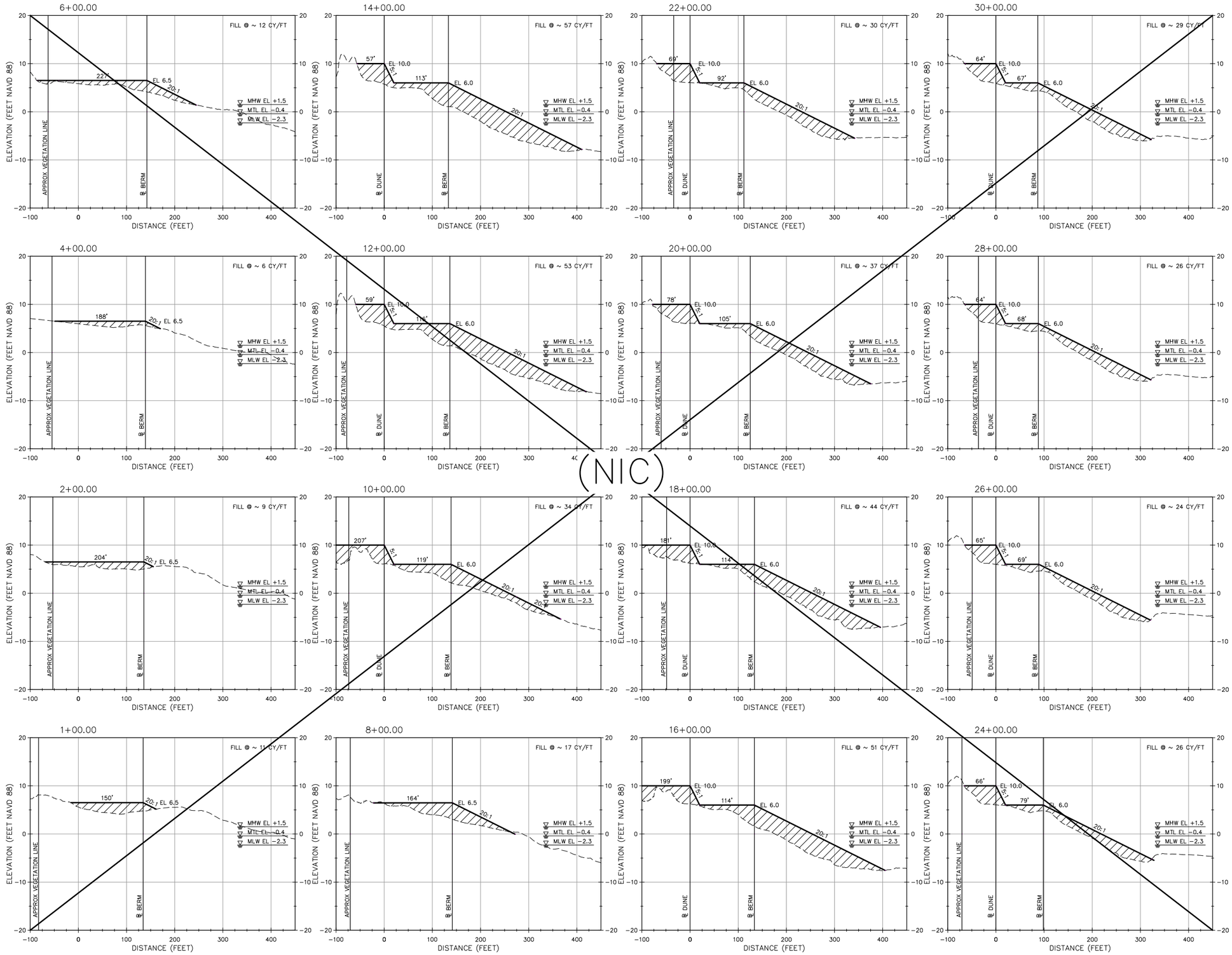
NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Rev.			
Date: AUGUST 2019	M&N Project No. 10611	Drawing code:	Drawing Scale: Plot scale: 1:1 (0 SHEET)
Designed by: NCV	Dwn by: BDF	Chd by: SRM	Reviewed by: JDM
			Submitted by: MOFFATT & NICHOL

Sheet Reference No.
C-300
Sheet 29 of 66

File: G:\PA\10611\0500_CAD_Active_10611 Bouge Banks 2022\10611C00C-300; Plotted: 2/14/2020 10:32 AM by FORD, BRIAN; Saved: 8/16/2019 5:49 PM by BFORD

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



(NIC)

NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL

10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 1 OF 35

Designed by:	NCV
Drawn by:	BDF
Checked by:	SRM
Reviewed by:	JDM
Submitted by:	MOFFATT & NICHOL
Date:	AUGUST 2019
M&N Project No.	10611
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (0 SHEET)
Rev.	

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

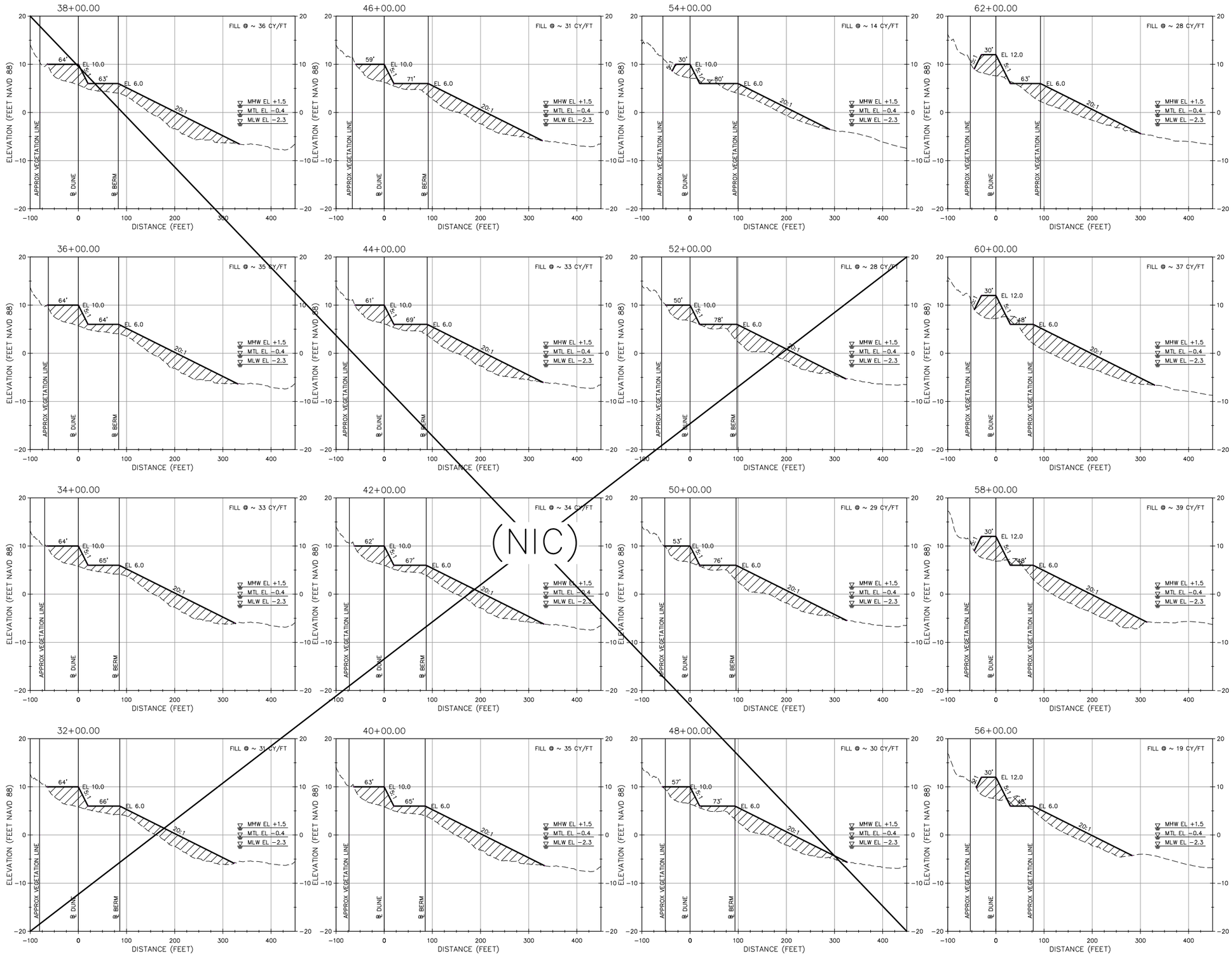
PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-301
Sheet 30 of 66

File: Q:\PA\10611\0500_CAD_Active_10611 Bouge Banks 2020\10611000-301; Plotted: 2/14/2020 10:32 AM by FORD, BRIAN; Saved: 8/16/2019 5:50 PM by BFORD

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C−300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

Mark	Description	Date	Appr.
1	PRE-CONSTRUCTION DESIGN REVISION	02/14/20	JM
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS SHEET 2 OF 35

Designed by: NCV	Date: AUGUST 2019
Dwn by: BDF	Chkd by: SRM
Reviewed by: JDM	M&N Project No. 10611
Submitted by: MOFFATT & NICHOL	Drawing code:
Drawing Scale: Plot scale: 1:1 (0 SHEET)	Rev. 1

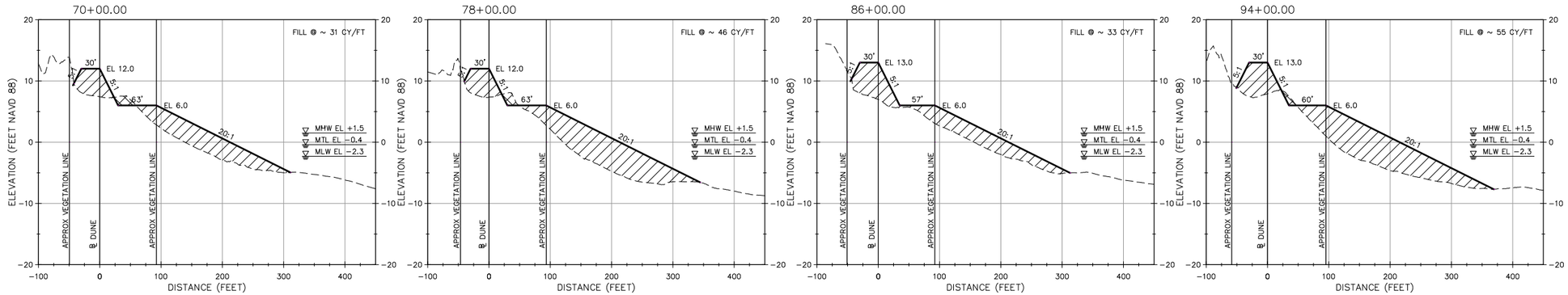
4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

PREPARED FOR THE TOWNS OF EMERALD ISLE, INDIAN BEACH, PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-302
Sheet 31 of 66

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NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

SCALE: 1"=10' VERTICAL

SCALE: 1"=100' HORIZONTAL

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

Mark	Description	Date	Appr.
1	PRE-CONSTRUCTION DESIGN REVISION	02/14/20	JM
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS SHEET 3 OF 35

Rev.	1
Date:	AUGUST 2019
M&N Project No.	10611
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (D SHEET)
Designed by:	NCV
Dwn by:	BDF
Ckd by:	SRM
Reviewed by:	JDM
Submitted by:	MOFFATT & NICHOL

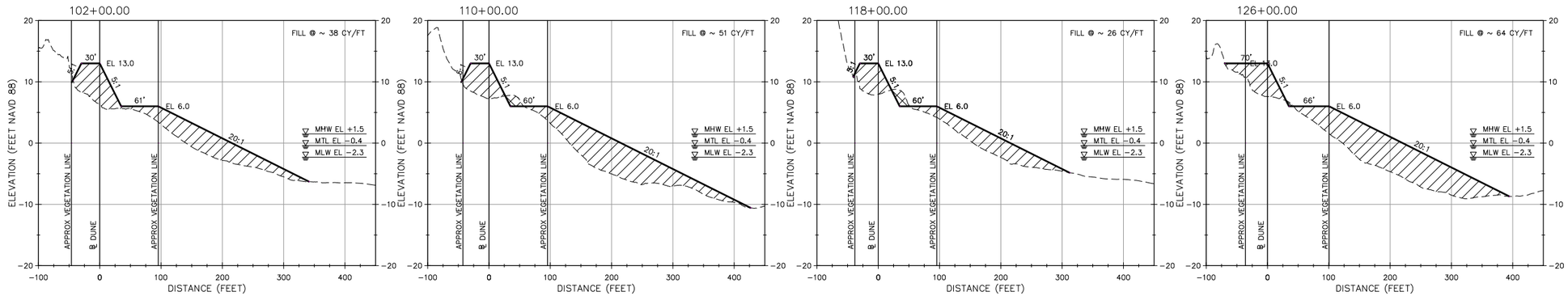
4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-303
Sheet 32 of 66

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NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

SCALE: 1"=10' VERTICAL

SCALE: 1"=100' HORIZONTAL

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

Mark	Description	Date	Appr.
1	PRE-CONSTRUCTION DESIGN REVISION	02/14/20	JM
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2 CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS SHEET 4 OF 35

Designed by:	NCV
Drawn by:	BDF
Checked by:	SRM
Reviewed by:	JDM
Submitted by:	MOFFATT & NICHOL
Date:	AUGUST 2019
M&N Project No.	10611
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (D SHEET)
Rev.	1

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

PREPARED FOR THE TOWNS OF EMERALD ISLE, INDIAN BEACH, PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN

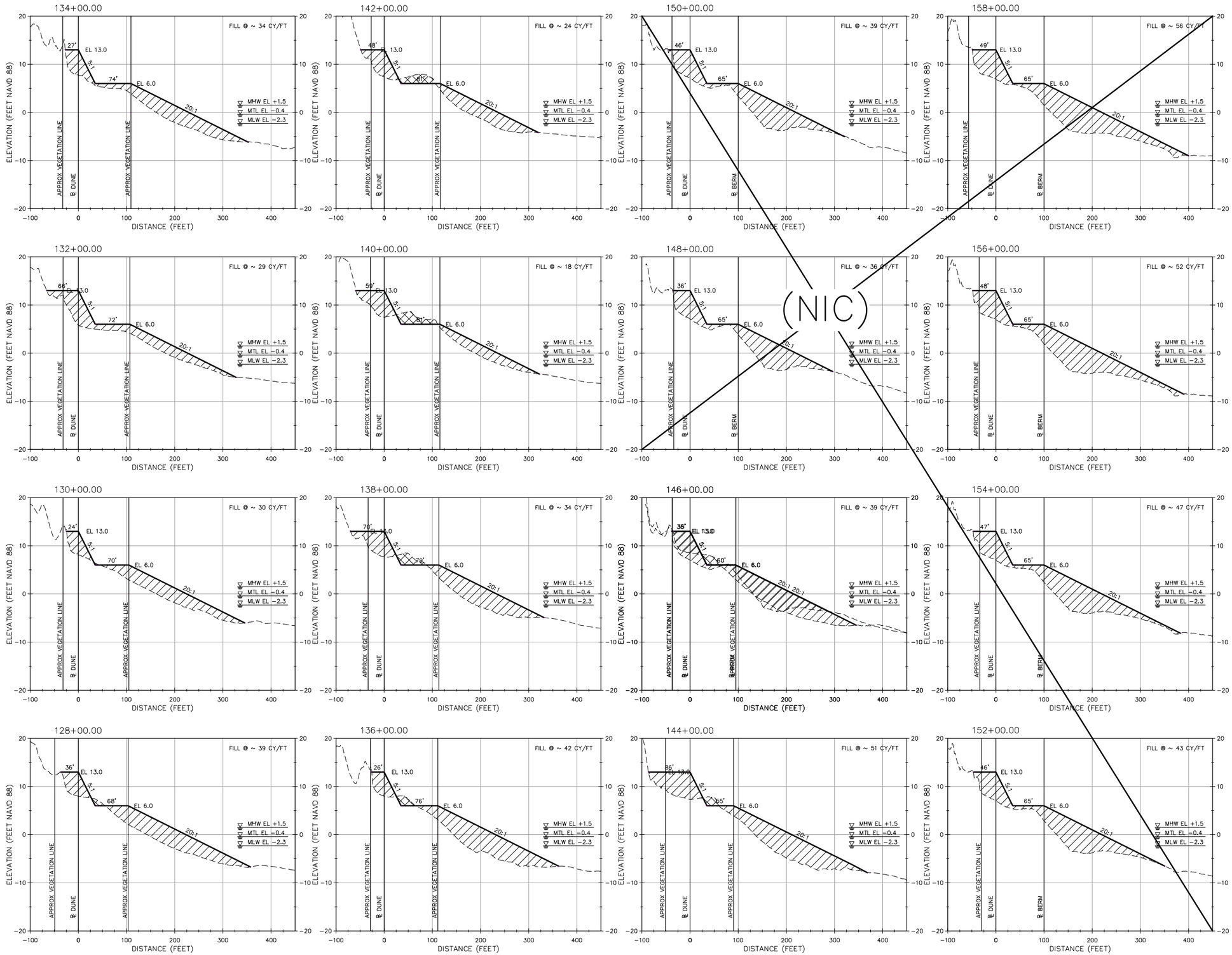
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Sheet Reference No.

C-304

Sheet 33 of 66

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(NIC)

NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C−300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	PRE-CONSTRUCTION DESIGN REVISION	02/14/20	JM
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 5 OF 35

Rev. 1
Date: AUGUST 2019
M&N Project No. 10611
Drawing code:
Drawing Scale: Plot scale: 1:1 (D SHEET)
Designed by: NCV
Dwn by: BDF
Chd by: SRM
Reviewed by: JDM
Submitted by: MOFFATT & NICHOL

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

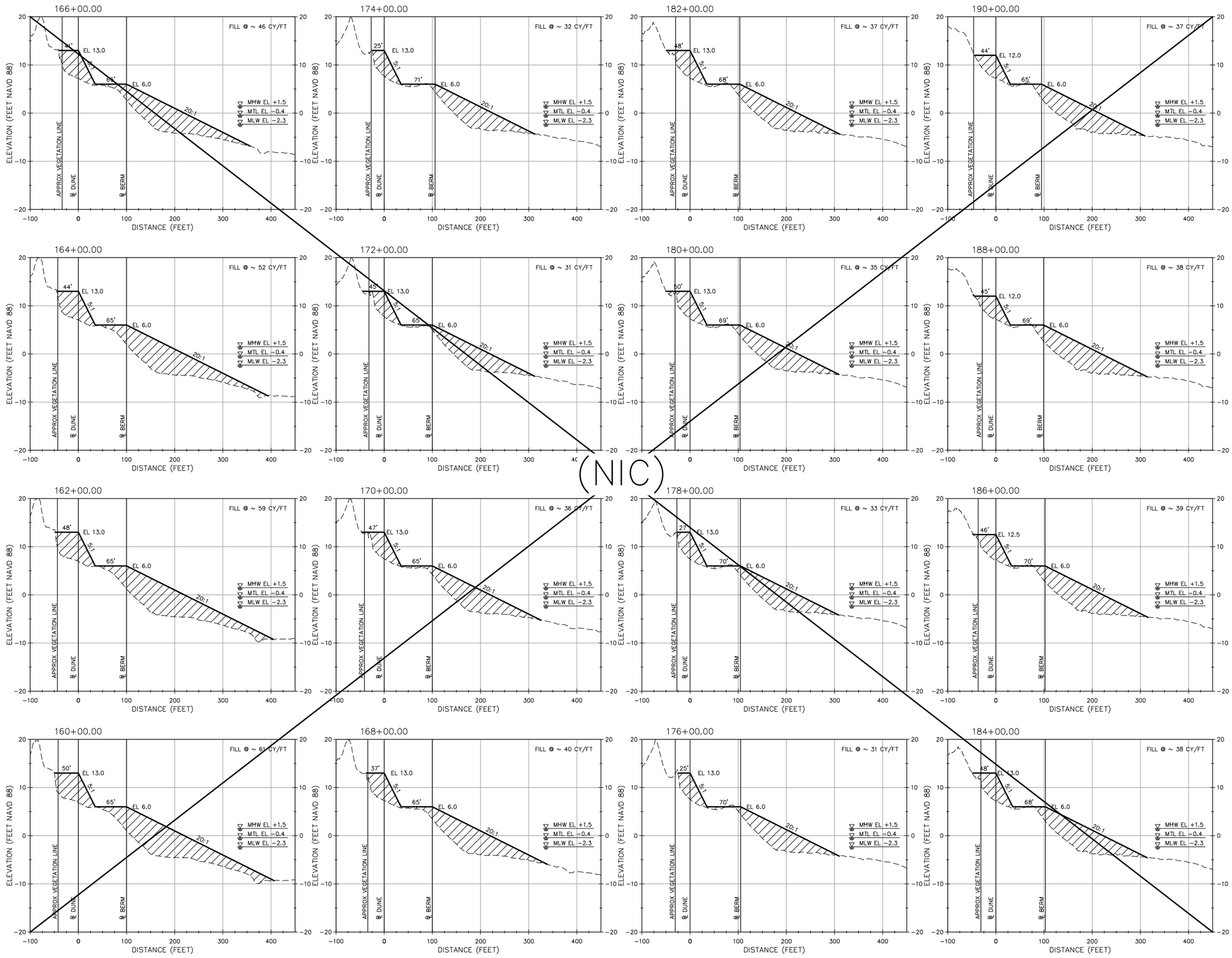
PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-305
Sheet 34 of 66

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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C–300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL

SCALE: 1"=10' VERTICAL

SCALE: 1"=100' HORIZONTAL

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

Mark	Description	Date	Appr.
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 6 OF 35

Designed by:	NCV
Drawn by:	BDF
Checked by:	SRM
Reviewed by:	JDM
Submitted by:	MOFFATT & NICHOL
Date:	AUGUST 2019
M&N Project No.	10611
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (0 SHEET)

Rev.

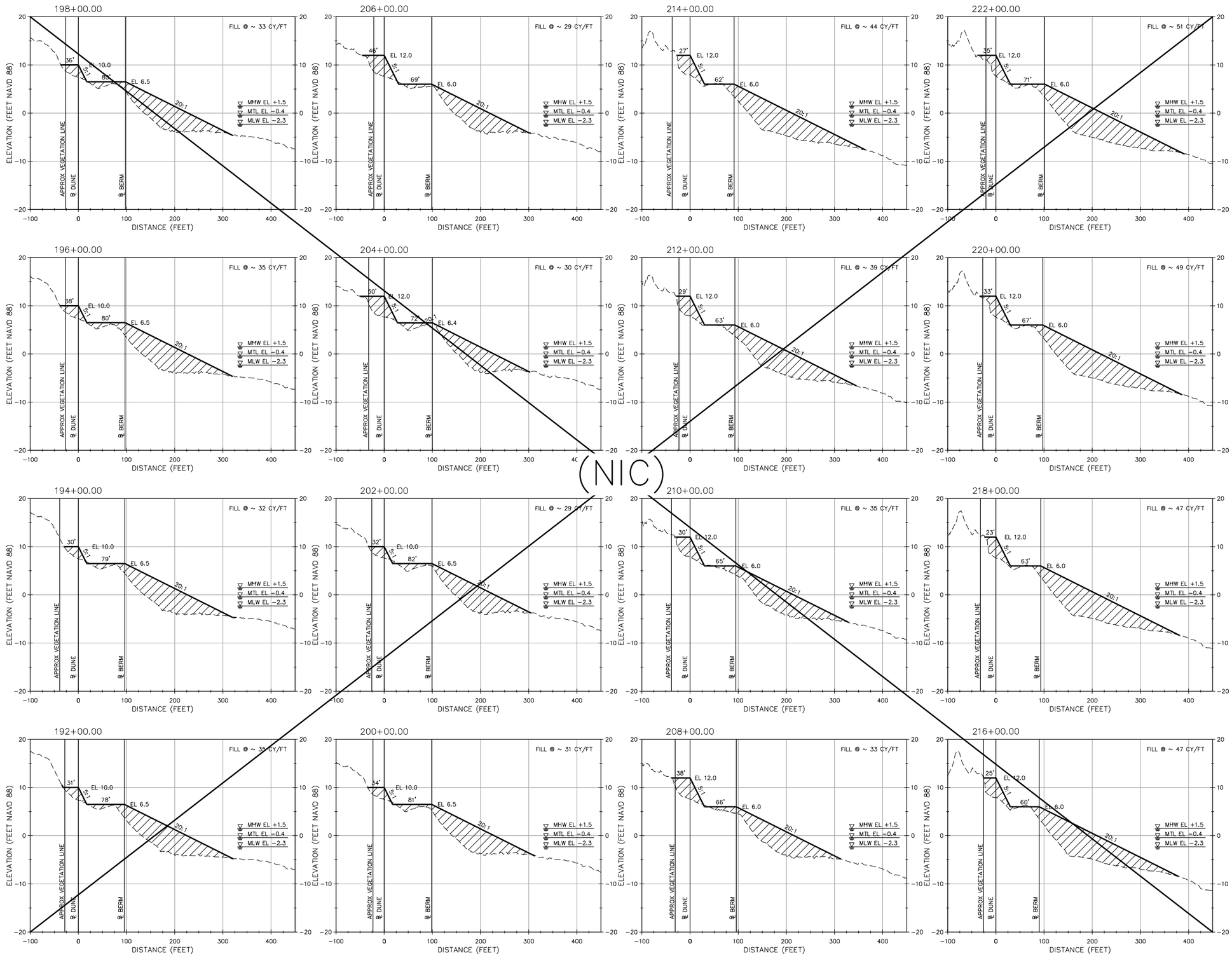
4700 FALLS OF THE NEUSE ROAD
SUITE 300
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919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-306
Sheet 35 of 66

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NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C−300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL

SCALE: 1"=10' VERTICAL

SCALE: 1"=100' HORIZONTAL

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

Mark	Description	Date	Appr.
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2 CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS SHEET 7 OF 35

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

PREPARED FOR THE TOWNS OF EMERALD ISLE, INDIAN BEACH, PINE KNOLL SHORES, AND ATLANTIC BEACH

Designed by:	Date:	Rev.
NCV	AUGUST 2019	
Drawn by:	Cad by:	M&N Project No.
BDF	SRM	10611
Reviewed by:	Drawing code:	
JDM		
Submitted by:	Drawing Scale:	
MOFFATT & NICHOL	Plot scale: 1:1 (0 SHEET)	

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN

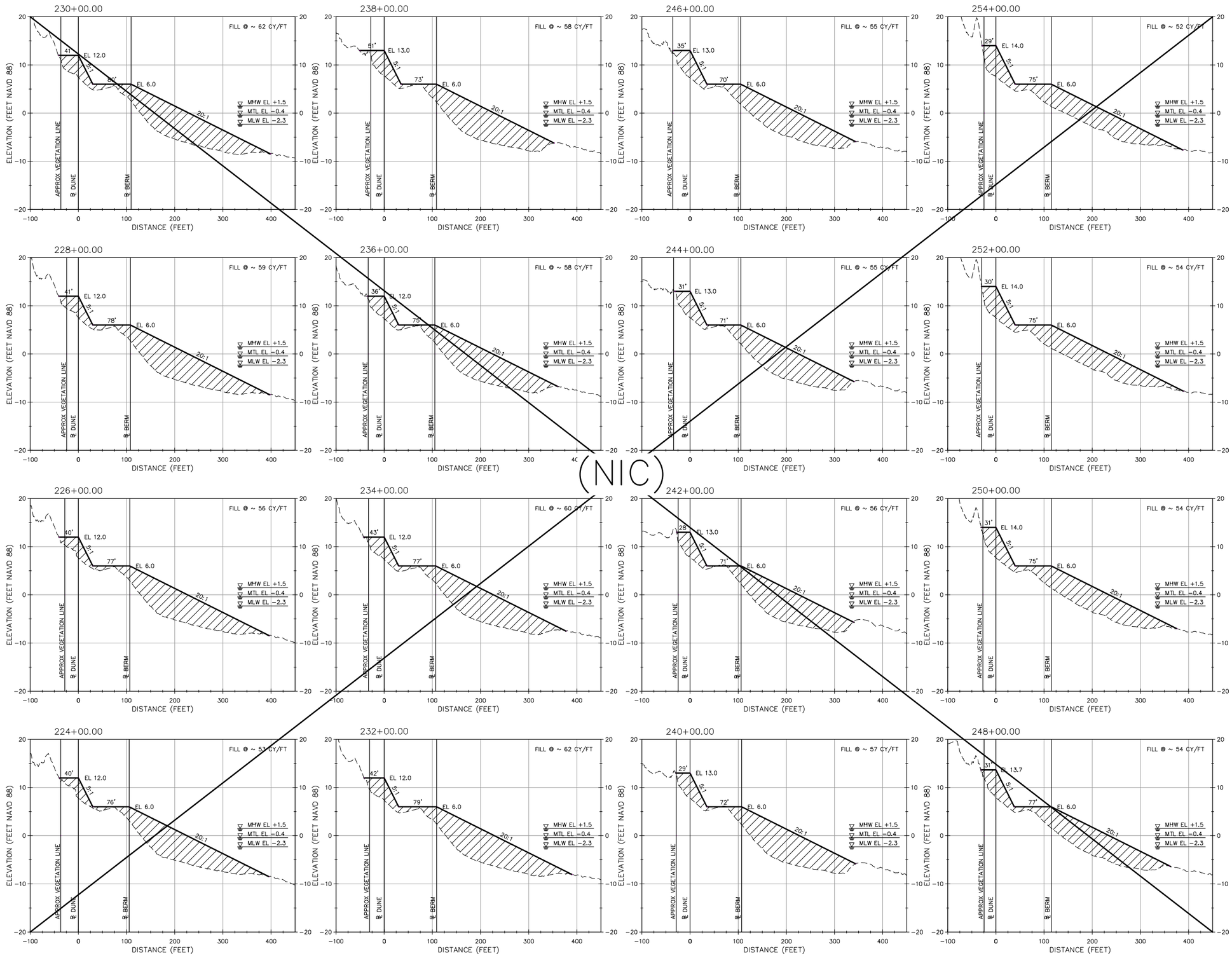
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Sheet Reference No.

C-307

Sheet 36 of 66

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NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C−300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL

10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

No.	Mark	Description	Date	Appr.
0	BID	DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 8 OF 35

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919−781−4626
NC FIRM LICENSE No. F−0105
moffatt & nichol

PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

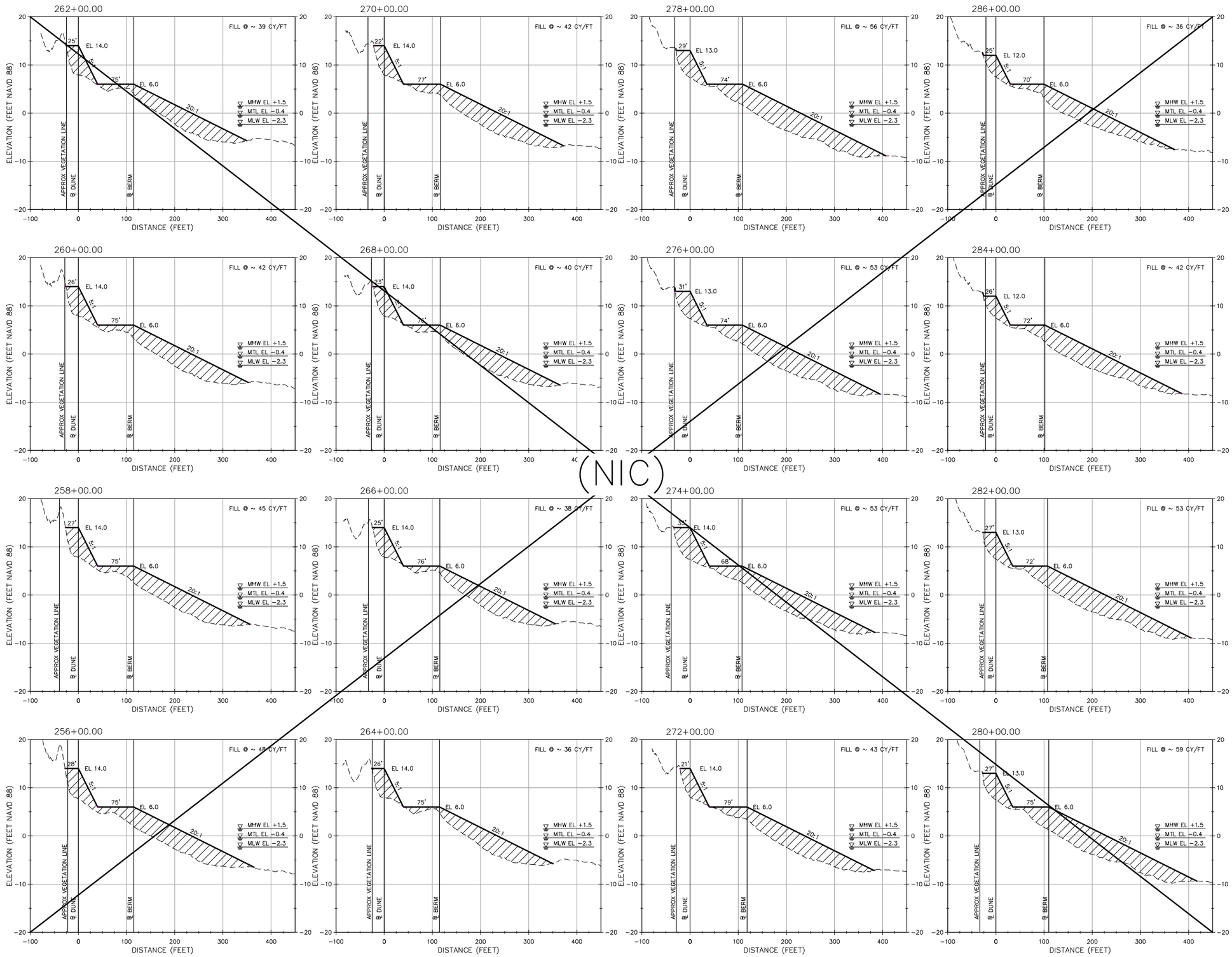
Rev.	Date: AUGUST 2019	Designed by: NCV	Drawn by: BDF	Checked by: SRM	Reviewed by: JDM	Submitted by: MOFFATT & NICHOL	Drawing Scale: Plot scale: 1:1 (0 SHEET)
	M&N Project No. 10611			Drawing code:			

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-308
Sheet 37 of 66

File: Q:\RA\10611\0500_CAD_Active_10611 Bouge Banks 20220\10611000−308; Plotted: 2/14/2020 10:33 AM by FORD, BRIAN; Saved: 8/16/2019 5:58 PM by BFORD

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C–300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL

SCALE: 1"=10' VERTICAL

SCALE: 1"=100' HORIZONTAL

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

Mark	Description	Date	Appr.
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS SHEET 9 OF 35

Date:	AUGUST 2019
Rev.	
Designed by:	NCV
Drawn by:	BDF
Cad by:	SRM
Reviewed by:	JDM
Submitted by:	MOFFATT & NICHOL
M&N Project No.	10611
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (0 SHEET)

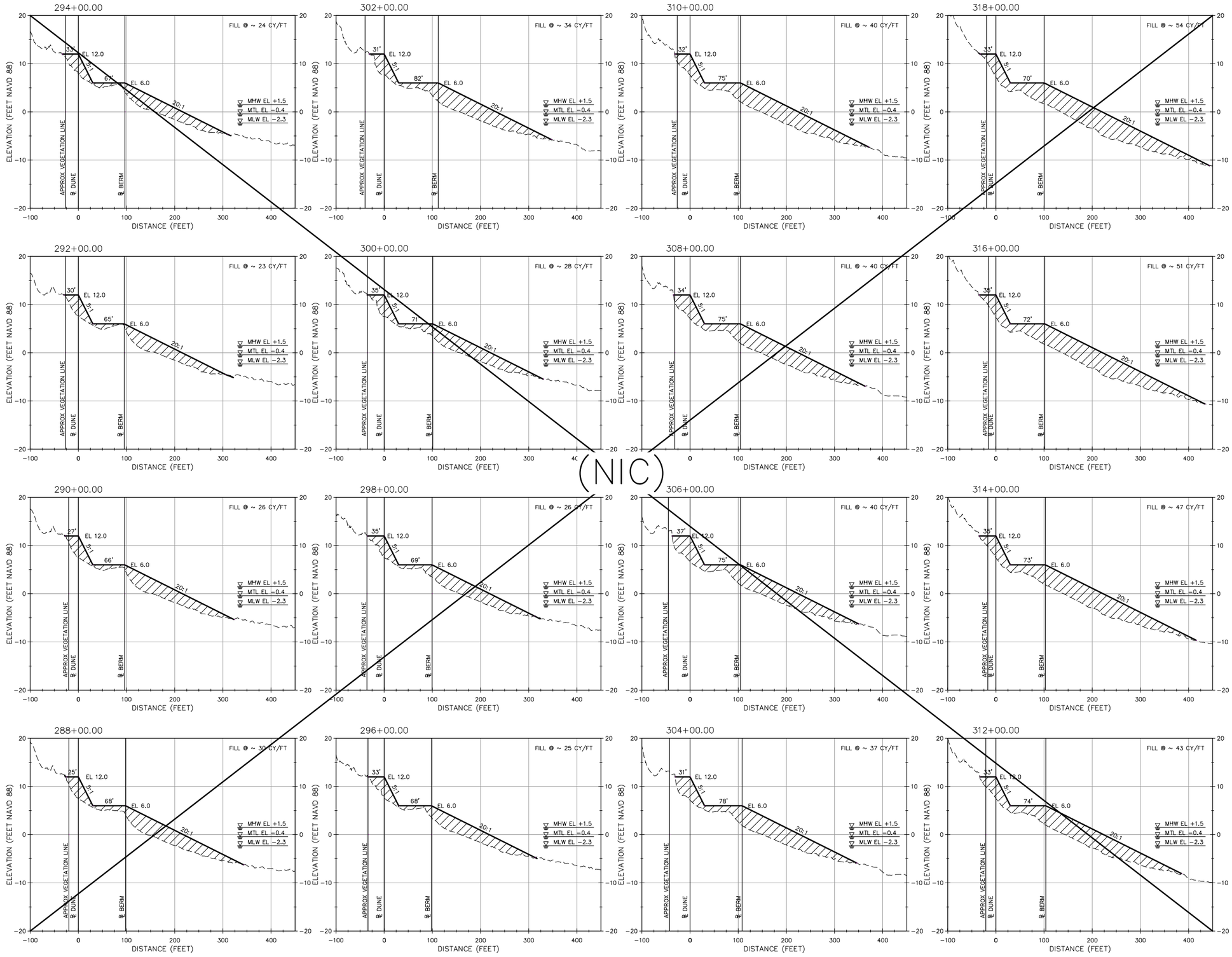
4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

PREPARED FOR THE TOWNS OF EMERALD ISLE, INDIAN BEACH, PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-309
Sheet 38 of 66

File: Q:\RA\10611\0500_CAD_Active_10611 Bouge Banks 20201\061100C-309; Plotted: 2/14/2020 10:33 AM by FORD, BRIAN; Saved: 8/16/2019 5:58 PM by BFORD



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C−300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL

10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 10 OF 35

Designed by: NCV
Drawn by: BDF
Checked by: SRM
Reviewed by: JDM
Submitted by: MOFFATT & NICHOL
Date: AUGUST 2019
M&N Project No. 10611
Drawing code:
Drawing Scale: Plot scale: 1:1 (0 SHEET)
Rev.

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

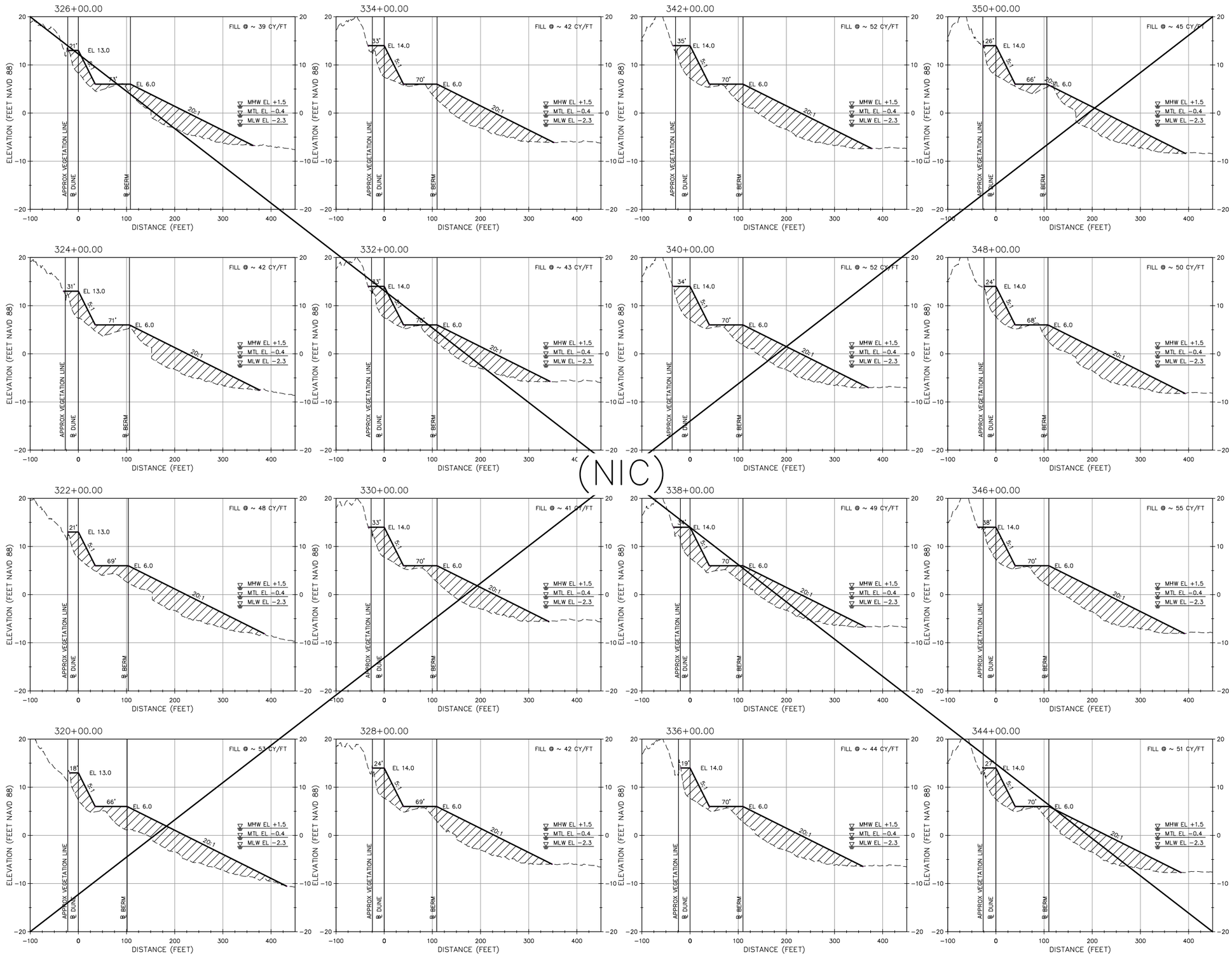
PREPARED FOR THE TOWNS OF EMERALD ISLE, INDIAN BEACH, PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-310
Sheet 39 of 66

File: Q:\RA\10611\0500_CAD_Active_10611 Bouge Banks 20220\10611000−310; Plotted: 2/14/2020 10:33 AM by FORD, BRIAN; Saved: 8/16/2019 5:58 PM by BFORD

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C–300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL

10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

Mark	Description	Date	Appr.
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 11 OF 35

Rev.	
Date:	AUGUST 2019
M&N Project No.	10611
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (0 SHEET)
Designed by:	NCV
Cad by:	SRM
Dwn by:	BDF
Reviewed by:	JDM
Submitted by:	MOFFATT & NICHOL

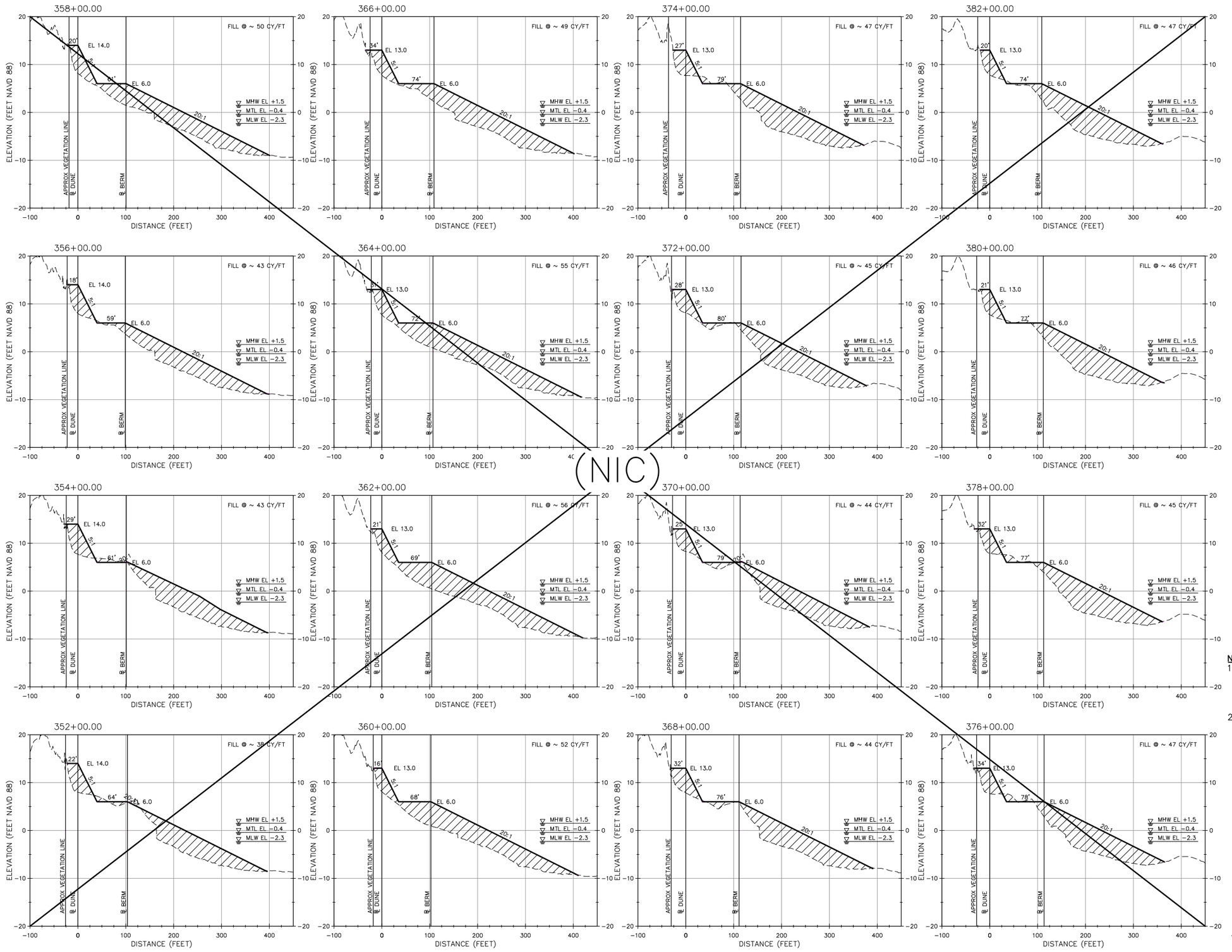
4700 FALLS OF THE NEUSE ROAD
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RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-311
Sheet 40 of 66

File: Q:\RA\10611\0500_CAD_Active_10611 Bouge Banks 2020\10611000–311; Plotted: 2/14/2020 10:33 AM by FORD, BRIAN; Saved: 8/16/2019 5:58 PM by BFORD



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C–300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL

SCALE: 1"=10' VERTICAL

SCALE: 1"=100' HORIZONTAL

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

Mark	Description	Date	Appr.
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 12 OF 35

Designed by: NCV	Drawn by: BDF	Reviewed by: JDM	Submitted by: MOFFATT & NICHOL
Date: AUGUST 2019	Cad by: SRM	Drawing code:	Drawing Scale: Plot scale: 1:1 (0 SHEET)
Rev.	M&N Project No. 10611		

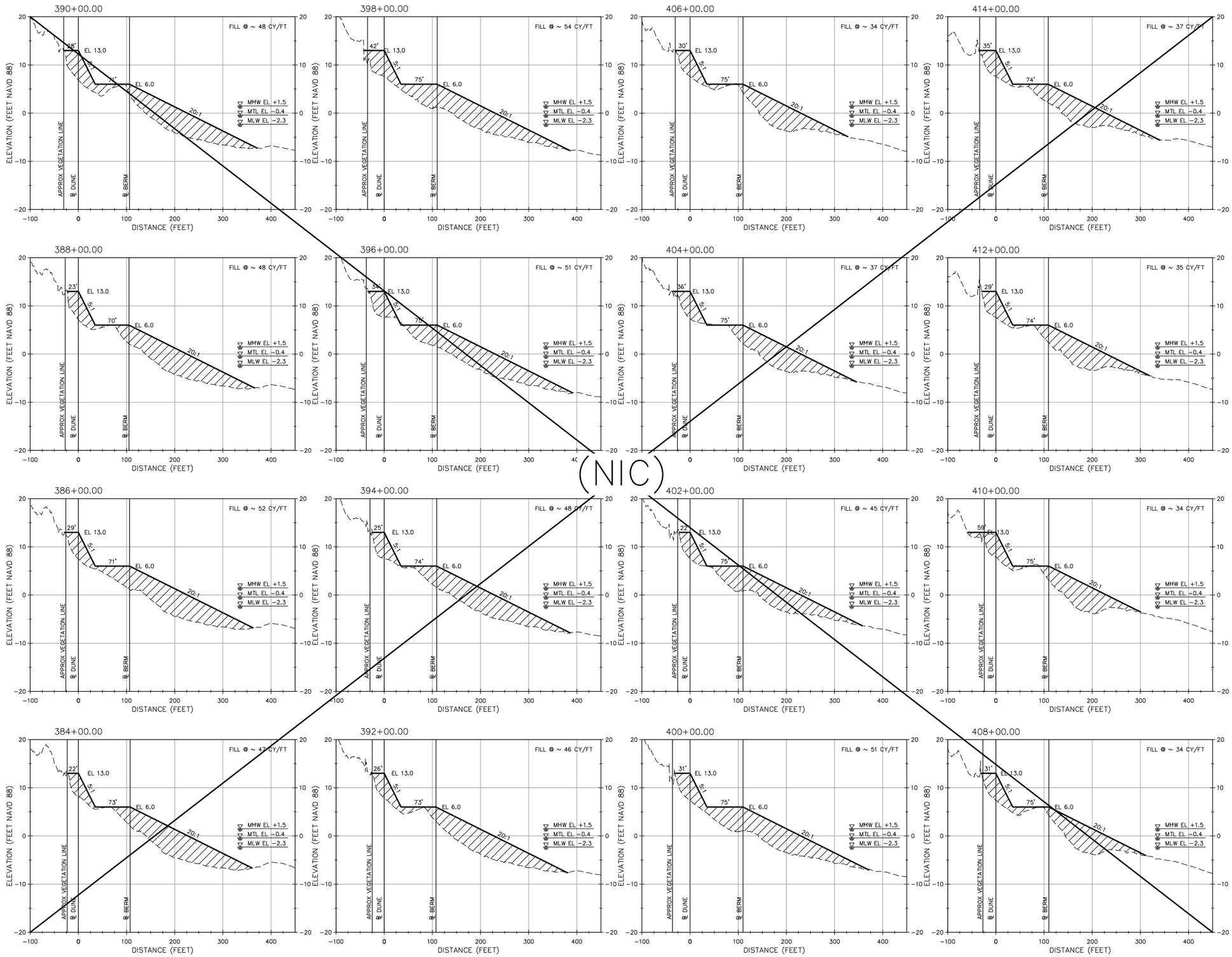
4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-312
Sheet 41 of 66

File: Q:\RA\10611\0500_CAD_Active_10611 Bouge Banks 20220\10611000–312; Plotted: 2/14/2020 10:34 AM by FORD, BRIAN; Saved: 8/16/2019 5:57 PM by BFORD



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C–300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL

SCALE: 1"=10' VERTICAL

SCALE: 1"=100' HORIZONTAL

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

Mark	Description	Date	Appr.
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2 CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS SHEET 13 OF 35

Designed by: NCV	Drawn by: BDF	Reviewed by: JDM	Submitted by: MOFFATT & NICHOL
Date: AUGUST 2019	Cad by: SRM	Drawing code:	Drawing Scale: Plot scale: 1:1 (0 SHEET)
Rev.	M&N Project No. 10611		

4700 FALLS OF THE NEUSE ROAD SUITE 300 RALEIGH, NC 27609 919-781-4626 NC FIRM LICENSE No. F-0105

moffatt & nichol

PREPARED FOR THE TOWNS OF EMERALD ISLE, INDIAN BEACH, PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN

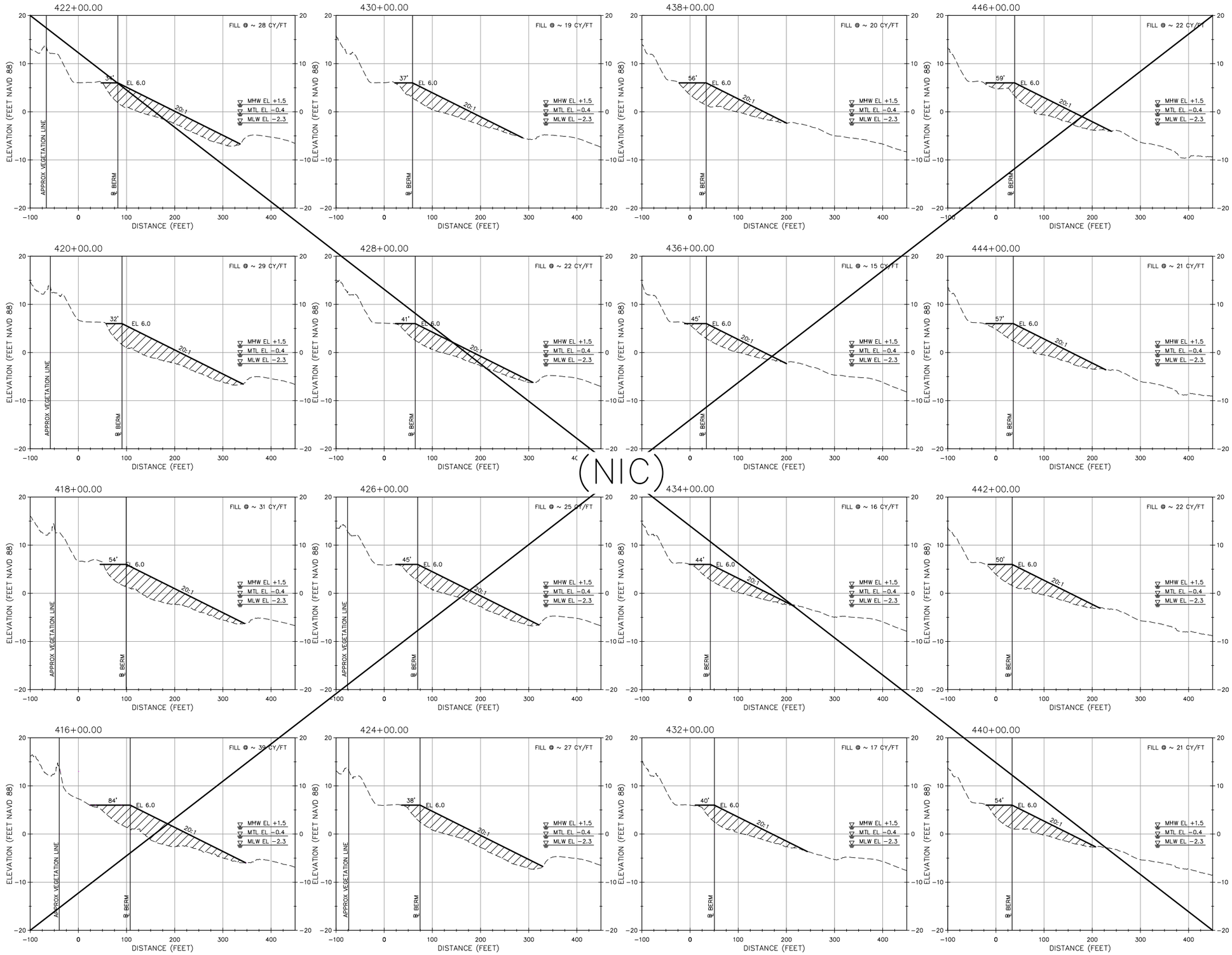
SEAL

Sheet Reference No.

C-313

Sheet 42 of 66

File: Q:\RA\10611\0500_CAD_Active_10611 Bouge Banks 2020\10611000-313; Plotted: 2/14/2020 10:34 AM by FORD, BRIAN; Saved: 8/16/2019 5:57 PM by BFORD



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NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL

SCALE: 1"=10' VERTICAL

SCALE: 1"=100' HORIZONTAL

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

No.	Mark	Description	Date	Appr.
0	BID	DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 14 OF 35

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RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105

PREPARED FOR THE TOWNS OF EMERALD ISLE, INDIAN BEACH, PINE KNOLL SHORES, AND ATLANTIC BEACH

Designed by:	Date:
NCV	AUGUST 2019
Dwn by: BDF	Ckd by: SRM
Reviewed by: JDM	M&N Project No. 10611
Submitted by: MOFFATT & NICHOL	Drawing code:
	Drawing Scale: Plot scale: 1:1 (0 SHEET)
	Rev.

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN

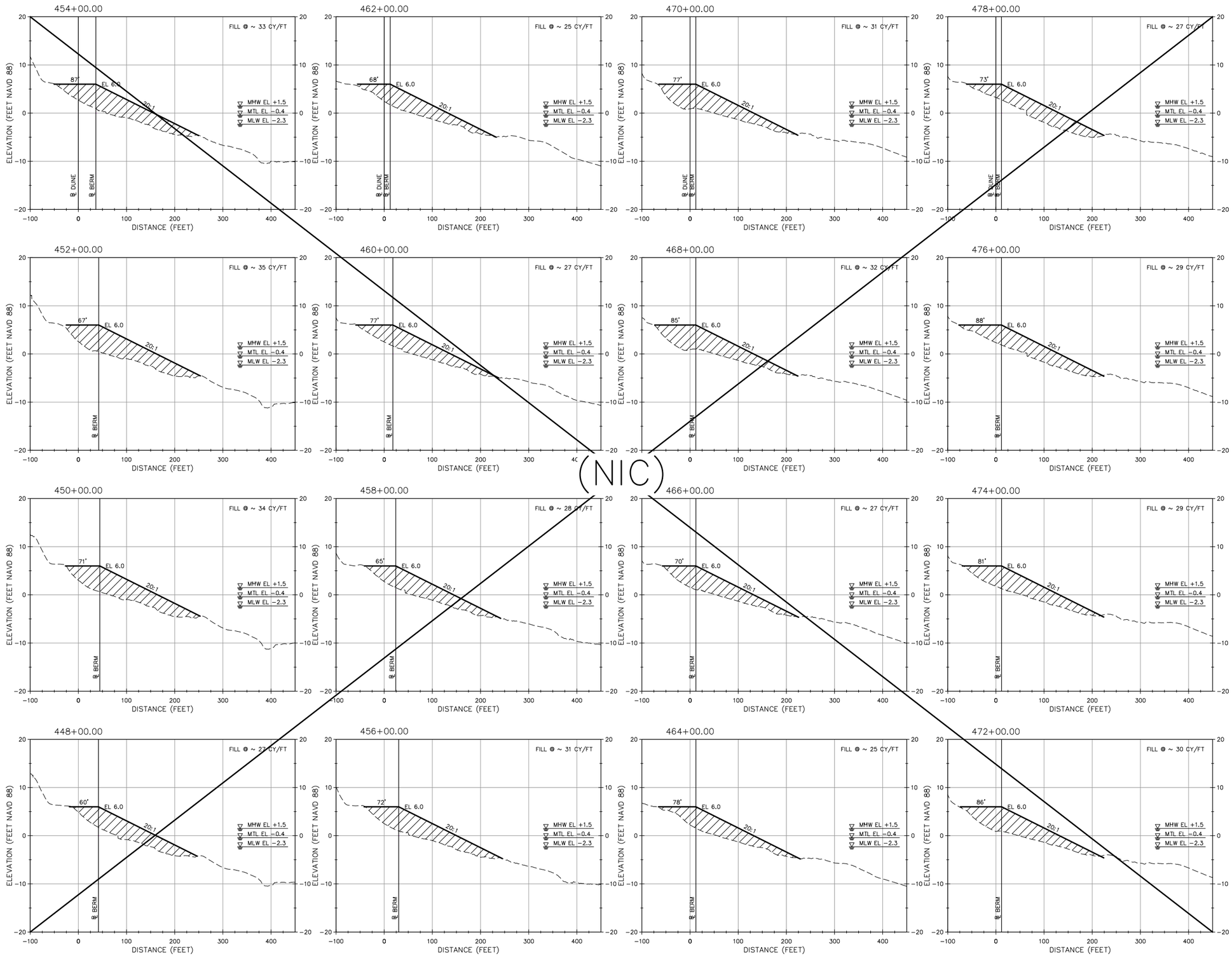
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Sheet Reference No.

C-314

Sheet 43 of 66

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(NIC)

NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL

SCALE: 1"=10' VERTICAL

SCALE: 1"=100' HORIZONTAL

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

No.	Mark	Description	Date	Appr.
0	BID	DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 15 OF 35

Designed by:	NCV
Dwn by:	BDF
Ckd by:	SRM
Reviewed by:	JDM
Submitted by:	MOFFATT & NICHOL
Date:	AUGUST 2019
M&N Project No.	10611
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (0 SHEET)

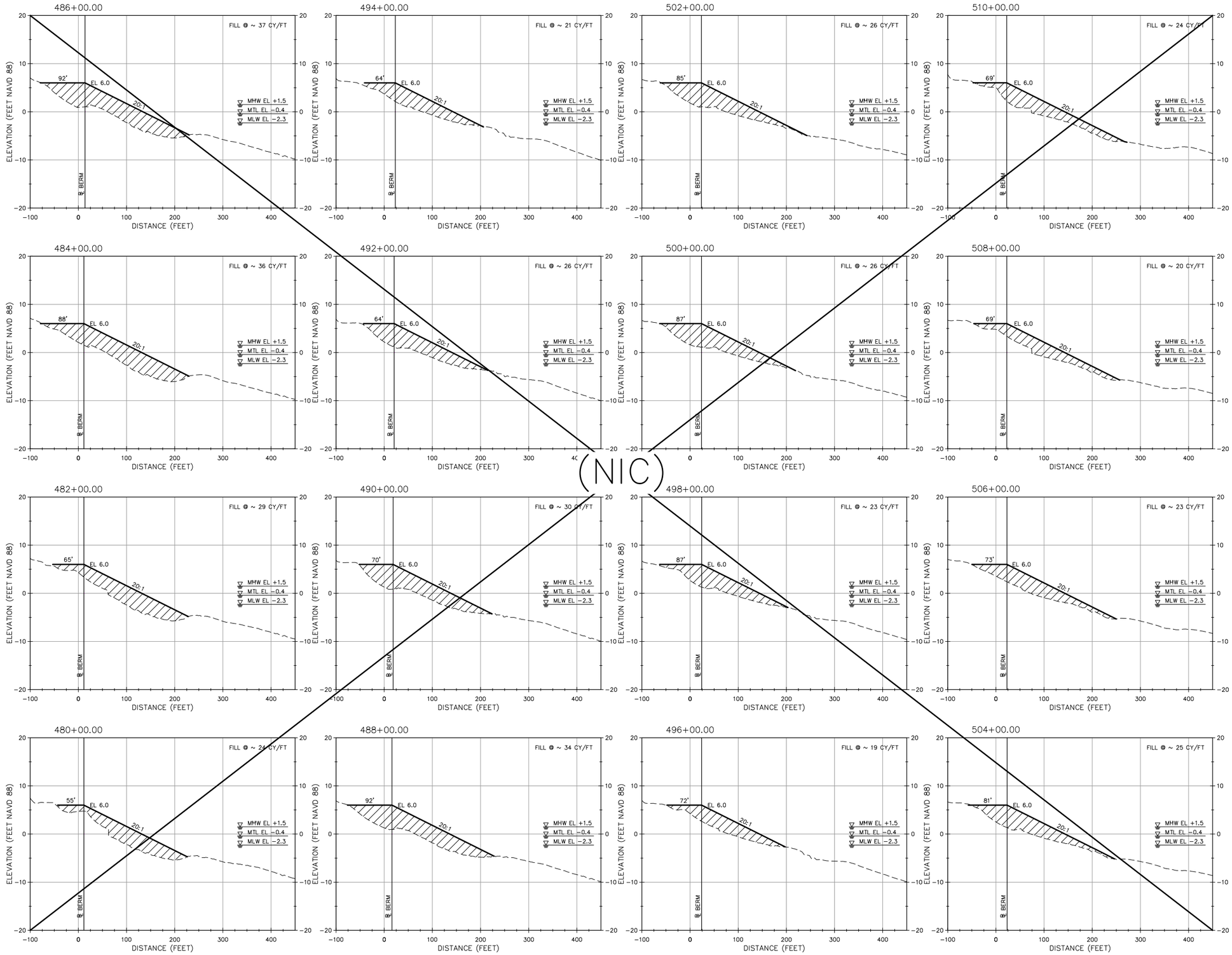
4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
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PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-315
Sheet 44 of 66

File: Q:\RA\10611\0500_CAD_Active_10611 Bouge Banks 20220\10611000-315; Plotted: 2/14/2020 10:34 AM by FORD, BRIAN; Saved: 8/16/2019 5:57 PM by BFORD



(NIC)

NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL

10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

No.	Mark	BID DOCUMENTS	Date	Appr.
0		Description	08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 16 OF 35

Designed by:	NCV
Drawn by:	BDF
Checked by:	SRM
Reviewed by:	JDM
Submitted by:	MOFFATT & NICHOL
Date:	AUGUST 2019
M&N Project No.	10611
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (0 SHEET)

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

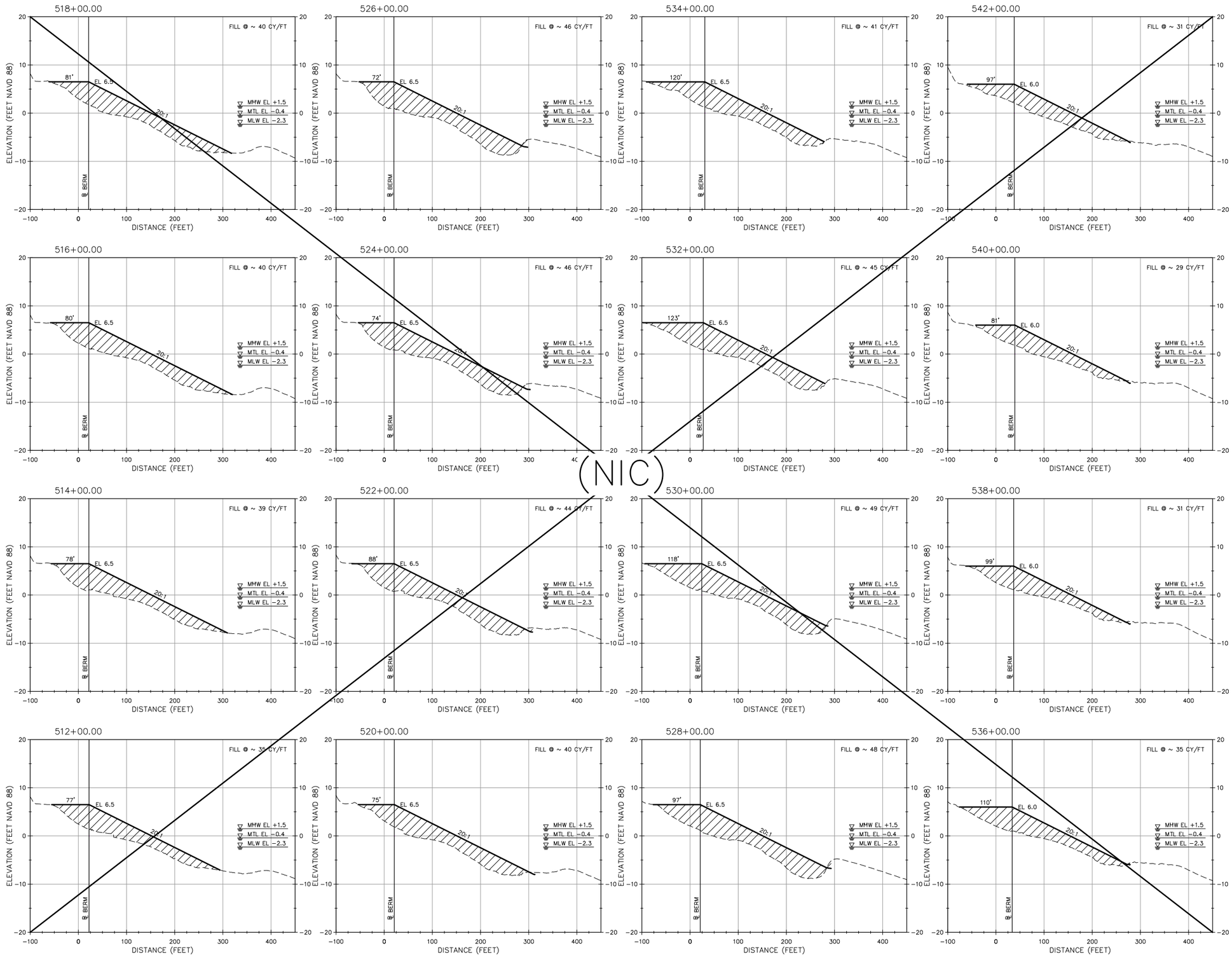
PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-316
Sheet 45 of 66

File: Q:\RA\10611\0500_CAD_Active_10611 Bouge Banks 20220\10611000-316; Plotted: 2/14/2020 10:34 AM by FORD, BRIAN; Saved: 8/16/2019 5:57 PM by BFORD

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



(NIC)

NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL

10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

No.	Mark	Description	Date	Appr.
0	BID	DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 17 OF 35

Designed by:	NCV
Drawn by:	BDF
Checked by:	SRM
Reviewed by:	JDM
Submitted by:	MOFFATT & NICHOL
Date:	AUGUST 2019
M&N Project No.	10611
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (0 SHEET)

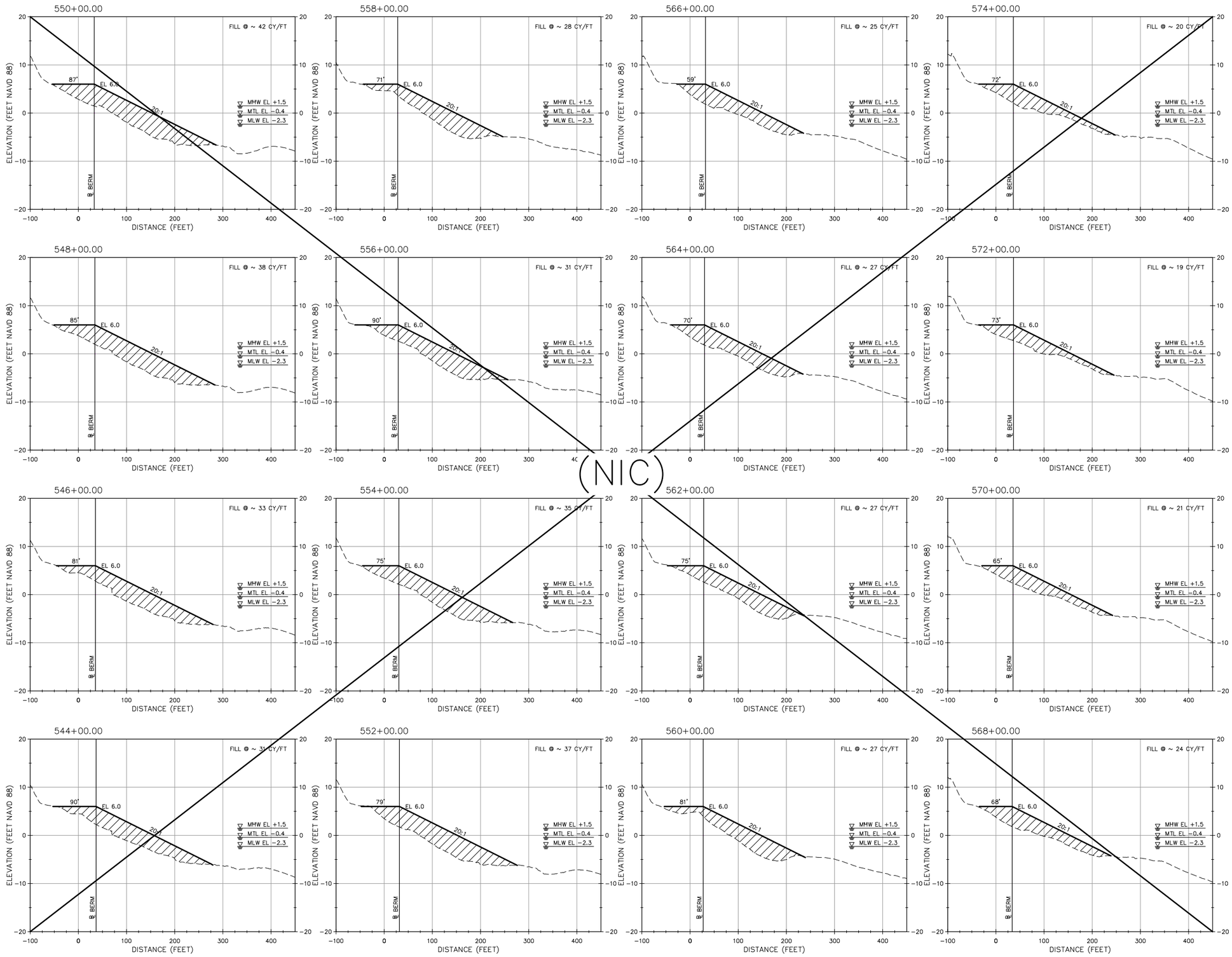
4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-317
Sheet 46 of 66

File: Q:\RA\10611\0500_CAD_Active_10611 Bouge Banks 20220\10611000-317; Plotted: 2/14/2020 10:34 AM by FORD, BRIAN; Saved: 8/16/2019 5:57 PM by BFORD



(NIC)

NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C−300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL

10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

Mark	Description	Date	Appr.
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2 CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS SHEET 18 OF 35

4700 FALLS OF THE NEUSE ROAD SUITE 300 RALEIGH, NC 27609 919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

PREPARED FOR THE TOWNS OF EMERALD ISLE, INDIAN BEACH, PINE KNOLL SHORES, AND ATLANTIC BEACH

Designed by:	NCV
Drawn by:	BDF
Reviewed by:	JDM
Submitted by:	MOFFATT & NICHOL
Date:	AUGUST 2019
Cad by:	SRM
M&N Project No.	10611
Drawing code:	
Drawing Scale:	
Plot scale: 1:1 (0 SHEET)	
Rev.	

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN

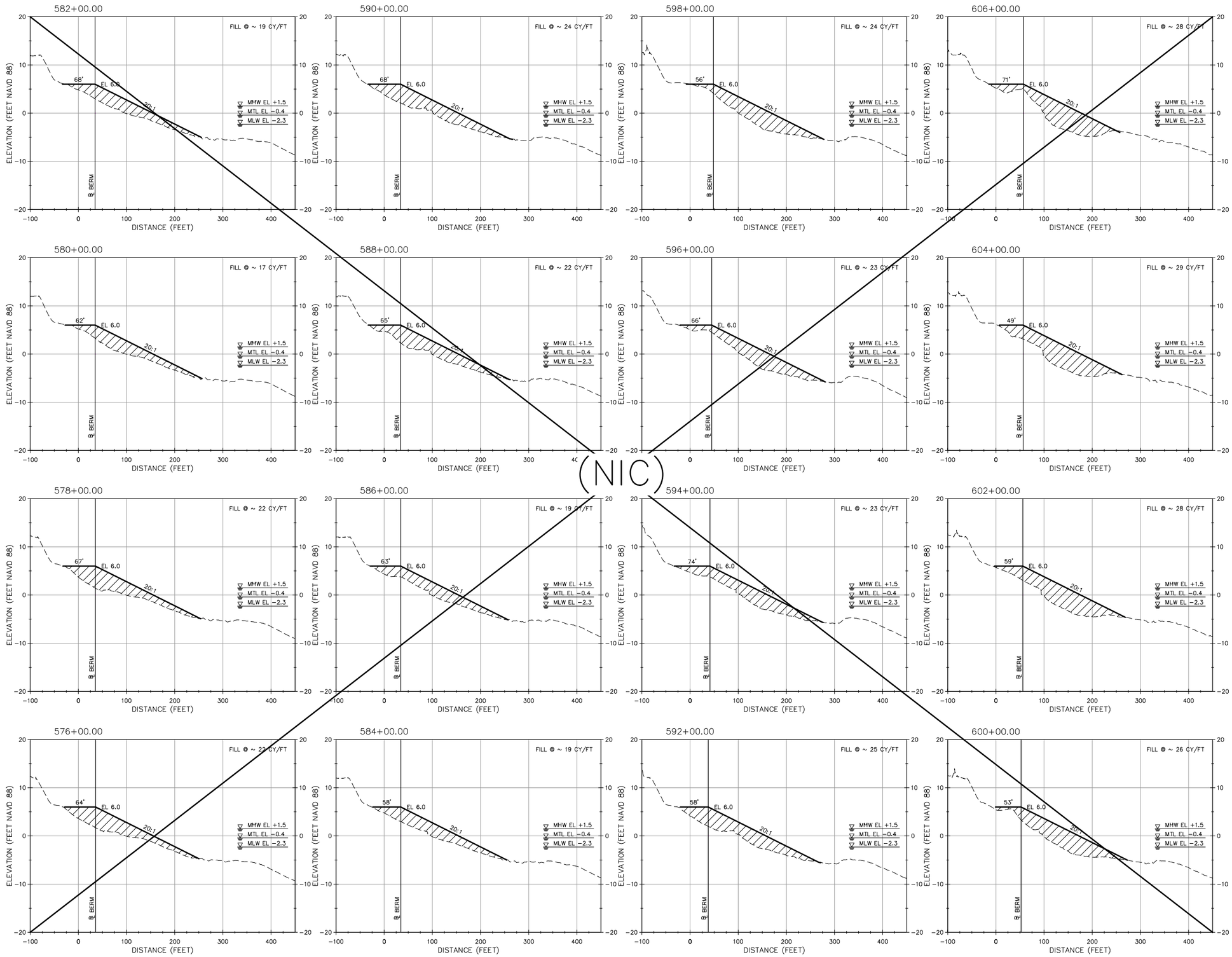
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Sheet Reference No.

C-318

Sheet 47 of 66

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(NIC)

NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL

SCALE: 1"=10' VERTICAL

SCALE: 1"=100' HORIZONTAL

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

Mark	Description	Date	Appr.
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2 CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS SHEET 19 OF 35

Rev.

Date: AUGUST 2019

M&N Project No. 10611

Drawing code:

Drawing Scale: Plot scale: 1:1 (0 SHEET)

Designed by: NCV

Dwn by: BDF

Ckd by: SRM

Reviewed by: JDM

Submitted by: MOFFATT & NICHOL

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

PREPARED FOR THE TOWNS OF EMERALD ISLE, INDIAN BEACH, PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN

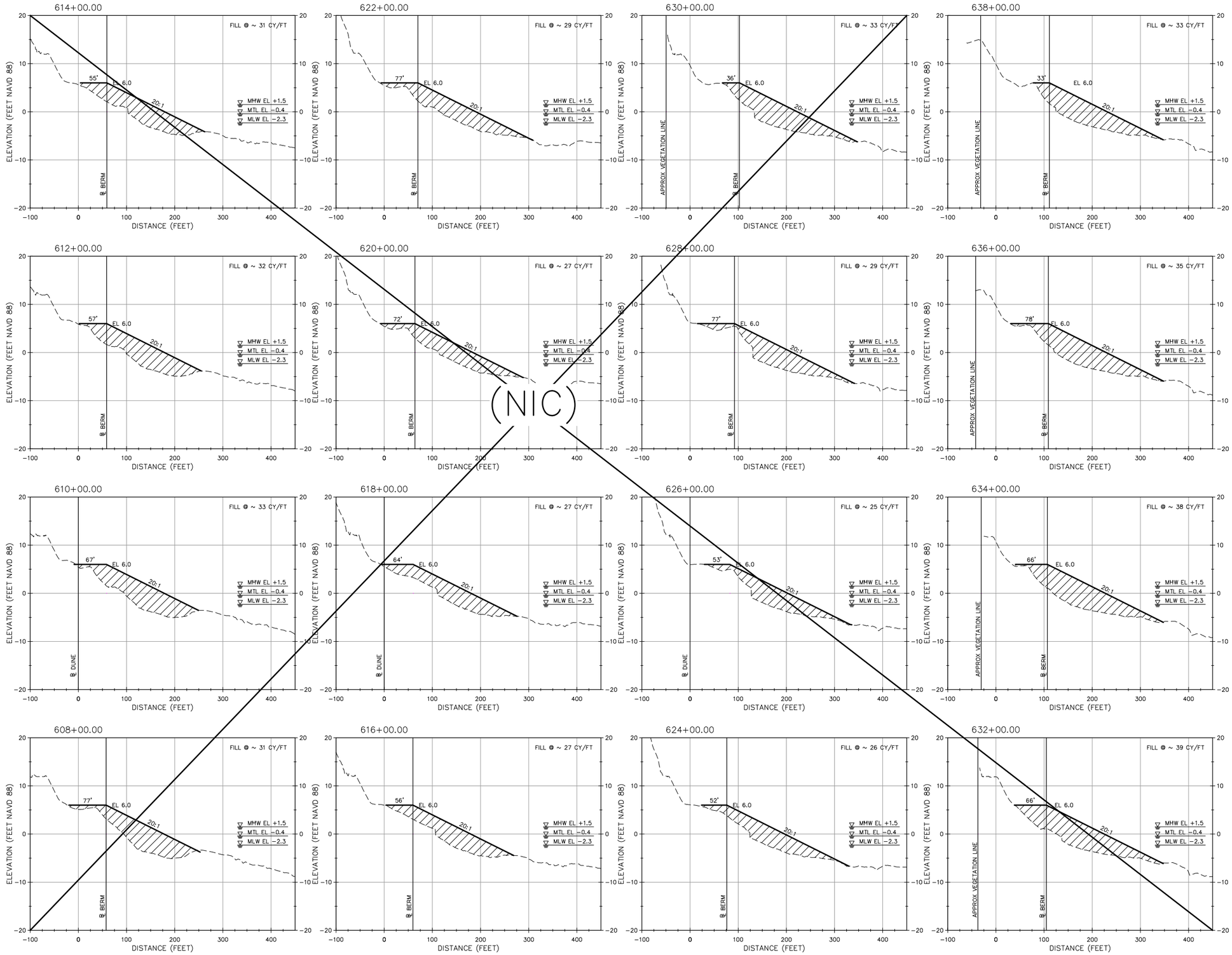
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Sheet Reference No.

C-319

Sheet 48 of 66

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NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL

SCALE: 1"=10' VERTICAL

SCALE: 1"=100' HORIZONTAL

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

No.	Mark	Description	Date	Appr.
0	BID	DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 20 OF 35

Designed by:	NCV
Dwn by:	BDF
Ckd by:	SRM
Reviewed by:	JDM
Submitted by:	MOFFATT & NICHOL
Date:	AUGUST 2019
M&N Project No.	10611
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (0 SHEET)
Rev.	

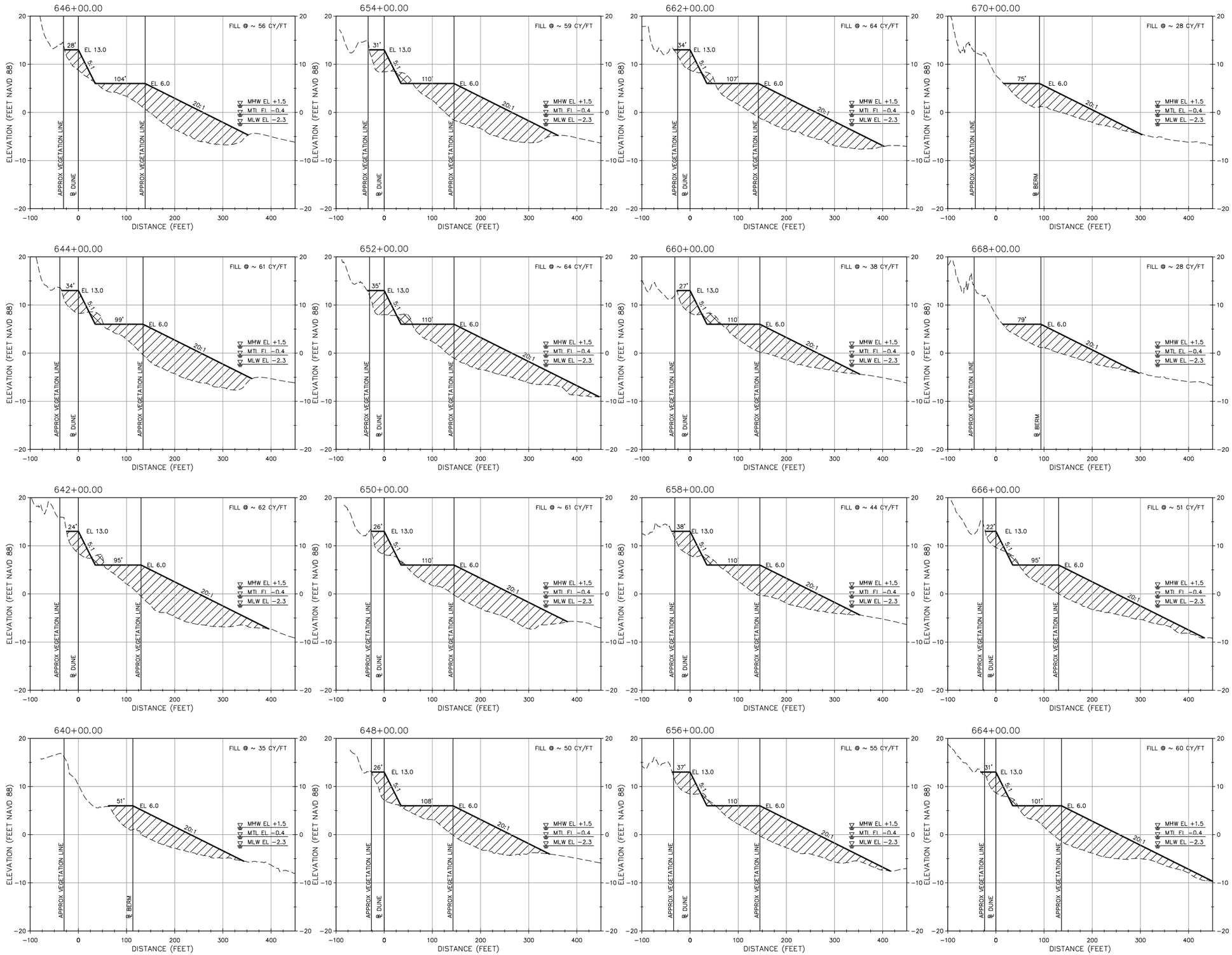
4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-320
Sheet 49 of 66

File: Q:\PA\10611\0500_CAD_Active_10611 Bouge Banks 2020\10611000-320; Plotted: 2/14/2020 10:34 AM by FORD, BRIAN; Saved: 2/14/2020 9:46 AM by FORD



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C−300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	PRE-CONSTRUCTION DESIGN REVISION	02/14/20	JM
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2 CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS SHEET 21 OF 35

Designed by: NCV | Drawn by: BDF | Checked by: SRM | Reviewed by: JDM | Submitted by: MOFFATT & NICHOL | Date: AUGUST 2019 | M&N Project No. 10611 | Drawing code: | Drawing Scale: Plot scale: 1:1 (D SHEET) | Rev. 1

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

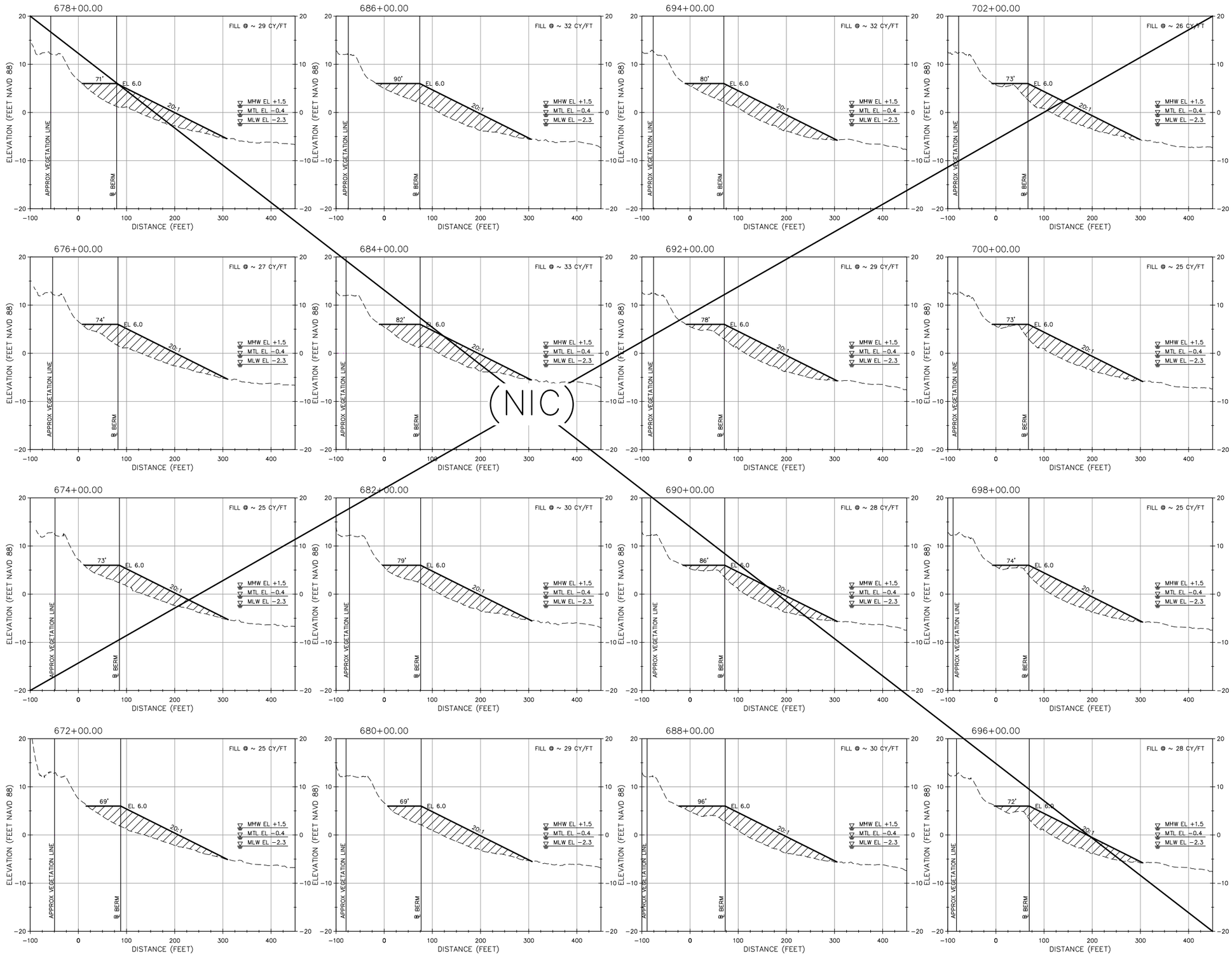
PREPARED FOR THE TOWNS OF EMERALD ISLE, INDIAN BEACH, PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-321
Sheet 50 of 66

File: Q:\RA\10611\0500_CAD_Active_10611 Bouge Banks 2020\10611000-321; Plotted: 2/14/2020 10:34 AM by FORD, BRIAN; Saved: 2/14/2020 9:46 AM by BFORD

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	PRE-CONSTRUCTION DESIGN REVISION	02/14/20	JM
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 22 OF 35

Designed by: NCV
Drawn by: BDF
Checked by: SRM
Reviewed by: JDM
Date: AUGUST 2019
M&N Project No. 10611
Drawing code:
Drawing Scale: Plot scale: 1:1 (0 SHEET)
Submitted by: MOFFATT & NICHOL
Rev. 1

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

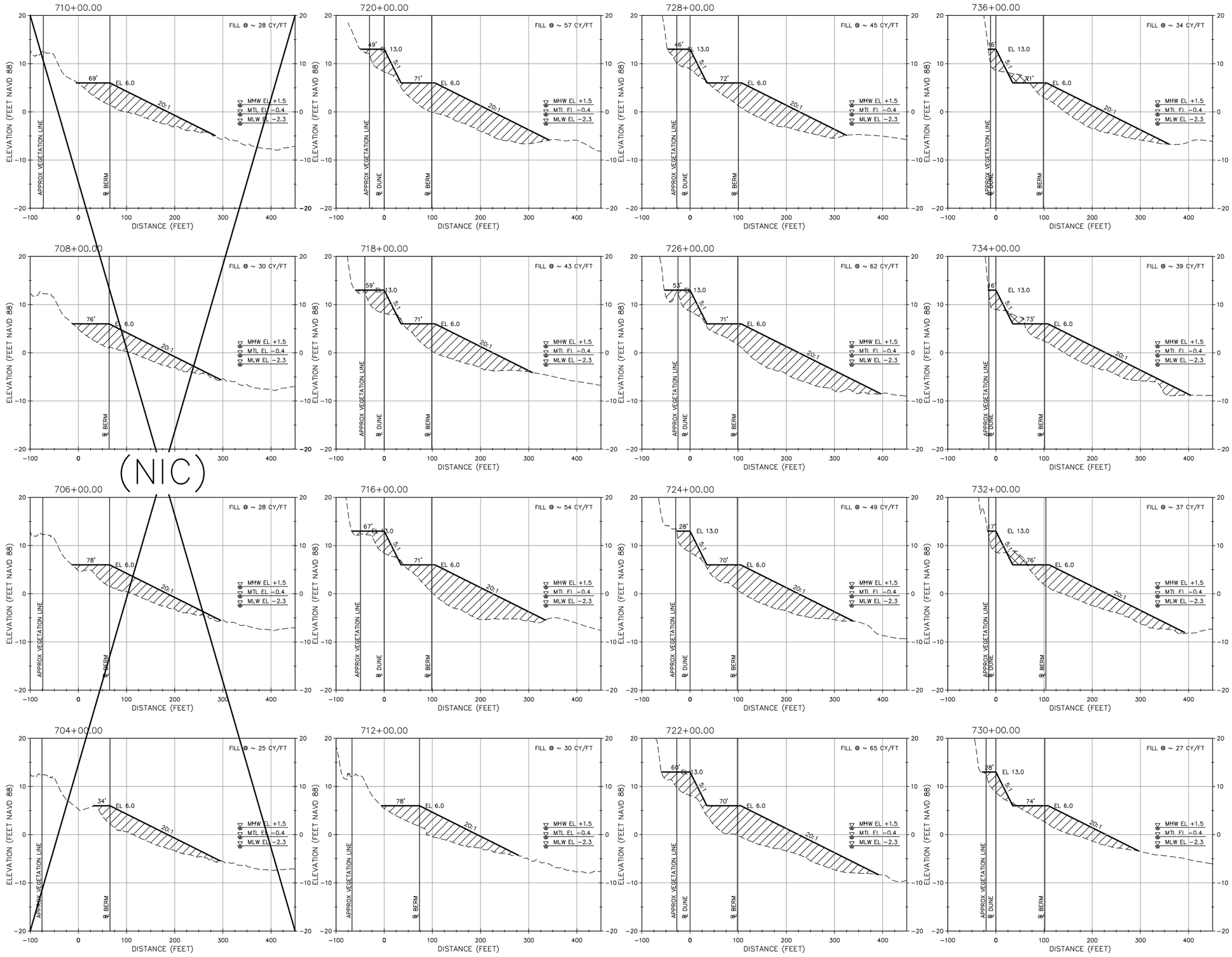
PREPARED FOR THE TOWNS OF EMERALD ISLE, INDIAN BEACH, PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-322
Sheet 51 of 66

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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C−300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	PRE-CONSTRUCTION DESIGN REVISION	02/14/20	JM
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS SHEET 23 OF 35

Rev.	1
Date:	AUGUST 2019
M&N Project No.	10611
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (0 SHEET)
Designed by:	NCV
Cad by:	SRM
Dwn by:	BDF
Reviewed by:	JDM
Submitted by:	MOFFATT & NICHOL

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919−781−4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

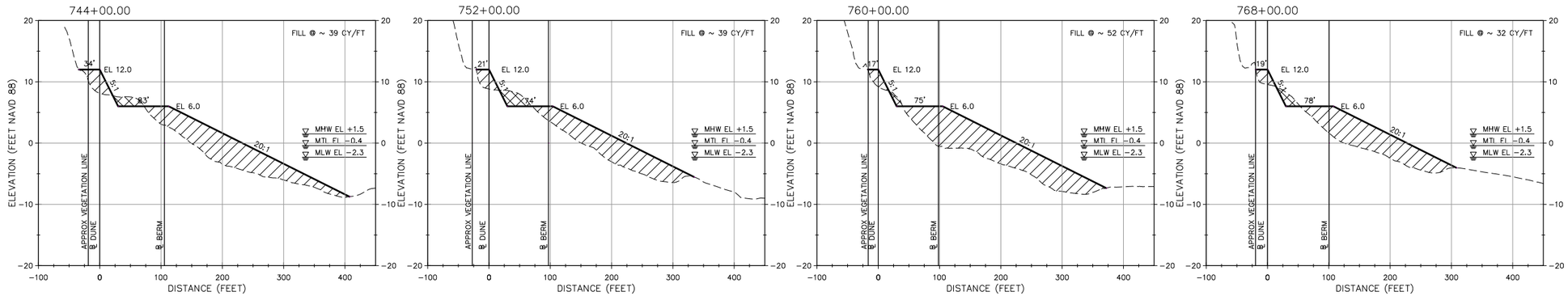
PREPARED FOR THE TOWNS OF EMERALD ISLE, INDIAN BEACH, PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-323
Sheet 52 of 66

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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C−300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	PRE-CONSTRUCTION DESIGN REVISION	02/14/20	JM
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS SHEET 24 OF 35

Rev. 1
Date: AUGUST 2019
M&N Project No. 10611
Drawing code:
Drawing Scale: Plot scale: 1:1 (D SHEET)
Designed by: NCV
Dwn by: BDF
Ckd by: SRM
Reviewed by: JDM
Submitted by: MOFFATT & NICHOL

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

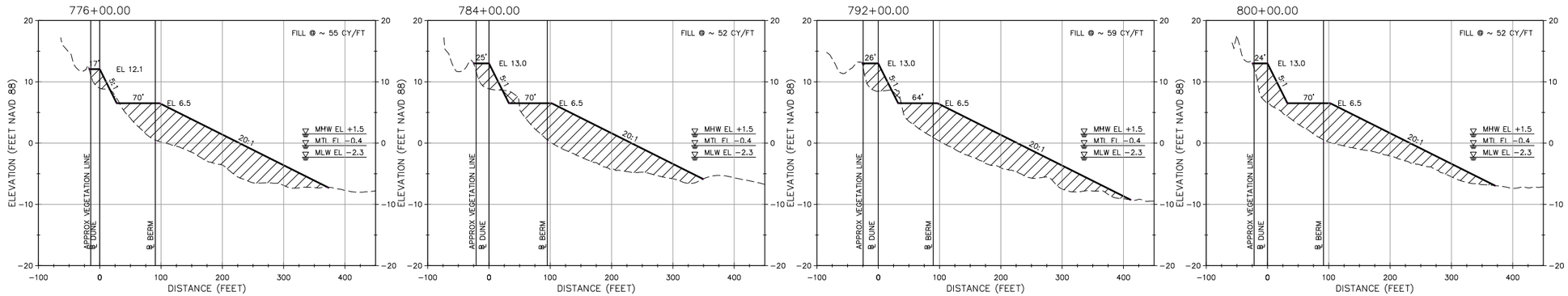
PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

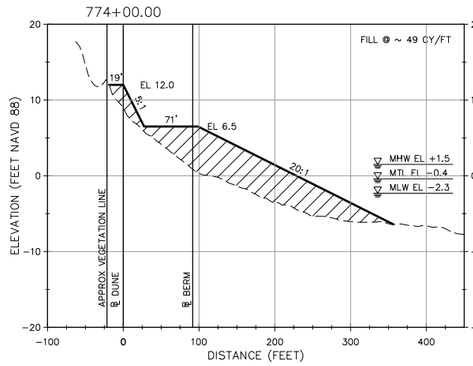
NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

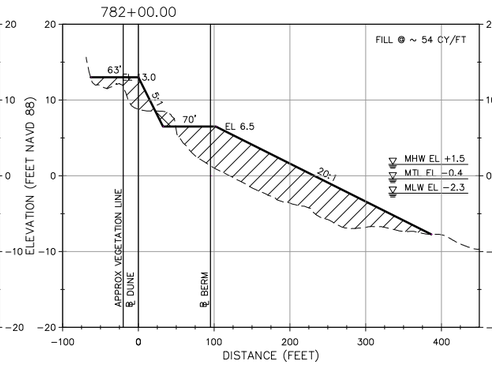
Sheet Reference No.
C-324
Sheet 53 of 66

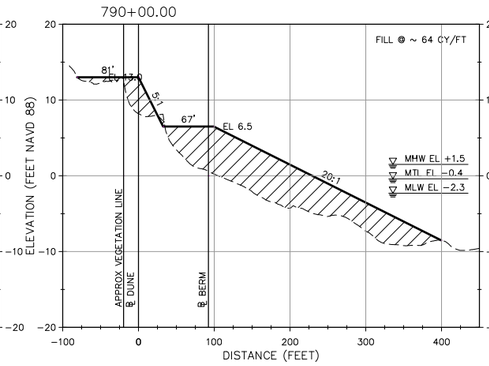
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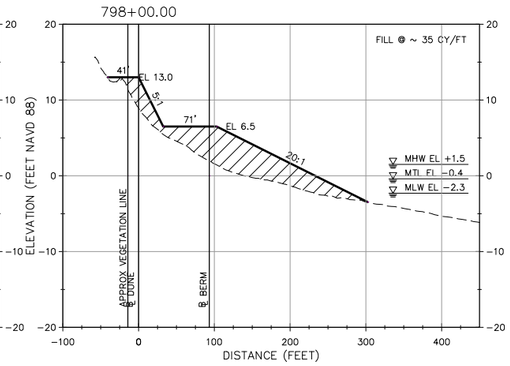
DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

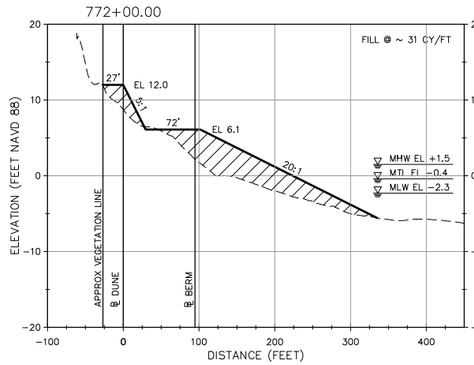


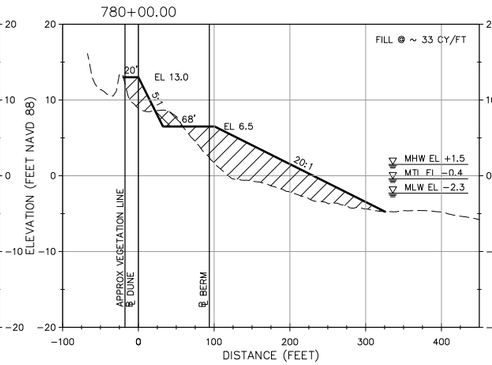


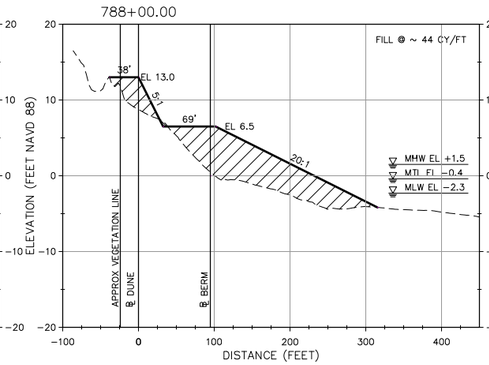


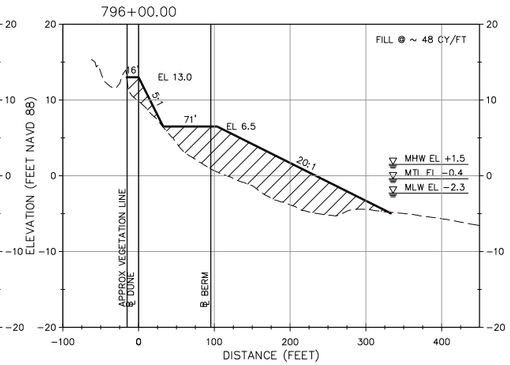


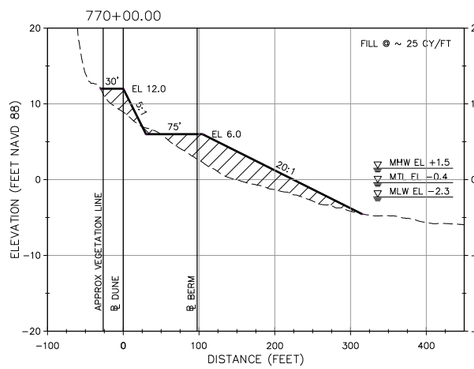


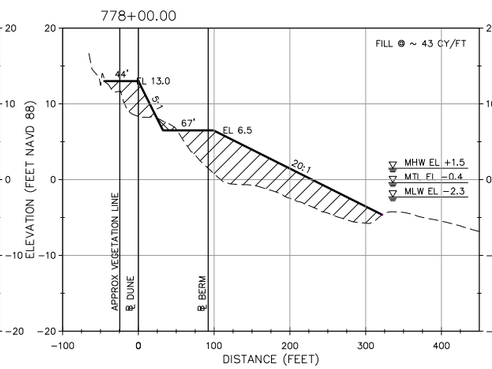


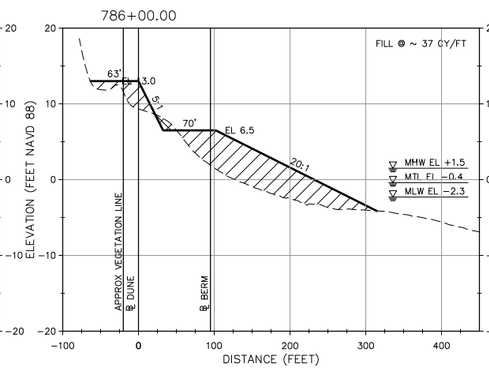


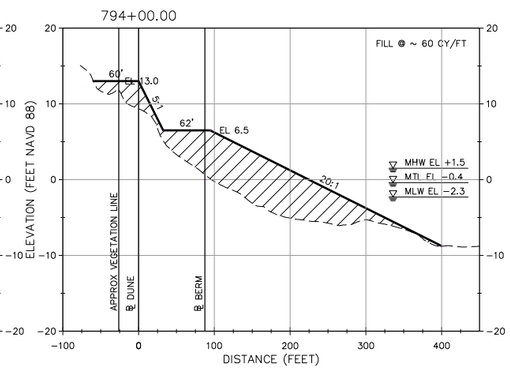












NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

SCALE: 1"=10' VERTICAL

SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	PRE-CONSTRUCTION DESIGN REVISION	02/14/20	JM
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS SHEET 25 OF 35

Designed by: NCV
Drawn by: BDF
Checked by: SRM
Reviewed by: JDM
Submitted by: MOFFATT & NICHOL
Date: AUGUST 2019
M&N Project No. 10611
Drawing code:
Drawing Scale: Plot scale: 1:1 (D SHEET)
Rev. 1

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

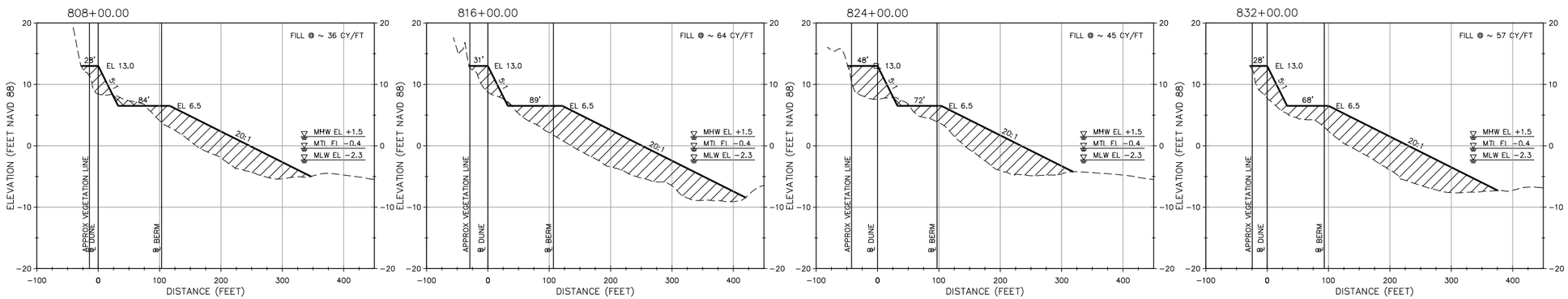
PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-325
Sheet 54 of 66

File: Q:\RA\10611\0500_CAD_Active_10611 Bouge Banks 2020\10611000-325; Plotted: 2/14/2020 10:35 AM by FORD, BRIAN; Saved: 2/14/2020 9:45 AM by FORD

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C−300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

SCALE: 1"=10' VERTICAL

SCALE: 1"=100' HORIZONTAL

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

Mark	Description	Date	Appr.
1	PRE-CONSTRUCTION DESIGN REVISION	02/14/20	JM
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS SHEET 26 OF 35

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

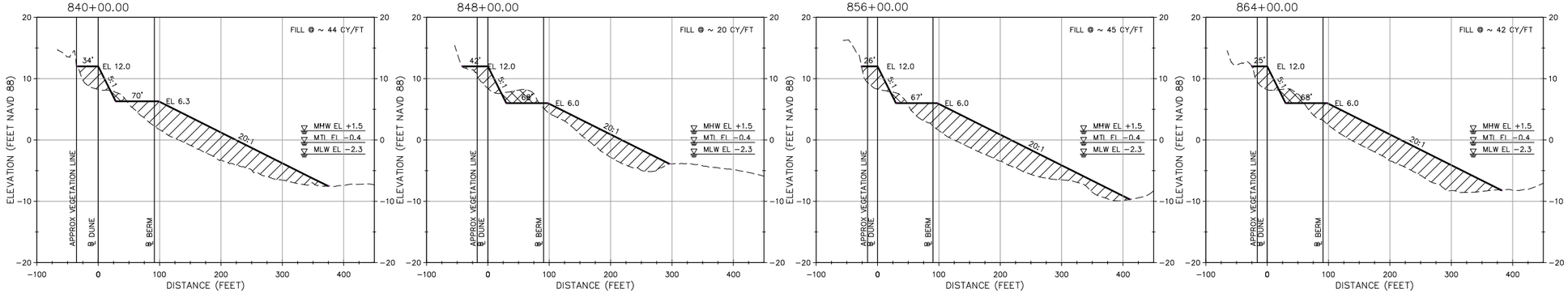
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NCV	BDF	JDM	MOFFATT & NICHOL

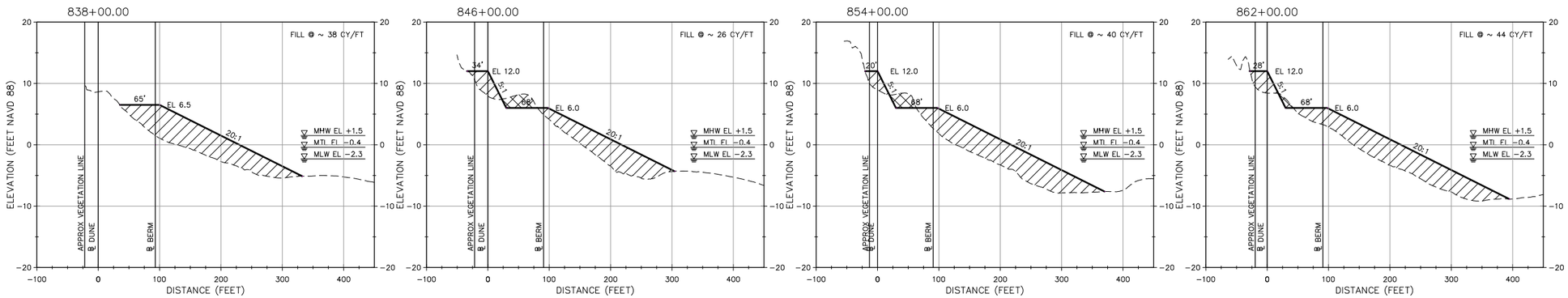
Date: AUGUST 2019
Chkd by: SRM
Drawing code:
M&N Project No. 10611
Drawing Scale: Plot scale: 1:1 (D SHEET)
Rev. 1

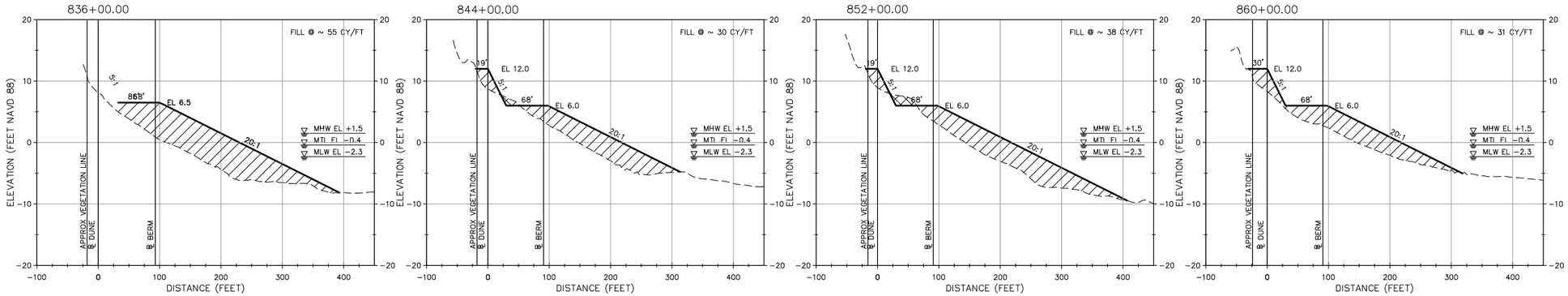
NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

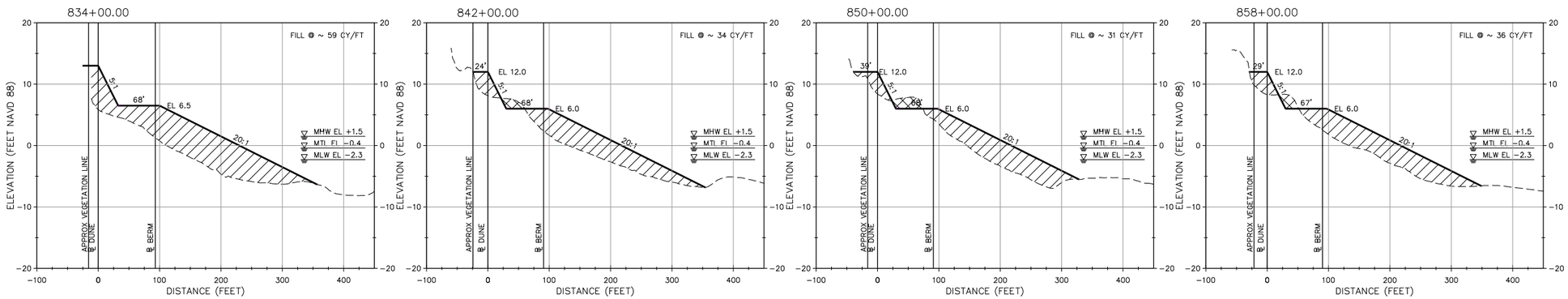
Sheet Reference No.
C-326
Sheet 55 of 66

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NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C−300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	PRE-CONSTRUCTION DESIGN REVISION	02/14/20	JM
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 27 OF 35

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

Designed by:	Drawn by:	Checked by:	Reviewed by:	Submitted by:
NCV	BDF	SRM	JDM	MOFFATT & NICHOL

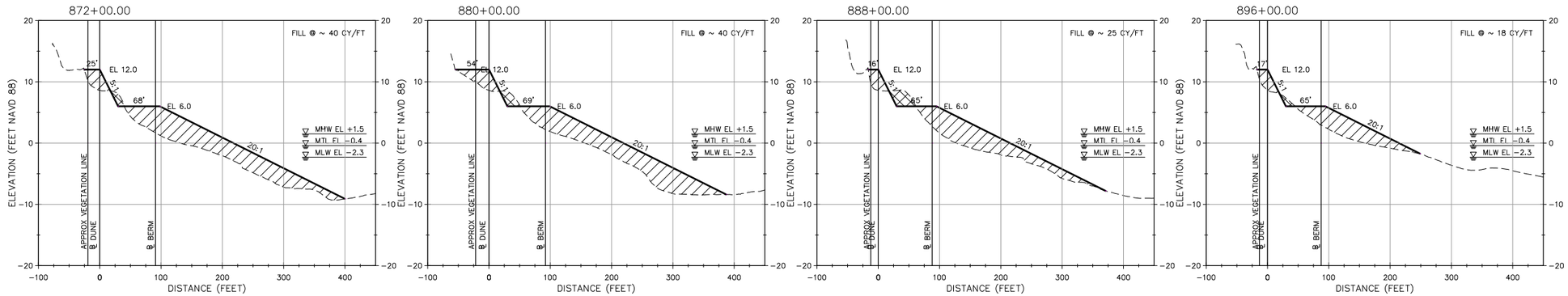
Date: AUGUST 2019 | M&N Project No. 10611 | Drawing code: | Drawing Scale: Plot scale: 1:1 (D SHEET) | Rev. 1

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-327
Sheet 56 of 66

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

File: Q:\RA\10611\0500_CAD_Active_10611 Bouge Banks 2020\10611000-327; Plotted: 2/14/2020 10:35 AM by FORD, BRIAN; Saved: 2/14/2020 9:44 AM by BFORD



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

SCALE: 1"=10' VERTICAL

SCALE: 1"=100' HORIZONTAL

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

Mark	Description	Date	Appr.
1	PRE-CONSTRUCTION DESIGN REVISION	02/14/20	JM
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS SHEET 28 OF 35

Designed by:	NCV
Drawn by:	BDF
Checked by:	SRM
Reviewed by:	JDM
Date:	AUGUST 2019
M&N Project No.	10611
Drawing code:	
Submitted by:	MOFFATT & NICHOL
Drawing Scale:	Plot scale: 1:1 (0 SHEET)
Rev.	1

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

PREPARED FOR THE TOWNS OF EMERALD ISLE, INDIAN BEACH, PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN

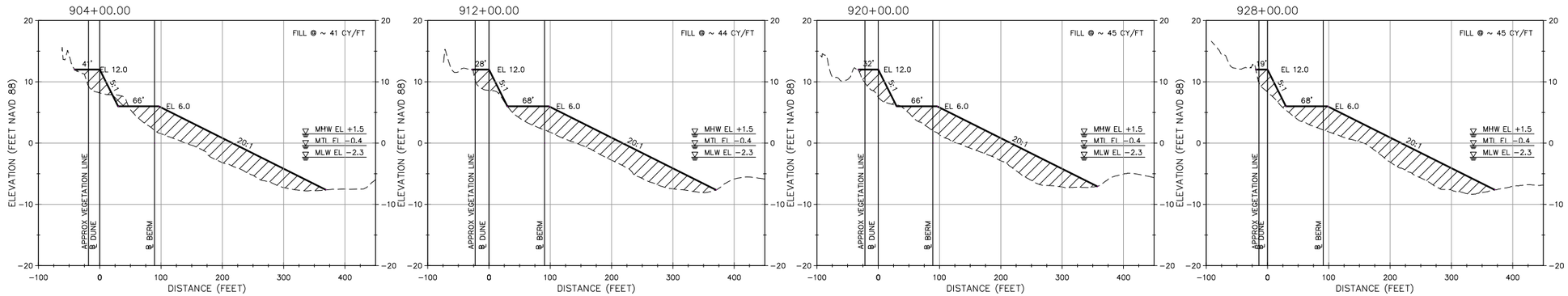
SEAL

Sheet Reference No.

C-328

Sheet 57 of 66

File: Q:\RA\10611\0500_CAD_Active_10611 Bouge Banks 2020\10611000-328; Plotted: 2/14/2020 10:35 AM by FORD, BRIAN; Saved: 2/14/2020 9:44 AM by BFORD



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C−300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

SCALE: 1"=10' VERTICAL

SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	PRE-CONSTRUCTION DESIGN REVISION	02/14/20	JM
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 29 OF 35

moffatt & nichol
4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105

PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

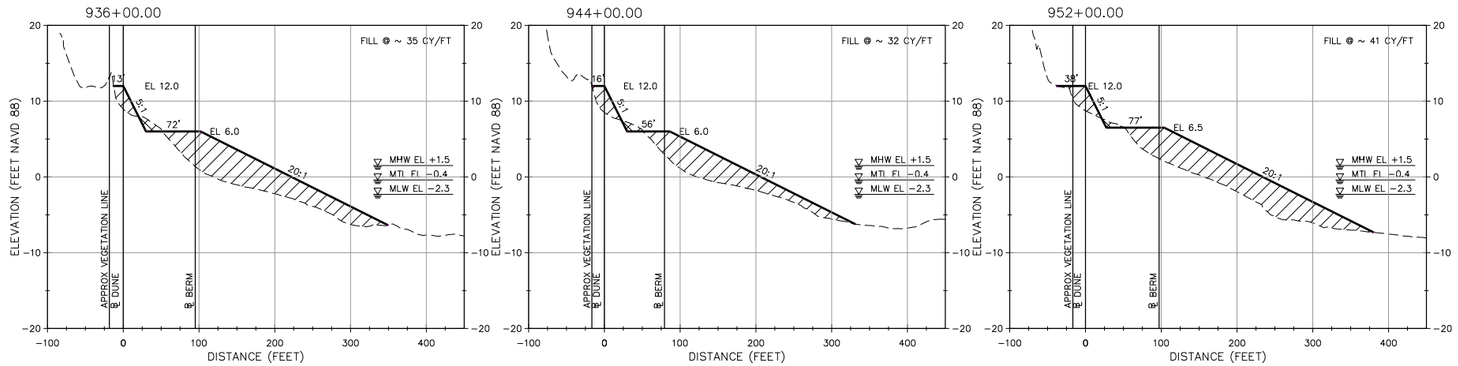
Designed by:	Date:
NCV	AUGUST 2019
Dwn by: BDF	Ckd by: SRM
Reviewed by: JDM	M&N Project No. 10611
Submitted by: MOFFATT & NICHOL	Drawing code:
Drawing Scale: Plot scale: 1:1 (D SHEET)	Rev. 1

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-329
Sheet 58 of 66

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

File: Q:\RA\10611\0500_CAD_Active_10611 Bouge Banks 2020\10611000-329; Plotted: 2/14/2020 10:35 AM by FORD, BRIAN; Saved: 2/14/2020 9:44 AM by BFORD



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C−300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

SCALE: 1"=10' VERTICAL

SCALE: 1"=100' HORIZONTAL

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

Mark	Description	Date	Appr.
1	PRE-CONSTRUCTION DESIGN REVISION	02/14/20	JM
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS SHEET 30 OF 35

Rev. 1
Date: JANUARY 2020
M&N Project No. 10611
Drawing code:
Drawing Scale: Plot scale: 1:1 (D SHEET)
Designed by: NCV
Dwn by: BDF
Chd by: SRM
Reviewed by: JDM
Submitted by: MOFFATT & NICHOL

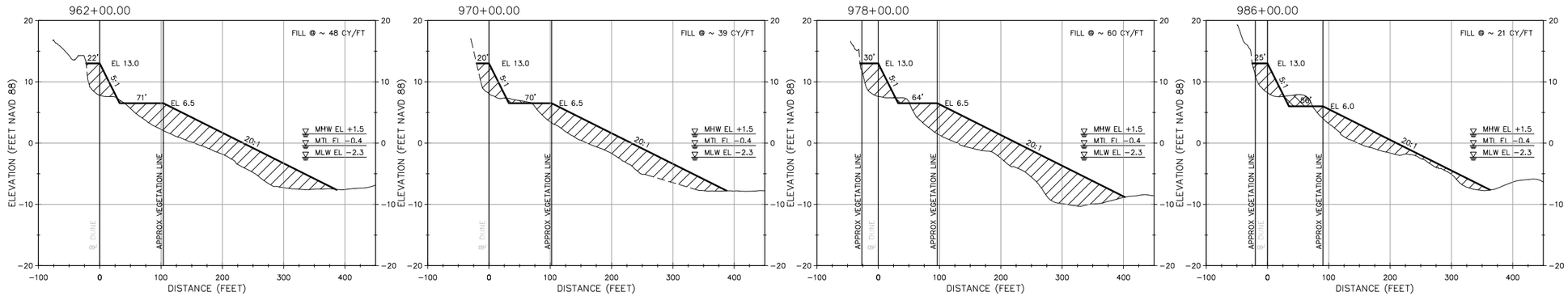
4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-330
Sheet 59 of 66

File: Q:\RA\10611\0500_CAD_Active_10611 Bouge Banks 2020\10611000-330; Plotted: 2/14/2020 10:35 AM by FORD, BRIAN; Saved: 2/11/2020 3:56 PM by BFORD



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C−300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

Mark	Description	Date	Appr.
1	PRE-CONSTRUCTION DESIGN REVISION	02/14/20	JM
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 31 OF 35

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

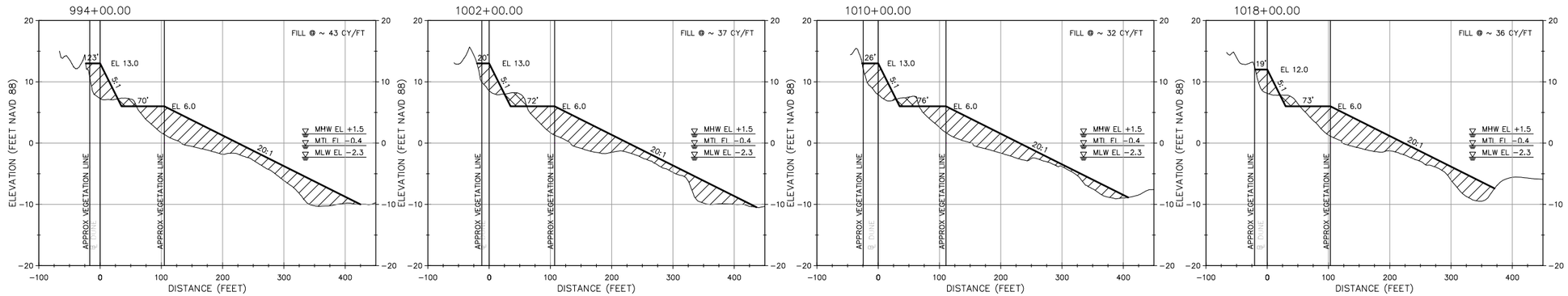
PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

Designed by:	NCV
Dwn by:	BDF
Ckd by:	SRM
Reviewed by:	JDM
Submitted by:	MOFFATT & NICHOL
Date:	JANUARY 2020
M&N Project No.	10611
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (D SHEET)
Rev.	1

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-331
Sheet 60 of 66

File: Q:\RA\10611\0500_CAD_Active_10611 Bouge Banks 2020\10611D0C-331; Plotted: 2/14/2020 10:35 AM by FORD, BRIAN; Saved: 2/11/2020 3:56 PM by BFORD



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C−300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

SCALE: 1"=10' VERTICAL

SCALE: 1"=100' HORIZONTAL

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

Mark	Description	Date	Appr.
1	PRE−CONSTRUCTION DESIGN REVISION	02/14/20	JM
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS SHEET 32 OF 35

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919−781−4626
moffatt & nichol NC FIRM LICENSE No. F−0105

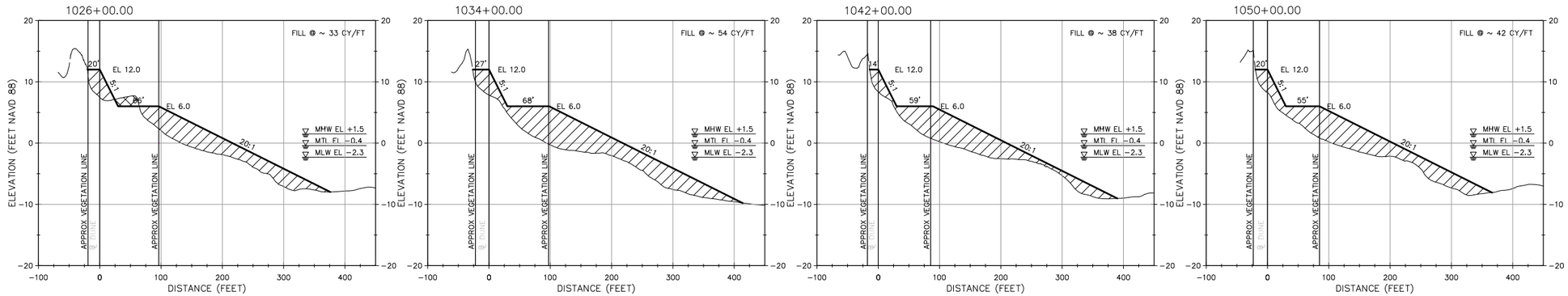
PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

Designed by:	NCV
Dwn by:	BDF
Ckd by:	SRM
Reviewed by:	JDM
Submitted by:	MOFFATT & NICHOL
Date:	JANUARY 2020
M&N Project No.	10611
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (D SHEET)
Rev.	1

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-332
Sheet 61 of 66

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NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C−300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

SCALE: 1"=10' VERTICAL

SCALE: 1"=100' HORIZONTAL

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

Mark	Description	Date	Appr.
1	PRE-CONSTRUCTION DESIGN REVISION	02/14/20	JM
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS SHEET 33 OF 35

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

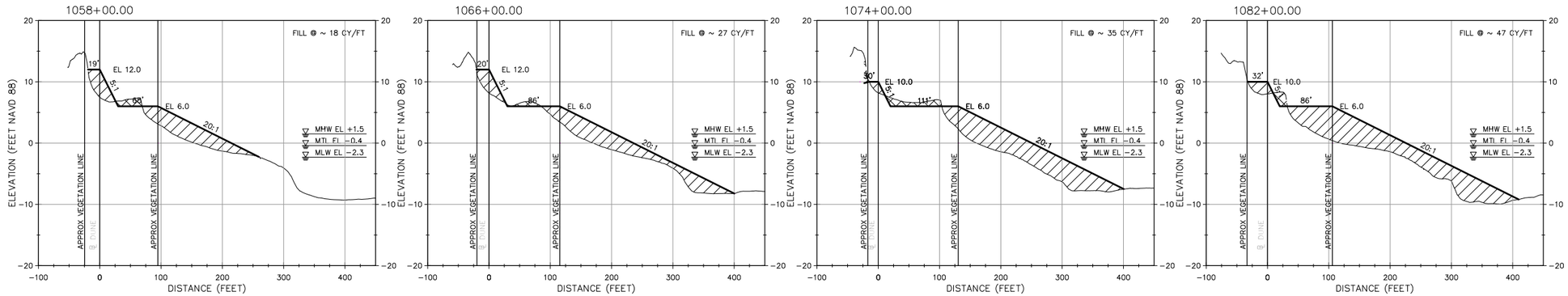
PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

Designed by:	NCV
Dwn by:	BDF
Ckd by:	SRM
Reviewed by:	JDM
Submitted by:	MOFFATT & NICHOL
Date:	JANUARY 2020
M&N Project No.	10611
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (D SHEET)
Rev.	1

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-333
Sheet 62 of 66

File: Q:\RA\10611\0500_CAD_Active_10611 Bouge Banks 2020\10611000-333; Plotted: 2/14/2020 10:36 AM by FORD, BRIAN; Saved: 2/11/2020 3:57 PM by BFORD



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C−300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	PRE-CONSTRUCTION DESIGN REVISION	02/14/20	JM
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 34 OF 35

Designed by: NCV | Drawn by: BDF | Checked by: SRM | Reviewed by: JDM | Date: JANUARY 2020 | M&N Project No. 10611 | Drawing code: | Drawing Scale: Plot scale: 1:1 (0 SHEET) | Submitted by: MOFFATT & NICHOL | Rev. 1

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

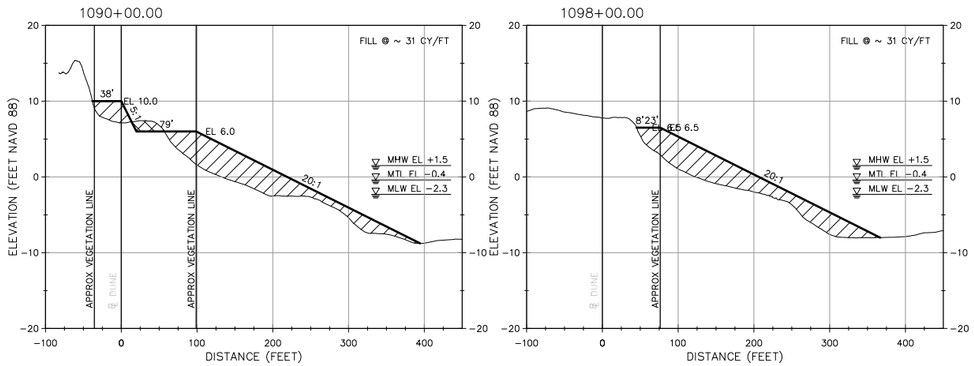
PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

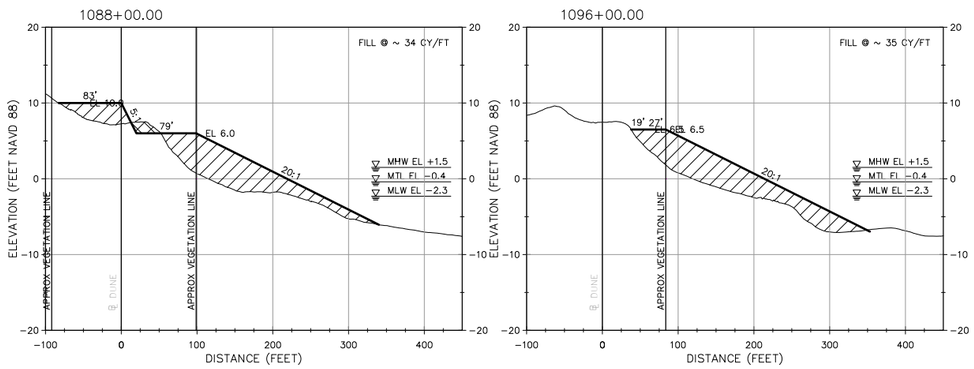
NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

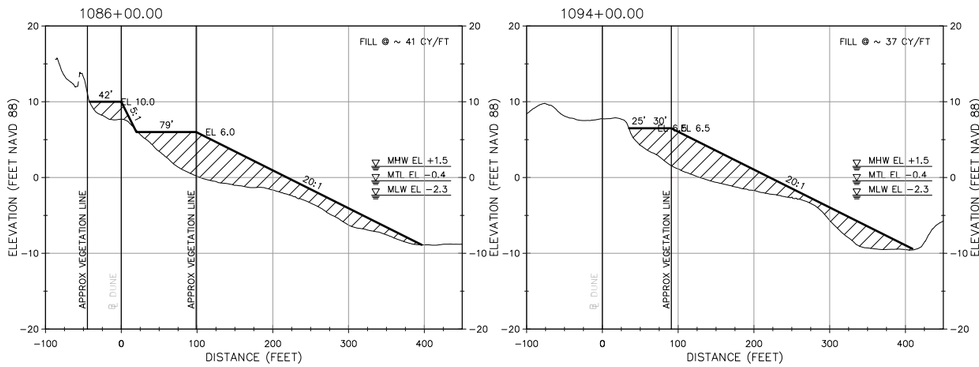
Sheet Reference No.
C-334
Sheet 63 of 66

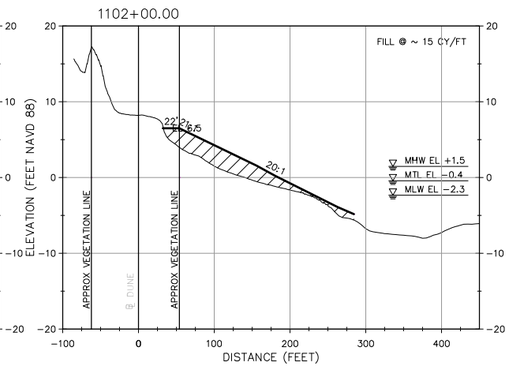
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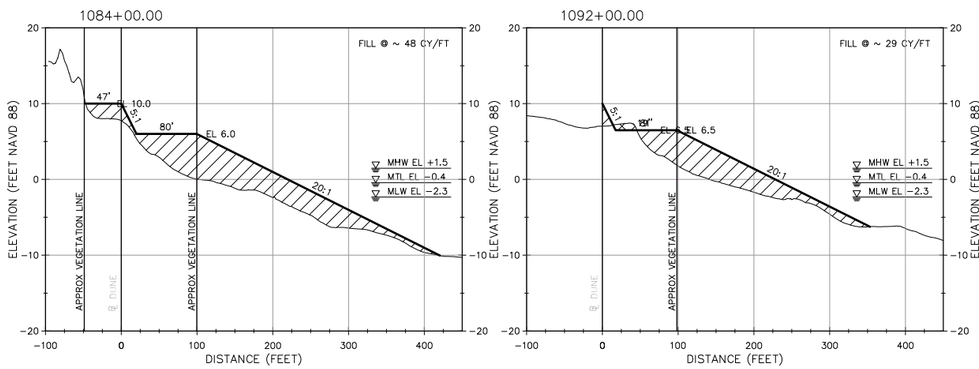
DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

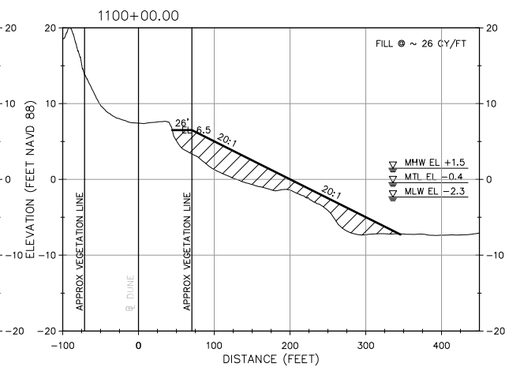












NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON MAY 2019 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	PRE-CONSTRUCTION DESIGN REVISION	02/14/20	JM
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS SHEET 35 OF 35

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

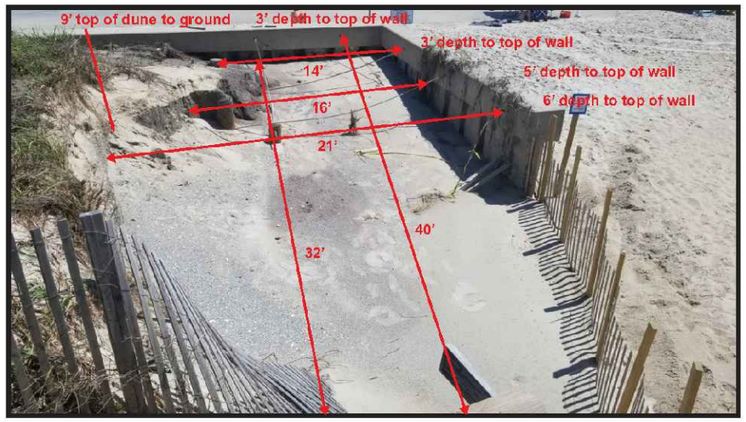
Designed by:	NCV
Drawn by:	BDF
Checked by:	SRM
Reviewed by:	JDM
Submitted by:	MOFFATT & NICHOL
Date:	JANUARY 2020
M&N Project No.	10611
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (D SHEET)
Rev.	1

Sheet Reference No.
C-335
Sheet 64 of 66

File: Q:\RA\10611\0500_CAD_Active_10611 Bouge Banks 2020\10611000-335; Plotted: 2/14/2020 10:36 AM by FORD, BRIAN; Saved: 2/11/2020 4:04 PM by BFORD

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

SOUTH



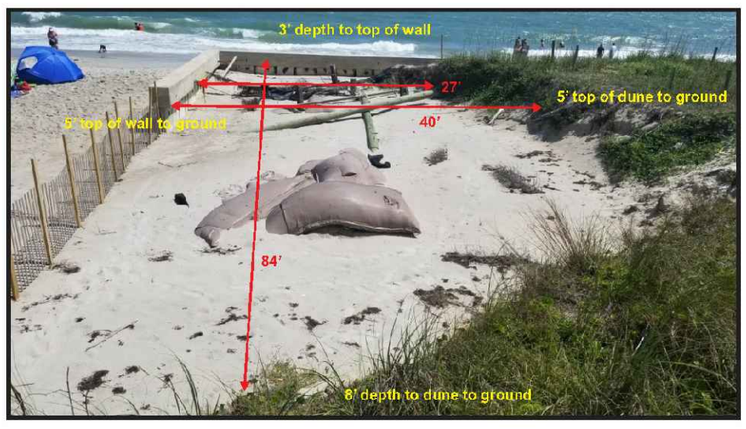
EAST WEST

NORTH

NOTE:
CONTRACTOR TO FILL AND PLANT THIS AREA BEHIND EXISTING RETAINING WALL TO MATCH THE PROPOSED DUNE DESIGN WITH APPROXIMATELY 75 CY TO 100 CY OF FILL.

C1 / C-124 IRON STEAMER WEST FILL
NOT TO SCALE

SOUTH



EAST WEST

NORTH

NOTE:
CONTRACTOR TO FILL AND PLANT THIS AREA BEHIND EXISTING RETAINING WALL TO MATCH THE PROPOSED DUNE DESIGN WITH APPROXIMATELY 75 CY TO 100 CY OF FILL.

A1 / C-124 IRON STEAMER EAST FILL
NOT TO SCALE

Mark	Description	Date	Appr.
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

MISCELLANEOUS DETAILS

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
maffatt & nichol

PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

Designed by:	NCV
Dwn by:	BDF
Cad by:	SRM
Reviewed by:	JDM
Submitted by:	MOFFATT & NICHOL
Date:	AUGUST 2019
M&N Project No.	10611
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (0 SHEET)
Rev.	

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-501
Sheet 65 of 66

File: c:\PA\10611\0500_CAD_Active_10611 Bouge Banks 2020\10611100C-501; Plotted: 2/14/2020 10:36 AM by FORD, BRIAN; Saved: 8/19/2019 1:28 PM by BFORD

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

DUNE WORK POINT TABLE			
WORK POINT	ELEVATION	NORTHING	EASTING
1000	10.00	330983.25	2573534.68
1001	10.00	331053.53	2573798.25
1002	10.00	331340.29	2574317.86
1003	10.00	332089.35	2576074.81
1004	10.30	332733.11	2577597.52
1005	12.00	332966.74	2578226.07
1006	12.00	333006.27	2578318.06
1007	12.00	333563.73	2579817.81
1008	12.00	333593.89	2579913.29
1009	12.00	333652.43	2580070.79
1010	13.00	334091.47	2581359.14
1011	13.00	334586.38	2582759.90
1012	13.00	334984.24	2583971.83
1013	13.00	335058.22	2584168.02
1014	13.00	335150.41	2584452.98
1015	13.00	335190.70	2584545.04
1016	13.00	335621.78	2585877.55
1017	13.00	335664.00	2586073.04
1018	13.00	335770.13	2586401.08
1019	13.00	336161.48	2587690.30
1020	13.00	336535.35	2588838.90
1021	13.00	336561.59	2588935.66
1022	12.00	336959.92	2590277.34
1023	12.00	336990.85	2590371.96
1024	12.00	337016.86	2590462.06
1025	10.00	337167.68	2590942.82
1026	10.00	337188.08	2591041.22
1027	12.00	337434.96	2591828.16
1028	12.00	337540.27	2592187.94
1029	12.00	337601.32	2592378.65
1030	12.00	337758.89	2592916.91
1031	12.00	337802.59	2593049.10
1032	12.00	338008.39	2593720.13
1033	12.00	338197.33	2594369.03
1034	12.64	338366.27	2594967.36
1035	13.00	338398.25	2595062.22
1036	13.00	338617.74	2595831.49
1037	13.65	338682.65	2596020.66
1038	14.00	339124.32	2597553.58
1039	14.00	339341.84	2598329.64
1040	14.00	339354.39	2598429.97
1041	13.00	339550.25	2599128.76
1042	12.00	339841.01	2600208.59
1043	12.00	340094.59	2601257.31
1044	12.00	340160.03	2601568.59
1045	12.00	340281.34	2602011.27
1046	12.38	340495.22	2602864.25
1047	14.00	340753.48	2603931.95
1048	14.00	341155.97	2605551.25
1049	14.00	341394.98	2606545.84
1050	13.00	341550.66	2607186.23
1051	13.00	341939.26	2608810.20
1052	13.00	341979.38	2609005.92
1053	13.00	342111.68	2609621.80
1054	13.00	342275.23	2610360.65
1055	13.00	342560.17	2611696.79
1056	13.00	342681.64	2612332.99
1057	13.00	342681.87	2612334.31
1081	13.00	347250.63	2634456.26
1082	13.00	347696.53	2636823.80
1086	13.00	348560.07	2641745.32
1087	13.00	348720.42	2642561.11
1088	13.00	348791.34	2642921.58
1089	13.00	348868.64	2643314.52
1090	13.00	348943.29	2643750.13
1091	12.00	349103.68	2644695.54
1092	12.00	349305.76	2645978.60

DUNE WORK POINT TABLE			
WORK POINT	ELEVATION	NORTHING	EASTING
1093	12.00	349422.70	2646669.41
1094	12.00	349452.68	2646866.48
1095	12.00	349565.44	2647574.68
1096	13.00	349668.69	2648249.83
1097	13.00	349753.80	2648835.06
1098	13.00	349847.79	2649436.32
1099	13.00	349886.00	2649632.92
1100	13.00	349957.68	2650134.14
1101	13.00	350042.62	2650620.66
1102	13.00	350153.70	2651359.83
1103	13.00	350304.42	2652502.93
1104	13.00	350362.87	2652948.23
1105	13.00	350399.29	2653075.04
1106	13.00	350448.44	2653590.76
1107	12.00	350476.09	2653839.00
1108	12.00	350525.82	2654056.57
1109	12.00	350583.78	2654367.63
1110	12.00	350691.64	2655068.95
1111	12.00	350777.13	2655750.85
1112	12.00	350806.61	2655977.95
1113	12.00	350864.55	2656300.61
1114	12.00	350968.46	2657140.54
1115	12.00	351156.87	2658527.79
1116	12.00	351283.65	2659567.23
1117	12.00	351435.14	2660988.61
1118	12.00	351548.38	2662199.26
1119	12.00	351716.51	2663686.25
1120	12.00	351761.80	2664094.96
1121	12.00	351836.92	2664789.70
1122	12.00	351869.73	2665091.52
1123	13.00	351955.28	2666074.75
1124	13.00	352054.52	2667018.35
1125	13.00	352162.96	2668453.10
1126	13.00	352226.33	2669351.11
1127	13.00	352297.35	2670468.96
1128	12.65	352345.34	2671151.67
1129	12.00	352401.32	2673147.78
1130	12.00	352410.54	2673679.31
1131	12.00	352494.64	2676143.74
1132	10.00	352539.55	2677133.51
1133	10.00	352495.95	2678296.44
1134	10.00	352507.81	2679061.46
1135	N/A	352492.74	2679767.02
1136	N/A	352498.67	2680149.10

BERM WORK POINT TABLE			
WORK POINT	ELEVATION	NORTHING	EASTING
2000	6.50	330668.51	2572674.42
2001	6.50	330760.76	2573255.49
2002	5.92	330924.73	2573840.95
2003	6.00	331221.53	2574379.32
2004	6.00	331520.16	2574968.25
2005	6.00	332013.13	2576107.28
2006	6.00	332640.14	2577634.37
2007	6.00	332719.89	2577784.40
2008	6.00	332882.51	2578221.89
2009	6.00	332907.98	2578319.11
2010	6.00	333465.44	2579818.86
2011	6.00	333497.47	2579913.64
2012	6.00	333567.18	2580101.20
2013	6.00	334001.09	2581389.99
2014	6.00	334496.27	2582791.58
2015	6.00	334893.46	2584001.49
2016	6.00	334944.04	2584174.07
2017	6.00	335048.45	2584454.56
2018	6.00	335084.00	2584548.22
2019	6.00	335500.55	2585884.57
2020	6.00	335585.58	2586119.56
2021	6.00	335674.84	2586431.43
2022	6.00	336065.98	2587719.97
2023	6.00	336430.90	2588841.08
2024	6.00	336452.34	2588939.27
2025	6.00	336854.50	2590279.83
2026	6.00	336891.50	2590372.57
2027	6.00	336925.84	2590488.76
2028	6.50	337067.51	2590946.24
2029	6.50	337087.53	2591044.72
2030	6.39	337339.31	2591857.78
2031	6.00	337440.15	2592191.37
2032	6.00	337502.91	2592381.63
2033	6.00	337672.34	2592942.05
2034	6.00	337708.43	2593050.77
2035	6.00	338091.56	2594399.25
2036	6.00	338402.62	2595464.11
2037	6.00	339013.76	2597585.22
2038	6.00	339248.87	2598434.14
2039	6.00	339270.74	2598531.84
2040	6.00	339444.30	2599158.51
2041	6.00	339484.53	2599302.76
2042	6.00	339516.22	2599397.74
2043	6.00	339749.15	2600232.84
2044	6.00	339962.15	2601140.96
2045	6.00	339975.25	2601240.60
2046	6.00	340057.39	2601590.79
2047	6.00	340176.43	2602024.52
2048	6.00	340398.13	2602888.19
2049	6.00	340556.69	2603578.53
2050	6.00	340646.65	2603957.88
2051	6.00	341049.22	2605577.79
2052	6.00	341279.72	2606490.03
2053	6.00	341429.30	2607130.96
2054	6.00	341636.15	2608040.18
2055	6.00	341826.07	2608816.68
2056	6.00	341869.15	2609011.43
2057	6.00	342008.99	2609643.70
2058	6.00	342252.32	2610780.63
2059	6.00	342452.43	2611718.96
2060	6.00	342572.47	2612337.75
2061	6.00	342731.99	2613081.29
2062	6.00	342857.07	2613681.54
2063	6.00	342988.18	2614260.79
2064	6.00	343136.98	2614929.14
2065	6.00	343268.57	2615557.96
2066	6.00	343405.68	2616212.91
2067	6.00	343562.79	2616962.84
2068	6.00	343909.80	2618634.69
2069	6.00	344258.14	2620312.92

BERM WORK POINT TABLE			
WORK POINT	ELEVATION	NORTHING	EASTING
2070	6.00	344470.47	2621321.05
2071	6.50	344877.99	2623255.65
2072	6.00	345099.73	2624455.63
2073	6.00	345487.58	2626322.16
2074	6.00	345737.82	2627558.33
2075	6.00	345932.20	2628464.86
2076	6.00	346128.84	2629379.39
2077	6.00	346363.43	2630581.85
2078	6.00	346709.22	2632215.81
2079	6.00	346844.56	2632960.95
2080	6.00	346898.86	2633303.52
2081	0.00	347123.25	2634483.09
2082	6.00	347240.14	2635184.02
2083	6.00	347459.79	2636350.24
2084	6.00	347574.83	2636877.76
2085	6.00	348436.45	2641557.90
2086	6.00	348456.98	2641770.39
2087	6.00	348619.75	2642593.98
2088	6.00	348720.83	2643125.94
2089	6.00	348839.93	2643768.61
2090	6.00	349029.53	2644957.92
2091	6.00	349092.64	2645294.32
2092	6.00	349310.14	2646675.05
2093	6.50	349469.61	2647589.69
2094	6.50	349566.25	2648256.18
2095	6.50	349652.96	2648850.44
2096	6.50	349753.09	2649441.46
2097	6.50	349856.90	2650149.85
2098	6.50	349929.94	2650628.41
2099	6.50	350026.74	2651372.04
2100	6.50	350188.39	2652409.90
2101	6.50	350183.22	2652574.10
2102	6.50	350220.00	2652918.25
2103	6.44	350301.28	2653100.65
2104	6.50	350370.21	2653823.86
2105	6.18	350429.98	2654077.09
2106	6.00	350485.87	2654374.98
2107	6.00	350594.76	2655083.76
2108	6.00	350709.44	2655990.73
2109	6.00	350767.56	2656314.68
2110	6.00	350870.52	2657147.59
2111	6.00	351056.85	2658535.11
2112	6.00	351086.16	2658733.08
2113	6.00	351189.90	2659579.22
2114	6.00	351337.64	2660998.49
2115	6.00	351406.24	2661715.92
2116	6.00	351453.31	2662208.25
2117	6.00	351614.11	2663697.41
2118	6.00	351676.50	2664100.00
2119	6.00	351748.54	2664799.09
2120	6.48	351765.61	2665097.71
2121	6.50	351808.26	2665493.78
2122	6.50	351851.62	2666083.20
2123	6.50	351953.05	2667028.91
2124	6.00	352073.28	2668459.86
2125	6.00	352120.60	2669358.54
2126	6.00	352232.67	2671157.14
2127	6.00	352278.76	2672144.04
2128	6.00	352300.79	2673150.60
2129	6.00	352326.18	2673874.57
2130	6.00	352359.94	2674678.23
2131	6.00	352379.69	2675273.32
2132	6.00	352388.60	2676123.31
2133	6.00	352404.65	2677136.17
2134	6.00	352397.00	2678293.65
2135	6.50	352419.80	2679769.69
2136	6.50	352429.67	2680025.71
2137	6.50	352493.71	2680262.93
2138	6.00	347670.71	2637323.69

MISCELLANEOUS WORK POINT TABLE			
WORK POINT	ELEVATION	NORTHING	EASTING
3000	13.00	352340.32	2671080.25
3001	12.00	352348.94	2671280.03
3002	12.00	352527.91	2676877.02
3003	10.00	352536.98	2677076.82
3004	6.50	352024.97	2667884.92
3005	6.00	352041.72	2668084.22
3006	6.00	352405.98	2678875.10
3007	6.50	352409.07	2679075.07
3008	12.00	332792.54	2577757.40
3009	12.00	333694.92	2580195.47
3010	13.00	333759.43	2580384.78
3011	13.00	348969.85	2643906.68
3012	12.00	349003.30	2644103.86
3013	12.00	349578.12	2647657.61
3014	13.00	349608.36	2647855.31
3015	NOT USED		
3016	NOT USED		
3017	13.00	351887.74	2665298.48
3018	6.00	349396.58	2647170.82
3019	6.50	349430.93	2647367.85
3020	6.50	350385.01	2653886.59
3021	6.00	350449.21	2654179.56
3022	6.00	350757.10	2656256.38
3023	6.00	350797.10	2656553.63
3024	6.00	351754.17	2664897.65

MISCELLANEOUS WORK POINT TABLE IS PROVIDED FOR ADDITIONAL REFERENCE POINTS ASSOCIATED WITH A CHANGE IN DUNE OR BERM ELEVATION.

Mark	Description	Date	Appr.
1	PRE-CONSTRUCTION DESIGN REVISION	01/24/20	JM
0	BID DOCUMENTS	08/19/19	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 2
CARTERET COUNTY, NORTH CAROLINA

CONSTRUCTION BASELINE
WORK POINT TABLES

Rev. 1
Date: JANUARY 2020
M&N Project No. 10611
Designed by: NCV
Drawn by: BDF
Cad by: SRM
Drawing code:
Reviewed by: JDM
Submitted by: MOFFATT & NICHOL
Drawing Scale:
Plot scale: 1:1 (0 SHEET)

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
maffatt & nichol NC FIRM LICENSE No. F-0105

PREPARED FOR THE TOWNS OF
EMERALD ISLE, INDIAN BEACH,
PINE KNOLL SHORES, AND ATLANTIC BEACH

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-601
Sheet 66 of 66

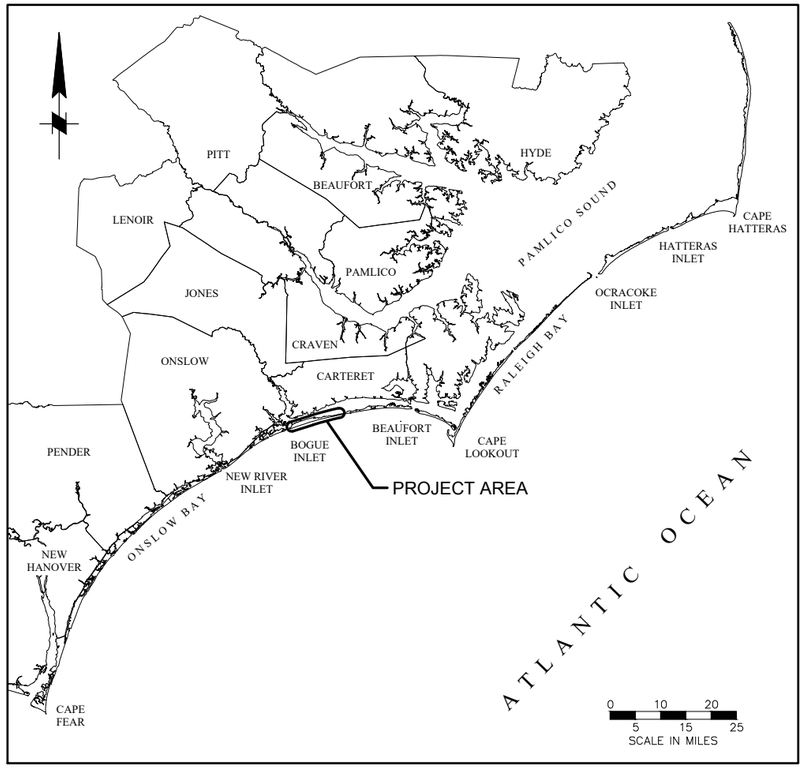
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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

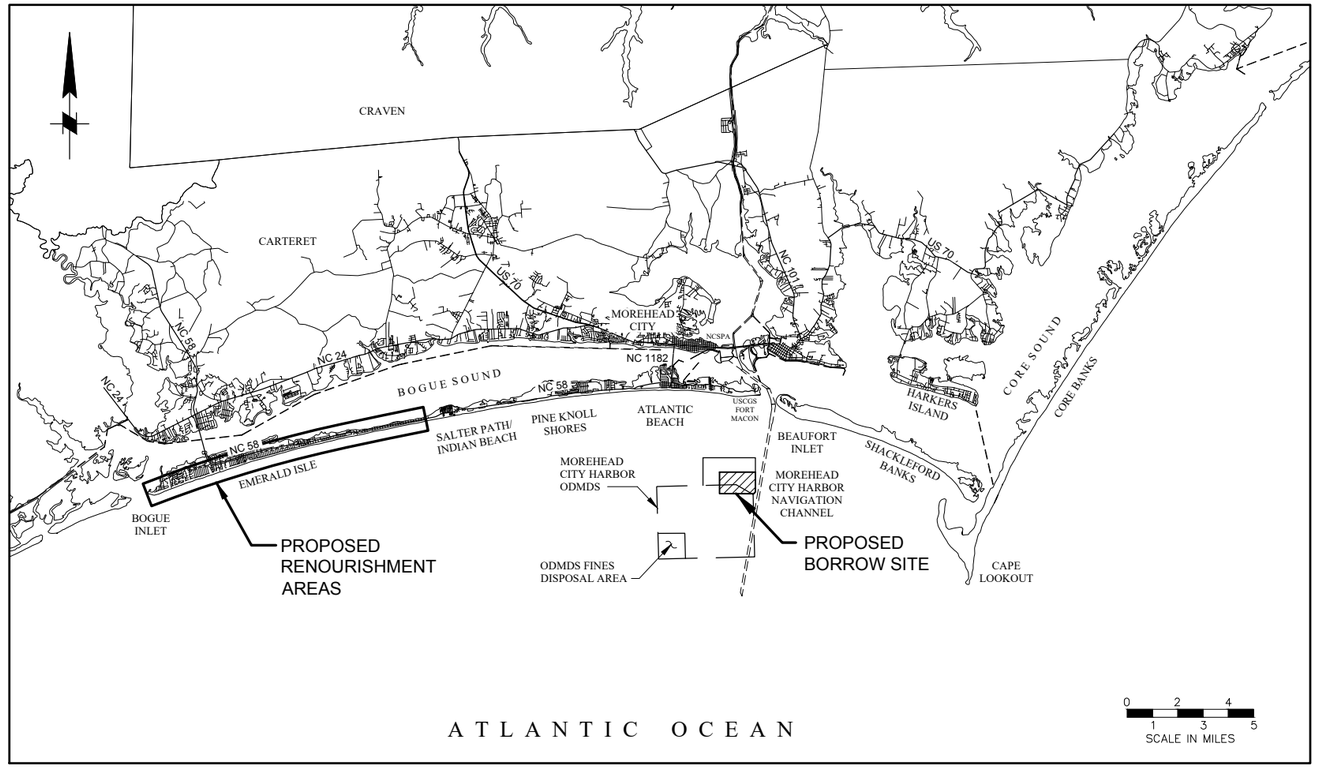
POST-FLORENCE RENOURISHMENT PROJECT
PHASE 3

CARTERET COUNTY, NORTH CAROLINA

TOWN OF EMERALD ISLE
7500 EMERALD DRIVE
EMERALD ISLE, NC 28594



VICINITY MAP



LOCATION MAP

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

COVER SHEET

Rev. 1
Date: 2-9-21
Designed by: NCV
Dwn by: BDF
Ckd by: SRM
Reviewed by: JDM
Submitted by: MOFFATT & NICHOL
M&N Project No. 11034
Drawing code:
Drawing Scale: Plot scale: 1:1 (D SHEET)

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
G-001
Sheet 1 of 51

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INDEX OF DRAWINGS

SHEET NO.	SHEET TITLE
G–001	COVER SHEET
G–002	INDEX OF DRAWINGS, ABBREVIATIONS, AND GENERAL NOTES
C–100	PROJECT MAP AND KEY PLAN
C–101	PROJECT SURVEY CONTROL PLANS
C–102	PROJECT STAGING AND ACCESS PLANS
C–103	ODMDS BORROW SITE DREDGE PLAN
C–104	ODMDS BORROW SITE DREDGE SECTIONS
C–105	ODMDS BORROW SITE VIBRACORE SUMMARY TABLE
C–110	BEACH RENOURISHMENT PLAN – SHEET 1 OF 10
C–111	BEACH RENOURISHMENT PLAN – SHEET 2 OF 10
C–112	BEACH RENOURISHMENT PLAN – SHEET 3 OF 10
C–113	BEACH RENOURISHMENT PLAN – SHEET 4 OF 10
C–114	BEACH RENOURISHMENT PLAN – SHEET 5 OF10
C–115	BEACH RENOURISHMENT PLAN – SHEET 6 OF 10
C–116	BEACH RENOURISHMENT PLAN – SHEET 7 OF 10
C–117	BEACH RENOURISHMENT PLAN – SHEET 8 OF 10
C–118	BEACH RENOURISHMENT PLAN – SHEET 9 OF 10
C–119	BEACH RENOURISHMENT PLAN – SHEET 10 OF 10
C–300	BEACH NOURISHMENT TYPICAL SECTIONS
C–301	RENOURISHMENT SECTIONS SHEET 1 OF 31
C–302	RENOURISHMENT SECTIONS SHEET 2 OF 31
C–303	RENOURISHMENT SECTIONS SHEET 3 OF 31
C–304	RENOURISHMENT SECTIONS SHEET 4 OF 31
C–305	RENOURISHMENT SECTIONS SHEET 5 OF 31
C–306	RENOURISHMENT SECTIONS SHEET 6 OF 31
C–307	RENOURISHMENT SECTIONS SHEET 7 OF 31
C–308	RENOURISHMENT SECTIONS SHEET 8 OF 31
C–309	RENOURISHMENT SECTIONS SHEET 9 OF 31
C–310	RENOURISHMENT SECTIONS SHEET 10 OF 31
C–311	RENOURISHMENT SECTIONS SHEET 11 OF 31
C–312	RENOURISHMENT SECTIONS SHEET 12 OF 31
C–313	RENOURISHMENT SECTIONS SHEET 13 OF 31
C–314	RENOURISHMENT SECTIONS SHEET 14 OF 31
C–315	RENOURISHMENT SECTIONS SHEET 15 OF 31
C–316	RENOURISHMENT SECTIONS SHEET 16 OF 31
C–317	RENOURISHMENT SECTIONS SHEET 17 OF 31
C–318	RENOURISHMENT SECTIONS SHEET 18 OF 31
C–319	RENOURISHMENT SECTIONS SHEET 19 OF 31
C–320	RENOURISHMENT SECTIONS SHEET 20 OF 31
C–321	RENOURISHMENT SECTIONS SHEET 21 OF 31
C–322	RENOURISHMENT SECTIONS SHEET 22 OF 31
C–323	RENOURISHMENT SECTIONS SHEET 23 OF 31
C–324	RENOURISHMENT SECTIONS SHEET 24 OF 31
C–325	RENOURISHMENT SECTIONS SHEET 25 OF 31
C–326	RENOURISHMENT SECTIONS SHEET 26 OF 31
C–327	RENOURISHMENT SECTIONS SHEET 27 OF 31
C–328	RENOURISHMENT SECTIONS SHEET 28 OF 31
C–329	RENOURISHMENT SECTIONS SHEET 29 OF 31
C–330	RENOURISHMENT SECTIONS SHEET 30 OF 31
C–331	RENOURISHMENT SECTIONS SHEET 31 OF 31
C–601	CONSTRUCTION BASELINE WORK POINT TABLES

ABBREVIATIONS

CY	CUBIC YARDS	No.	NUMBER
FT	FEET OR FOOT	ODMDS	OFFSHORE DREDGE MATERIAL DISPOSAL SITE
MHW	MEAN HIGH WATER		
MLW	MEAN LOW WATER	TYP	TYPICAL
MTL	MEAN TIDE LEVEL	WP	WORK POINT
NAD	NORTH AMERICAN DATUM	℄	BASELINE
NAVD	NORTH AMERICAN VERTICAL DATUM	@	AT
NGS	NATIONAL GEODETIC SURVEY	~	APPROXIMATELY
NOAA	NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	NIC	NOT IN CONTRACT

GENERAL NOTES:

1. ALL BEACH FILL, PLANTING AND DREDGING WORK SHALL CONFORM TO THE REQUIREMENTS OF THESE PLANS AND SPECIFICATIONS.

2. THE CONTRACTOR SHALL PLACE THE PERMIT PLACARDS ON THE JOB SITE AND SHALL COMPLY WITH ALL TERMS OF THE PERMITS PERTAINING TO THE PERFORMANCE OF THE WORK. SEE THE TECHNICAL SPECIFICATIONS.

GENERAL NOTES:

3. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS BEFORE STARTING WORK. NOTIFY OWNER OF DISCREPANCIES.

4. ALL SAFETY REGULATIONS ARE TO BE STRICTLY FOLLOWED. METHODS OF CONSTRUCTION AND ERECTION OF STRUCTURAL MATERIAL ARE THE CONTRACTORS RESPONSIBILITY.

5. THE CONTRACTOR SHALL, ON A DAILY BASIS, REMOVE FROM THE SITE ANY UNSUITABLE EXCAVATED MATERIAL OR DEBRIS. DISPOSAL OF THE MATERIALS IS THE RESPONSIBILITY OF THE CONTRACTOR. ALL DEBRIS SHALL BE DISPOSED OF IN A PERMITTED LANDFILL.

6. THESE PLANS ARE INCOMPLETE WITHOUT THE PROJECT TECHNICAL SPECIFICATIONS. IF THERE ARE CONFLICTS BETWEEN THE PLANS AND SPECIFICATIONS, THE CONTRACTOR SHALL ALERT THE OWNER AND ENGINEER. THE TECHNICAL SPECIFICATIONS SHALL TAKE PRECEDENCE.

7. THE STAGING AND ACCESS AREAS SHOWN ON C–102 ARE OWNED BY THE TOWN OF EMERALD ISLE. COORDINATION WITH THE TOWN MANAGER SHALL BE REQUIRED BEFORE USE. FOR THE STAGING AND ACCESS AREAS WITHIN REACHES THE POINT OF CONTACT ARE AS FOLLOWS.

   MR. MATT ZAPP
   TOWN MANAGER
   TOWN OF EMERALD ISLE
   7500 EMERALD DRIVE
   EMERALD ISLE, NC 28594
   (252) 354–3424
   mzapp@emeraldisle–nc.org

   SEE THE TECHNICAL SPECIFICATIONS FOR A DESCRIPTION AND PHOTOS OF STAGING AND ACCESS AREAS.

8. STAGING AREAS SHALL BE MAINTAINED BY THE CONTRACTOR. STAGING AREAS SHALL BE CLEARED OF DEBRIS AND CONTRACTOR INSTALLED AMENITIES AT THE COMPLETION AND ACCEPTANCE OF WORK IN THE AREA. THE CONTRACTOR SHALL RESTORE THE ACCESS AREAS TO THEIR ORIGINAL CONDITION AFTER WORK IN THE AREA IS COMPLETE. THIS WORK INCLUDES, BUT NOT LIMITED TO, REPLACEMENT OF FENCING, SIGNS, SAND FENCE, BEACH VEGETATION, WALKWAYS, DUNES, DUNE VEGETATION, PARKING FACILITIES, PAVED AREAS AND OTHER MISCELLANEOUS ITEMS. ALL REPLACEMENT MATERIALS SHALL BE APPROVED BY THE ENGINEER/OWNER BEFORE INSTALLATION.

9. UNLESS OTHERWISE APPROVED BY THE OWNER, EXCESS EQUIPMENT MAY ONLY BE STORED IN APPROVED STORAGE/STAGING AREAS OR TEMPORARY AREAS IN THE IMMEDIATE VICINITY OF THE BEACHFILL PLACEMENT SITE. THE OWNER RESERVES THE RIGHT TO LIMIT SUCH AREAS AS DEEMED NECESSARY. OPERATION OF GRADING AND OTHER CONSTRUCTION EQUIPMENT WILL NOT BE PERMITTED OUTSIDE THE WORK AREA LIMITS EXCEPT FOR INGRESS AND EGRESS OF THE SITE AT APPROVED LOCATIONS. THE STACKING OF DISCHARGE PIPES IN LAYERS EXCEEDING TWO PIPES HIGH SHALL BE PROHIBITED IN ANY OF THE STORAGE OR STAGING AREAS INCLUDING THE TEMPORARY AREAS.

10. ANY EXISTING SIGNS, FENCES, OR OTHER STRUCTURES WITHIN THE WORK LIMITS SHALL BE PROTECTED AND/OR REMOVED AND LATER REPLACED BY THE CONTRACTOR AS DIRECTED.

PERMITS

1. IT IS THE INTENT OF THESE PLANS TO BE IN ACCORDANCE WITH APPLICABLE CODES AND AUTHORITIES HAVING JURISDICTION. ANY DISCREPANCIES BETWEEN THESE PLANS AND APPLICABLE CODES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER. THE APPLICABLE CODES SHALL TAKE PRECEDENCE.

2. IT IS THE INTENT OF THESE PLANS, AND THE RESPONSIBILITY OF THE CONTRACTOR, TO COMPLY WITH THE ENVIRONMENTAL PERMITS ISSUED FOR THIS PROJECT. THE PERMITS ARE HEREBY MADE PART OF THE CONTRACT DOCUMENTS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE AND GOVERN HIMSELF BY ALL PROVISIONS OF THESE PERMITS. SEE THE TECHNICAL SPECIFICATIONS.

FILL QUANTITIES

1. THE FOLLOWING ESTIMATE OF SAND QUANTITIES REQUIRED FOR THE PROJECT IS:

   TOTAL PROJECT FILL . . . . . .2,021,850 CY

2. THE FOLLOWING ESTIMATE OF PLANTING QUANTITIES REQUIRED FOR THE PROJECT IS:

   TOTAL PROJECT PLANTING . . . . . .186,500 SY

DREDGING

1. NO DREDGING WHATSOEVER SHALL OCCUR BELOW AN ELEVATION OF –52 FT NAVD 88.

2. ALL DREDGING SHALL BE PERFORMED WITHIN THE LIMITS OF THE PERMITTED DREDGING AREA AS SHOWN IN THE DRAWINGS.

3. PIPELINE CORRIDOR SHALL BE DELINEATED WITH BUOYS BY THE CONTRACTOR IN THE PRESENCE OF THE ENGINEER/OWNER BEFORE PLACEMENT.

4. THE PLANE COORDINATES AND BEARINGS SHOWN FOR THE DREDGING SURVEYS ARE BASED ON THE NORTH CAROLINA STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM 83 (NAD 83).

DREDGING

5. ALL ELEVATIONS SHOWN ON THE DREDGING DRAWINGS ARE REFERENCED TO NORTH AMERICAN VERTICAL DATUM 1988 (NAVD 88).

6. THE BATHYMETRY PRESENTED ON THE DREDGING PLANS IS BASED ON A SURVEY COMPLETED IN DECEMBER 2020 BY GEODYNAMICS AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS AT THAT TIME.

7. A POST–DREDGE SURVEY OF THE BORROW AREA SHALL BE COMPLETED BY AN INDEPENDENT REGISTERED/CERTIFIED SURVEYOR COORDINATED AND PAID FOR BY THE CONTRACTOR TO STANDARDS OUTLINED IN THE TECHNICAL SPECIFICATIONS.

BEACH FILL

1. ALL SAND EXCAVATED FROM THE BORROW AREAS SHALL BE TRANSPORTED TO, AND DEPOSITED ON, THE BEACH BETWEEN THE LINES, GRADES, AND CROSS–SECTIONS SHOWN ON THE DRAWINGS OR AS ADJUSTED BY THE ENGINEER.

2. AFTER NOTIFICATION BY THE CONTRACTOR OF THEIR INTENT TO COMMENCE DREDGING AND SAND PLACEMENT, A CURRENT BEACH SURVEY WILL BE PERFORMED BY THE OWNER. THE CONTRACTOR SHALL NOTIFY THE OWNER AT LEAST 4 WEEKS PRIOR TO THE COMMENCEMENT OF BEACH FILL PLACEMENT. THE UPDATED BEACH SURVEY WILL BE USED TO ADJUST THE LIMITS AND GRADE LINES TO MEET THE APPROXIMATE FILL DENSITIES PROVIDED WITH THE SECTIONS ON SHEETS C–301 THRU C–331.

3. SAND SHALL BE PLACED WITHIN THESE LIMITS AND GRADE LINES AS PRACTICALLY AS POSSIBLE. TOLERANCE SHALL BE WITHIN ±0.5 FOOT FOR BERM ELEVATION AND WIDTHS OUT TO THE MEAN TIDE LEVEL (MTL) AS SHOWN ON SHEET C–300. PAYMENT WILL BE MADE FOR THE CY/FT SHOWN ON THE PLANS WITH A TOLERANCE OF ±10%. EVERY ATTEMPT WILL BE MADE BY THE CONTRACTOR TO FILL WITHIN THE PRESCRIBED TEMPLATE. SEE TECHNICAL SPECIFICATIONS. THE BEACH FILL SHALL BE PLACED BY REACH GENERALLY FROM WEST TO EAST.

4. THE OWNER MAY MAKE ALTERATIONS IN THE PLAN DIMENSIONS, GRADE OF SLOPES, OR VOLUME OF FILL PER FOOT OF BEACH IN ORDER TO ACCOUNT FOR CHANGED CONDITIONS SINCE THE TIME OF THE EXISTING CONDITIONS SURVEY. THE CONTRACTOR SHALL WORK CLOSELY WITH THE OWNER TO ENSURE THAT THE TOTAL QUANTITY OF SAND ALLOWED UNDER THE CONTRACT IS PLACED AS EFFECTIVELY AS POSSIBLE.

5. CONTRACTOR SHALL TAKE CARE TO GRADE THE DUNE AND BERM SO THAT PONDING LANDWARD OF THE CRESTS IS MINIMIZED.

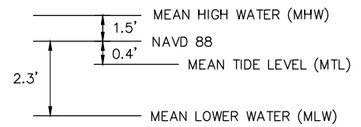
6. EXISTING WALKWAYS SHALL REMAIN AND NOT BE DAMAGED BEYOND CURRENT CONDITIONS. ANY ADDITIONAL DAMAGE WILL BE REPAIRED OR REPLACED AT THE CONTRACTORS COST AS DIRECTED BY THE OWNER OR THE ENGINEER. FILL SHALL BE PLACED COMPLETELY UNDERNEATH AND/OR AROUND STRUCTURES.

7. THE PLANE COORDINATES AND BEARINGS SHOWN FOR THE BEACH FILL SURVEYS ARE BASED ON THE NORTH CAROLINA STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM 83 (NAD 83).

8. ALL ELEVATIONS SHOWN ON THE BEACH FILL DRAWINGS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM (NAVD 88).

9. THE BATHYMETRY/TOPOGRAPHY PRESENTED ON THE BEACH FILL PLANS AND SECTIONS IS BASED ON A SURVEY COMPLETED IN DECEMBER 2020 BY GEODYNAMICS AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS AT THAT TIME.

10. THE MEAN HIGH WATER ELEVATION AND MEAN LOW WATER ELEVATION SHOWN ON THE BEACH FILL DRAWINGS AND BELOW WERE PROVIDED BY CARTERET COUNTY AND ARE BASED ON NOAA TIDAL DATUMS AT THE ATLANTIC BEACH TRIPLE S PIER AND THE DUKE MARINE LAB.



11. HORIZONTAL AND VERTICAL CONTROL FOR THE BEACH FILL SURVEY WAS BASED ON NUMEROUS RANGE MONUMENTS AS FOUND BY GEODYNAMICS.

12. CONTOURS FOR THE BEACH FILL PLANS ARE SHOWN AT 1 FT INTERVALS.

13. PRE– AND POST–CONSTRUCTION SURVEYS OF THE BEACH AREA SHALL BE COMPLETED BY AN INDEPENDENT REGISTERED/CERTIFIED SURVEYOR COORDINATED AND PAID FOR BY THE CONTRACTOR. TRANSECTS SHALL BE AT 100–FOOT INTERVALS. ADDITIONAL ELEVATIONS SHALL BE TAKEN AS NECESSARY TO ACCURATELY REPRESENT TOPOGRAPHY OF THE BEACH AREA.

14. BEACH FILL SLOPES CALLED OUT ON PLANS ARE HORIZONTAL : VERTICAL.

15. SEE TECHNICAL SPECIFICATION FOR ADDITIONAL PLACEMENT REQUIREMENTS.

16. THE CONTRACTOR SHALL PROVIDE TEMPORARY SAND RAMPS OVER THE PIPELINE FOR PEDESTRIAN AND EMERGENCY VEHICLE ACCESS ALONG THE BEACH. THE MAXIMUM DISTANCE BETWEEN THESE TEMPORARY SAND RAMPS SHALL BE 500 FEET. THESE TEMPORARY SAND RAMPS SHALL BE LEVELED ONCE THE PIPELINE HAS BEEN MOVED. THE CONTRACTOR SHALL ALSO CONSTRUCT A BARRIER TO KEEP THE PUBLIC AT LEAST 250 FEET FROM THE DISCHARGE PIPE IN BOTH DIRECTIONS UP AND DOWN THE BEACH. SEE THE TECHNICAL SPECIFICATIONS.

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 3 CARTERET COUNTY, NORTH CAROLINA

INDEX OF DRAWINGS, ABBREVIATIONS, AND GENERAL NOTES

Designed by: NCV	Chkd by: SRM	Reviewed by: JDM	Date: 2–9–21
Dwn by: BDF		Submitted by: MOFFATT & NICHOL	Drawing code:
			M&N Project No. 11034
			Drawing Scale: Plot scale: 1:1 (D SHEET)
			Rev. 1

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919–781–4626
NC FIRM LICENSE No. F–0105
moffatt & nichol

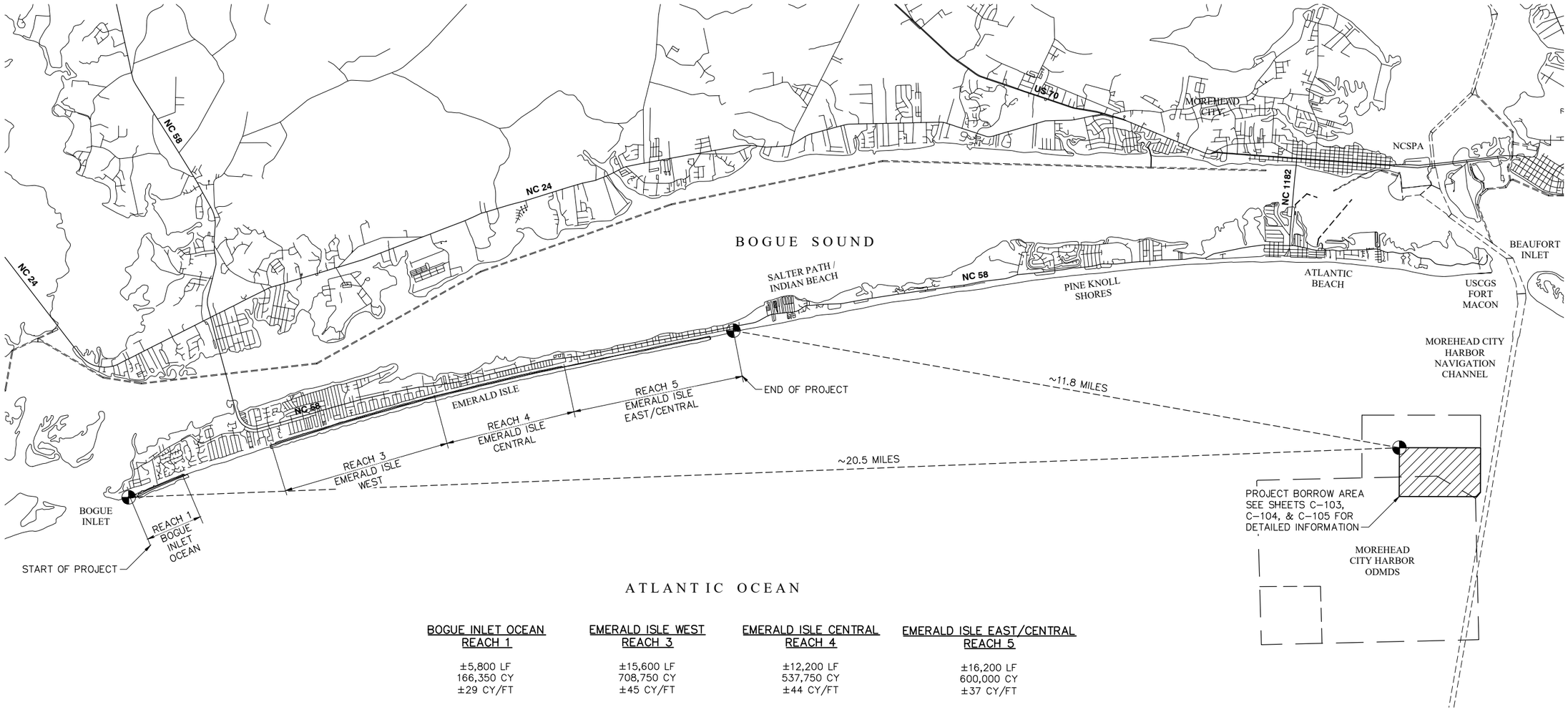
PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
G–002
Sheet 2 of 51

File: Q:\RA\10611\0500_CAD_Active_10611 Bouge Bonks 2021\10611000–002; Plotted: 2/9/2021 1:59 PM by MORGAN, NEKOL; Saved: 2/9/2021 10:07 AM by NMORGAN

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



BOGUE INLET OCEAN REACH 1	EMERALD ISLE WEST REACH 3	EMERALD ISLE CENTRAL REACH 4	EMERALD ISLE EAST/CENTRAL REACH 5
±5,800 LF	±15,600 LF	±12,200 LF	±16,200 LF
166,350 CY	708,750 CY	537,750 CY	600,000 CY
±29 CY/FT	±45 CY/FT	±44 CY/FT	±37 CY/FT

5000' 0' 5000' 10000'

SCALE: 1"=5000'

NOTES:

1. OFFLOADING STATION AT BEACH NOURISHMENT SITES SHALL BE USED TO PUMP DREDGED MATERIAL ONTO BEACH. THIS STATION SHALL MOVE WEST TO EAST AS THE NOURISHMENT PROJECT IS COMPLETED. DREDGED MATERIAL SHALL BE TRANSPORTED FROM THE BORROW AREA DIRECTLY BY THE DREDGE AND OFFLOADED AT THIS LOCATION. CONTRACTOR SHALL PROVIDE MAP OF PROPOSED OFFLOADING STATIONS AND PIPELINE IN ACCORDANCE WITH PERMITS, SEE TECHNICAL SPECIFICATIONS.

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

PROJECT MAP AND KEY PLAN

Date: 2-9-21 | Rev. 1
M&N Project No. 11034
Designed by: NCV | Drawing code:
Dwn. by: BDF | Ckd by: SRM
Reviewed by: JDM | Drawing Scale:
Submitted by: MOFFATT & NICHOL | Plot scale: 1:1 (D SHEET)

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PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

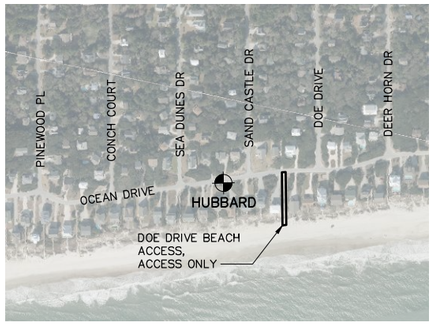
Sheet Reference No.
C-100
Sheet 3 of 51

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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NGS CONTROL STATION			
STATION	NORTHING	EASTING	ELEVATION
BEAR	331243.42	2572100.58	16.08



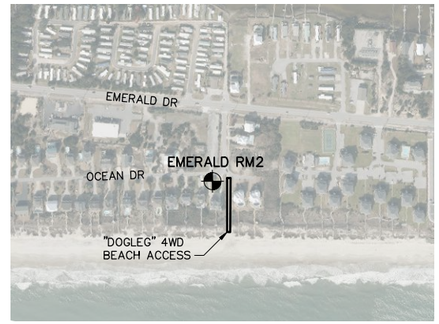
NGS CONTROL STATION			
STATION	NORTHING	EASTING	ELEVATION
HUBBARD	334559.51	2581884.14	14.99



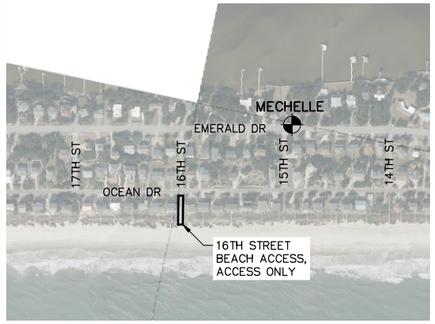
NGS CONTROL STATION			
STATION	NORTHING	EASTING	ELEVATION
SEAVIEW	338492.52	2589895.22	15.43



NGS CONTROL STATION			
STATION	NORTHING	EASTING	ELEVATION
COQUINA	339814.76	2599077.46	17.82



NGS CONTROL STATION			
STATION	NORTHING	EASTING	ELEVATION
EMERALD RM2	343122.52	2612927.40	16.79



NGS CONTROL STATION			
STATION	NORTHING	EASTING	ELEVATION
MECHELLE	344990.91	2620512.31	17.51

NOTES:

1. THE NORTHINGS AND EASTINGS SHOWN ARE BASED ON THE NORTH CAROLINA STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM 1983 (NAD 83) (FEET).
2. THE ELEVATIONS SHOWN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM 1988 (NAVD 88) (FEET).

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POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

PROJECT SURVEY CONTROL PLANS

Designed by: NCV	Date: 2-9-21
Dwn by: BDF	Ckd by: SRM
Reviewed by: JDM	M&N Project No. 11034
Submitted by: MOFFATT & NICHOL	Drawing code:
	Drawing Scale: Plot scale: 1:1 (D SHEET)
	Rev. 1

4700 FALLS OF THE NEUSE ROAD
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RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

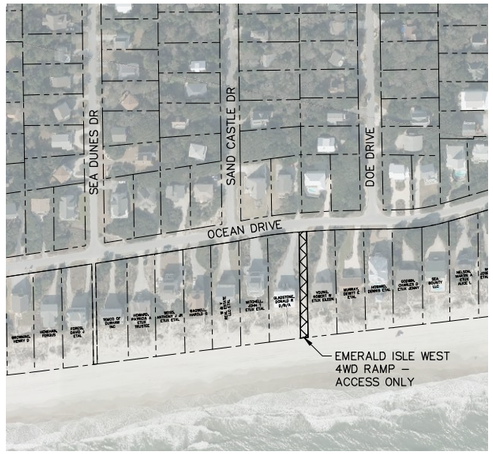
Sheet Reference No.
C-101
Sheet 4 of 51

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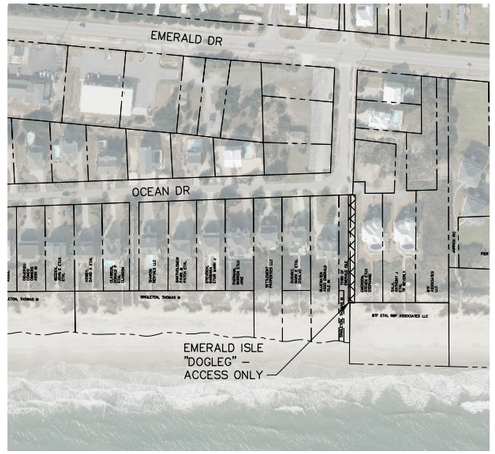
DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



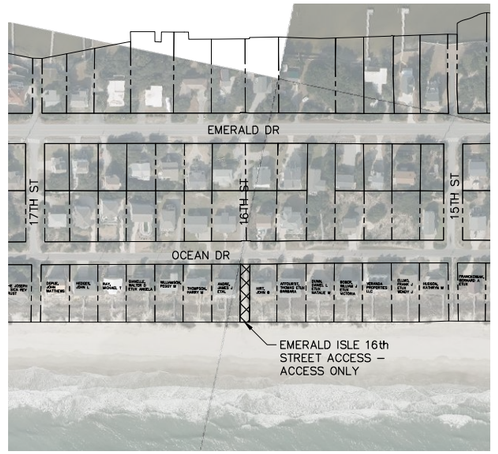
STAGING & ACCESS SITE 1
NOT TO SCALE



STAGING & ACCESS SITE 2
NOT TO SCALE



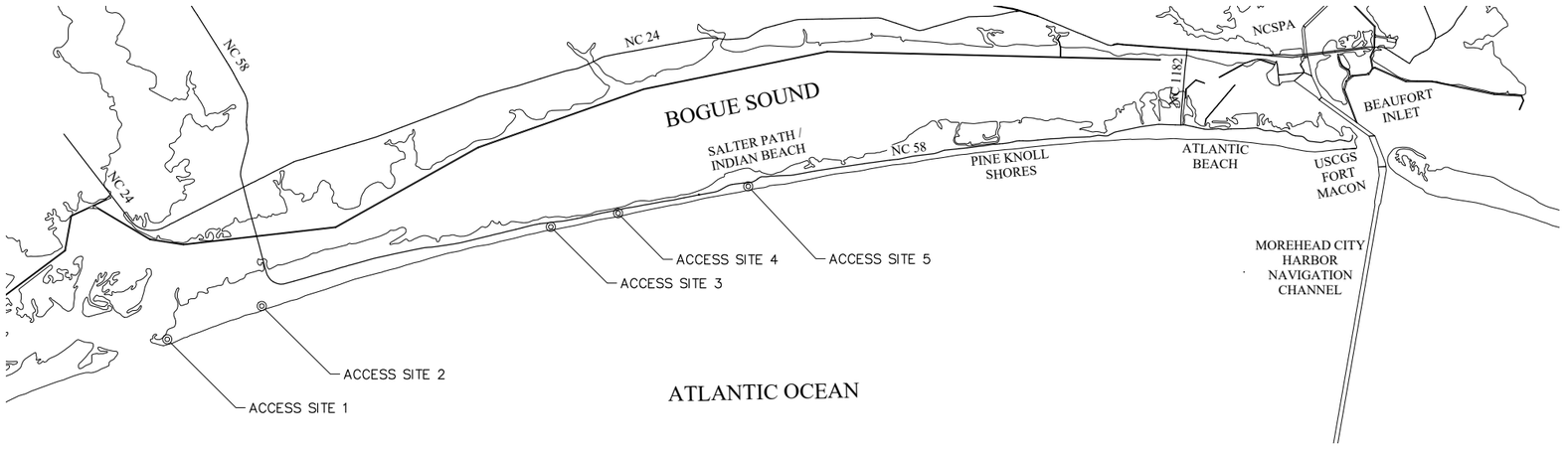
STAGING & ACCESS SITE 3
NOT TO SCALE



STAGING & ACCESS SITE 4
NOT TO SCALE



STAGING & ACCESS SITE 5
NOT TO SCALE



STAGING & ACCESS SITE PLAN
NOT TO SCALE

NOTES:

1. SEE TECHNICAL SPECIFICATIONS FOR ADDITIONAL INFORMATION.
2. SEE TECHNICAL SPECIFICATIONS FOR DESCRIPTIONS AND PHOTOS OF STAGING AND ACCESS AREAS.

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

PROJECT STAGING AND ACCESS PLANS

Designed by: NCV
Dwn by: BDF
Cad by: SRM
Reviewed by: JDM
Submitted by: MOFFATT & NICHOL
Date: 2-9-21
M&N Project No. 11034
Drawing code:
Drawing Scale:
Plot scale: 1:1 (D SHEET)
Rev. 1

4700 FALLS OF THE NEUSE ROAD
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RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

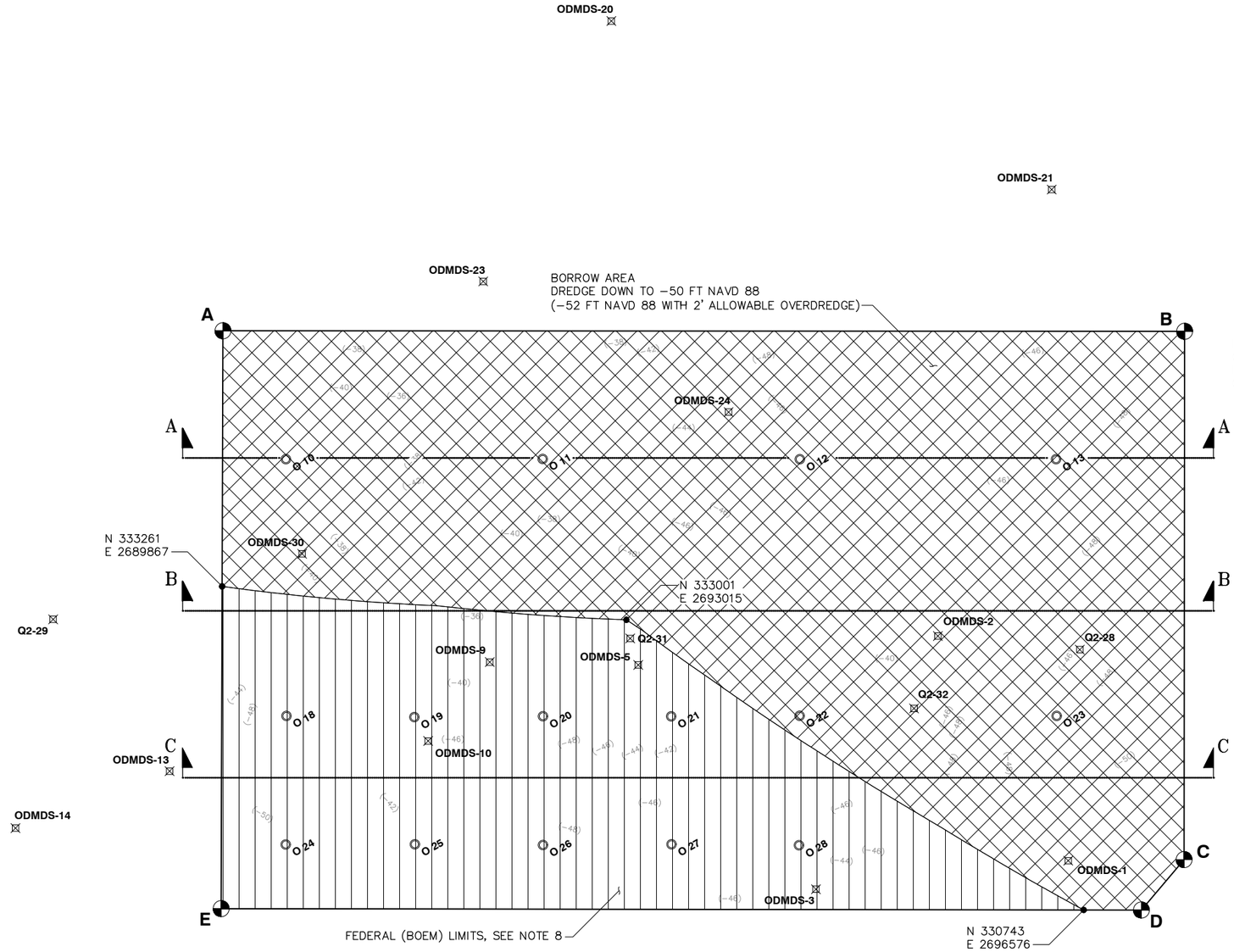
PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-102
Sheet 5 of 51

File: G:\RA\10611\0500_CAD_Active_10611 Bouge Banks 2021\10611C00C-102; Plotted: 2/9/2021 2:16 PM by MORGAN, NEKOL; Saved: 2/9/2021 2:16 PM by MORGAN

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



LEGEND

- PROPOSED BORROW AREA CONTROL POINT
- 2011 VIBRACORE LOCATION (SEE TECHNICAL SPECIFICATIONS FOR DATA SUMMARY)
- REMOTE SENSING TARGET
- STATE WATERS
- FEDERAL (BEOM) WATERS

NOTES

1. BATHYMETRY CONTOURS SHOWN IN FEET REFERENCED TO NAVD 88 ARE BASED ON MULTIBEAM SURVEYS PERFORMED BY GEODYNAMICS IN MAY 2020 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS AT THE TIME OF THE SURVEY.
2. BORROW AREA COORDINATES ARE NORTH CAROLINA STATE PLANE, NAD 83 (FEET).
3. THE MEAN HIGH WATER ELEVATION AND MEAN LOW WATER ELEVATION SHOWN ON THE DREDGE SECTIONS WERE PROVIDED BY CARTERET COUNTY AND ARE BASED ON NOAA TIDAL DATUMS AT THE ATLANTIC BEACH TRIPLE S PIER AND THE DUKE MARINE LAB.
4. OTHER CONTRACTORS MAY BE PRESENT IN AREAS WHERE DREDGING OF BEACH FILL MATERIALS IS TO OCCUR. CONTRACTOR IS RESPONSIBLE FOR COORDINATING ACTIVITIES.
5. SEE TECHNICAL SPECIFICATIONS FOR DATA SUMMARY OF THE ARCHAEOLOGICAL REMOTE SENSING AND TARGET IDENTIFICATION STUDY. THE STUDY CONCLUDES THAT THE TARGETS CONSIST OF MODERN DEBRIS (WIRE ROPE, PIPE, ETC.) THAT APPEARS TO BE RELATED TO THE ODMDS OR ARTIFICIAL REEF SYSTEMS BUILT IN THE 1970'S. NO CULTURAL RESOURCES OR HISTORICAL ARTIFACTS WERE FOUND.
6. FOR ODMDS BORROW SITE DREDGE SECTIONS, SEE SHEET C−104.
7. FOR ODMDS BORROW SITE VIBRACORE SUMMARY TABLE, SEE SHEET C−105.
8. THE CONTRACTOR WILL BE LIMITED TO 1,275,000 CUBIC YARDS OF DREDGE MATERIAL REMOVAL, BY SURVEY, FROM WITHIN THE FEDERAL (BOEM) LIMITS.

PROPOSED BORROW AREA
COORDINATE TABLE

POINT	NORTHING	EASTING
A	335251.00	2689873.17
B	335246.38	2697361.70
C	331134.26	2697357.83
D	330742.17	2697024.91
E	330752.97	2689859.35

REMOTE SENSING TARGET
COORDINATE TABLE

TARGET ID	NORTHING	EASTING
ODMDS−1	331,126	2,696,456
ODMDS−2	332,875	2,695,144
ODMDS−3	330,904	2,694,491
ODMDS−5	332,650	2,693,107
ODMDS−9	332,672	2,691,951
ODMDS−10	332,058	2,691,471
ODMDS−13	331,823	2,689,458
ODMDS−14	331,380	2,688,258
ODMDS−20	337,662	2,692,898
ODMDS−21	336,350	2,696,327
ODMDS−23	335,635	2,691,900
ODMDS−24	334,618	2,693,811
ODMDS−30	333,515	2,690,490
Q2−28	332,769	2,696,546
Q2−29	333,005	2,688,551
Q2−31	332,856	2,693,045
Q2−32	332,311	2,695,255

500' 0' 500' 1000'
SCALE: 1"=500' HORIZONTAL

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

ODMDS BORROW SITE DREDGE PLAN

Designed by: NCV	Dwn by: BDF	Ckd by: SRM	Reviewed by: JDM
Date: 2−9−21	M&N Project No. 11034	Drawing code:	Drawing Scale: Plot scale: 1:1 (D SHEET)
Rev. 1			

Submitted by: MOFFATT & NICHOL

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919−781−4626
NC FIRM LICENSE No. F−0105

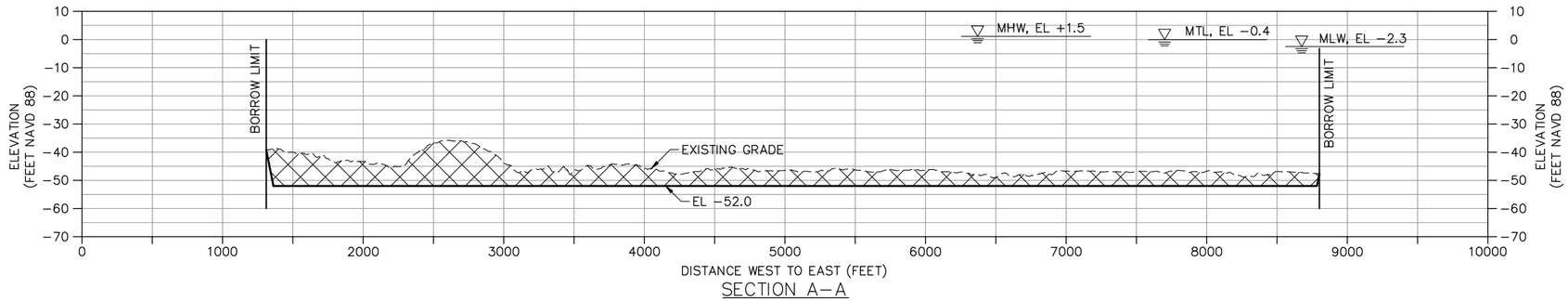
PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

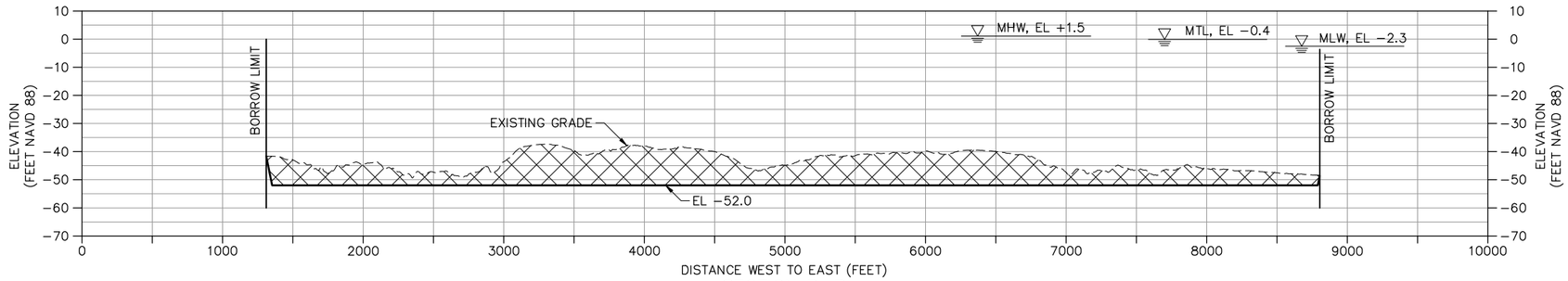
Sheet Reference No.
C-103
Sheet 6 of 51

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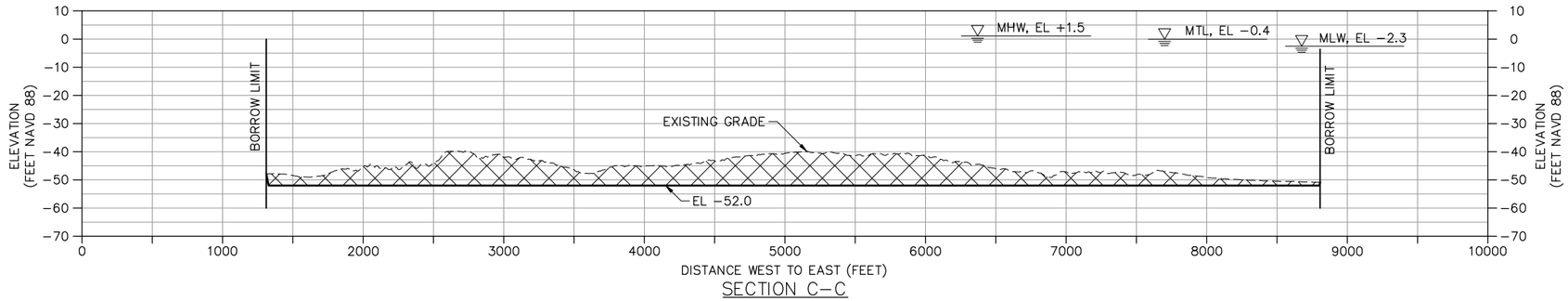
DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



SECTION A–A



SECTION B–B



SECTION C–C

25' 0' 25' 50'
SCALE: 1"=25' VERTICAL

500' 0' 500' 1000'
SCALE: 1"=500' HORIZONTAL

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0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

ODMDS BORROW SITE DREDGE SECTIONS

moffatt & nichol
4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105

PREPARED FOR THE TOWN OF EMERALD ISLE

Designed by:	NCV
Dwn by:	BDF
Cad by:	SRM
Reviewed by:	JDM
Submitted by:	MOFFATT & NICHOL
Date:	2-9-21
M&N Project No.	11034
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (0 SHEET)
Rev.	1

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-104
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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

Bogue Banks Sediment Compatibility

Native Sediment Characteristics

Reference - (CSE, 2001 - EA for Phases 1 & 2 and CAMA Permit #124-01)

Mean	1.76 phi	0.30 mm
Standard Deviation	0.77 phi	0.59 mm

Borrow Area Sediment Characteristics ODMDS

Reference - (Alpine, February 2012)

Mean	1.71	phi	0.31	mm
Standard Deviation	1.10	phi	0.81	mm

Percent Fines 0.5%

Percent Sand 98.0%

Precent Gravel 1.5%

Overfill Factor

Mean Difference	Sorting Ratio
-0.07	1.42

Summary of ODMDS Borrow Area Sediment Characteristics

Vibracore	Sample Number	Depth (ft)	Bed Elevation (ft NAVD)	Sample Elevation (ft NAVD)			Sample Depth (ft)	Gravel	Sand	<#200	<#230	Carbonate	Mean (mm)	Mean (phi)
O10	1	0-5	-38.2	-38.2	-	-43.2	5.0	1.18	98.64	0.18	0.12	11.8	0.27	1.89
O10	2	5-10	-38.2	-43.2	-	-48.2	5.0	0.22	99.43	0.35	0.29	12.9	0.28	1.84
O10	3	10-15	-38.2	-48.2	-	-53.2	5.0	0.18	99.50	0.32	0.25	10.0	0.26	1.94
O11	1	0-2	-37.6	-37.6	-	-39.6	2.0	2.7	96.48	0.82	0.63	15.5	0.34	1.56
O11	2	2-5	-37.6	-39.6	-	-42.6	3.0	0.43	99.28	0.29	0.27	13.7	0.33	1.60
O11	3	5-10	-37.6	-42.6	-	-47.6	5.0	0.07	99.66	0.27	0.26	13.8	0.26	1.94
O11	4	10-15	-37.6	-47.6	-	-52.6	5.0	1.93	97.92	0.15	0.12	14.1	0.29	1.79
O12	1	0-5	-46.6	-46.6	-	-51.6	5.0	4.59	95.09	0.32	0.26	23.3	0.45	1.15
O12	2	5-9	-46.6	-51.6	-	-55.6	4.0	1.32	98.39	0.29	0.21	14.2	0.32	1.64
O13	1	0-6	-47.3	-47.3	-	-53.3	6.0	0.08	99.53	0.39	0.28	11.5	.29	1.79
O18	1	0-6	-44.1	-44.1	-	-50.1	6.0	1.22	98.07	0.71	0.53	12.1	0.28	1.84
O18	2	6-12	-44.1	-50.1	-	-56.1	6.0	0.21	99.39	0.4	0.29	12.6	0.28	1.84
O19	1	0-6	-36.1	-36.1	-	-42.1	6.0	0	99.82	0.18	0.08	10.6	0.25	2.00
O19	2	6-12	-36.1	-42.1	-	-48.1	6.0	1.69	98.27	0.04	0	13.5	0.29	1.79
O19	3	12-17	-36.1	-48.1	-	-53.1	5.0	1.63	98.19	0.18	0.12	12.8	0.32	1.64
O19	4	17-19.3	-36.1	-53.1	-	-55.4	2.3	0	99.3	0.7	0.49	9.5	0.24	2.06
O20	1	0-5	-36.4	-36.4	-	-41.4	5.0	2.55	97.31	0.14	0.12	17.8	0.35	1.51
O20	2	5-10	-36.4	-41.4	-	-46.4	5.0	1.28	97.83	0.89	0.72	21.2	0.31	1.69
O20	3	10-13.9	-36.4	-46.4	-	-50.3	3.9	2.31	97.24	0.45	0.39	9.3	0.3	1.74
O21	1	0-5	-37	-37.0	-	-42.0	5.0	0.36	99.34	0.3	0.28	16.2	0.3	1.74
O21	2	5-10	-37	-42.0	-	-47.0	5.0	1.77	97.72	0.51	0.46	11.7	0.36	1.47
O21	3	10-15	-37	-47.0	-	-52.0	5.0	1.66	98.11	0.23	0.16	12.3	0.31	1.69
O22	1	0-5	-32.7	-32.7	-	-37.7	5.0	2.14	97.72	0.14	0.13	16.2	0.34	1.56
O22	2	5-10	-32.7	-37.7	-	-42.7	5.0	2.12	97.68	0.2	0.14	12.3	0.31	1.69
O22	3	10-15	-32.7	-42.7	-	-47.7	5.0	1.58	98.04	0.38	0.37	11.7	0.29	1.79
O22	4	15-20	-32.7	-47.7	-	-52.7	5.0	1.06	98.53	0.41	0.4	14.7	0.34	1.56
O23	1	0-6	-47.8	-47.8	-	-53.8	6.0	1.88	97.98	0.14	0.11	13.3	0.36	1.47
O24	1	0-4.9	-49.3	-49.3	-	-54.2	4.9	4.78	90.03	5.19	4.81	13	0.24	2.06
O24	2	4.9-6.8	-49.3	-54.2	-	-56.1	1.9	0.32	99.38	0.3	0.2	10.4	0.26	1.94
O25	1	0-6	-42	-42.0	-	-48.0	6.0	0.9	98.65	0.45	0.36	13.6	0.33	1.60
O25	2	6-12	-42	-48.0	-	-54.0	6.0	2.05	96.99	0.96	0.83	18	0.33	1.60
O25	3	12-17.9	-42	-54.0	-	-59.9	5.9	1.79	98.06	0.15	0.12	19.2	0.32	1.64
O26	1	0-5	-45.7	-45.7	-	-50.7	5.0	5.01	94.52	0.47	0.37	12.7	0.36	1.47
O26	2	5-9.3	-45.7	-50.7	-	-55.0	4.3	0.97	98.79	0.24	0.21	11.9	0.3	1.74
O27	1	0-4	-43.6	-43.6	-	-47.6	4.0	0.56	99.24	0.2	0.2	16.7	0.4	1.32
O27	2	4-8	-43.6	-47.6	-	-51.6	4.0	0.67	98.95	0.38	0.35	12	0.32	1.64
O27	3	8-12.9	-43.6	-51.6	-	-56.5	4.9	0.16	99.35	0.49	0.41	11.8	0.29	1.79
O28	1	0-6	-42.7	-42.7	-	-48.7	6.0	0.59	99.29	0.12	0.09	12.8	0.28	1.84
O28	2	6-11.6	-42.7	-48.7	-	-54.3	5.6	0.41	99.34	0.25	0.16	13.4	0.3	1.74
							average	1.44	98.04	0.52	0.44	13.56	0.31	1.71
							median	1.28	98.19	0.30	0.28	12.80	0.31	1.74

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

ODMDS BORROW SITE
VIBRACORE SUMMARY TABLE

Rev. 1
Date: 2-9-21
M&N Project No. 11034
Drawing code:
Drawing Scale: Plot scale: 1:1 (D SHEET)
Designed by: NCV
Dwn by: BDF
Ckd by: SRM
Reviewed by: JDM
Submitted by: MOFFATT & NICHOL

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

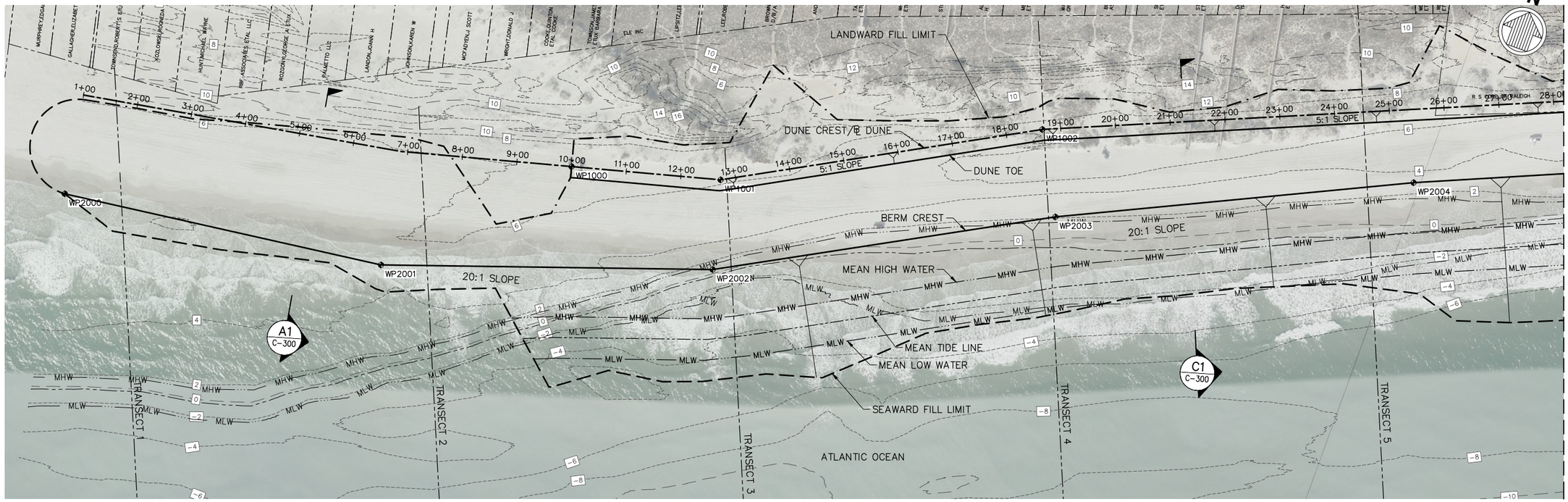
PREPARED FOR THE TOWN OF EMERALD ISLE

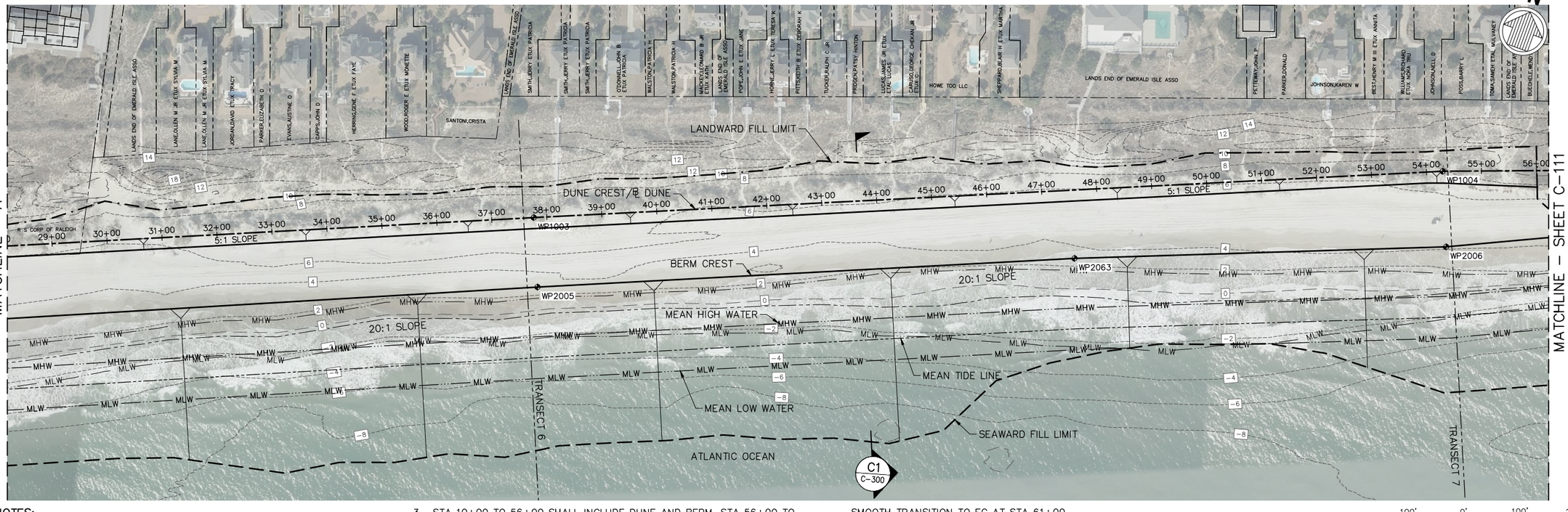
NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-105
Sheet 8 of 51

File: G:\RA\10617\0500_CAD_Active_10617 Bogue Banks 2021\10617100C-105; Plotted: 2/9/2021 1:59 PM by MORGAN, NEXOL; Saved: 6/25/2020 11:49 AM by MMORGAN

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING





NOTES:
1. SEE SHEET C-601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C-301 THRU C-331 FOR CROSS SECTIONS.
3. STA 10+00 TO 56+00 SHALL INCLUDE DUNE AND BERM. STA 56+00 TO 59+00 SHALL INCLUDE BERM ONLY.
4. THE CONTRACTOR SHALL FIELD FIT THE BERM TAPER FROM 59+00 AS A SMOOTH TRANSITION TO EG AT STA 61+00.

100' 0' 100' 200'
SCALE: 1"=100'

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

BEACH RENOURISHMENT PLAN - SHEET 1 OF 10

Designed by:	NCV
Dwn by:	BDF
Ckd by:	SRM
Reviewed by:	JDM
Submitted by:	MOFFATT & NICHOL
Date:	2-9-21
M&N Project No.	11034
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (D SHEET)
Rev.	1

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-110
Sheet 9 of 51

File: C:\PA\10611\0500_CAD_Active_10611 Bouge Banks 2021\10611100C-110; Plotted: 2/9/2021 2:18 PM by MORGAN, NEXCL; Saved: 2/9/2021 1:41 PM by NMORGAN

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:
1. SEE SHEET C–601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C–301 THRU C–331 FOR CROSS SECTIONS.
3. STA 10+00 TO 56+00 SHALL INCLUDE DUNE AND BERM. STA 56+00 TO 59+00 SHALL INCLUDE BERM ONLY.
4. THE CONTRACTOR SHALL FIELD FIT THE BERM TAPER FROM 59+00 AS A SMOOTH TRANSITION TO EG AT STA 61+00.

100' 0' 100' 200'
SCALE: 1"=100'

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

BEACH RENOURISHMENT PLAN - SHEET 2 OF 10

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

PREPARED FOR THE TOWN OF EMERALD ISLE

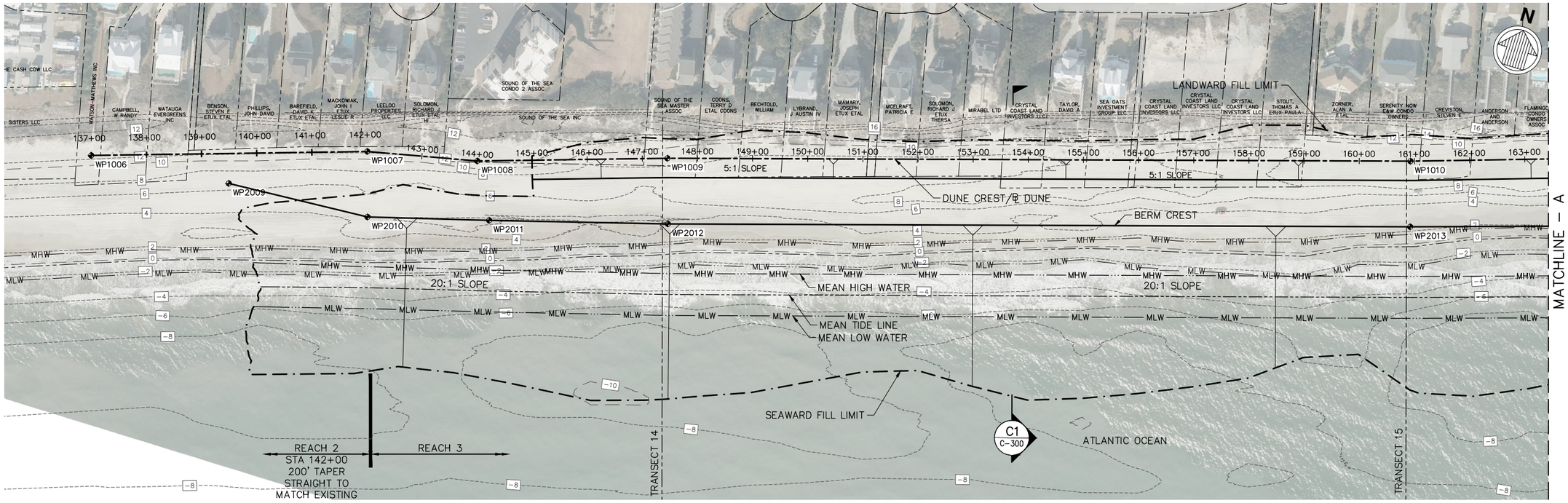
Designed by:	NCV
Dwn by:	BDF
Ckd by:	SRM
Reviewed by:	JDM
Submitted by:	MOFFATT & NICHOL
Date:	2-9-21
M&N Project No.	11034
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (D SHEET)
Rev.	1

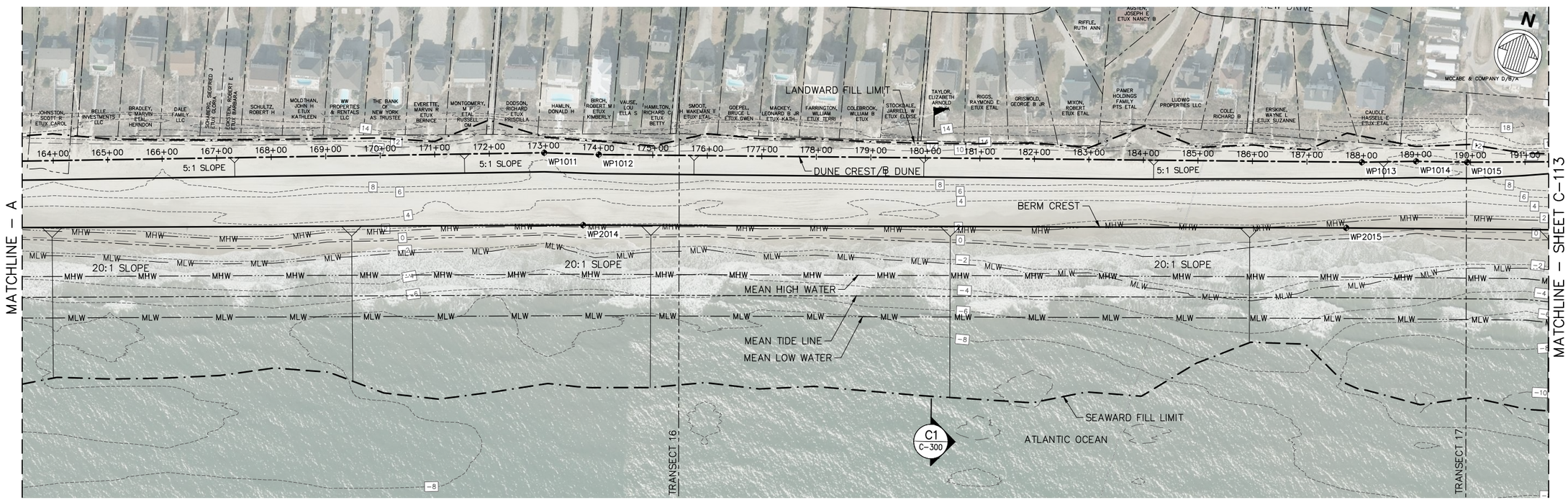
NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-111
Sheet 10 of 51

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

File: G:\RA\10611\0500_CAD_Active_10611 Bouge Banks 2021\10611100C-111; Plotted: 2/9/2021 2:20 PM by MORGAN; NEXGL; Saved: 2/9/2021 1:40 PM by MORGAN





NOTES:
1. SEE SHEET C–601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C–301 THRU C–331 FOR CROSS SECTIONS.

100' 0' 100' 200'
SCALE: 1"=100'

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

Rev.	Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION		02/09/21	JM
0	BID DOCUMENTS		07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

BEACH RENOURISHMENT PLAN - SHEET 3 OF 10

Designed by:	NCV
Dwn by:	BDF
Ckd by:	SRM
Reviewed by:	JDM
Submitted by:	MOFFATT & NICHOL
Date:	2-9-21
M&N Project No.	11034
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (D SHEET)
Rev.	1

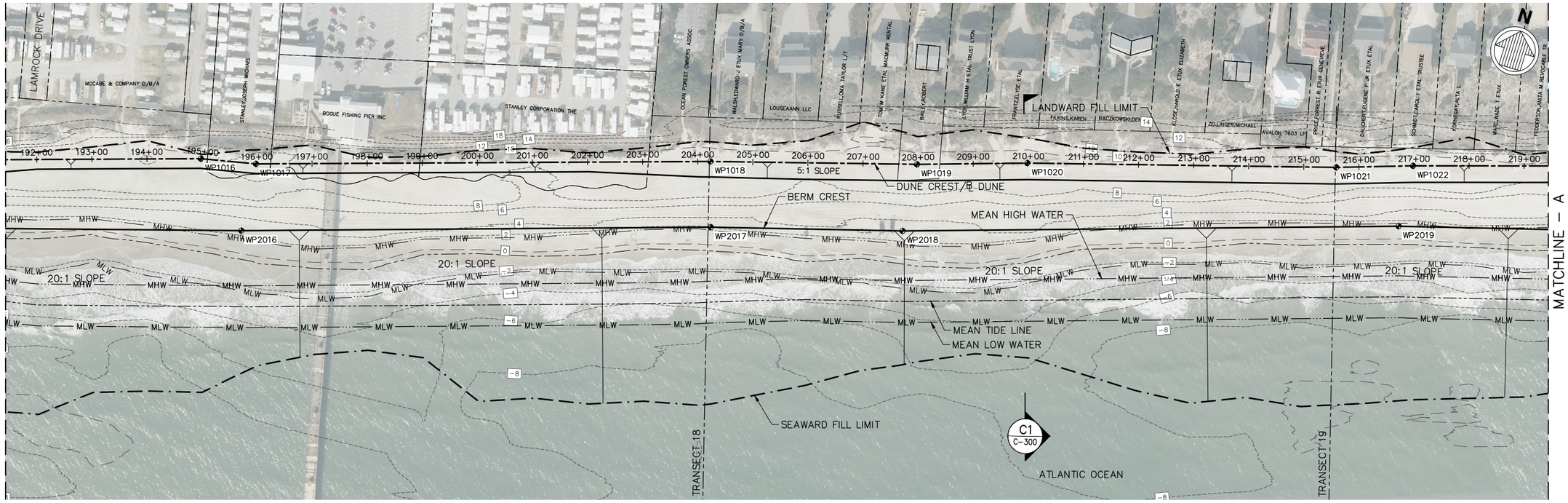
4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

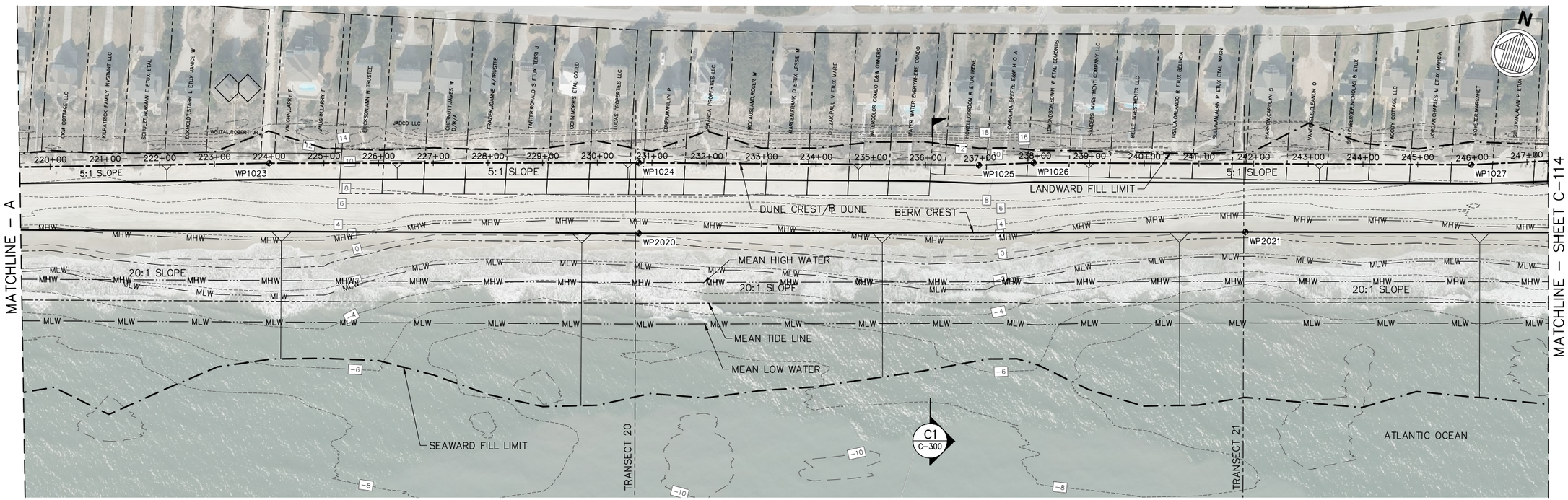
PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-112
Sheet 11 of 51

File: C:\RA\10617\0500_CAD_Active_10617 Bouge Banks 2021\10617100C-112; Plotted: 2/9/2021 2:42 PM by MORGAN, NEKOL; Saved: 2/9/2021 2:42 PM by MORGAN





NOTES:
1. SEE SHEET C–601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C–301 THRU C–331 FOR CROSS SECTIONS.

100' 0' 100' 200'
SCALE: 1"=100'

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

BEACH RENOURISHMENT PLAN - SHEET 4 OF 10

Rev.	Date	Designed by:	Drawn by:	Reviewed by:	Submitted by:
1	2–9–21	NCV	BDF	JDM	MOFFATT & NICHOL

M&N Project No. 11034
Chd by: SRM
Drawing code:
Drawing Scale: Plot scale: 1:1 (D SHEET)

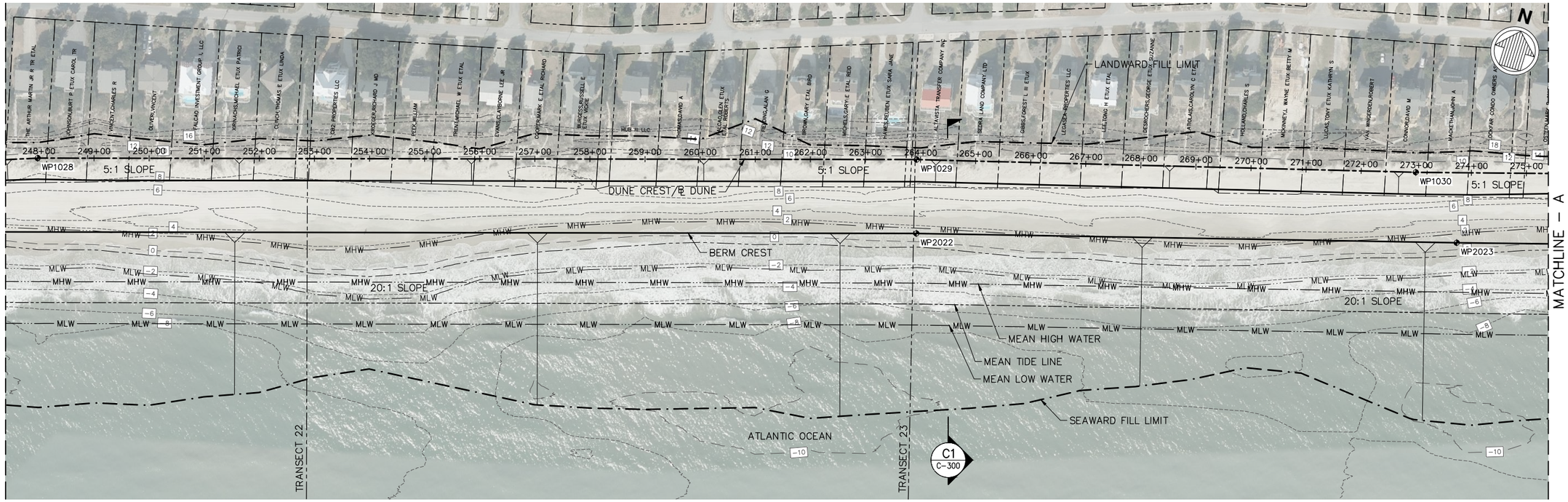
4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919–781–4626
NC FIRM LICENSE No. F–0105

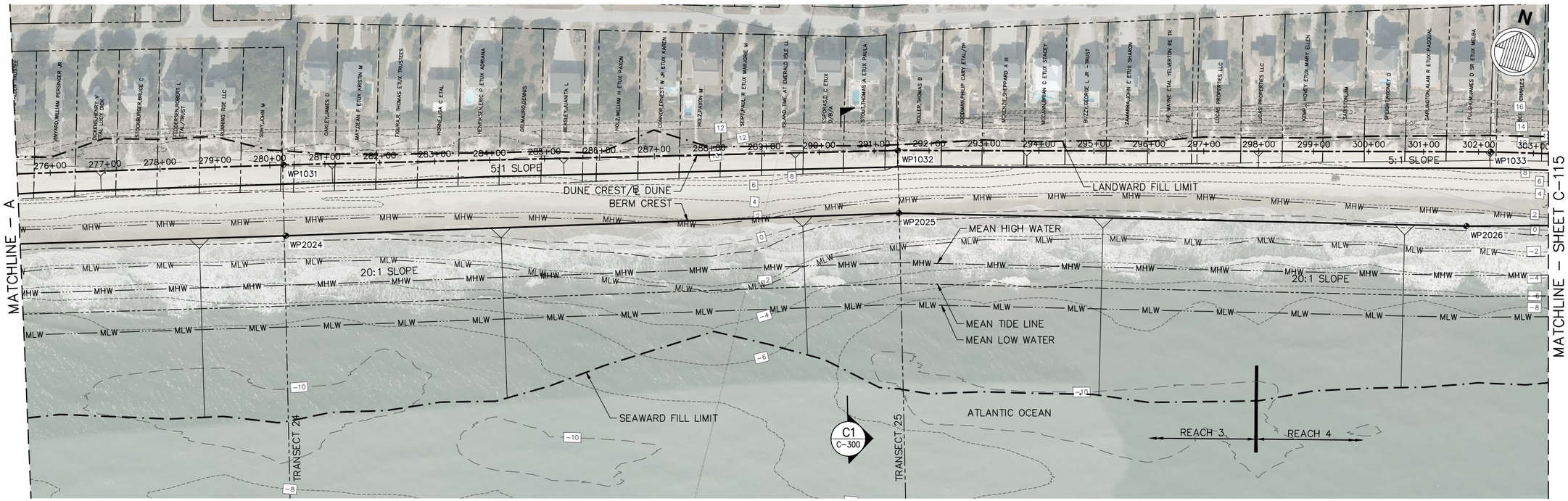
PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-113
Sheet 12 of 51

File: G:\RA\10617\0500_CAD_Active_10617 Bouge Banks 2021\10617100C–113; Plotted: 2/9/2021 2:23 PM by MORGAN, NEXOL; Saved: 6/22/2020 5:50 PM by NMORGAN





NOTES:
1. SEE SHEET C–601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C–301 THRU C–331 FOR CROSS SECTIONS.

100' 0' 100' 200'
SCALE: 1"=100'

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

BEACH RENOURISHMENT PLAN - SHEET 5 OF10

Rev.	Date:	Designed by:	Drawn by:	Reviewed by:	Submitted by:	Drawing Scale:
1	2-9-21	NCV	BDF	JDM	MOFFATT & NICHOL	Plot scale: 1:1 (D SHEET)

M&N Project No. 11034
Drawing code:
Chd by: SRM

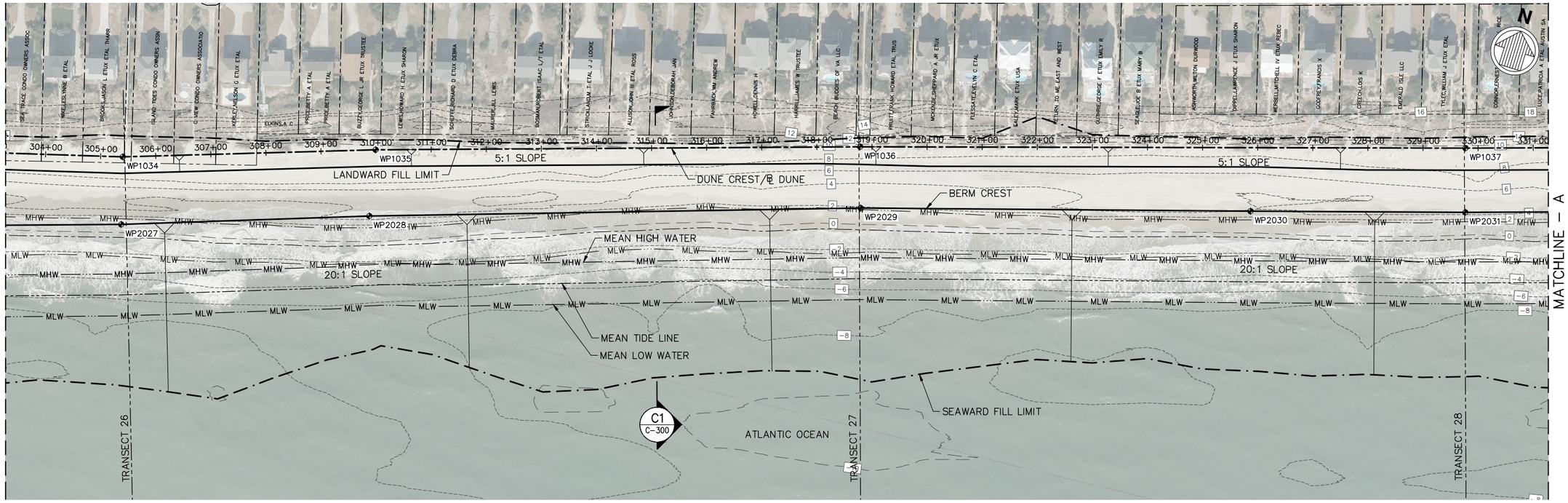
4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105

PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-114
Sheet 13 of 51

File: G:\RA\10611\0500_CAD_Active_10611 Bouge Banks 2021\10611C00-114; Plotted: 2/9/2021 2:25 PM by MORGAN, NEXOL; Saved: 6/22/2020 5:49 PM by NMORGAN



NOTES:
1. SEE SHEET C–601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C–301 THRU C–331 FOR CROSS SECTIONS.

100' 0' 100' 200'
SCALE: 1"=100'

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

BEACH RENOURISHMENT PLAN - SHEET 6 OF 10

Designed by:	NCV
Dwn by:	BDF
Ckd by:	SRM
Reviewed by:	JDM
Submitted by:	MOFFATT & NICHOL
Rev.	1
Date:	2-9-21
M&N Project No.	11034
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (D SHEET)

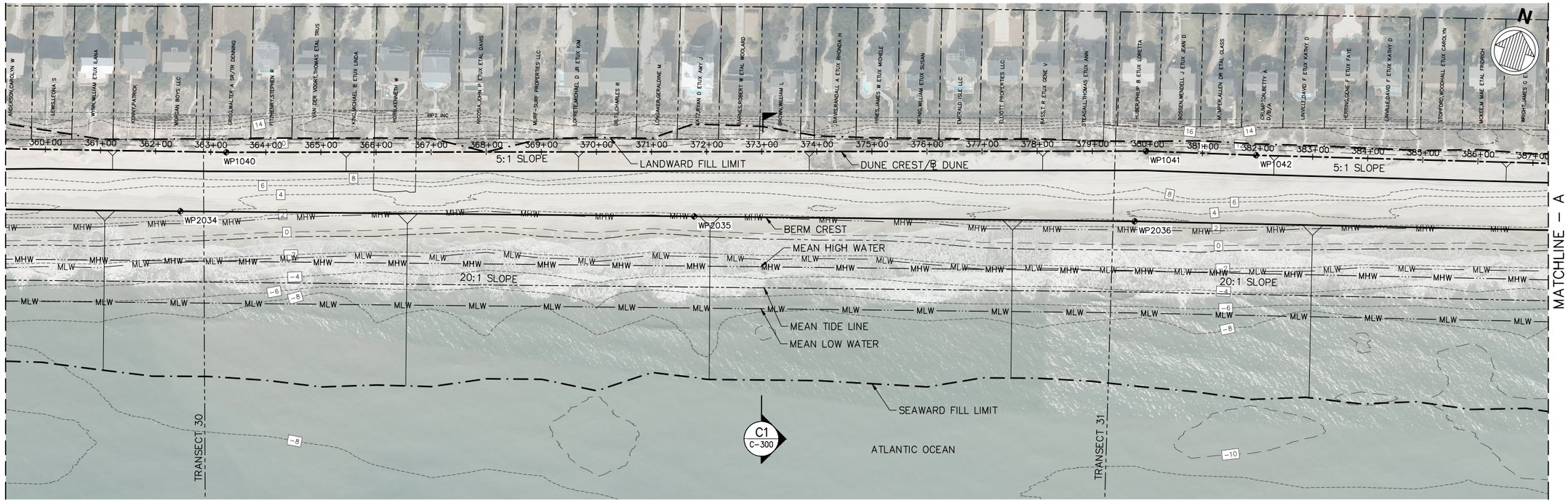
moffatt & nichol
4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105

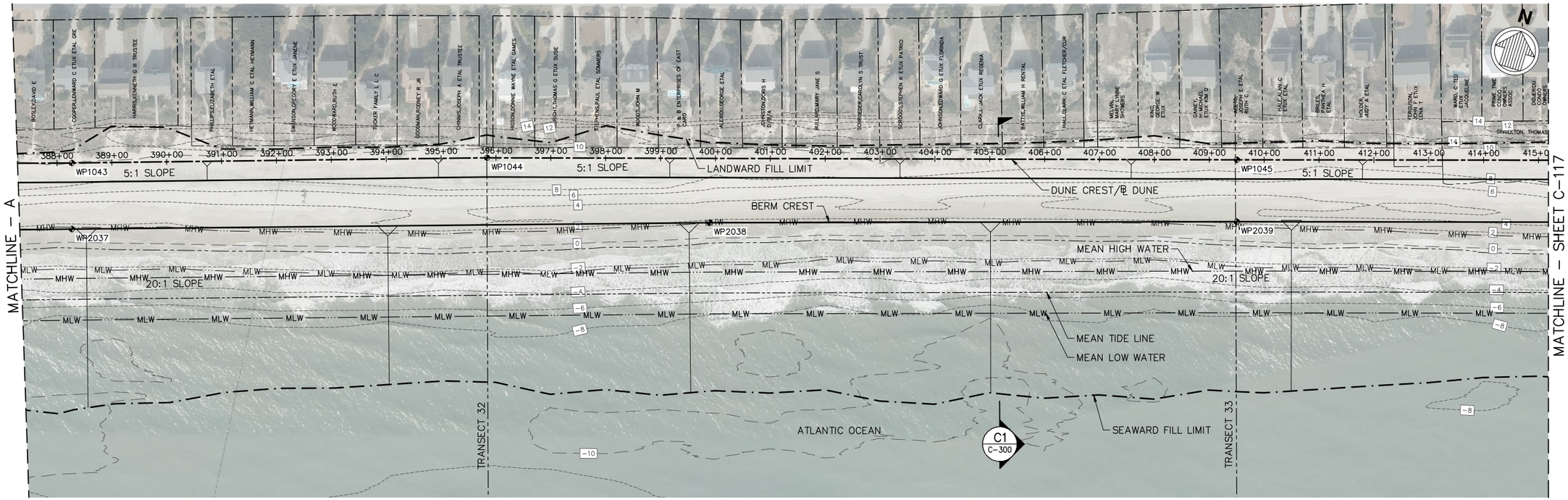
PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-115
Sheet 14 of 51

File: C:\RA\10611\0500_CAD_Active_10611 Bouge Banks 2021\10611C00-115; Plotted: 2/9/2021 2:27 PM by MORGAN, NEXOL; Saved: 6/22/2020 5:48 PM by NMORGAN





NOTES:
1. SEE SHEET C–601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C–301 THRU C–331 FOR CROSS SECTIONS.

100' 0' 100' 200'
SCALE: 1"=100'

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

BEACH RENOURISHMENT PLAN - SHEET 7 OF 10

Designed by:	Date:	Rev.
NCV	2–9–21	1
Dwn by: BDF	Ckd by: SRM	M&N Project No. 11034
Reviewed by: JDM	Drawing code:	
Submitted by: MOFFATT & NICHOL	Drawing Scale: Plot scale: 1:1 (D SHEET)	

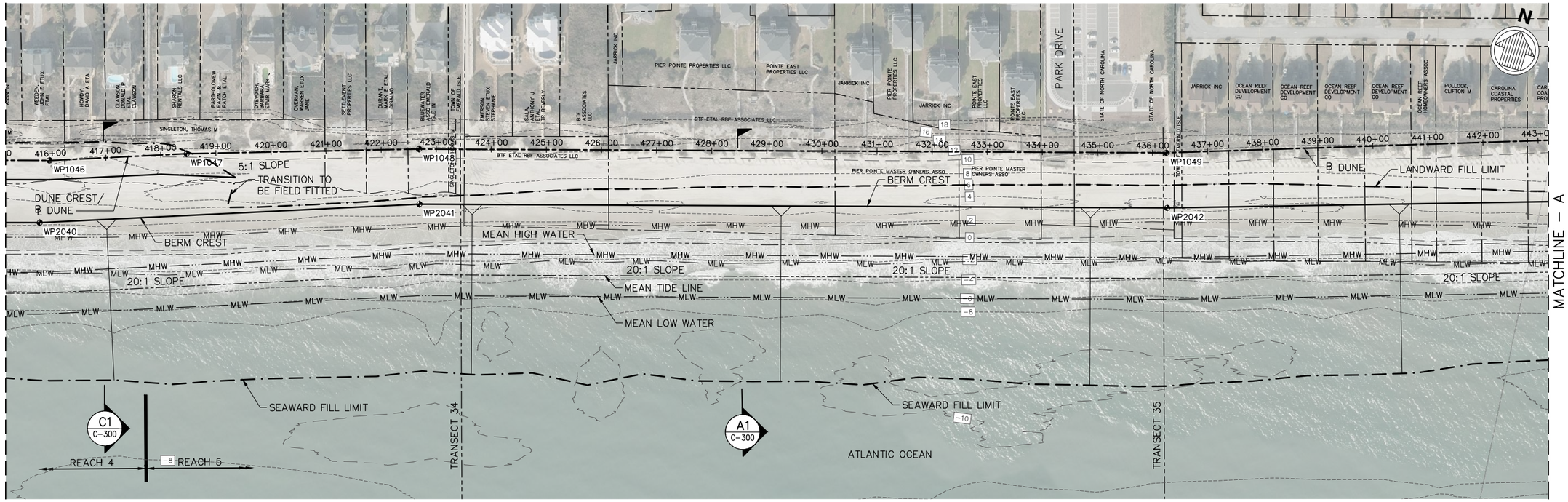
4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F–0105
moffatt & nichol

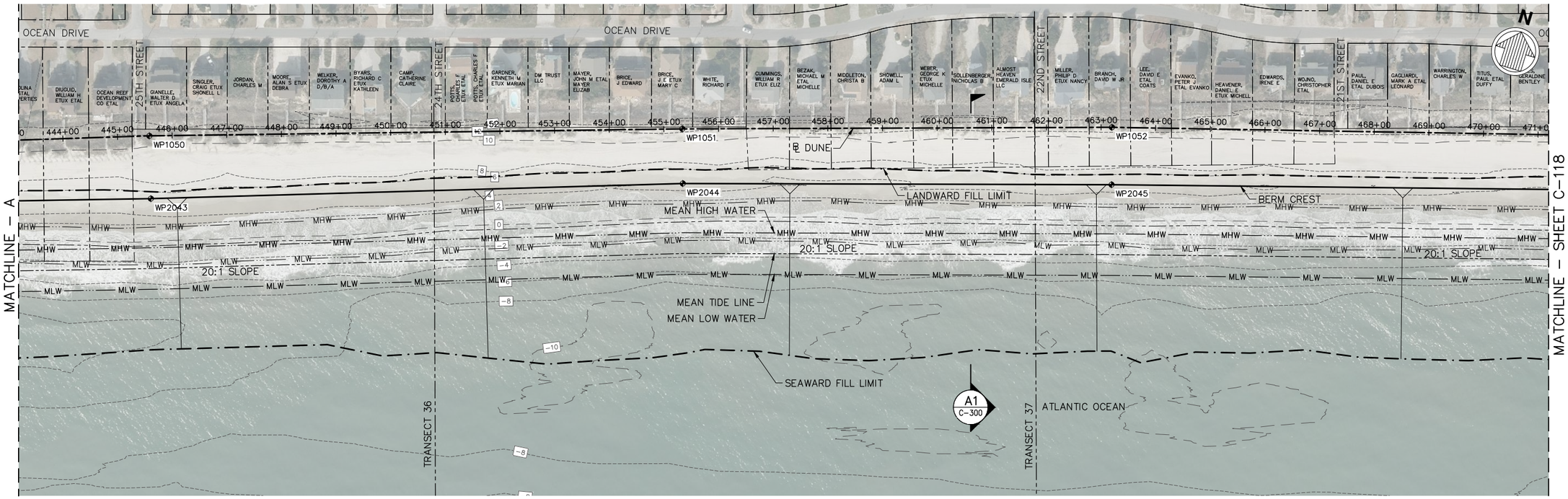
PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-116
Sheet 15 of 51

File: C:\RA\10617\0500_CAD_Active_10617 Bouge Banks 2021\10617100C–116; Plotted: 2/9/2021 2:28 PM by MORGAN, NEXOL; Saved: 2/9/2021 1:57 PM by MORGAN





NOTES:
1. SEE SHEET C–601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C–301 THRU C–331 FOR CROSS SECTIONS.

100' 0' 100' 200'
SCALE: 1"=100'

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

BEACH RENOURISHMENT PLAN - SHEET 8 OF 10

Designed by: NCV	Dwn by: BDF	Reviewed by: JDM	Submitted by: MOFFATT & NICHOL
Date: 2-9-21	Chd by: SRM	Drawing code:	Drawing Scale: Plot scale: 1:1 (D SHEET)
Rev. 1	M&N Project No. 11034		

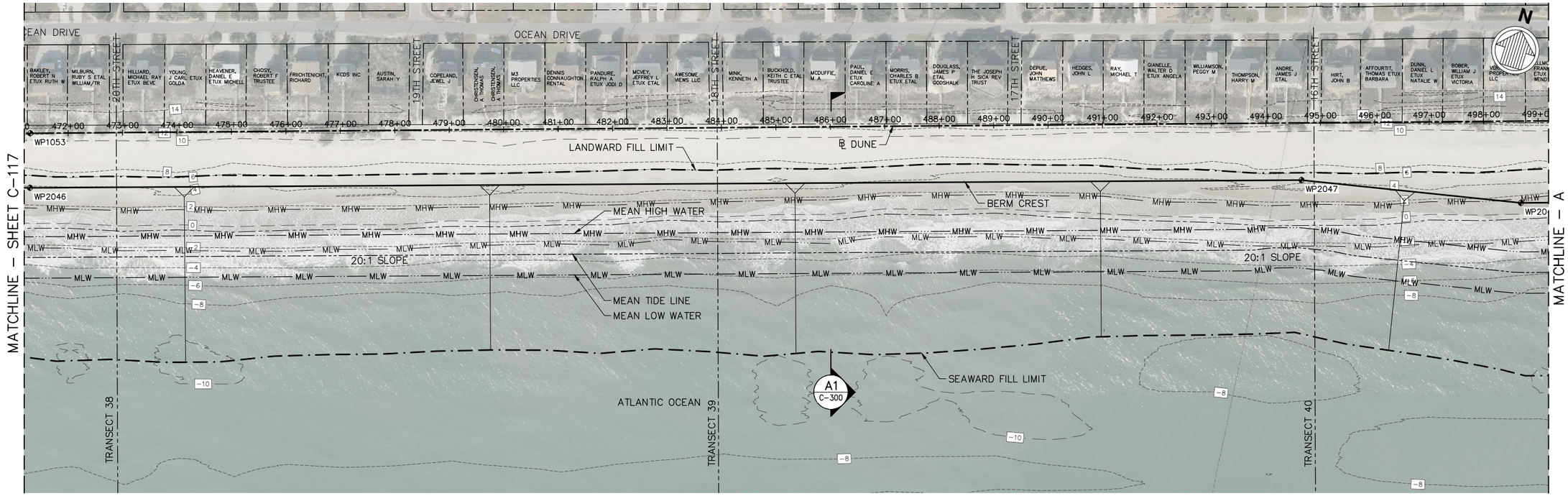
moffatt & nichol
4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105

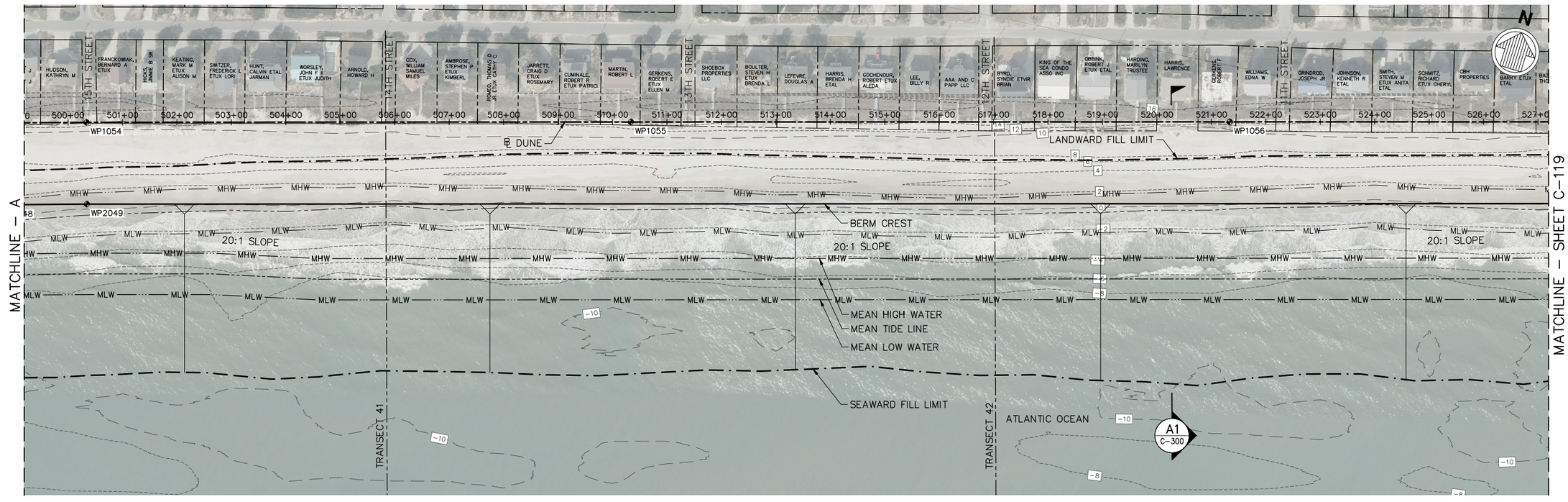
PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-117
Sheet 16 of 51

File: C:\PA\10611\0500_CAD_Active_10611 Bouge Banks 2021\10611C00-117; Plotted: 2/9/2021 2:30 PM by MORGAN, NEXOL; Saved: 2/1/2021 3:44 PM by MMORGAN





NOTES:
1. SEE SHEET C-601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C-301 THRU C-331 FOR CROSS SECTIONS.

100' 0' 100' 200'
SCALE: 1"=100'

Rev.	Date	Mark	Description	By
1	02/09/21	1	ISSUED FOR CONSTRUCTION	JM
0	07/02/20	0	BID DOCUMENTS	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

BEACH RENOURISHMENT PLAN - SHEET 9 OF 10

Designed by: NCV
Drawn by: BDF
Ckd by: SRM
Reviewed by: JDM
Submitted by: MOFFATT & NICHOL
Drawing code:
Drawing Scale: Plot scale: 1:1 (D SHEET)
Date: 2-9-21
M&N Project No. 11034

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

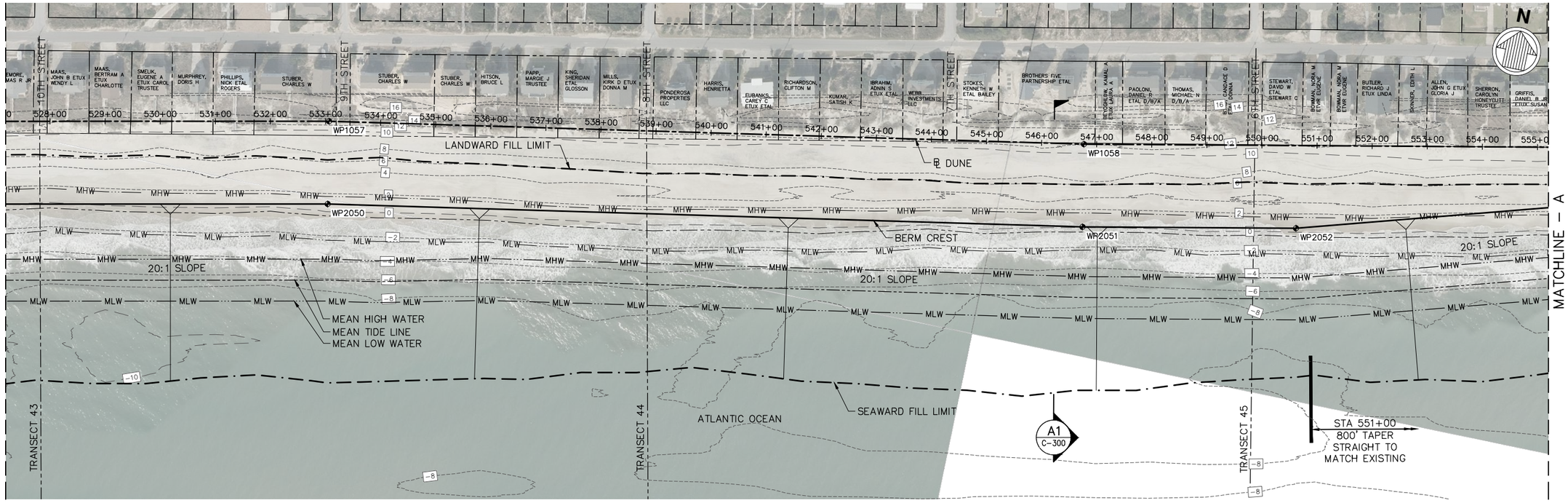
PREPARED FOR THE TOWN OF EMERALD ISLE

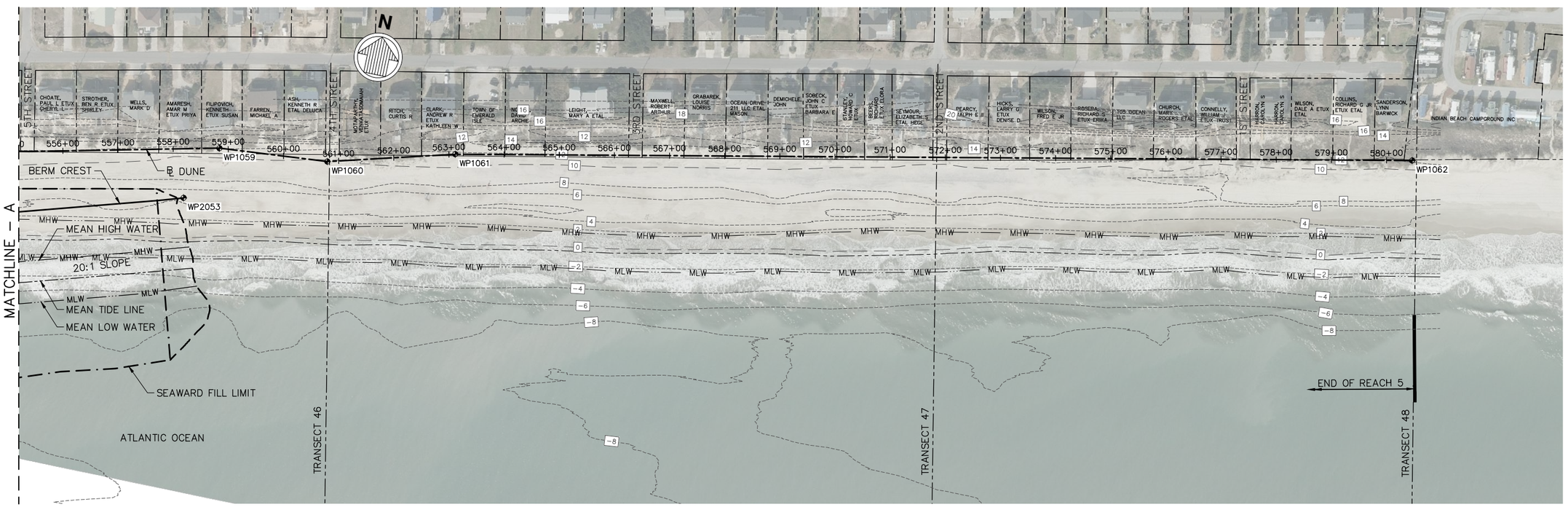
NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-118
Sheet 17 of 51

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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING





NOTES:
1. SEE SHEET C-601 FOR CONSTRUCTION BASELINE WORK POINT TABLES.
2. SEE SHEETS C-301 THRU C-331 FOR CROSS SECTIONS.

100' 0' 100' 200'
SCALE: 1"=100'

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

BEACH RENOURISHMENT PLAN - SHEET 10 OF 10

Rev.	Date	Designed by:	Drawn by:	Checked by:	Reviewed by:	Submitted by:
1	2-9-21	NCV	BDF	SRM	JDM	MOFFATT & NICHOL

M&N Project No. 11034
Drawing code:
Drawing Scale: Plot scale: 1:1 (D SHEET)

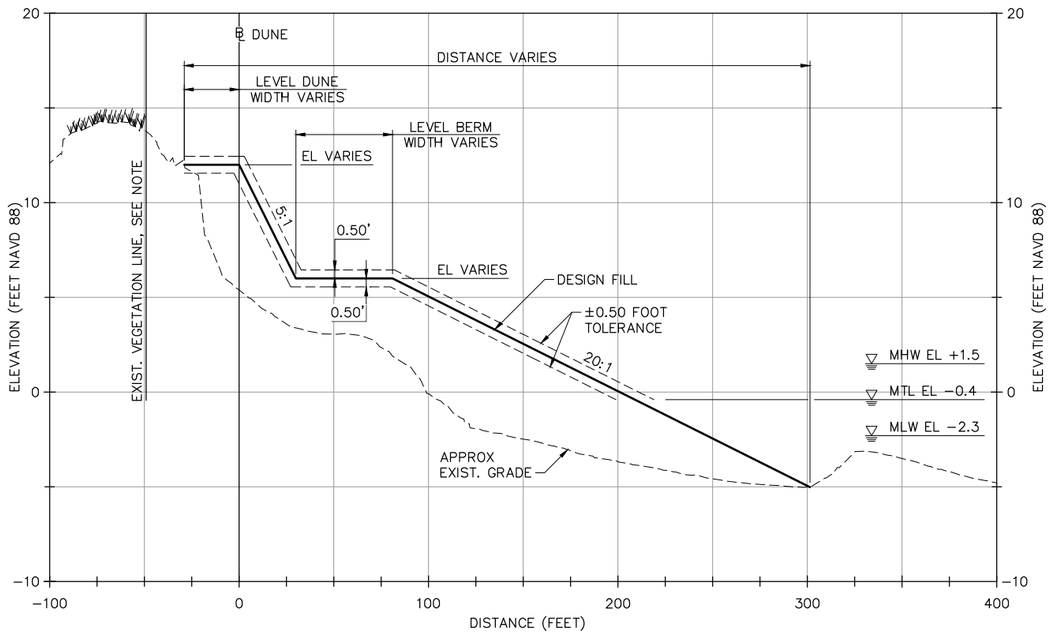
4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

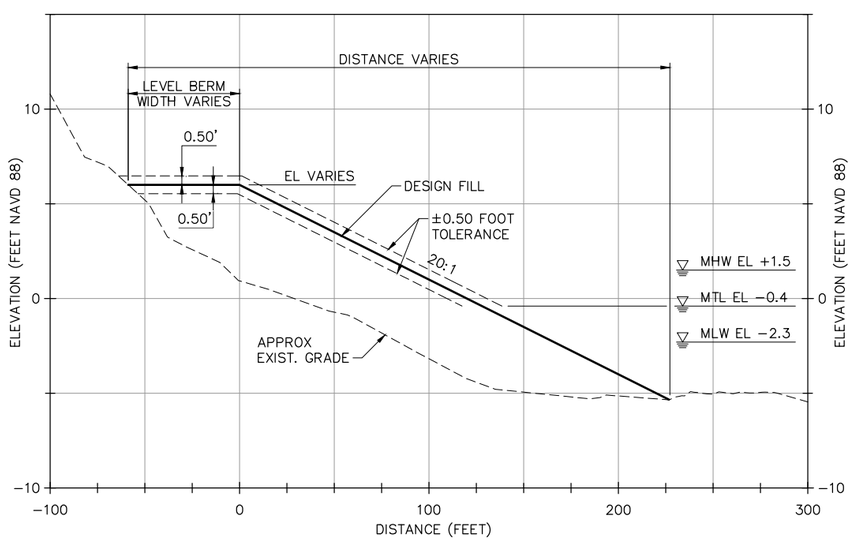
Sheet Reference No.
C-119
Sheet 18 of 51

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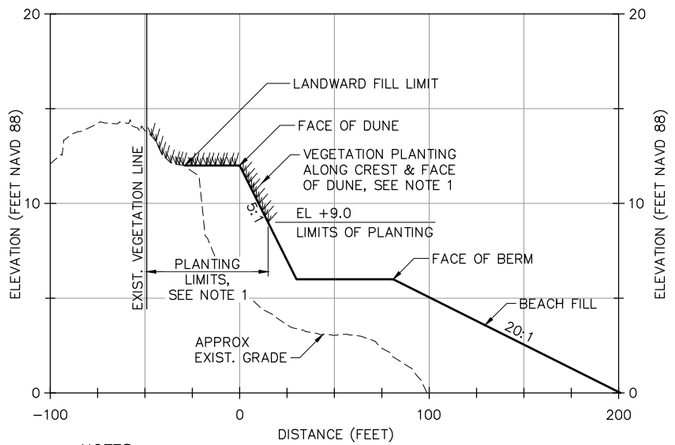


NOTE:
FIELD FIT THE LANDWARD DUNE CREST TIE IN, IF ELEVATION OF THE EXISTING VEGETATION LINE IS HIGHER THAN THE FINAL ELEVATION OF THE DUNE CREST DESIGN, THE DUNE CREST WILL BE CONSTRUCTED TO TIE IN AT THE ELEVATION OF THE CONSTRUCTED DUNE CREST.

C1 / C-300 LEVEL DUNE BEACH NOURISHMENT FILL TOLERANCE SECTION
SCALE: 1"=40'



A1 / C-300 BERM BEACH NOURISHMENT FILL TOLERANCE SECTION
SCALE: 1"=40'



NOTES:
1. PLANTING LIMITS SHALL BE FROM EXISTING VEGETATION LINE ALONG EXISTING GRADE TO ELEVATION +9.0 ON FACE OF DUNE.
2. SEE TECHNICAL SPECIFICATIONS FOR PLANTING, FERTILIZING AND WATERING REQUIREMENTS.

A3 / C-300 BEACH NOURISHMENT FILL PLANTING SECTION
SCALE: 1"=40'

4' 0' 4' 8'
SCALE: 1"=4' VERTICAL
40' 0' 40' 80'
SCALE: 1"=40' HORIZONTAL

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

BEACH NOURISHMENT TYPICAL SECTIONS

Designed by: NCV
Dwn by: BDF
Ckd by: SRM
Reviewed by: JDM
Submitted by: MOFFATT & NICHOL
Date: 2-9-21
M&N Project No. 11034
Drawing code:
Drawing Scale: Plot scale: 1:1 (D SHEET)
Rev. 1

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

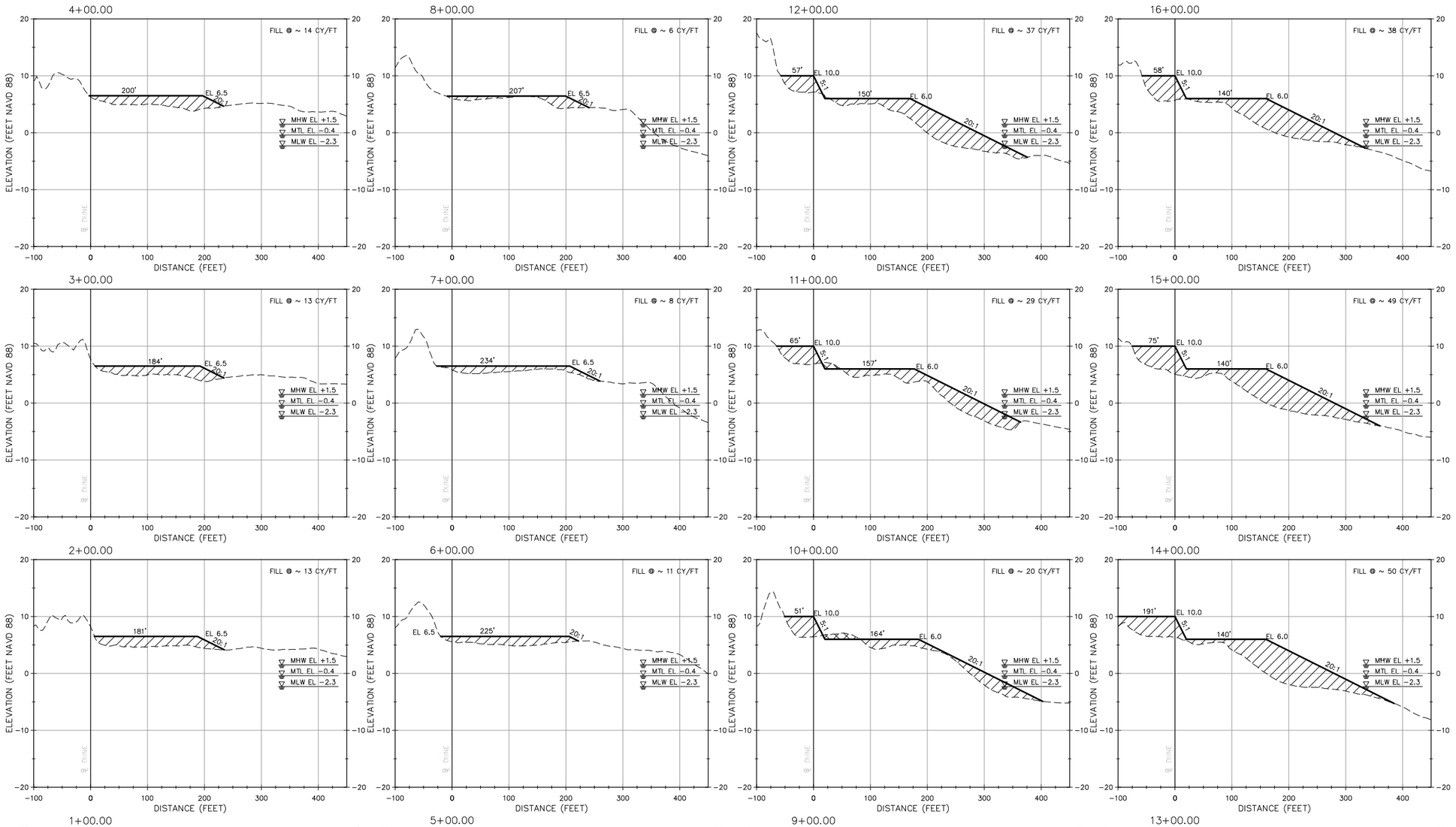
PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-300
Sheet 19 of 51

File: C:\RA\10611\0500_CAD_Active_10611 Bouge Banks 2021\061100C-300; Plotted: 2/9/2021 2:02 PM by MORGAN, NEKOL; Saved: 6/23/2020 11:12 AM by MMORGAN

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON DECEMBER 2020 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 1 OF 31

Designed by: NCV	Date: 2-9-21
Cad by: SRM	M&N Project No. 11034
Dwn by: BDF	Drawing code:
Reviewed by: JDM	Drawing Scale: Plot scale: 1:1 (0 SHEET)
Submitted by: MOFFATT & NICHOL	Rev. 1

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

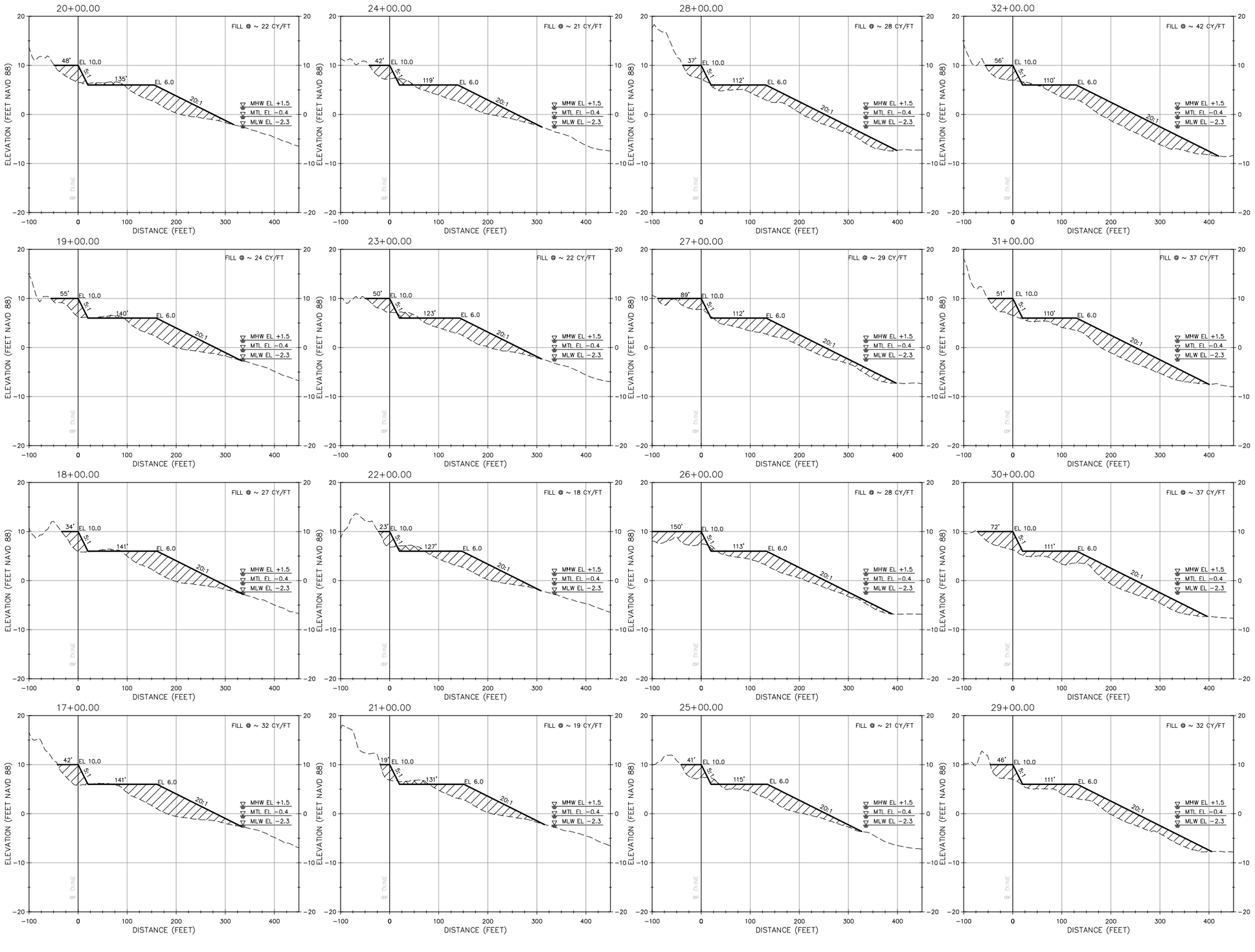
PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-301
Sheet 20 of 51

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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON DECEMBER 2020 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 2 OF 31

Designed by: NCV
Drawn by: BDF
Checked by: SRM
Reviewed by: JDM
Submitted by: MOFFATT & NICHOL
Date: 2-9-21
Rev. 1
M&N Project No. 11034
Drawing code:
Drawing Scale: Plot scale: 1:1 (0 SHEET)

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

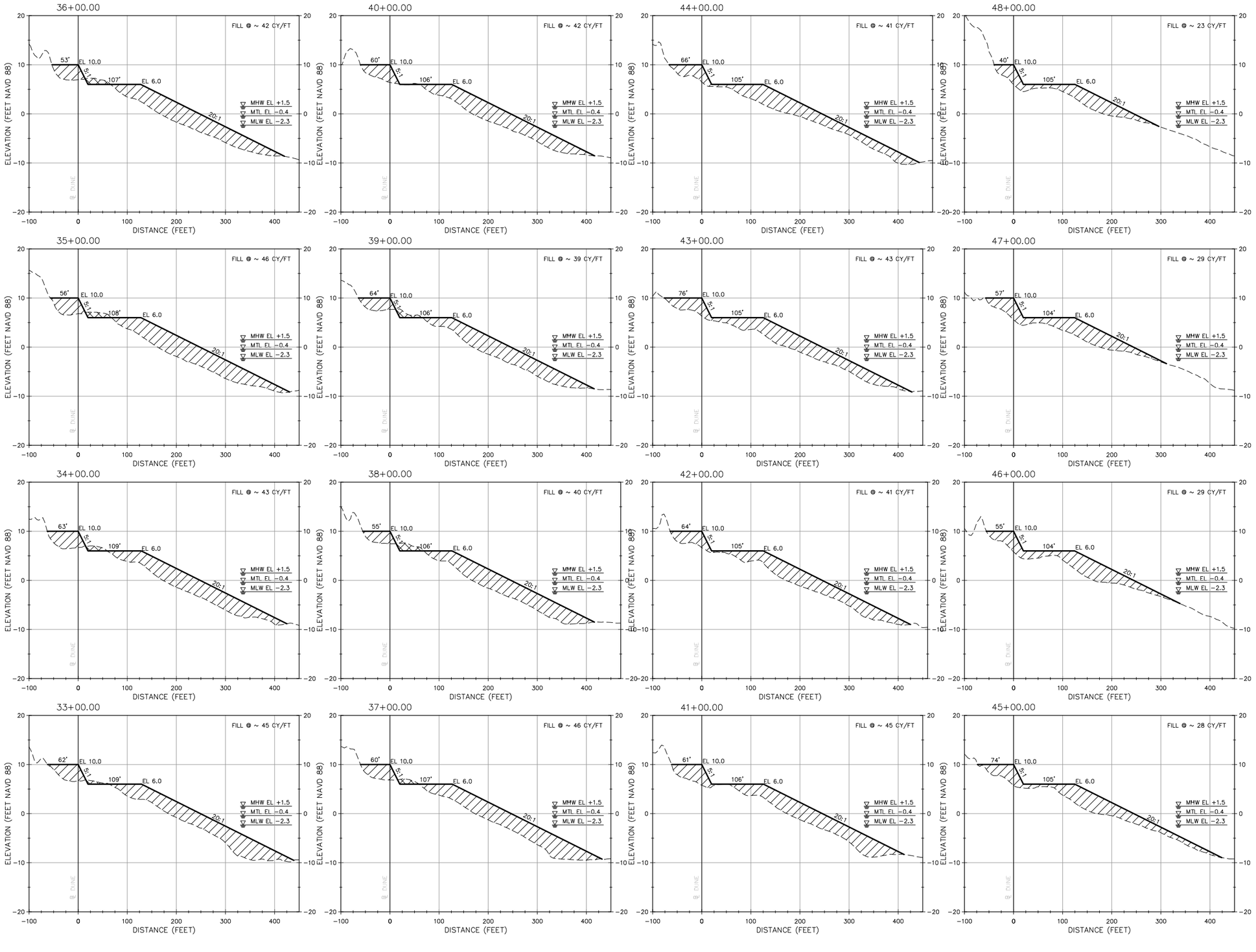
PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-302
Sheet 21 of 51

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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON DECEMBER 2020 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 3 OF 31

Designed by: NCV	Date: 2-9-21
Drawn by: BDF	Chkd by: SRM
Reviewed by: JDM	Rev. 1
Submitted by: MOFFATT & NICHOL	M&N Project No. 11034
Drawing code:	Drawing Scale: Plot scale: 1:1 (0 SHEET)

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

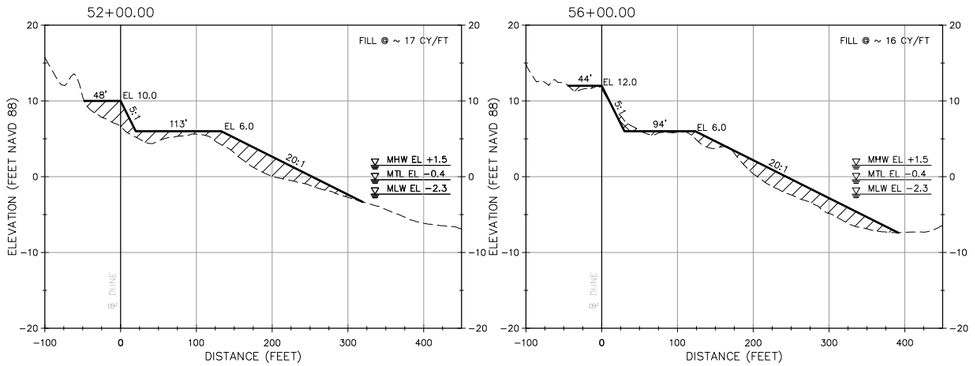
PREPARED FOR THE TOWN OF EMERALD ISLE

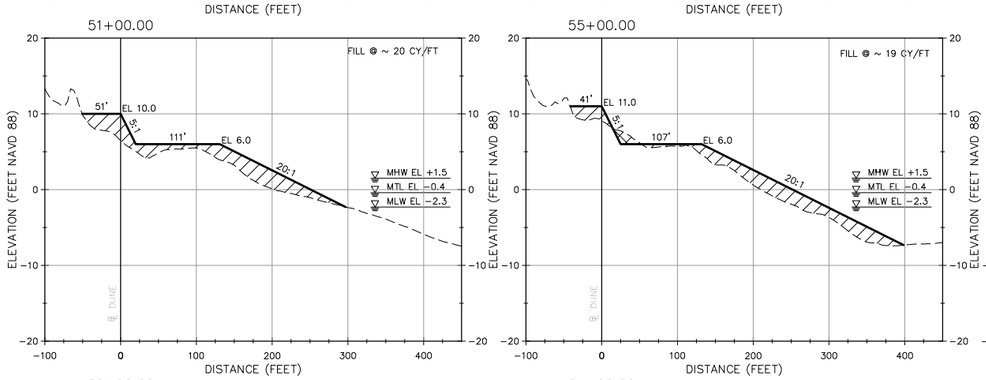
NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

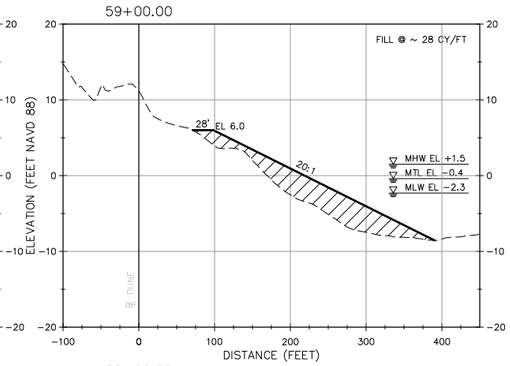
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C-303
Sheet 22 of 51

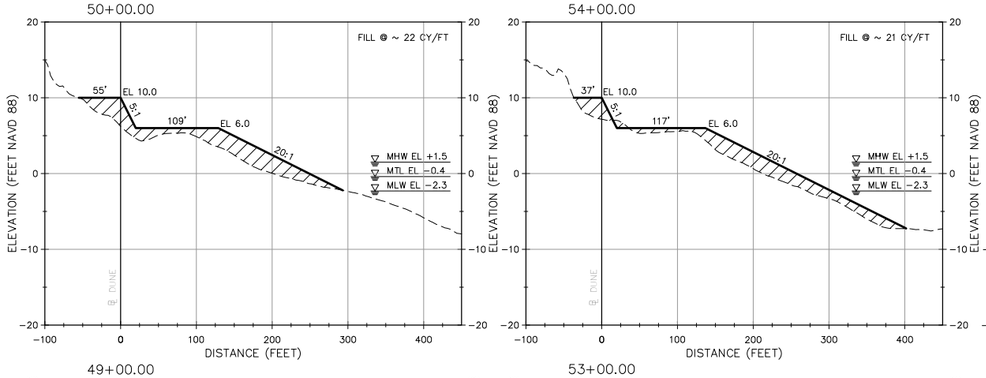
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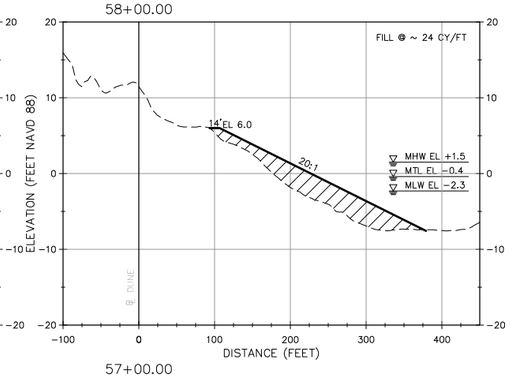
DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

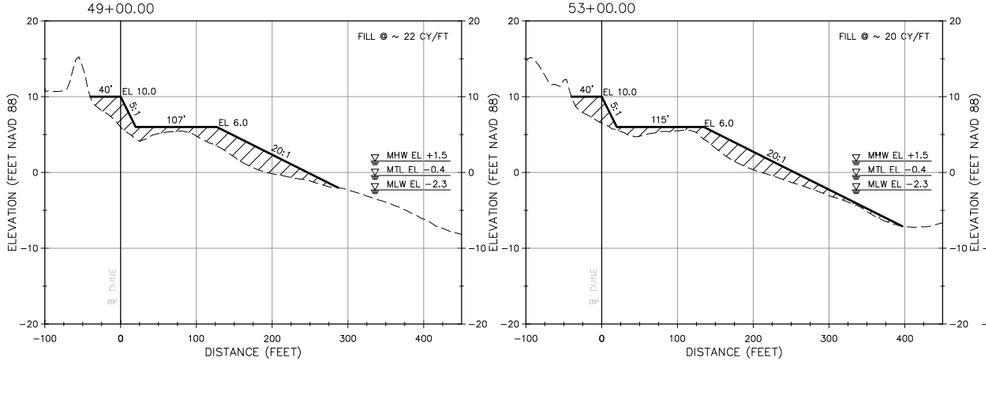


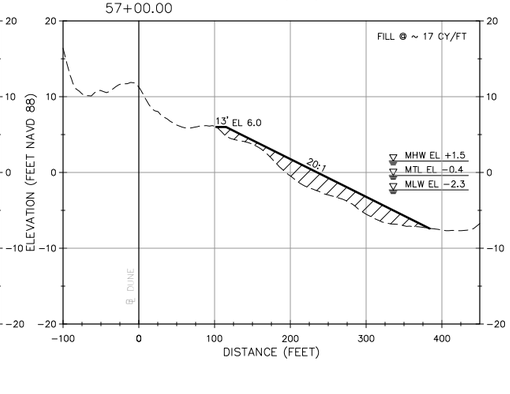












NOTES:
1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON DECEMBER 2020 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 4 OF 31

Designed by:	Date:	Rev.
NCV	2-9-21	1
Dwn by: BDF	Cad by: SRM	M&N Project No. 11034
Reviewed by: JDM		Drawing code:
Submitted by: MOFFATT & NICHOL		Drawing Scale: Plot scale: 1:1 (0 SHEET)

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

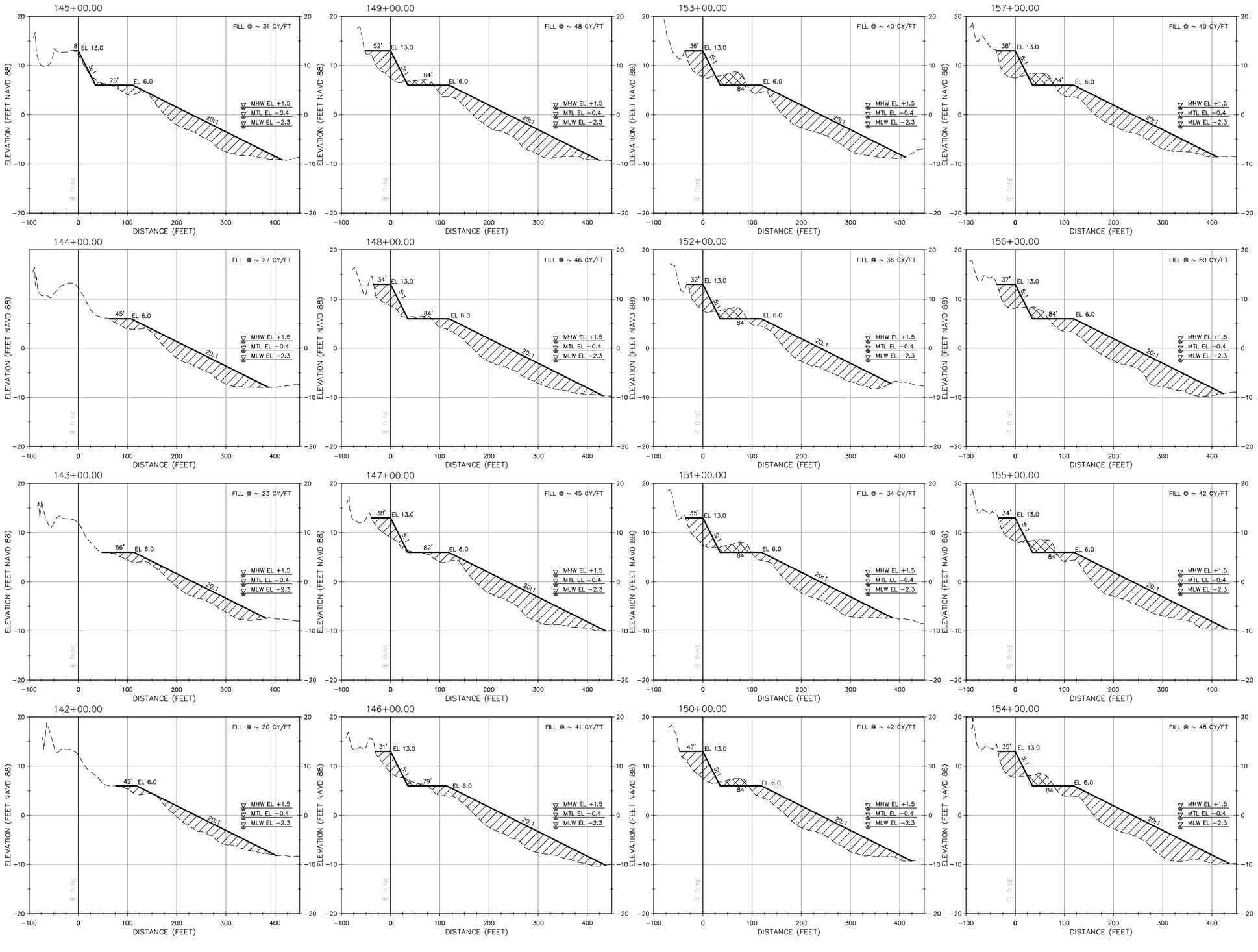
PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-304
Sheet 23 of 51

File: C:\2A\10611\0500_CAD_Active_10611 Bouge Banks 2021\10611C00C-304; Plotted: 2/9/2021 2:03 PM by MORGAN, NEKOL; Saved: 2/9/2021 1:50 PM by NMORGAN

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON DECEMBER 2020 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

SCALE: 1"=10' VERTICAL

SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 5 OF 31

Rev.	Date	Drawing code:	Drawing Scale:
1	2-9-21	M&N Project No. 11034	Plot scale: 1:1 (0 SHEET)

Designed by: NCV
Dwn by: BDF
Cad by: SRM
Reviewed by: JDM
Submitted by: MOFFATT & NICHOL

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

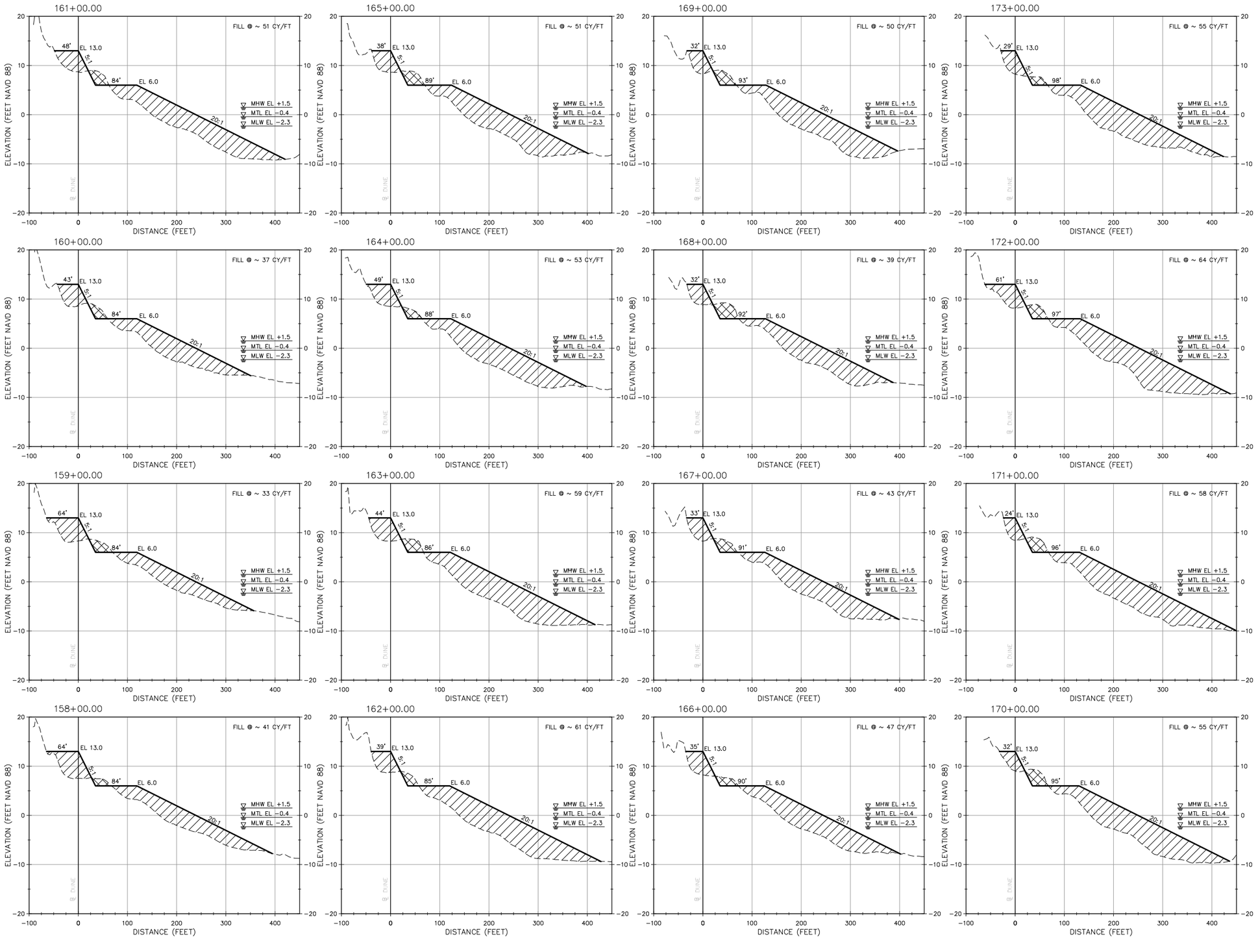
PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-305
Sheet 24 of 51

File: G:\PA\10611\0500_CAD_Active_10611 Bouge Banks 2021\10611C00C-305; Plotted: 2/9/2021 2:35 PM by MORGAN, NEKOL; Saved: 2/9/2021 2:10 PM by MMORGAN

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON DECEMBER 2020 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

SCALE: 1"=10' VERTICAL

SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 6 OF 31

Rev. 1
Date: 2-9-21
M&N Project No. 11034
Designed by: NCV
Drawn by: BDF
Chd by: SRM
Reviewed by: JDM
Drawing code:
Submitted by: MOFFATT & NICHOL
Drawing Scale: Plot scale: 1:1 (0 SHEET)

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

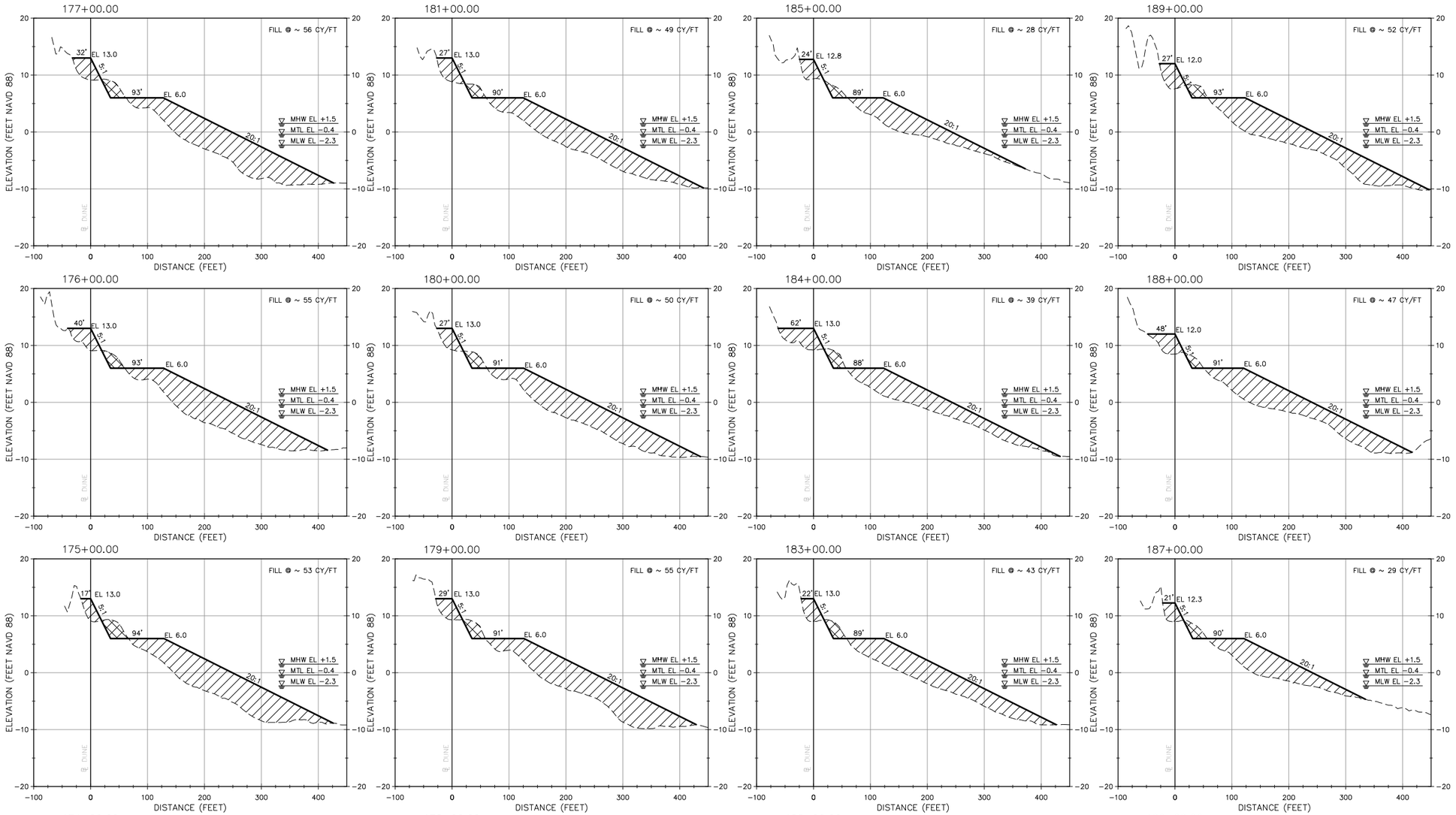
PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-306
Sheet 25 of 51

File: G:\PA\10611\0500_CAD_Active_10611 Bouge Banks 2021\10611C00C-306; Plotted: 2/9/2021 2:03 PM by MORGAN, NEKOL; Saved: 1/25/2021 1:26 PM by NMORGAN

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON DECEMBER 2020 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 7 OF 31

Rev.	Date	Designed by:	Drawn by:	Checked by:	Reviewed by:	Submitted by:	Drawing Scale:
1	2-9-21	NCV	BDF	SRM	JDM	MOFFATT & NICHOL	Plot scale: 1:1 (0 SHEET)

M&N Project No. 11034
Drawing code:

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

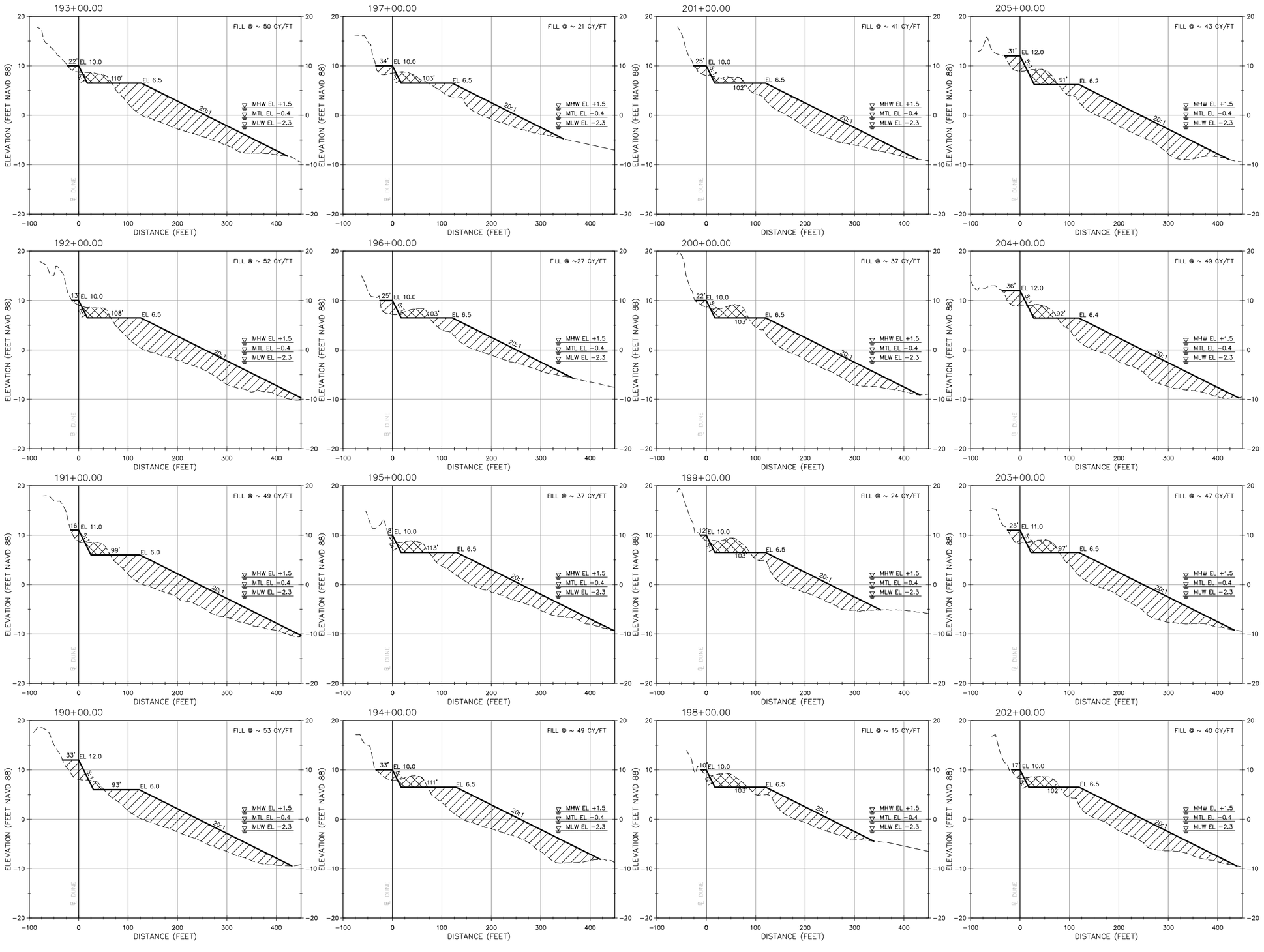
PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-307
Sheet 26 of 51

File: C:\PA\10611\0500_CAD_Active_10611 Bouge Banks 2021\10611C00-307; Plotted: 2/9/2021 2:03 PM by MORGAN, NEKOL; Saved: 1/25/2021 1:26 PM by NMORGAN

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON DECEMBER 2020 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

SCALE: 1"=10' VERTICAL

SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 8 OF 31

Designed by:	NCV
Drawn by:	BDF
Checked by:	SRM
Reviewed by:	JDM
Submitted by:	MOFFATT & NICHOL
Date:	2-9-21
M&N Project No.	11034
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (0 SHEET)
Rev.	1

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

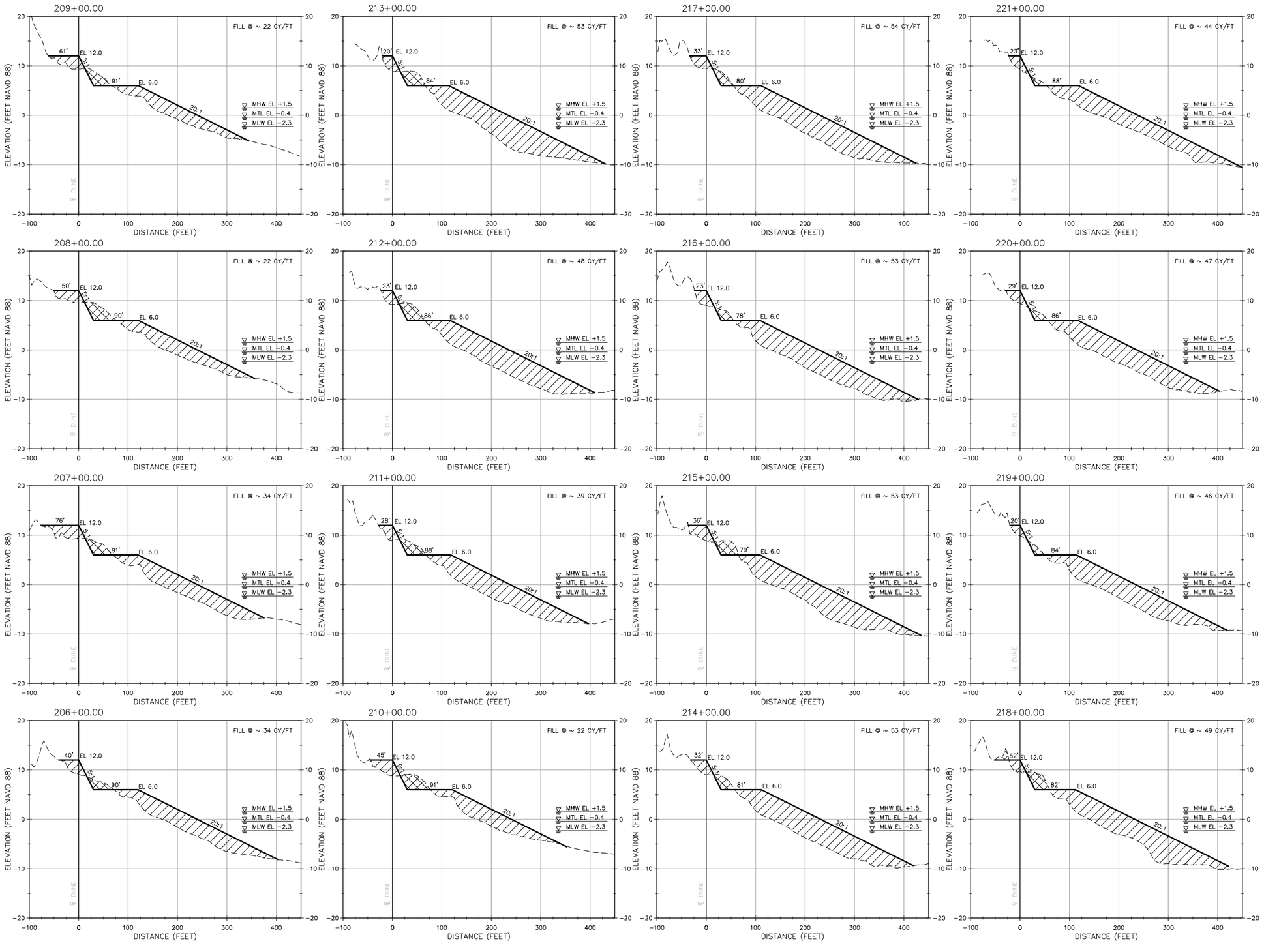
PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-308
Sheet 27 of 51

File: G:\PA\10611\0500_CAD_Active_10611 Bouge Banks 2021\10611C00C-308; Plotted: 2/9/2021 2:03 PM by MORGAN, NEKOL; Saved: 1/25/2021 1:27 PM by NMORGAN

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON DECEMBER 2020 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

SCALE: 1"=10' VERTICAL

SCALE: 1"=100' HORIZONTAL

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 9 OF 31

Rev.	1
Date:	2-9-21
M&N Project No.	11034
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (0 SHEET)
Designed by:	NCV
Dwn by:	BDF
Chd by:	SRM
Reviewed by:	JDM
Submitted by:	MOFFATT & NICHOL

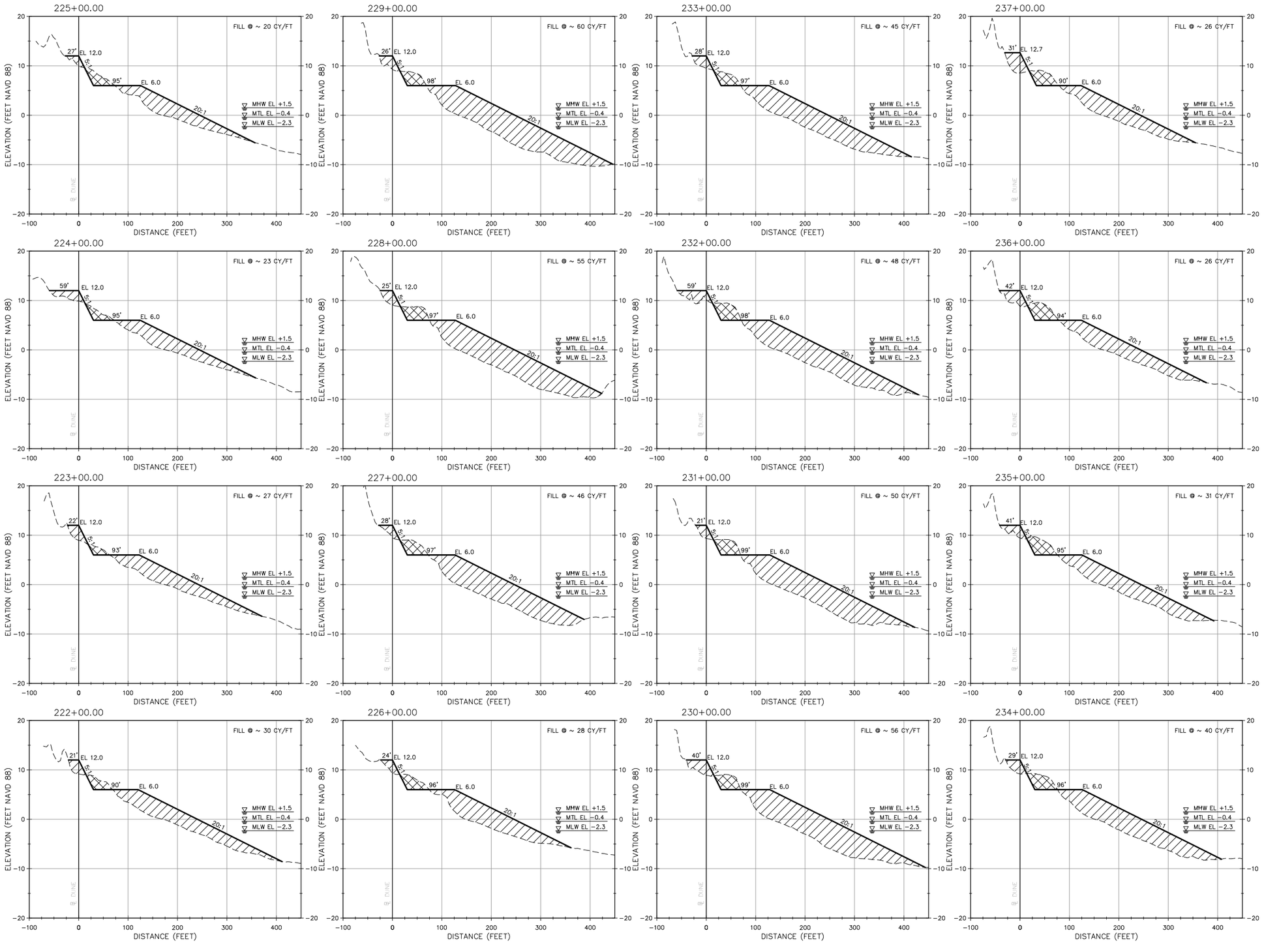
4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-309
Sheet 28 of 51

File: G:\PA\10611\0500_CAD_Active_10611 Bouge Banks 2021\10611C00C-309; Plotted: 2/9/2021 2:04 PM by MORGAN, NEKOL; Saved: 1/25/2021 1:27 PM by NMORGAN



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON DECEMBER 2020 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

SCALE: 1"=10' VERTICAL

SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 10 OF 31

Designed by: NCV
Dwn by: BDF
Ckd by: SRM
Reviewed by: JDM
Submitted by: MOFFATT & NICHOL
Date: 2-9-21
M&N Project No. 11034
Drawing code:
Drawing Scale: Plot scale: 1:1 (D SHEET)
Rev. 1

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

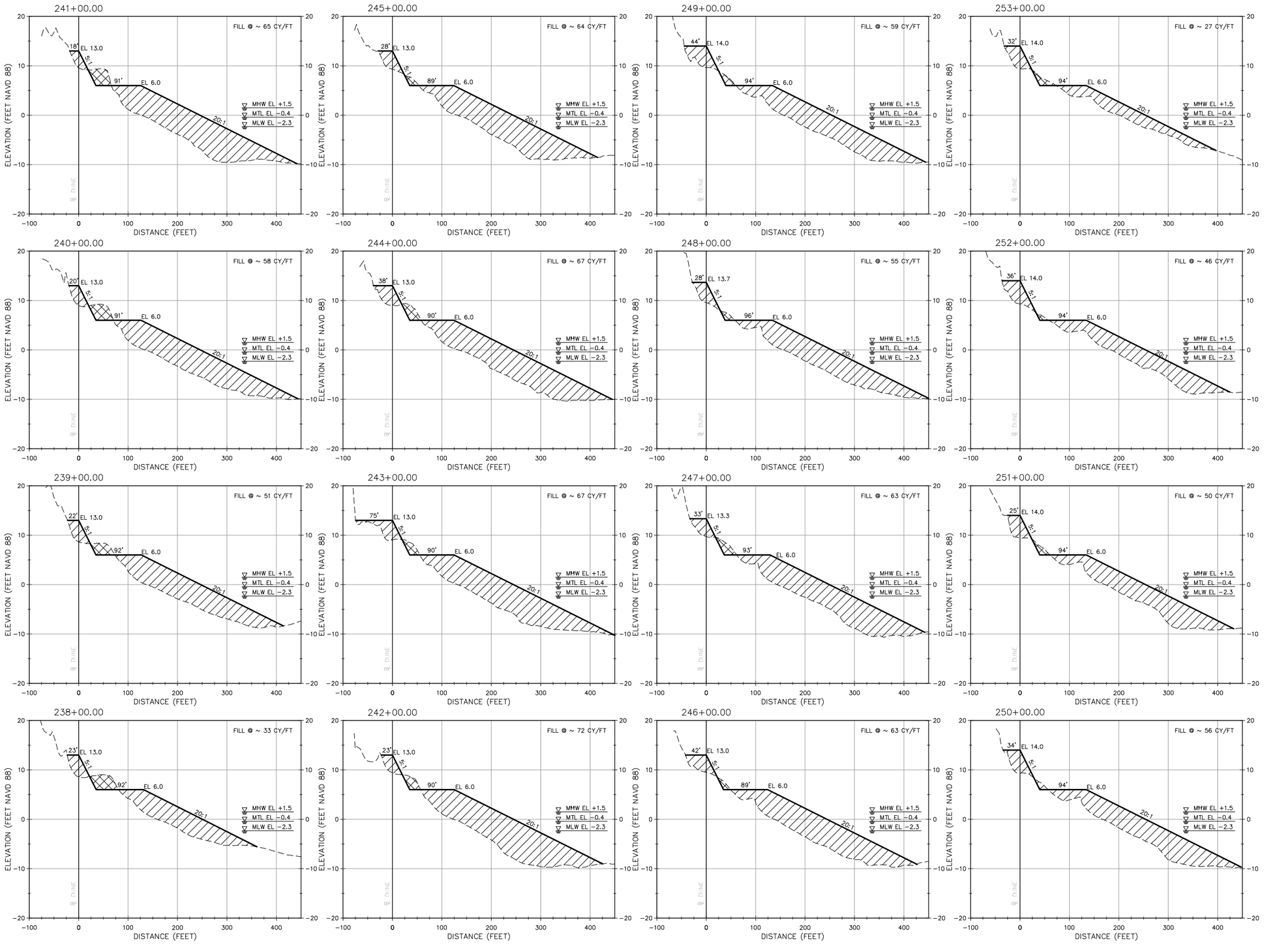
PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-310
Sheet 29 of 51

File: G:\PA\10611\0500_CAD_Active_10611 Bouge Banks 2021\10611C00C-310; Plotted: 2/9/2021 2:04 PM by MORGAN, NEKOL; Saved: 1/25/2021 1:27 PM by NMORGAN

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON DECEMBER 2020 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

SCALE: 1"=10' VERTICAL

SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 11 OF 31

Designed by: NCV
Drawn by: BDF
Checked by: SRM
Reviewed by: JDM
Submitted by: MOFFATT & NICHOL
Date: 2-9-21
M&N Project No. 11034
Drawing code:
Drawing Scale: Plot scale: 1:1 (0 SHEET)
Rev. 1

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

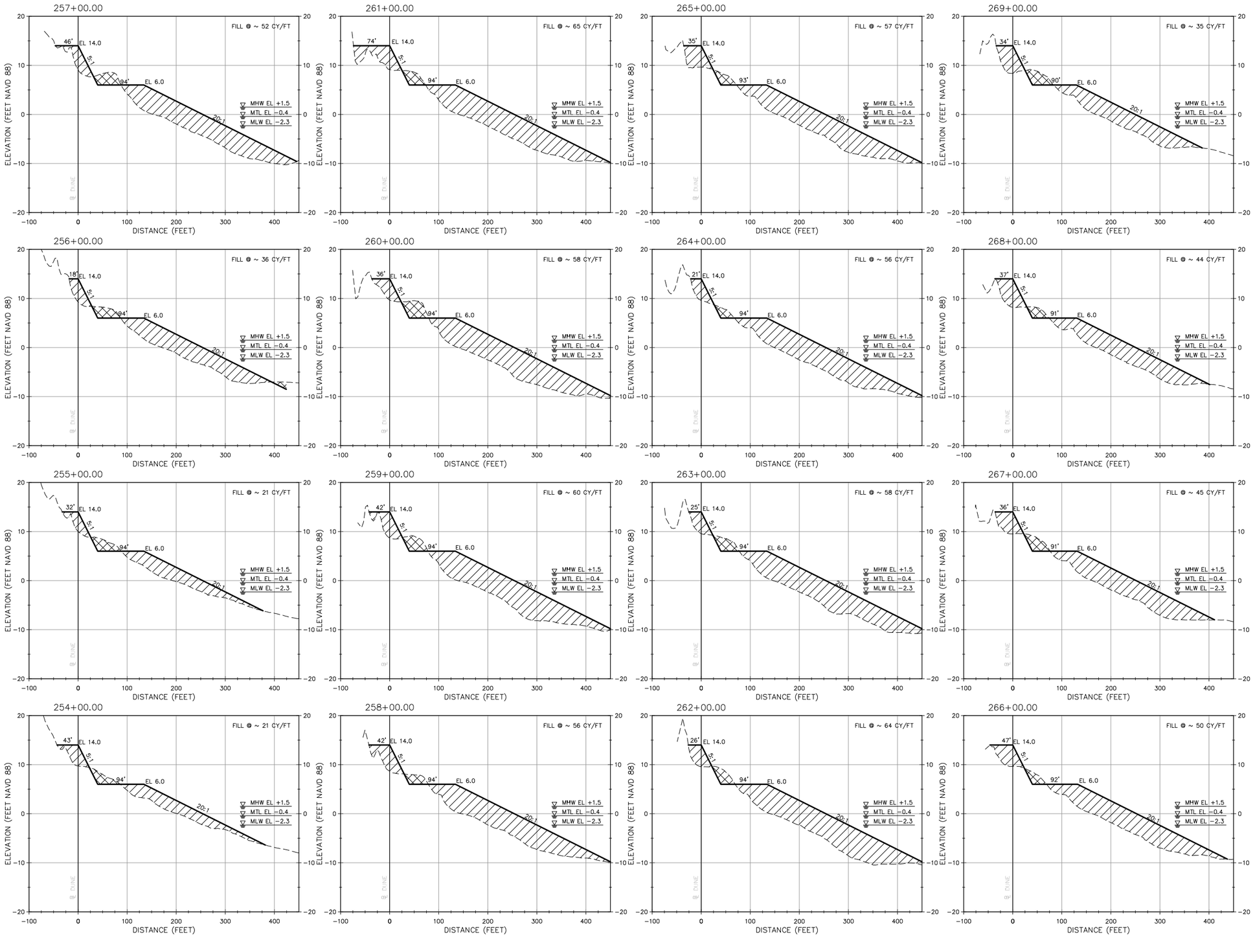
PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-311
Sheet 30 of 51

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

File: G:\PA\10611\05500_CAD_Active_10611 Bouge Banks 2021\10611C00C-311; Plotted: 2/9/2021 2:04 PM by MORGAN, NEXOL; Saved: 1/25/2021 1:27 PM by MMORGAN



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON DECEMBER 2020 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 3 CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS SHEET 12 OF 31

Rev. 1
Date: 2-9-21
M&N Project No. 11034
Designed by: NCV
Drawn by: BDF
Chkd by: SRM
Reviewed by: JDM
Drawing code:
Submitted by: MOFFATT & NICHOL
Drawing Scale: Plot scale: 1:1 (0 SHEET)

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

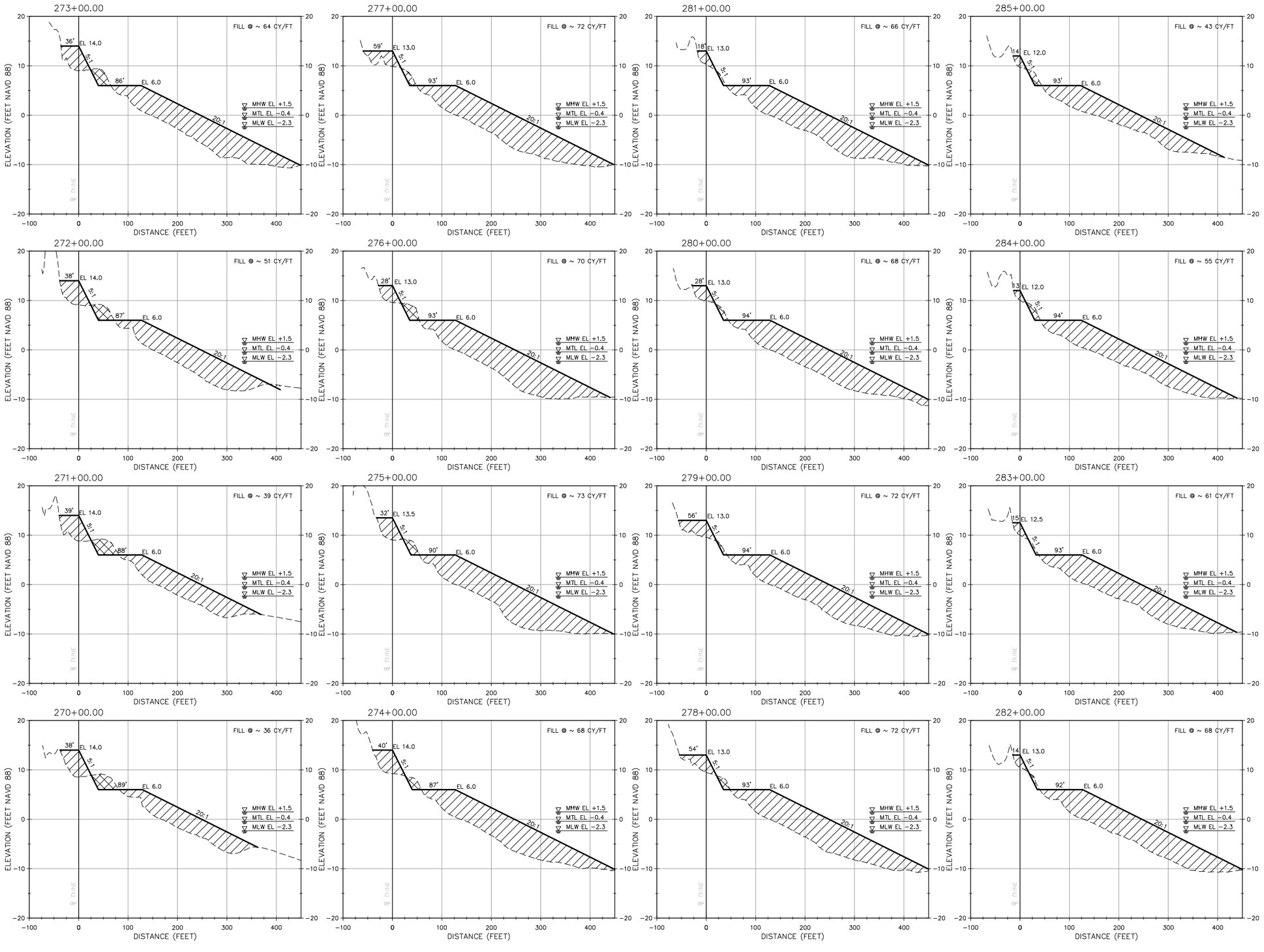
PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-312
Sheet 31 of 51

File: G:\PA\10611\0500_CAD_Active_10611 Bouge Banks 2021\10611C00C-312; Plotted: 2/9/2021 2:04 PM by MORGAN, NEKOL; Saved: 1/25/2021 1:28 PM by MNORGAN

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON DECEMBER 2020 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

SCALE: 1"=10' VERTICAL

SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 13 OF 31

Rev.	Date	Designed by:	Drawing code:	Drawing Scale:
1	2-9-21	NCV		Plot scale: 1:1 (0 SHEET)

M&N Project No. 11034

Cad by: SRM

Dwn by: BDF

Reviewed by: JDM

Submitted by: MOFFATT & NICHOL

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN

SEAL

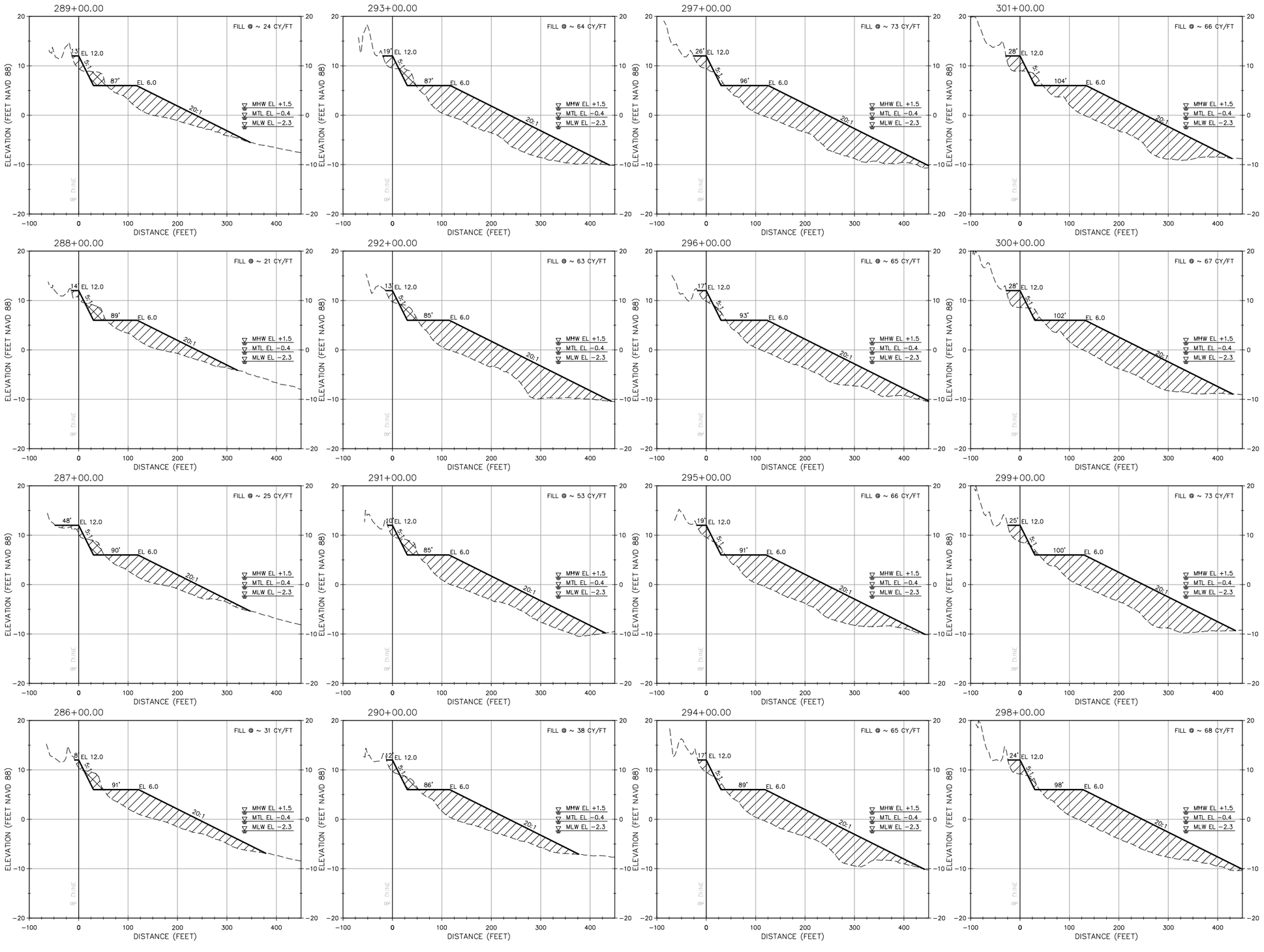
Sheet Reference No.

C-313

Sheet 32 of 51

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

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NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON DECEMBER 2020 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

SCALE: 1"=10' VERTICAL

SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 14 OF 31

Designed by: NCV
Drawn by: BDF
Checked by: SRM
Reviewed by: JDM
Submitted by: MOFFATT & NICHOL
Date: 2-9-21
Rev. 1
M&N Project No. 11034
Drawing code:
Drawing Scale: Plot scale: 1:1 (D SHEET)

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

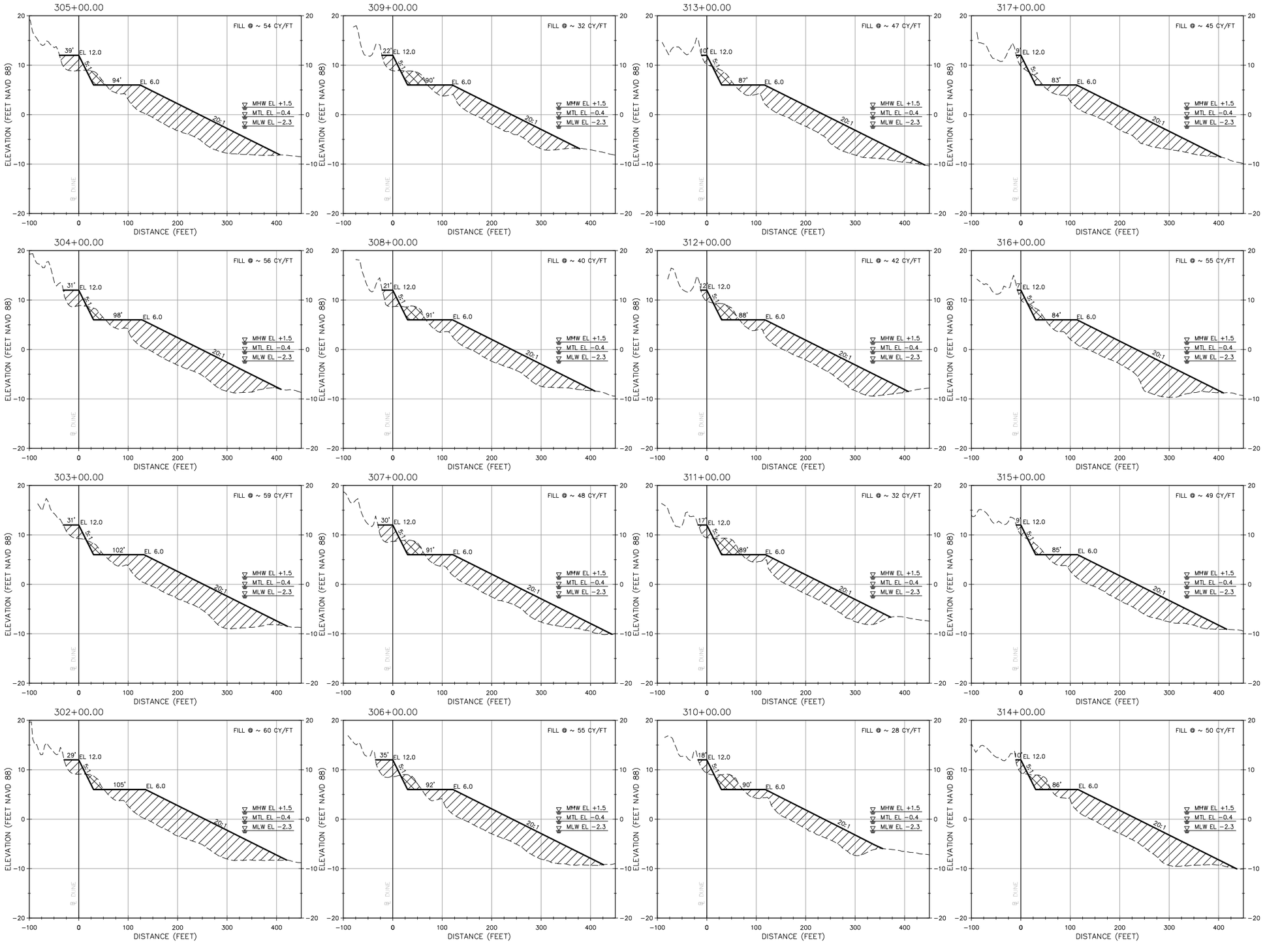
PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-314
Sheet 33 of 51

File: G:\PA\10611\0500_CAD_Active_10611 Bouge Banks 2021\10611000-314; Plotted: 2/9/2021 2:04 PM by MORGAN, NEKOL; Saved: 1/25/2021 1:28 PM by NMORGAN

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON DECEMBER 2020 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

SCALE: 1"=10' VERTICAL

SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 15 OF 31

Rev.	Date	Drawing code:	Drawing Scale:
1	2-9-21	M&N Project No. 11034	Plot scale: 1:1 (0 SHEET)

Designed by:	Cad by:	Reviewed by:	Submitted by:
NCV	SRM	JDM	MOFFATT & NICHOL
Dwn by: BDF			

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

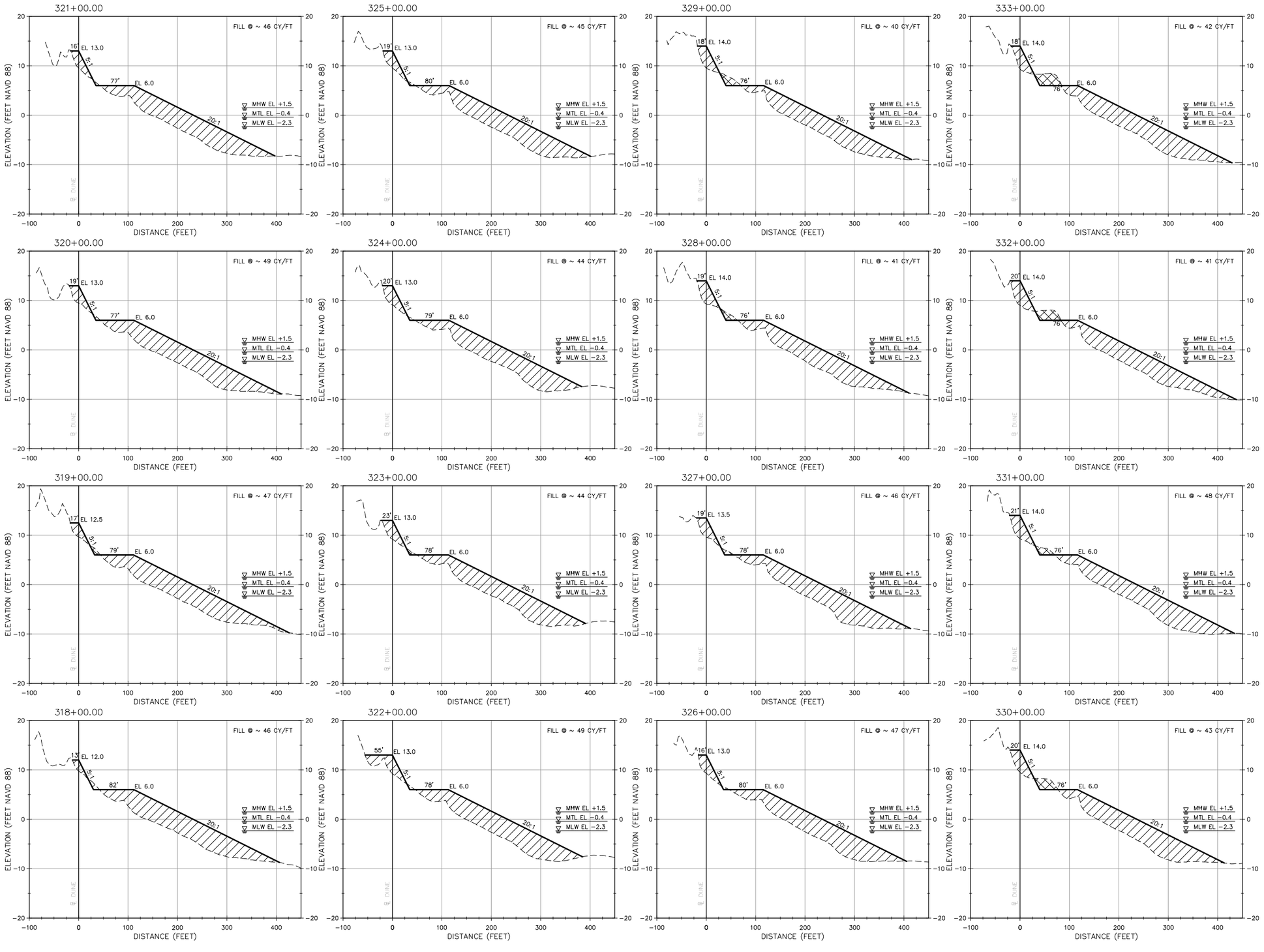
PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-315
Sheet 34 of 51

File: G:\PA\10611\0500_CAD_Active_10611 Bouge Banks 2021\10611000-315; Plotted: 2/9/2021 2:04 PM by MORGAN, NEKOL; Saved: 1/25/2021 1:29 PM by NMORGAN

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON DECEMBER 2020 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

SCALE: 1"=10' VERTICAL

SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 16 OF 31

Rev.	Date	Drawing code:	Drawing Scale:
1	2-9-21	M&N Project No. 11034	Plot scale: 1:1 (0 SHEET)

Designed by: NCV
Drawn by: BDF
Checked by: SRM
Reviewed by: JDM
Submitted by: MOFFATT & NICHOL

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

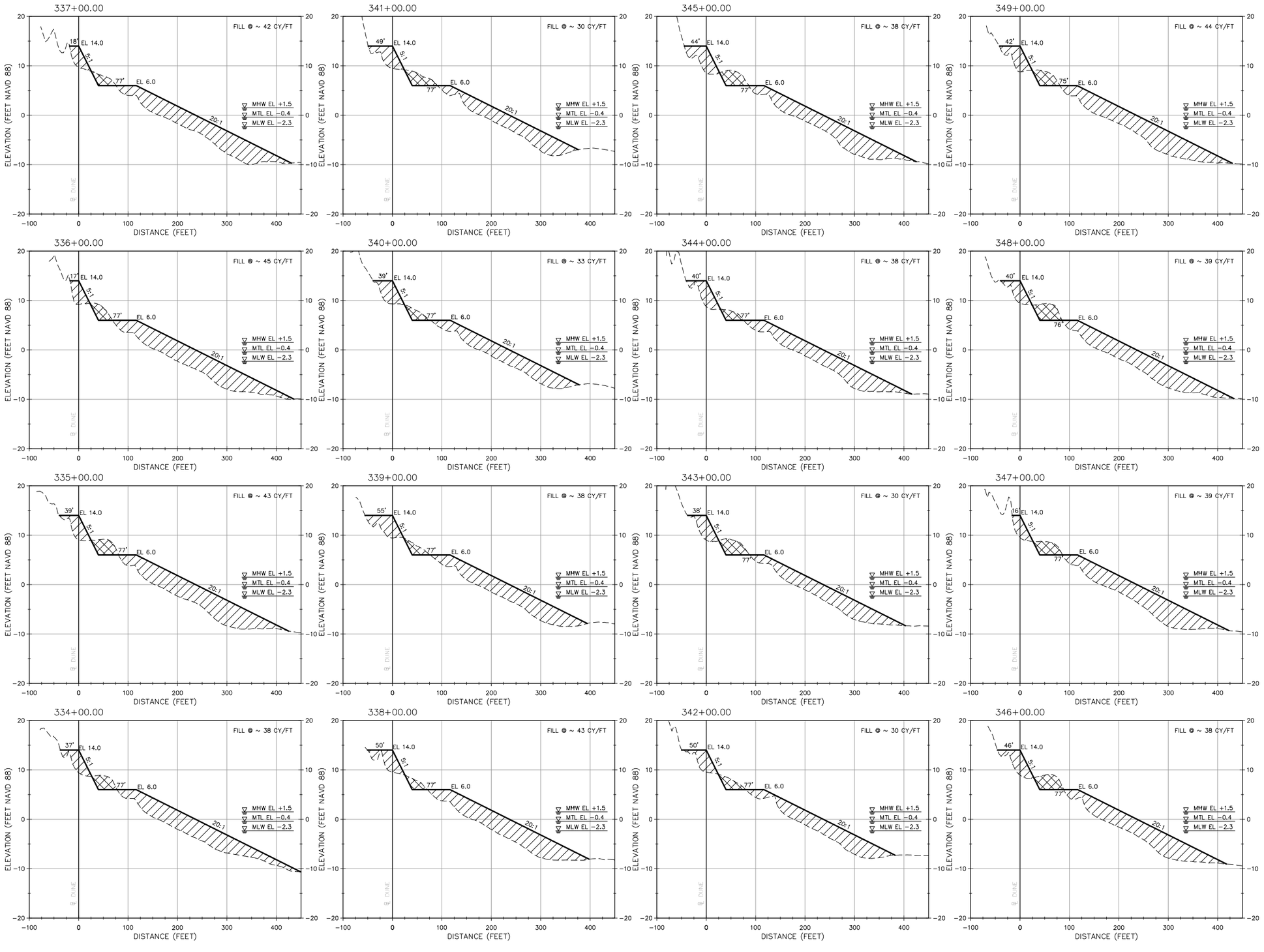
PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-316
Sheet 35 of 51

File: Q:\PA\10611\05000_CAD_Active_10611 Bouge Banks 2021\10611000C-316; Plotted: 2/9/2021 2:05 PM by MORGAN, NEKOL; Saved: 1/25/2021 1:29 PM by NMORGAN

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON DECEMBER 2020 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

SCALE: 1"=10' VERTICAL

SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 17 OF 31

Designed by: NCV
Drawn by: BDF
Checked by: SRM
Reviewed by: JDM
Submitted by: MOFFATT & NICHOL
Date: 2-9-21
M&N Project No. 11034
Drawing code:
Drawing Scale: Plot scale: 1:1 (D SHEET)
Rev. 1

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

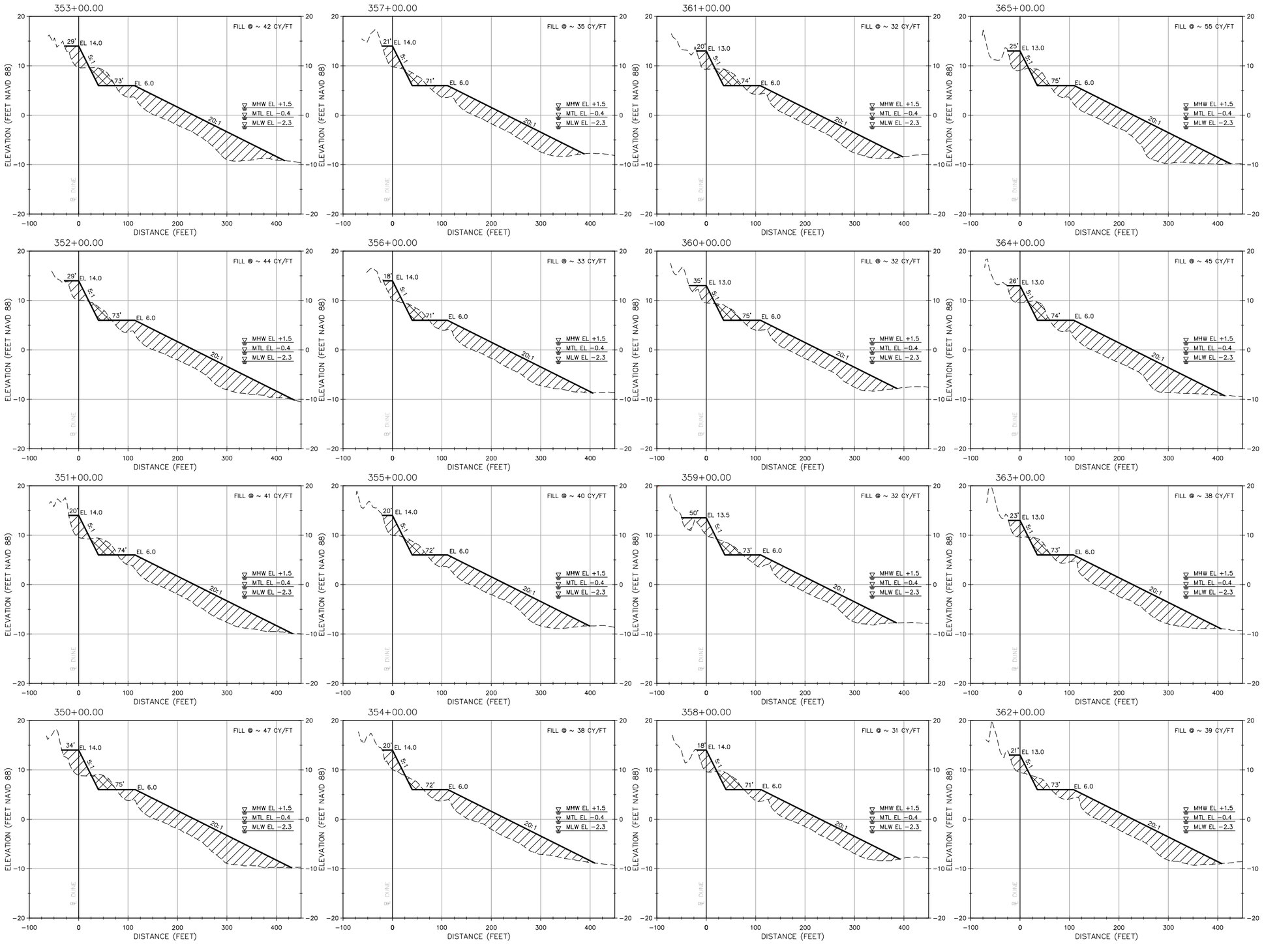
PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-317
Sheet 36 of 51

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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON DECEMBER 2020 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 18 OF 31

Rev.	Date	M&N Project No.	Drawing code:	Drawing Scale:
1	2-9-21	11034		Plot scale: 1:1 (0 SHEET)

Designed by:	Cad by:	Reviewed by:	Submitted by:
NCV	SRM	JDM	MOFFATT & NICHOL
Dwn by: BDF			

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
moffatt & nichol NC FIRM LICENSE No. F-0105

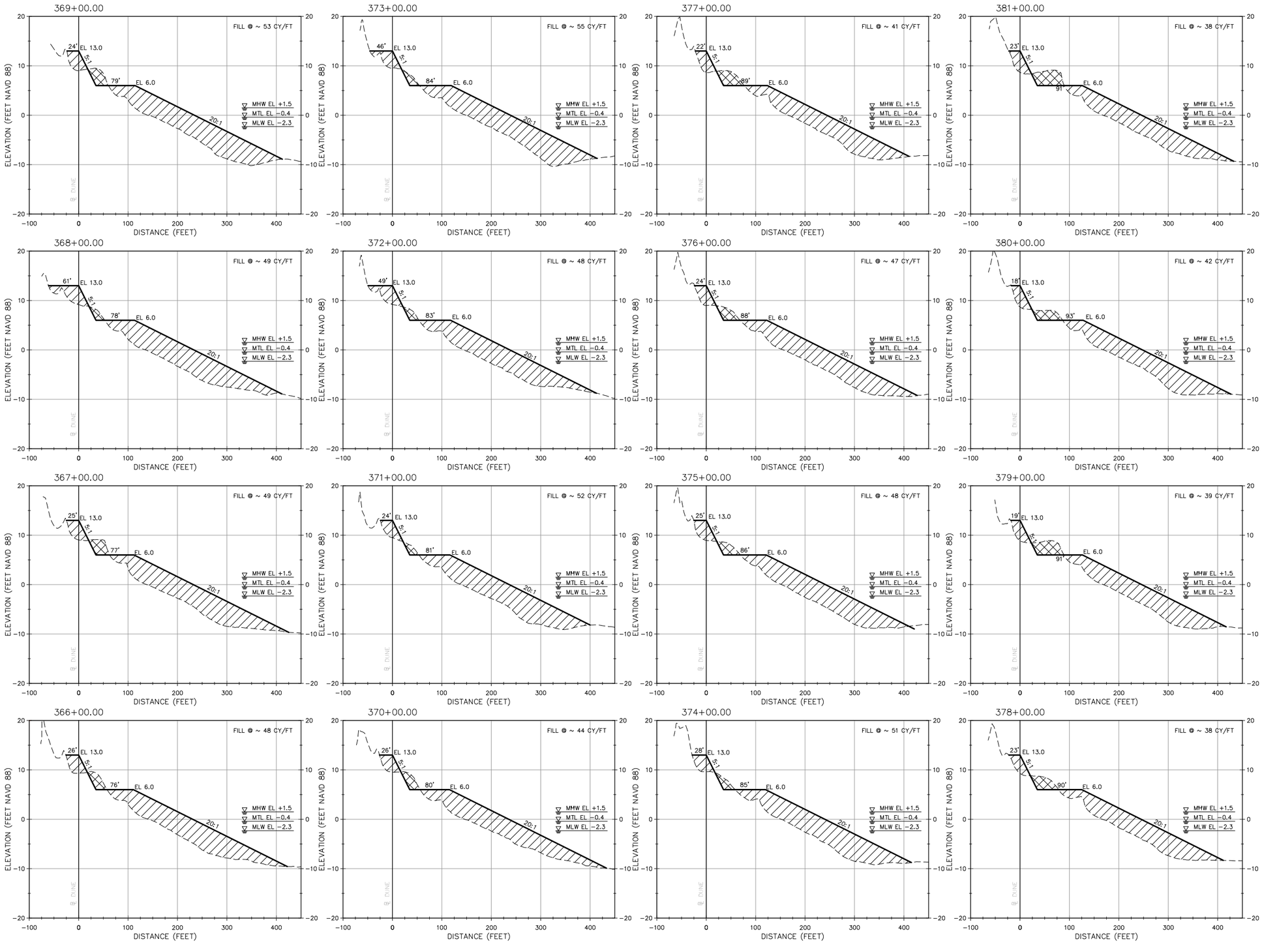
PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-318
Sheet 37 of 51

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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON DECEMBER 2020 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

SCALE: 1"=10' VERTICAL (10' 0' 10' 20')

SCALE: 1"=100' HORIZONTAL (100' 0' 100' 200')

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS SHEET 19 OF 31

Rev.	Date	Designed by	Drawn by	Checked by	Reviewed by	Submitted by	Drawing code	Drawing Scale
1	2-9-21	NCV	BDF	SRM	JDM	MOFFATT & NICHOL	M&N Project No. 11034	Plot scale: 1:1 (0 SHEET)

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

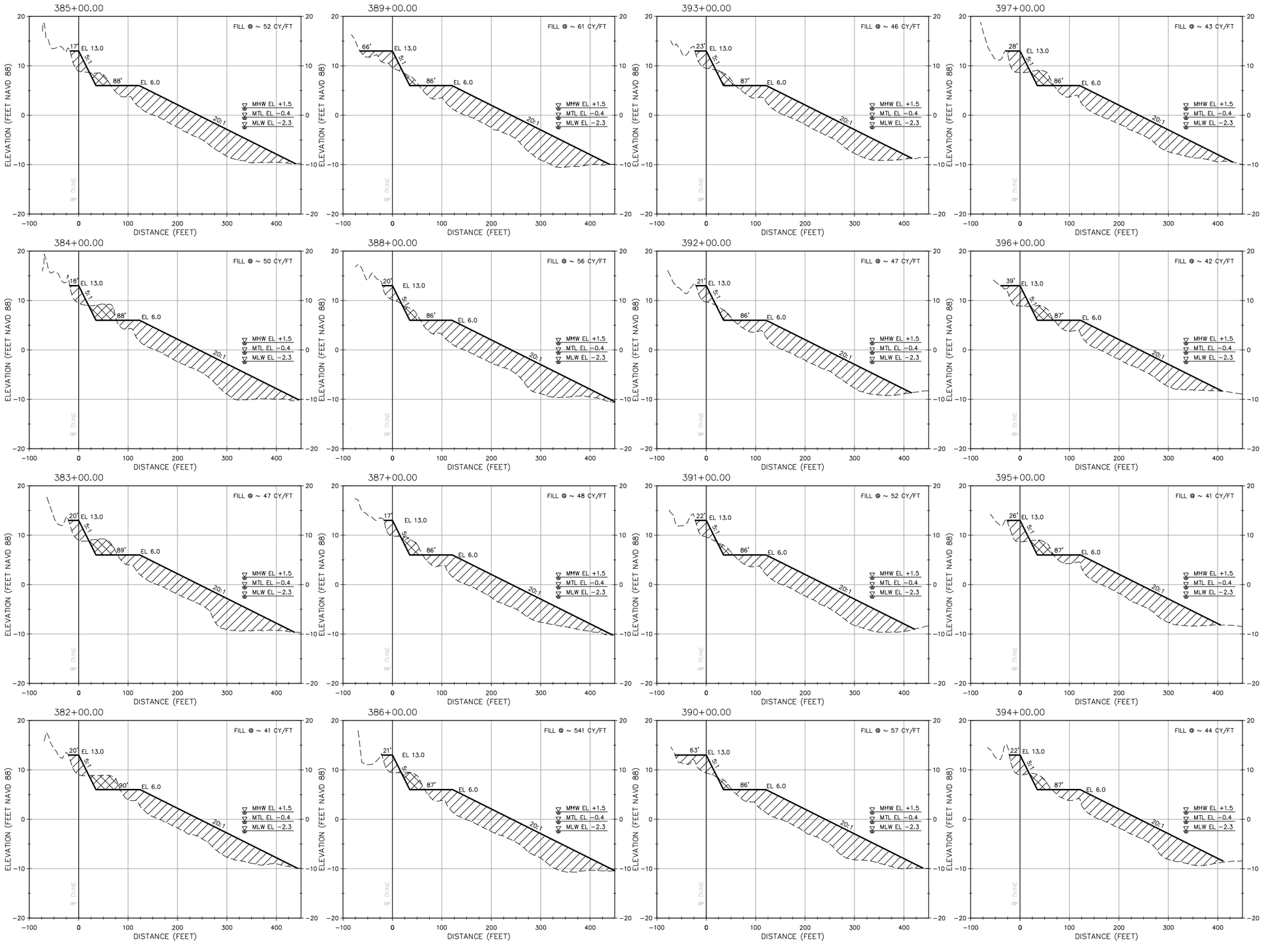
PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-319
Sheet 38 of 51

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

File: Q:\PA\10611\05000_CAD_Active_10611 Bouge Banks 2021\10611000C-319; Plotted: 2/9/2021 2:05 PM by MORGAN, NEKOL; Saved: 1/25/2021 1:30 PM by MMORGAN



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON DECEMBER 2020 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 20 OF 31

Designed by: NCV	Rev. 1
Drawn by: BDF	Chd by: SRM
Date: 2-9-21	M&N Project No. 11034
Reviewed by: JDM	Drawing code:
Submitted by: MOFFATT & NICHOL	Drawing Scale: Plot scale: 1:1 (0 SHEET)

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

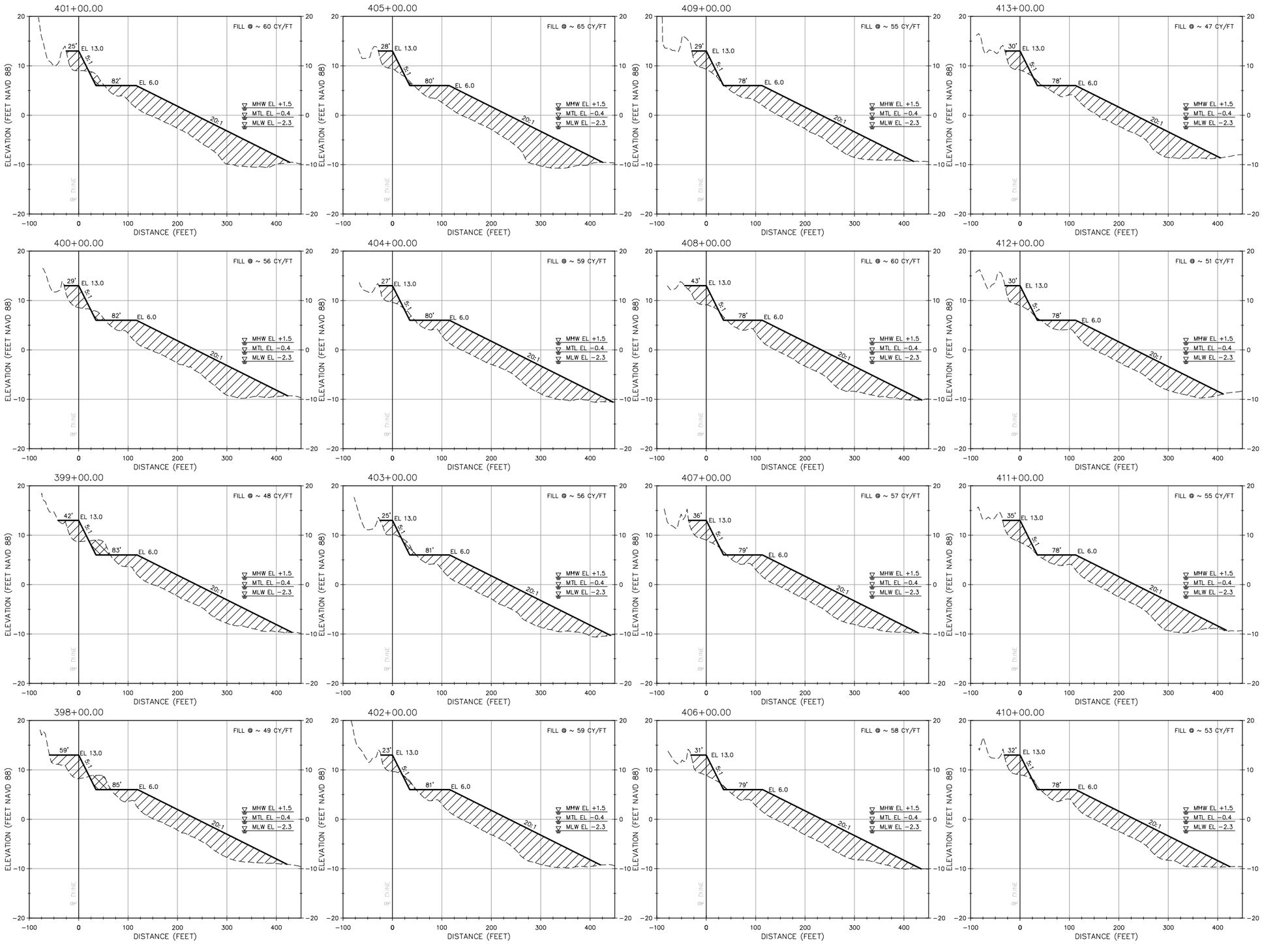
PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-320
Sheet 39 of 51

File: C:\PA\10611\03500_CAD_Active_10611 Bouge Banks 2021\10611000-320; Plotted: 2/9/2021 2:05 PM by MORGAN, NICKOL; Saved: 2/2/2021 2:29 PM by MMORGAN

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON DECEMBER 2020 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

SCALE: 1"=10' VERTICAL

SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 21 OF 31

Rev.	Date	Designed by	Drawn by	Checked by	Reviewed by	Submitted by	Drawing code	Drawing Scale
1	2-9-21	NCV	BDF	SRM	JDM	MOFFATT & NICHOL	M&N Project No. 11034	Plot scale: 1:1 (0 SHEET)

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

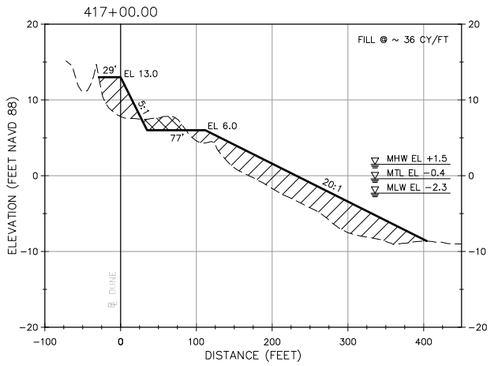
PREPARED FOR THE TOWN OF EMERALD ISLE

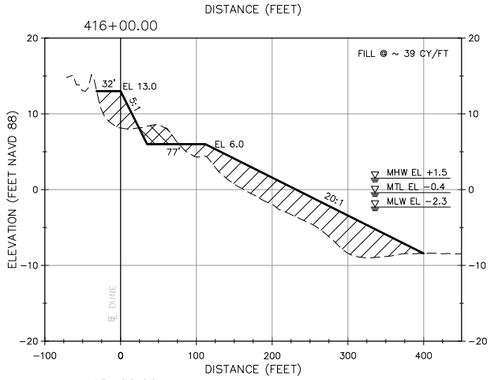
NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

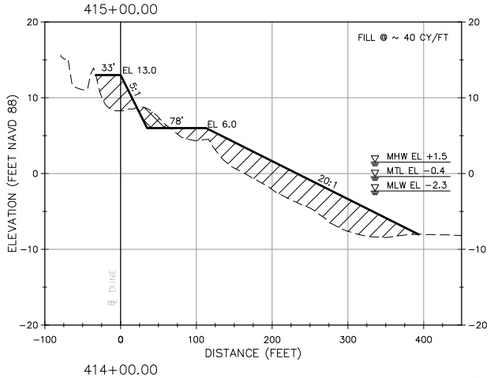
Sheet Reference No.
C-321
Sheet 40 of 51

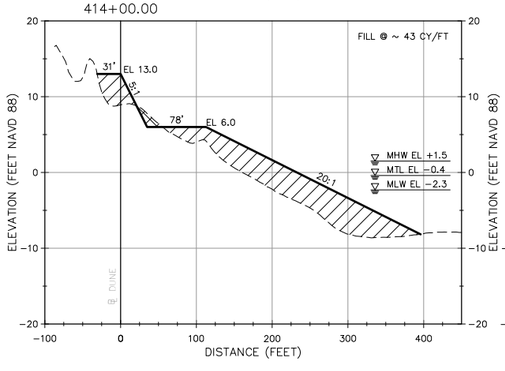
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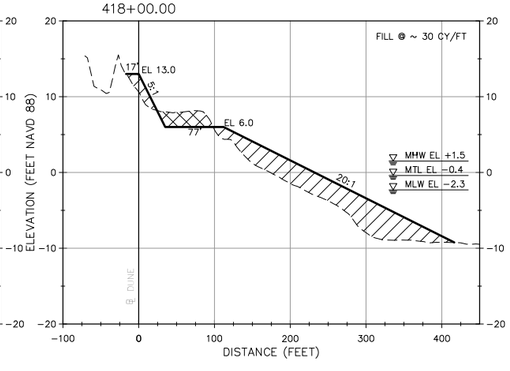
DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING











NOTE:
FIELD ADJUSTMENT TO BE DETERMINED BETWEEN DUNE AND BERM TRANSITIONS.

NOTES:
1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON DECEMBER 2020 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

APPROXIMATE EXISTING GROUND

PROPOSED RENOURISHMENT

LIMITS OF FILL

LIMITS OF CUT

10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 22 OF 31

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

PREPARED FOR THE TOWN OF EMERALD ISLE

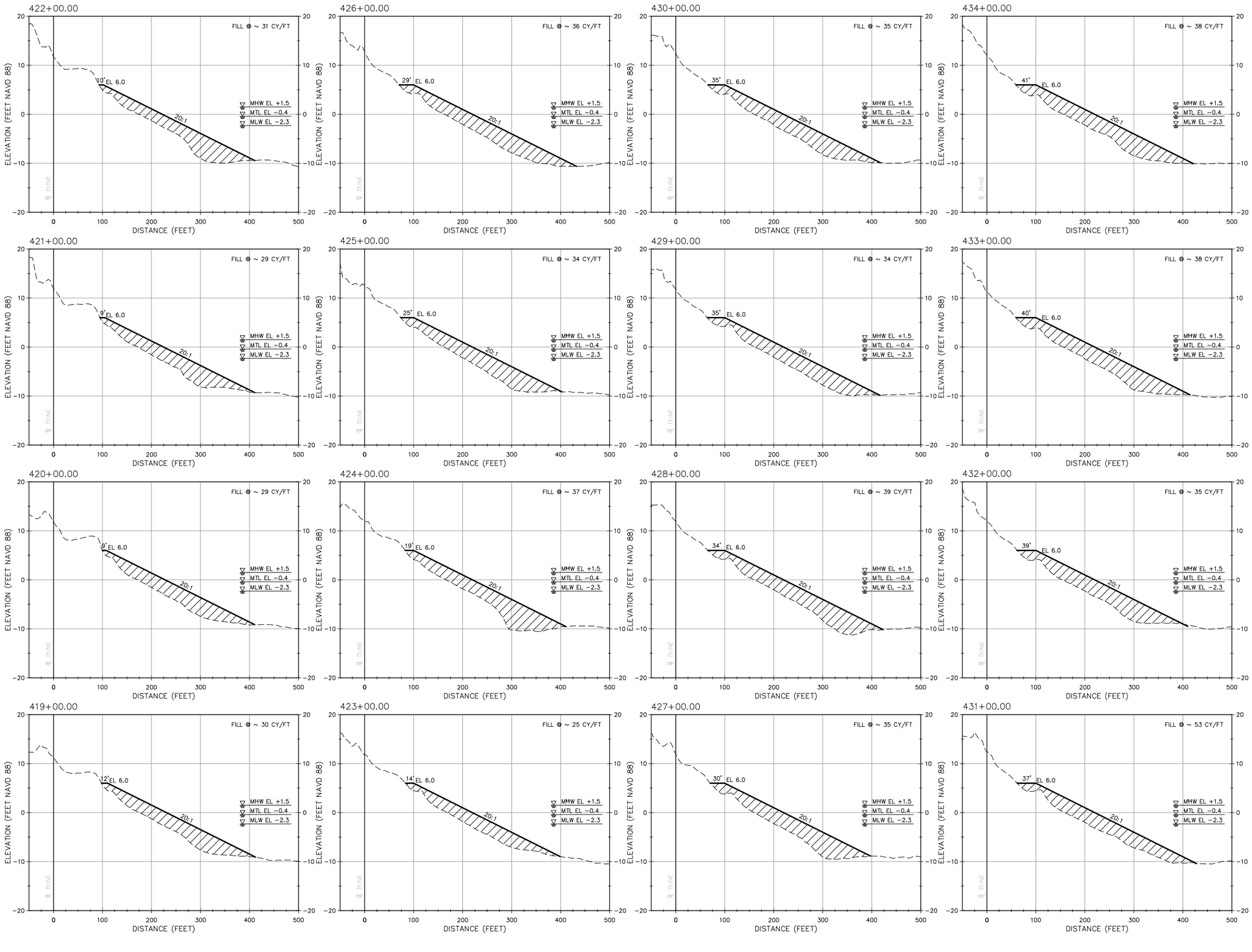
NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Designed by:	Date:	Rev.
NCV	2-9-21	1
Dwn by: BDF	M&N Project No. 11034	
Chd by: SRM	Drawing code:	
Reviewed by: JDM	Drawing Scale:	
Submitted by: MOFFATT & NICHOL	Plot scale: 1:1 (0 SHEET)	

Sheet Reference No.
C-322
Sheet 41 of 51

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

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NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON DECEMBER 2020 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

SCALE: 1"=10' VERTICAL

SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 23 OF 31

Rev.	1
Date:	2-9-21
M&N Project No.	11034
Drawing code:	
Drawing Scale:	Plot scale: 1:1 (0 SHEET)
Designed by:	NCV
Cad by:	SRM
Dwn by:	BDF
Reviewed by:	JDM
Submitted by:	MOFFATT & NICHOL

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

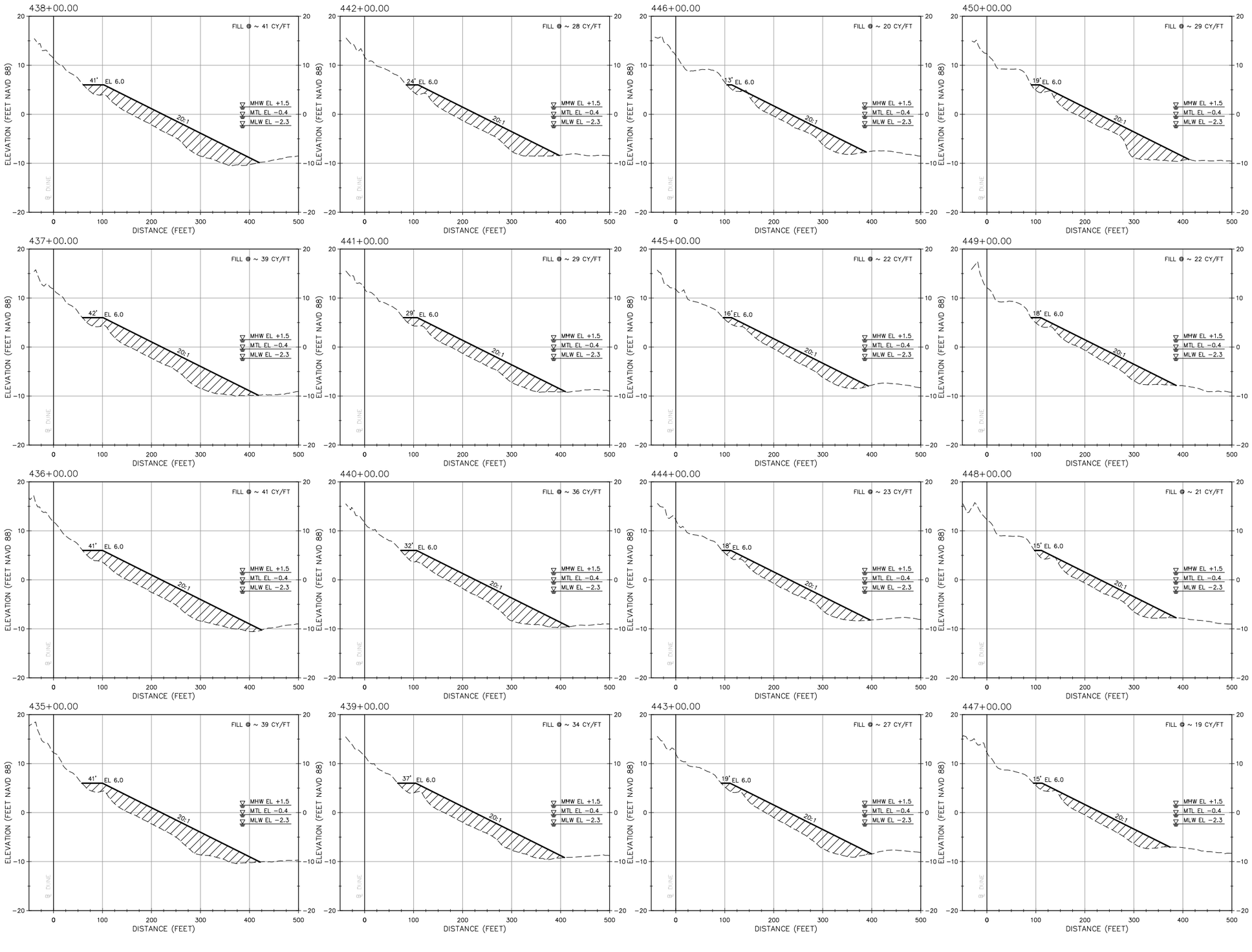
PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-323
Sheet 42 of 51

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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON DECEMBER 2020 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS SHEET 24 OF 31

Designed by: NCV	Rev. 1
Dwn by: BDF	Date: 2-9-21
Ckd by: SRM	M&N Project No. 11034
Reviewed by: JDM	Drawing code:
Submitted by: MOFFATT & NICHOL	Drawing Scale: Plot scale: 1:1 (0 SHEET)

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

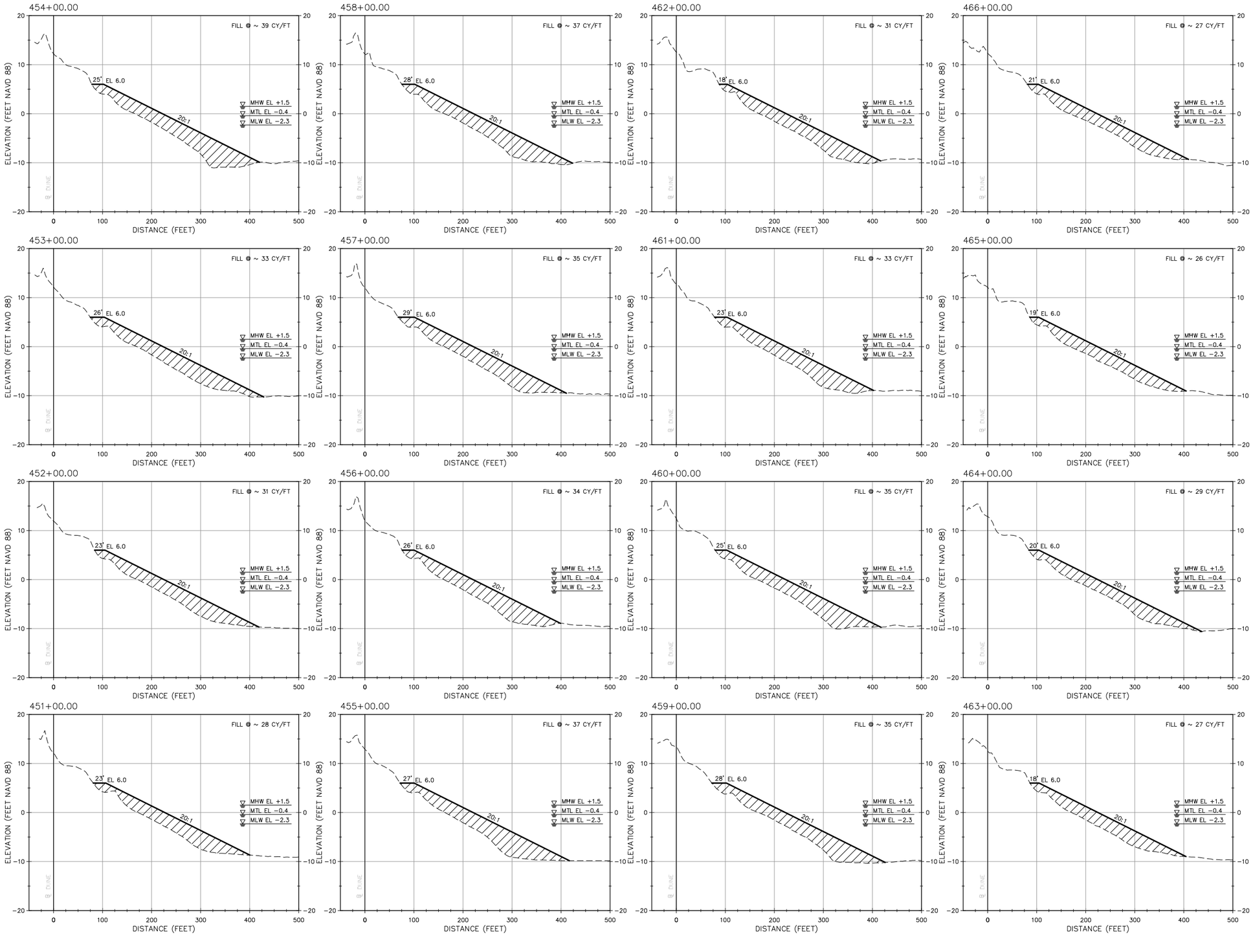
PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-324
Sheet 43 of 51

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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON DECEMBER 2020 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 25 OF 31

Rev.	Date:	Designed by:	Drawn by:	Checked by:	Reviewed by:	Submitted by:	Drawing Scale:
1	2-9-21	NCV	BDF	SRM	JDM	MOFFATT & NICHOL	Plot scale: 1:1 (0 SHEET)

M&N Project No. 11034

Drawing code:

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

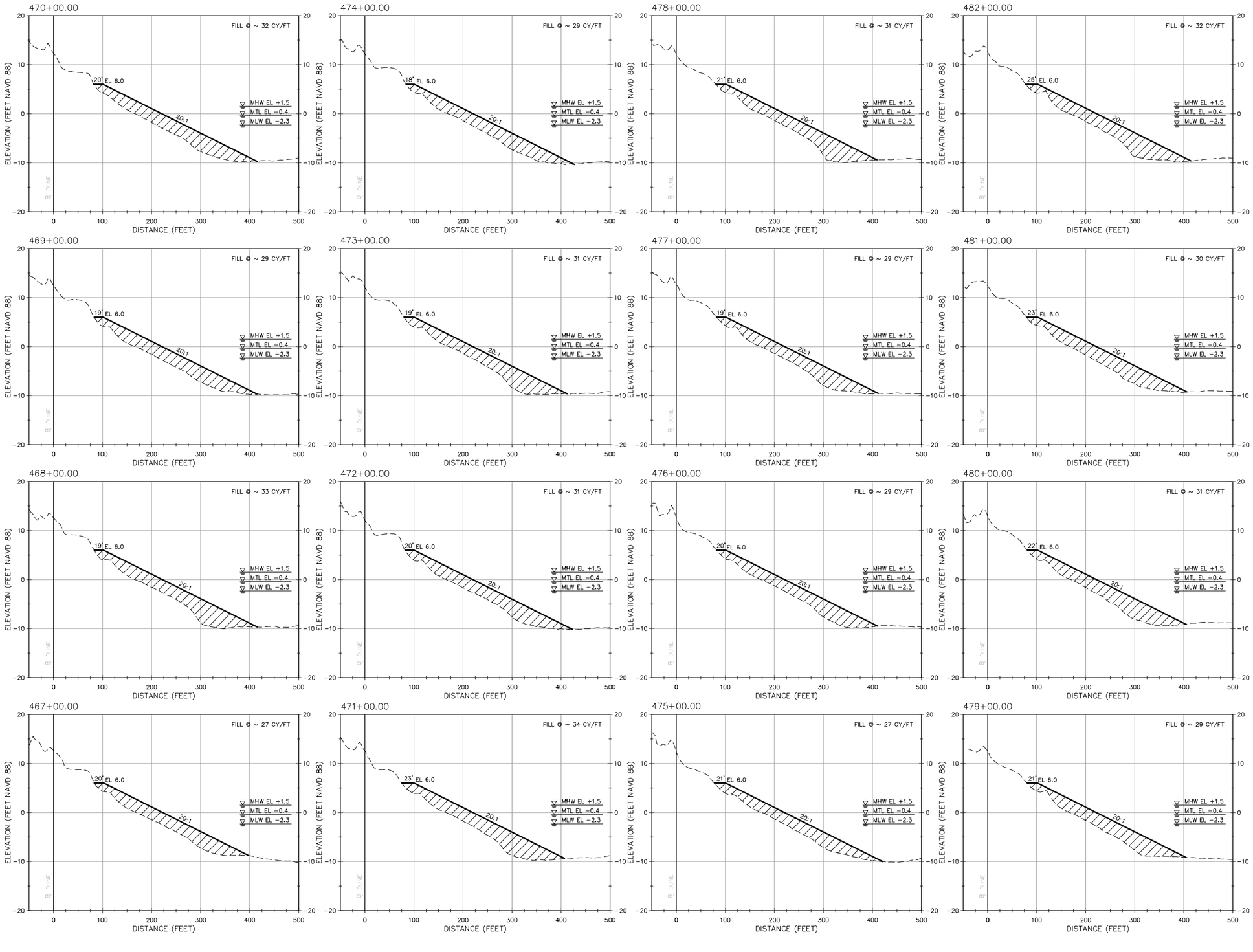
PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-325
Sheet 44 of 51

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

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NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON DECEMBER 2020 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 3 CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS SHEET 26 OF 31

Rev. 1
Date: 2-9-21
M&N Project No. 11034
Drawing code:
Drawing Scale: Plot scale: 1:1 (0 SHEET)
Designed by: NCV
Cad by: SRM
Dwn by: BDF
Reviewed by: JDM
Submitted by: MOFFATT & NICHOL

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

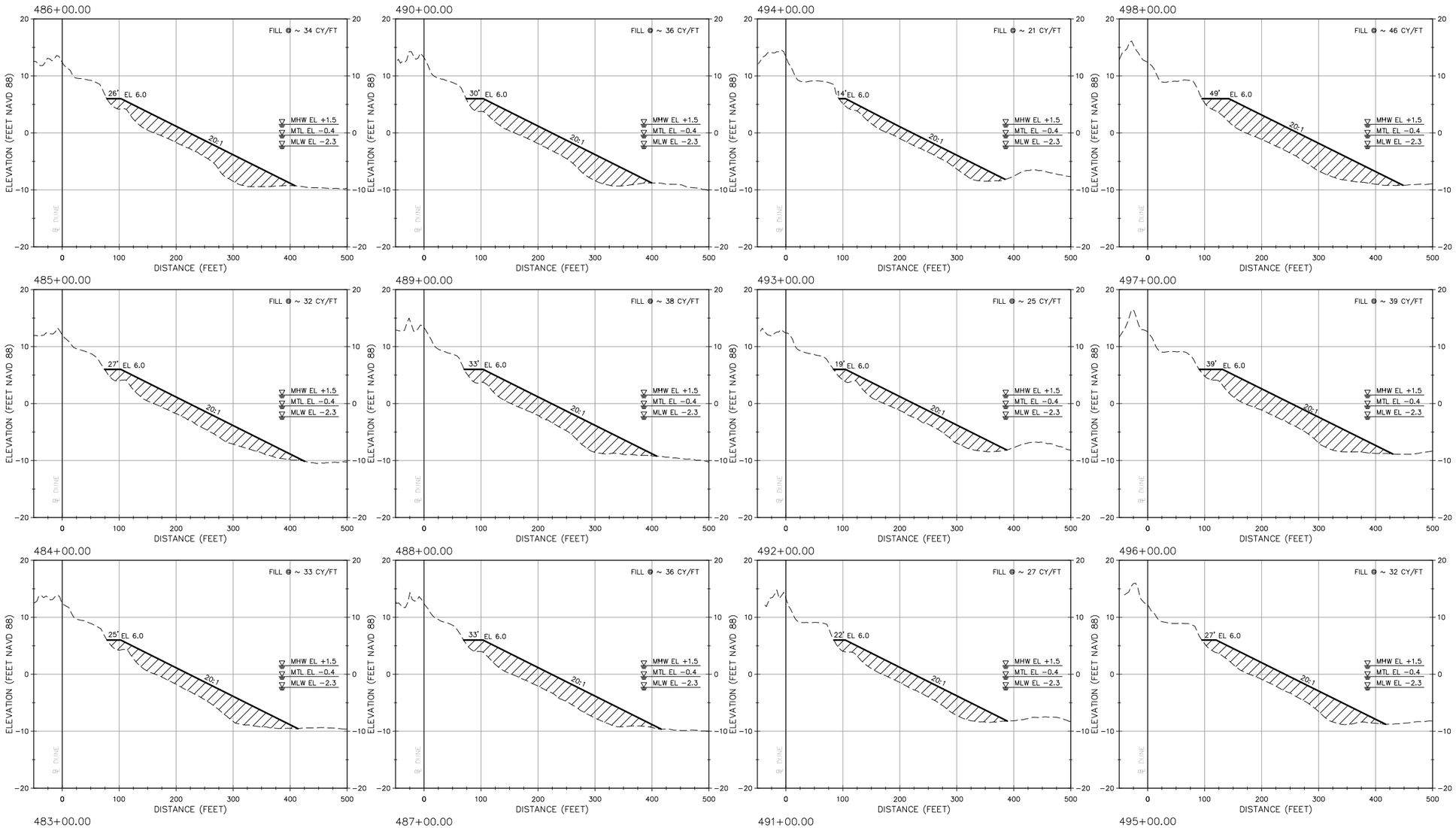
PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-326
Sheet 45 of 51

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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON DECEMBER 2020 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

SCALE: 1"=10' VERTICAL

SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 27 OF 31

Rev.	Date:	M&N Project No.	Drawing code:	Drawing Scale:
1	2-9-21	11034		Plot scale: 1:1 (0 SHEET)

Designed by:	Dwn by:	Ckd by:	Reviewed by:	Submitted by:
NCV	BDF	SRM	JDM	MOFFATT & NICHOL

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

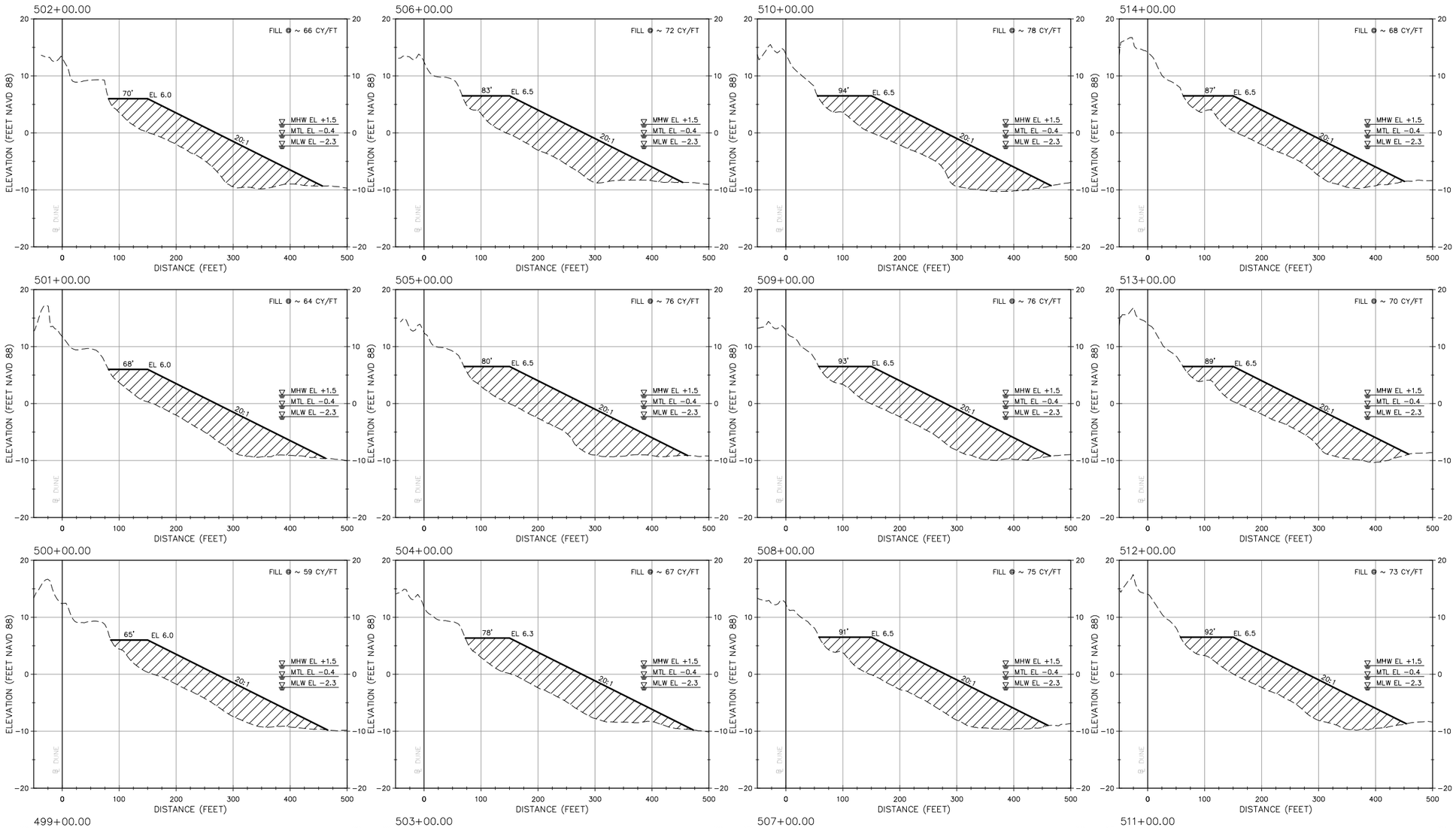
PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-327
Sheet 46 of 51

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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON DECEMBER 2020 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 28 OF 31

Rev.	Date	Designed by:	Drawn by:	Checked by:	Reviewed by:	Submitted by:	Drawing Scale:
1	2-9-21	NCV	BDF	SRM	JDM	MOFFATT & NICHOL	Plot scale: 1:1 (0 SHEET)

M&N Project No. 11034

Drawing code:

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

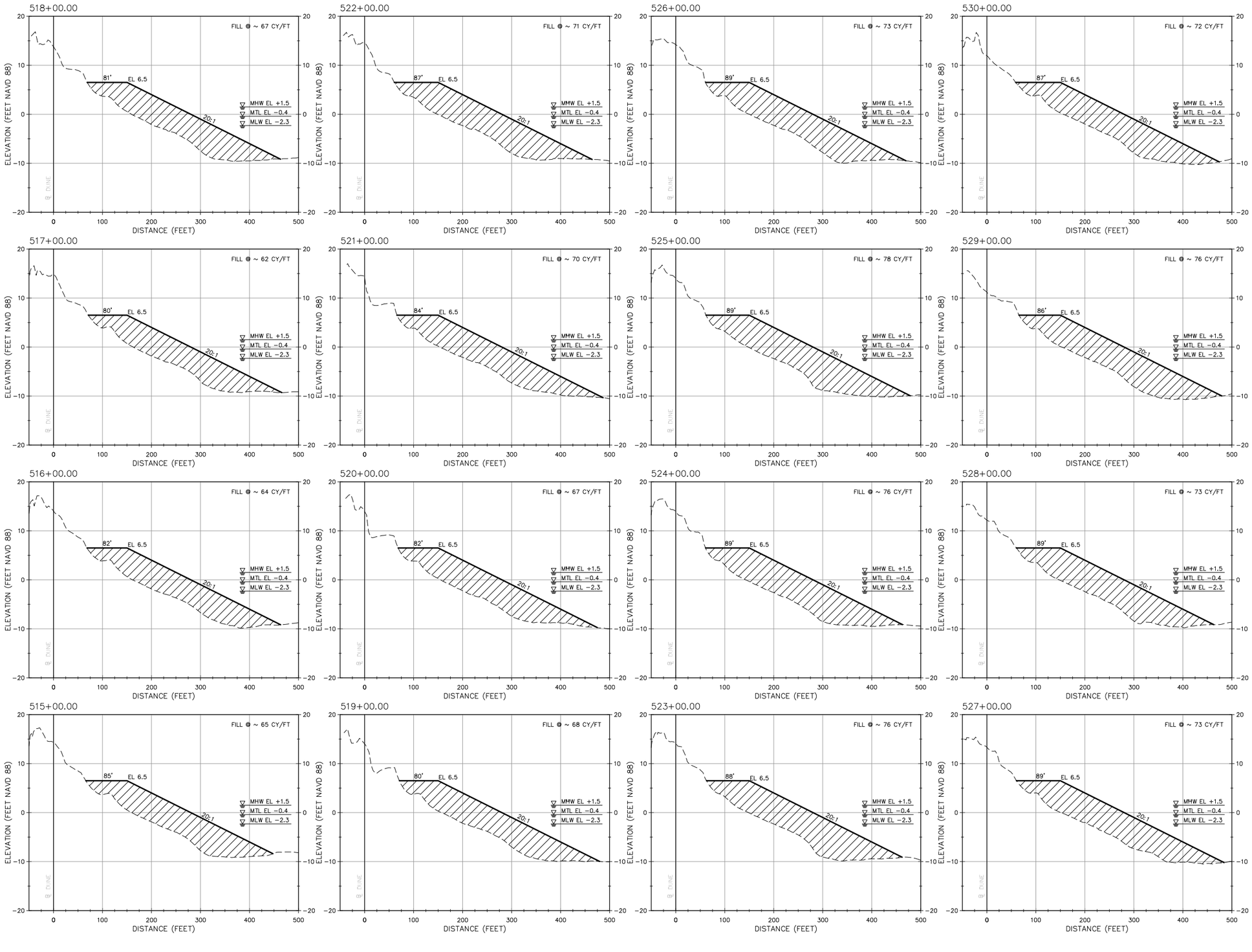
PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-328
Sheet 47 of 51

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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON DECEMBER 2020 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS SHEET 29 OF 31

Designed by: NCV	Rev. 1
Drawn by: BDF	Date: 2-9-21
Checked by: SRM	M&N Project No. 11034
Reviewed by: JDM	Drawing code:
Submitted by: MOFFATT & NICHOL	Drawing Scale: Plot scale: 1:1 (0 SHEET)

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

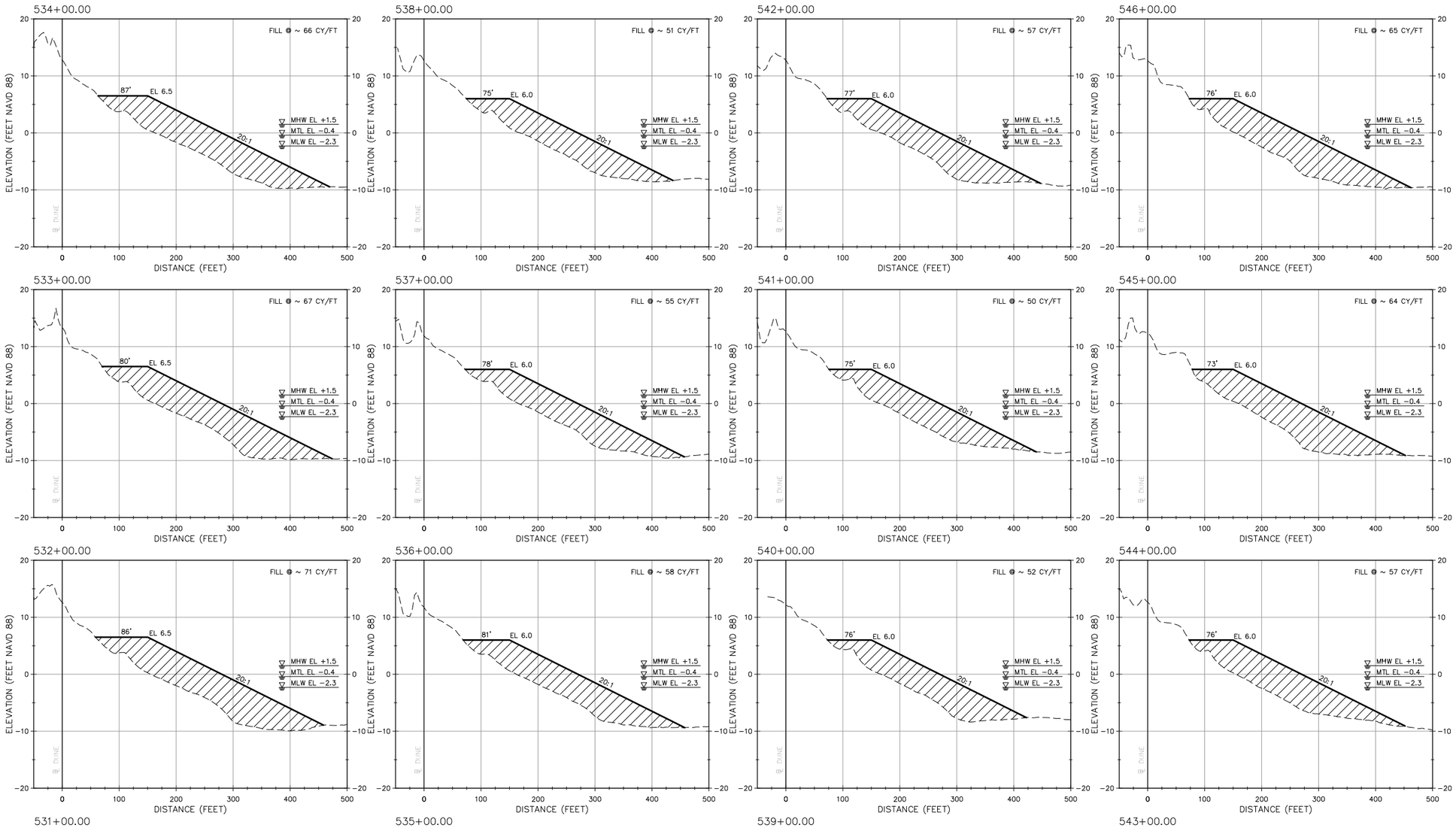
PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-329
Sheet 48 of 51

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DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON DECEMBER 2020 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

SCALE: 1"=10' VERTICAL

SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 30 OF 31

Rev.	Date:	M&N Project No.	Drawing code:	Drawing Scale:
1	2-9-21	11034		Plot scale: 1:1 (0 SHEET)

Designed by:	Cad by:	Reviewed by:	Submitted by:
NCV	SRM	JDM	MOFFATT & NICHOL

Dwn by:
BDF

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

PREPARED FOR THE TOWN OF EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN

SEAL

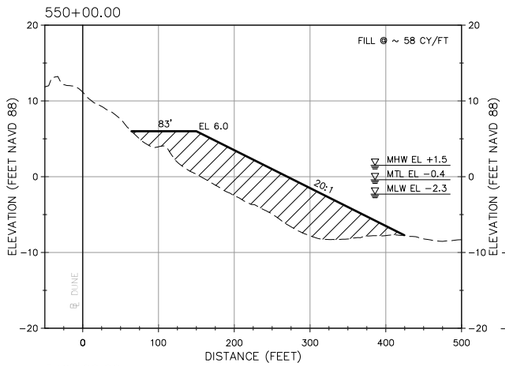
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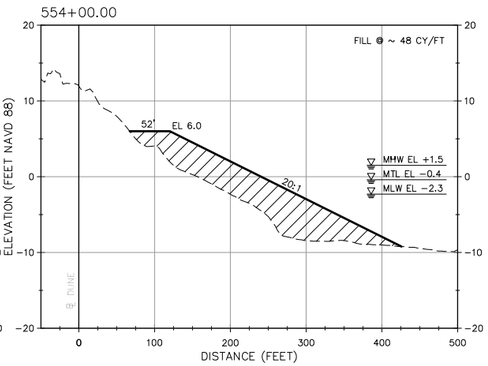
C-330

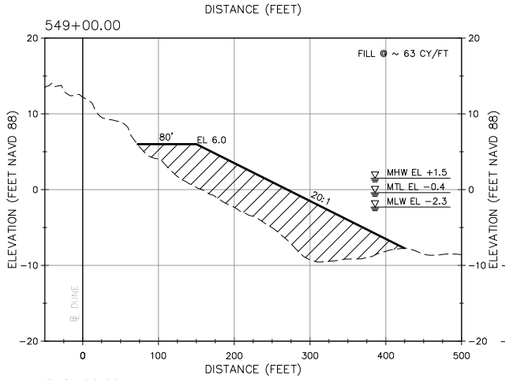
Sheet 49 of 51

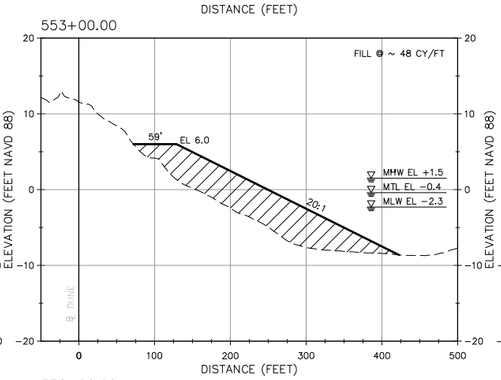
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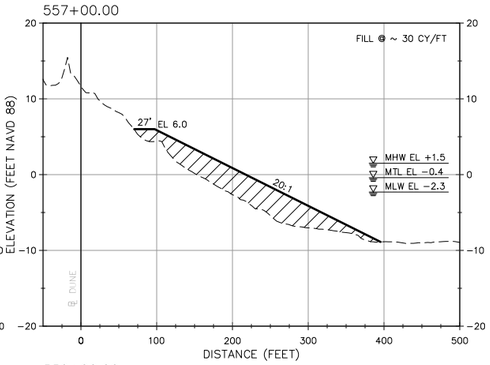
DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

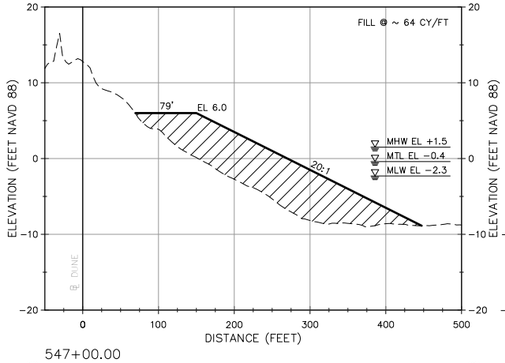


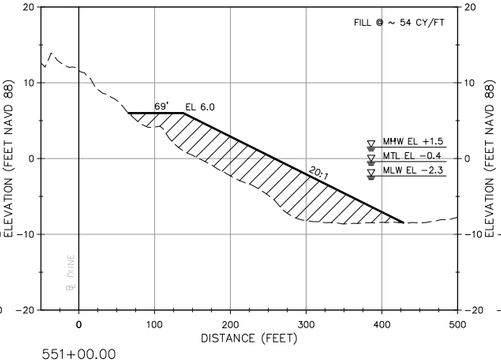


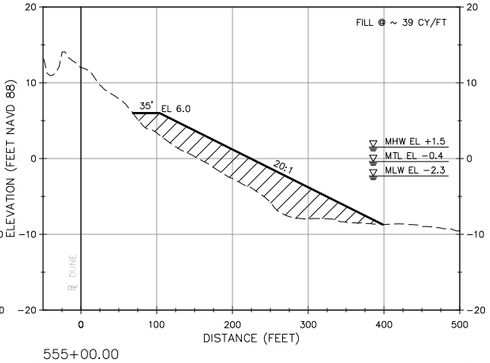


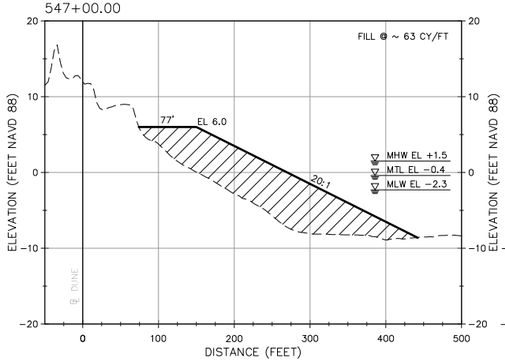


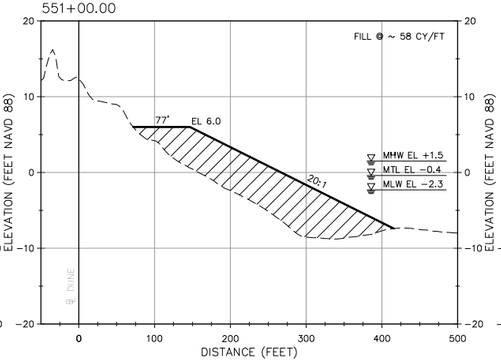


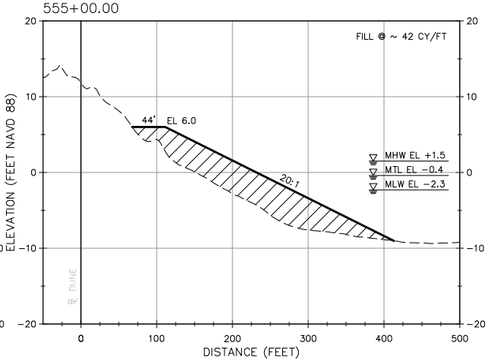












NOTES:

1. FOR ADDITIONAL INFORMATION SEE BEACH RENOURISHMENT TYPICAL SECTION ON SHEET C-300.
2. EXISTING GROUND SHOWN IS BASED ON DECEMBER 2020 SURVEY BY GEODYNAMICS AND REPRESENTS THE APPROXIMATE CONDITIONS AT THE TIME OF THE SURVEY.

LEGEND

- APPROXIMATE EXISTING GROUND
- PROPOSED RENOURISHMENT
- LIMITS OF FILL
- LIMITS OF CUT

10' 0' 10' 20'
SCALE: 1"=10' VERTICAL

100' 0' 100' 200'
SCALE: 1"=100' HORIZONTAL

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

RENOURISHMENT SECTIONS
SHEET 31 OF 31

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

PREPARED FOR THE TOWN OF EMERALD ISLE

Designed by:	Drawn by:	Checked by:	Reviewed by:	Submitted by:
NCV	BDF	SRM	JDM	MOFFATT & NICHOL

Date: 2-9-21
M&N Project No. 11034
Drawing code:
Drawing Scale: Plot scale: 1:1 (0 SHEET)
Rev. 1

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-331
Sheet 50 of 51

File: G:\PA\10611\0500_CAD_Active_10611 Bouge Banks 2021\1061100C-331; Plotted: 2/9/2021 2:07 PM by MORGAN, NEKOL; Saved: 2/9/2021 1:45 PM by MMORGAN

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

DUNE WORK POINT TABLE			
WORK POINT	ELEVATION	NORTHING	EASTING
1000	10.00	330983.25	2573534.68
1001	10.00	331053.53	2573798.25
1002	10.00	331340.29	2574317.86
1003	10.00	332089.35	2576074.81
1004	10.30	332733.11	2577597.52
1005	12.00	332966.74	2578226.07
1006	13.00	335467.65	2585401.12
1007	13.00	335621.78	2585877.55
1008	13.00	335664.00	2586073.04
1009	13.00	335770.13	2586401.08
1010	13.00	336161.48	2587690.3
1011	13.00	336535.35	2588838.9
1012	13.00	336561.59	2588935.66
1013	12.00	336959.92	2590277.34
1014	12.00	336990.85	2590371.96
1015	12.00	337016.86	2590462.06
1016	10.00	337167.68	2590942.82
1017	10.00	337188.08	2591041.22
1018	12.00	337434.96	2591828.16
1019	12.00	337540.27	2592187.94
1020	12.00	337601.32	2592378.65
1021	12.00	337758.89	2592916.91
1022	12.00	337802.59	2593049.1
1023	12.00	338008.39	2593720.13
1024	12.00	338197.33	2594369.03
1025	12.64	338366.27	2594967.36
1026	13.00	338398.25	2595062.22
1027	13.00	338617.74	2595831.49
1028	13.65	338682.65	2596020.66
1029	14.00	339124.32	2597553.58
1030	14.00	339354.39	2598429.97
1031	13.00	339550.25	2599128.76
1032	12.00	339841.01	2600208.59
1033	12.00	340094.59	2601257.31
1034	12.00	340160.03	2601568.59
1035	12.00	340281.34	2602011.27
1036	12.38	340495.22	2602864.25
1037	14.00	340753.48	2603931.95
1038	14.00	341155.97	2605551.25
1039	14.00	341394.98	2606545.84
1040	13.00	341541.14	2607189.11
1041	13.00	341939.26	2608810.2
1042	13.00	341979.38	2609005.92
1043	13.00	342111.68	2609621.8
1044	13.00	342275.23	2610360.65
1045	13.00	342550.38	2611699.24
1046	13.00	342681.64	2612332.99
1047		342744.48	2612574.39
1048		342838.69	2612985.47
1049		343108.6	2614314.47
1050		343328.76	2615221.55
1051		343540.18	2616173.74
1052		343703.36	2616942.84
1053		343855.15	2617739.01
1054		344470.53	2620576.37
1055		344675.18	2621555.14
1056		344899.75	2622631.97
1057		345139.12	2623779.78
1058		345377.89	2625129.49
1059		345624.27	2626311.14
1060		345640.52	2626507.64
1061		345700.83	2626731.9
1062		346043.52	2628432.62

BERM WORK POINT TABLE			
WORK POINT	ELEVATION	NORTHING	EASTING
2000	6.50	330620.69	2572683.32
2001	6.50	330696.04	2573269.38
2002	6.00	330894.98	2573840.43
2003	6.00	331198.74	2574394.75
2004	6.00	331480.73	2574987.25
2005	6.00	331973.05	2576124.39
2063	6.00	332355.61	2577023.31
2006	6.00	332606.18	2577650.32
2007	6.00	332805.01	2578073.27
2008	6.00	332922.57	2578217.93
2009	6.00	335492.50	2585654.36
2010	6.00	335508.39	2585912.79
2011	6.00	335567.46	2586125.31
2012	6.00	335656.65	2586436.92
2013	6.00	336047.61	2587724.86
2014	6.00	336429.39	2588946.27
2015	6.00	336836.37	2590285.50
2016	6.50	337064.51	2591051.50
2017	6.39	337321.27	2591863.77
2018	6.00	337417.22	2592198.45
2019	6.00	337690.26	2593056.35
2020	6.00	338073.45	2594405.01
2021	6.00	338384.39	2595469.45
2022	6.00	338995.47	2597590.35
2023	6.00	339252.40	2598536.80
2024	6.00	339425.98	2599163.54
2025	6.00	339730.69	2600237.37
2026	6.00	339952.65	2601246.57
2027	6.00	340040.34	2601594.82
2028	6.00	340162.04	2602028.60
2029	6.00	340387.65	2602891.35
2030	6.00	340549.87	2603580.13
2031	6.00	340640.38	2603959.31
2032	6.00	341042.44	2605579.47
2033	6.00	341268.06	2606492.86
2034	6.00	341417.60	2607133.66
2035	6.00	341629.70	2608041.72
2036	6.00	341810.62	2608820.32
2037	6.00	341993.86	2609646.33
2038	6.00	342242.27	2610781.94
2039	6.00	342440.08	2611721.93
2040	6.00	342567.57	2612338.77
2041	6.00	342740.91	2613006.44
2042	6.00	343010.99	2614336.31
2043	6.00	343216.83	2615247.77
2044	6.00	343442.46	2616194.97
2045	6.00	343600.42	2616963.57
2046	6.00	343757.13	2617758.87
2047	6.00	344247.28	2620042.40
2048	6.00	344288.54	2620445.45
2049	6.00	344323.83	2620607.66
2050	6.50	344991.77	2623807.94
2051	6.00	345230.53	2625157.55
2052	6.00	345307.10	2625537.41
2053	6.00	345522.97	2626265.70

Mark	Description	Date	Appr.
1	ISSUED FOR CONSTRUCTION	02/09/21	JM
0	BID DOCUMENTS	07/02/20	JM

POST-FLORENCE RENOURISHMENT
PROJECT PHASE 3
CARTERET COUNTY, NORTH CAROLINA

CONSTRUCTION BASELINE
WORK POINT TABLES

Designed by: NCV
Dwn. by: BDF
Ckd by: SRM
Reviewed by: JDM
Submitted by: MOFFATT & NICHOL
Date: 2-9-21
M&N Project No. 11034
Drawing code:
Drawing Scale: Plot scale: 1:1 (0 SHEET)
Rev. 1

4700 FALLS OF THE NEUSE ROAD
SUITE 300
RALEIGH, NC 27609
919-781-4626
NC FIRM LICENSE No. F-0105
moffatt & nichol

PREPARED FOR THE TOWN OF
EMERALD ISLE

NORTH CAROLINA PROFESSIONAL SEAL 23487 ENGINEER JOHNNY D. MARTIN
SEAL

Sheet Reference No.
C-601
Sheet 51 of 51

File: Q:\RA\10611\0500_CAD_Active_10611 Boque Banks 2021\10611000-601; Plotted: 2/9/2021 1:44 PM by MMORGAN

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING

APPENDIX D
Interlocal Agreement

INTERLOCAL AGREEMENT REGARDING LONG TERM BEACH NOURISHMENT BETWEEN CARTERET COUNTY, NORTH CAROLINA, AND THE MUNICIPALITIES OF ATLANTIC BEACH, PINE KNOLL SHORES, INDIAN BEACH, AND EMERALD ISLE

This Interlocal Agreement is made for purposes of reference MARCH 15, 2010 by and between the County of Carteret, North Carolina, a body corporate and politic (hereinafter referred to as the "County"), and the Municipalities of Atlantic Beach, Pine Knoll Shores, Indian Beach, and Emerald Isle, bodies politic and corporate (hereinafter referred to as the "Towns").

PURPOSE

Whereas, County and Towns are jointly seeking approval by State and Federal Agencies of a 30-year Nourishment Plan for the Bogue Banks Beaches, and the State in anticipation of such a plan is prepared to complete/review one Environmental Impact Study, and State and Federal Agencies involved in the funding have indicated that they strongly prefer and require that Bogue Banks units of local government work on and submit one mutual plan for beach nourishment without individual towns seeking separate funding or individual beach nourishment projects except in emergencies approved in accordance with this Agreement;

Whereas, it is within the contemplation of the Parties hereto and State agencies involved in the approval process that the U.S. Army Corps of Engineers and other federal

approval agencies will issue one permit for the Bogue Banks beaches valid for 30 years and it is anticipated the permit will be constantly updated and amended based upon numerous factors including hurricanes, severe erosion, availability of funding, etc;

Whereas, County and Towns now desire to enter into an agreement that provides a planning mechanism, plan, and compact among the parties for a multi-decadal beach nourishment program for Bogue Banks (hereinafter referred to as the "Master Nourishment Plan", "Master Plan", or "Plan"), which utilizes available funds from the County's occupancy tax administered and collected under S.L. 2007-112, or future modifications to this law, and any State and Federal funding secured for the Master Nourishment Plan;

Whereas, under this Agreement it is contemplated the County as the lead sponsor, with the assistance of its Shore Protection Office, the Carteret County Beach Commission, and consultants hired by the County, in consultation with the Towns, will prepare the Master Nourishment Plan for approval by the Towns which upon approval will then be implemented under this Agreement with the County being the designated permittee for beach nourishment on Bogue Banks under the auspices of the County Beach Commission and Shore Protection Office.

NOW THEREFORE, County and Towns pursuant to NCGS 153A-13, NCGS 160A-17 and NCGS 160A-460, hereby contract and agree as follows:

1. Purpose. County and Towns enter into this Agreement in order to approve, carry out and complete under a common plan, one permit and a common source of tax funding and revenues for the Master Beach Nourishment Plan in accordance with the terms and conditions set forth herein.

2. Participation of the Town of Atlantic Beach. It is contemplated the Town of Atlantic Beach will remain eligible for and continue to receive satisfactory sand for its beaches based upon past years from the dredging of the Morehead City Harbor Federal Navigation Project, and will therefore only be involved in the Master Beach Nourishment Plan if the availability of dredged sand is terminated or cut off. The plan will provide for the contingency of providing beach nourishment to the ocean beaches of the Town of Atlantic Beach under the Master Plan and using available revenue sources if the dredged sand currently provided by the US Army Corps becomes unavailable or are restricted or terminated. The Master Plan will provide alternatives if the provision of sand becomes unavailable or insufficient to provide for the needs of the entire ocean shoreline of Atlantic Beach.

3. Development of Master Beach Nourishment Plan. The County, using available occupancy tax revenues will over the next 18 to 36 months develop the Master Plan in consultation with State and Federal Agencies, the Towns, consulting engineers, the Shore Protection Office and the County Beach Commission, and submit the same to the Towns for consideration and approval. Concurrently the County will submit for a State and Federal permit to carry out and complete the plan.

The final approved plan will contain the following principles and encompass and cover the following subjects, goals and objectives:

a. Beneficiaries. The Towns of Emerald Isle, Indian Beach, and Pine Knoll Shores understand they are the primary beneficiaries of the Master Beach Nourishment Plan and that the Town of Atlantic Beach will be a contingent beneficiary should sand from the Morehead City Harbor Federal Navigation Project and other past sources become unavailable or insufficient to provide for the needs of the entire ocean shoreline of Atlantic Beach.

b. Easements and Rights-of-Way. Each Town shall be responsible for providing the staging areas, sites or necessary lands, easements, and rights-of-way required for the development, construction, and maintenance of those elements of the Master Beach

Nourishment Plan to be implemented within the Town. No Town will be obligated to provide sites, staging areas or facilities for nourishment that will take place in another party's jurisdiction. However, the plan will provide that Towns may cooperate in providing staging areas and access to the beach for beach construction equipment regardless of where the beach construction activity is taking place when joint nourishment projects are undertaken.

c. Public Beach Access and Parking. The Towns shall be responsible for securing, constructing, and maintaining any and all access/parking facilities stipulated as a condition of receiving State or Federal funding. All public beach accesses and parking facilities must be secured prior to issuing a notice to proceed for each construction event.

d. Funding Contingency. Each party's participation in a nourishment project associated with the Master Beach Nourishment Plan will be contingent on such party being able, in its sole discretion, to fund its portion of the project. Each Town is required to anticipate the need for the local funding share and to either budget for the same over a period of years, provide for and conduct elections in approval of bonds or borrowing under LGC approvals,

or put in place tax districts or similar means of funding the local share. Failure to meet local funding needs by one or more Towns could result in the Beach Commission passing over a project of a Town due to lack of funding.

e. Inventory of Present Beaches. The Master Plan will inventory, map, survey, describe, and highlight in detail data regarding the Bogue Banks Beaches' ocean shoreline, the heights and elevations of the public trust areas, the elevations of dunes, the location of first lines of vegetation, low areas, "hot spots", and the like.

f. Sand Resources. The Master Plan will provide a survey of the location, quality, quantity, and usefulness of sand resources which may be selected.

g. Time Frame and Budget Estimates. The Master Plan will estimate the cost of dredging and the placement of sand within each Town which will be constantly updated, and further provide a time frame and schedule for dredging and the placement of sand on the oceanfront beaches of the participating units of local government over the 30-year plan which may be reasonably relied upon by the Towns so that each Town will be able to fund its local share.

h. Triggers. The Master Plan will provide a method for the immediate dredging and placement of sand when sand along the oceanfront beaches falls below specified minimum levels or parameters (herein "triggers"). The plan will also provide a mechanism for emergency dredging and placement of spoils when the need arises as a result of hurricanes, natural disasters, and similar acts of God so that hot spots or specified areas of need receive immediate and emergency nourishment to prevent loss of human life, property, structures, and the like.

i. Methods of Nourishment. The Master Plan will specify the method of nourishment for the beaches within each Town, the probable sources of sand, estimated schedule, estimated cost, and similar details.

j. Environmental Impact Statement. The Master Plan will include the completion of the Environmental Impact Statements required by State and Federal permitting agencies as a condition of issuing the long term beach nourishment permit covering the 30 year plan.

k. Construction Administration. The County or a Town may serve in the role as lead administrator for any nourishment event associated with the Master Beach

Nourishment Plan, and accordingly prior to the construction of any nourishment event, the County and Town(s) involved with the project will determine which entity or entities will serve in this capacity (lead administrator). All State and/or Federal funding secured for each nourishment event will be distributed to the lead administrator.

1. Project Cost-Sharing. Cost sharing for the Master Plan as approved and adopted will be implemented generally along the following principles:

   (1) By the Town or Towns receiving sand within its or their city limit(s), and the County for unincorporated areas of Bogue Banks receiving sand, on a prorata basis, and the plan will set out the recommended basis for establishing the formula to be used.

   (2) If only one Town, or the County alone, is scheduled to receive sand in a project, that Town or the County will bear all costs of the same.

   (3) If two or more parties are scheduled to receive sand in a joint project, then it is anticipated that a separate interlocal agreement would be coordinated and executed among the parties involved detailing how

project costs (unit and fixed) would be allocated, sequencing of nourishment, payment responsibilities, etc.

(4) The Master Plan will provide that project costs to be included in any specific nourishment project will include but not being limited to planning, permitting, engineering, environmental, legal, accounting, administration, construction, mobilization and demobilization. While project costs may include financing costs, each Town, and the County for projects in the un-incorporated areas of Bogue Banks, will bear its own financing costs and any costs relating thereto.

4. Indemnity. The Towns agree to indemnify and save the County harmless from any claim, suit, administrative proceeding, judgment or penalty, including attorneys' fees and other costs incurred in defending the same, of whatsoever nature or kind arising out of or in any way relating to the Master Beach Nourishment Plan, or this Interlocal Agreement including but not being limited to contract claims relating to the Master Beach Nourishment Plan, tort claims from third parties, damages arising from violation of laws protecting endangered species, and contamination claims. This indemnity provision is

applicable to all phases of the Master Beach Nourishment Plan and regardless of which entity serves as lead administrator for individual construction events. Excluded from the indemnity will be claims relating to any of the above arising out of a nourishment project occurring in the un-incorporated areas of Bogue Banks over which the County has exclusive jurisdiction.

5. Withdrawal from Compact. The commitment of each Town to provide public beach access, parking, any other lands or rights-of-way, or any rules or regulations with respect to use of the same, as a party to this agreement, is expressly conditioned on Federal and State laws, regulations, or interpretations thereof, as of the date of approval of this agreement by the signatories herewith, and if there are amendments, changes or interpretations to Federal or State law, regulations, which are more stringent provisions than are currently in effect, after this Agreement is approved, any party that chooses not to meet the requirements shall have a right to withdraw from the same at any time.

6. "Least Cost Method of Disposing of Dredge Spoils." Each party is free to either defend or seek amendments to the policy or practice of the U.S. Army Corps of Engineers in using the "least cost" method of disposing of dredge spoils as such practice impacts the depositing of sand on the beaches of any of the parties to the Plan.

7. Role of the Carteret County Beach Commission. The Parties hereto recognize that the Carteret County Beach Commission is representative of each Town and County. The Commission is directly involved in the promotion of a stable beach shoreline, has oversight in the spending of tax revenues from the occupancy tax on beach nourishment, and has the resources to assist with the formulation and administration of the Plan.

The Parties agree that the Beach Commission shall be the final authority on the scheduling and timing of beach nourishment events for each Town under the following circumstances:

A. In those circumstances where there are hot spots due to severe erosion, hurricanes, coastal storms, and the like, and there is an immediate need for the placement of spoils and action, the Commission shall have the authority to delay scheduled nourishment under the Plan's approved 30 year plan and schedule for one or more Towns, and to move up and approve beach nourishment for the hot spots or areas in immediate need. In such an event the Commission shall confer with all necessary parties, and have the authority to revise the Plan's schedule.

B. In the event a Town lacks the necessary local funding for its nourishment event, the Commission

after consultation with the Town, may revise the Plan's schedule and move up one or more Towns in the approved schedule.

C. When circumstances, the availability of funding, unanticipated spoils, timing or similar factors affecting the overall protection and soundness of Bogue Banks oceanfront beaches, arise, which in the opinion of the Beach Commission justify and require a change in the schedule and timing of the Plan's nourishment events and projects, then the Commission following consultation with the Towns and County, may revise the Plan's schedule, and approve alternate nourishment events.

8. Arbitration. In those circumstances where one or more Towns are dissatisfied with decisions made by an event's lead administrator or the Beach Commission, the Town may request arbitration by notifying the County in writing, specifying the reason and requesting a review or arbitration of the decision. Upon such a request, the Town and County shall each appoint one disinterested representative with an extensive education, background, and experience in ocean sciences and engineering, ocean studies, and related fields. The Town and County will subsequently agree upon a third arbitrator. The Town and County shall then present the factors and circumstances leading to the decision in dispute to the panel, and the

majority decision reached by the panel shall be binding on the parties. The County shall have the authority as the lead agency to establish the time frame, to set the meetings, establish the format and rules, and determine the qualifications of each representative.

9. Withdrawal, Termination, Modifications, Amendments, and Binding Effect. Until the Plan has been carried out and completed as modified and amended from time to time, this Agreement will remain in effect and be binding on the Parties regardless of changes in the composition of boards of the respective units of local government that are parties hereto. This Agreement is a continuing contract until the purposes herein have been completed. No party may withdraw except that a Town upon 12 months written notice to the County following adoption of its own plan providing for its own funding sources may withdraw. Upon such withdrawal the Town shall have the responsibility on its own to provide all sources of funding for beach nourishment by procuring the same from State and Federal agencies and providing the local match other than from County occupancy tax revenues and receipts.

Any amendment or modification to this Agreement shall require the written consent of all Parties.

IN WITNESS WHEREOF, the parties have executed this Agreement.

COUNTY OF CARTERET

By: _____
Chairman of the Board

Attest:

_____
County Clerk

TOWN OF ATLANTIC BEACH

By: _____
Mayor

Attest:

_____
Town Clerk

TOWN OF PINE KNOLL SHORES

By: _____
Mayor

Attest:

_____
Town Clerk

TOWN OF INDIAN BEACH

By: _____
Mayor

Attest:

_____
Town Clerk

TOWN OF EMERALD ISLE

By: _____
Mayor

Attest:

_____
Town Clerk

APPENDIX E

Public Involvement

a) Public Hearing Notice

b) Public Comment Summary

a) Public Hearing Notice

Public Information

NEWS RELEASE

Visit us online at www.carteretcountync.gov
Email us at pio@carteretcountync.gov

PUBLIC NOTICE

NOTICE OF PUBLIC HEARING REGARDING A PROPOSED BEACH MANAGEMENT PLAN FOR CARTERET COUNTY

Notice is hereby given that the Carteret County Beach Commission will conduct a public hearing during its regularly scheduled meeting on **Monday, May 19, 2025, at 2:00 PM** at the Emerald Isle Board of Commissioners meeting room, located at 7500 Emerald Drive, Emerald Isle, NC.

The purpose of this public hearing is to receive public comment on a proposed Beach Management Plan. This plan is being considered for submittal to the North Carolina Division of Coastal Management for their review and subsequent evaluation by the North Carolina Coastal Resources Commission.

The draft Beach Management Plan is available for public review online at: www.carteretcountync.gov/DocumentCenter/View/12368/Draft-Beach-Management-Plan

All interested parties are invited to provide comments on the proposed Beach Management Plan. Public comments will be accepted during the public hearing. In addition to oral comments provided at the hearing, the Carteret County Beach Commission will also accept written comments on the plan up to the date of the meeting.

Written comments may be submitted to:

Ryan Davenport
Carteret County Shore Protection Manager
Email: ryan.davenport@carteretcountync.gov

Citizens are encouraged to attend the public hearing or submit written comments to ensure their views are taken into consideration.

b) Public Comment Summary

Carteret County Beach Commission

Beach Management Plan Update

May 19, 2025

Public Hearing Comments

- The Carteret County Shore Protection Office confirmed that no written comments on the Beach Management Plan have been received as of the date of the public hearing.

- John Brodman (Beach Commission Vice-Chair) stated that he believed that the document was very well done.
  Response: Noted

- Roy Brownlow (Beach Commission member) stated that the document served as a good update on where the 50-year master plan project was at this moment, and that the document was well structured and balanced. He also stated that he was glad that the County was pursuing other sand resources and that the long-term project included a robust monitoring effort. Mr. Brownlow also stated his support for the public participation process that the County implemented in the development of the Beach Management Plan. However, Mr. Brownlow did express concern over potential loss of future U.S. Army Corps of Engineers funding for projects benefitting the County, the potential that a future economic downturn could impact future Beach Fund balances, and for the apparent recent escalations in dredge costs.
  Response: Noted

- Randy Martin, Interim Emerald Isle Town Manager, stated that Mr. Greg "Rudi" Rudolph, made a presentation to the Town at a recent meeting on the history of County nourishment projects and the formation of the Beach Commission, and he would like to see Mr. Rudolph's presentation added to the public hearing record for this meeting.
  Response: Mr. Rudolph's presentation can be accessed at the following location: https://www.youtube.com/watch?v=5-WUl6lzrSw (presentation starts at roughly the 37 minute mark)

- Mr. Mark Brennesholtz, a resident of Emerald Isle, expressed concerns that various erosional "hot spots" existed in proximity to his property, and further stated that he would like to see erosional response efforts expedited in these areas.

Response: Mr. Brennesholtz was informed that the County is in the initial stages of planning for a beach nourishment event that is scheduled to take place in the 2026-27 nourishment window.