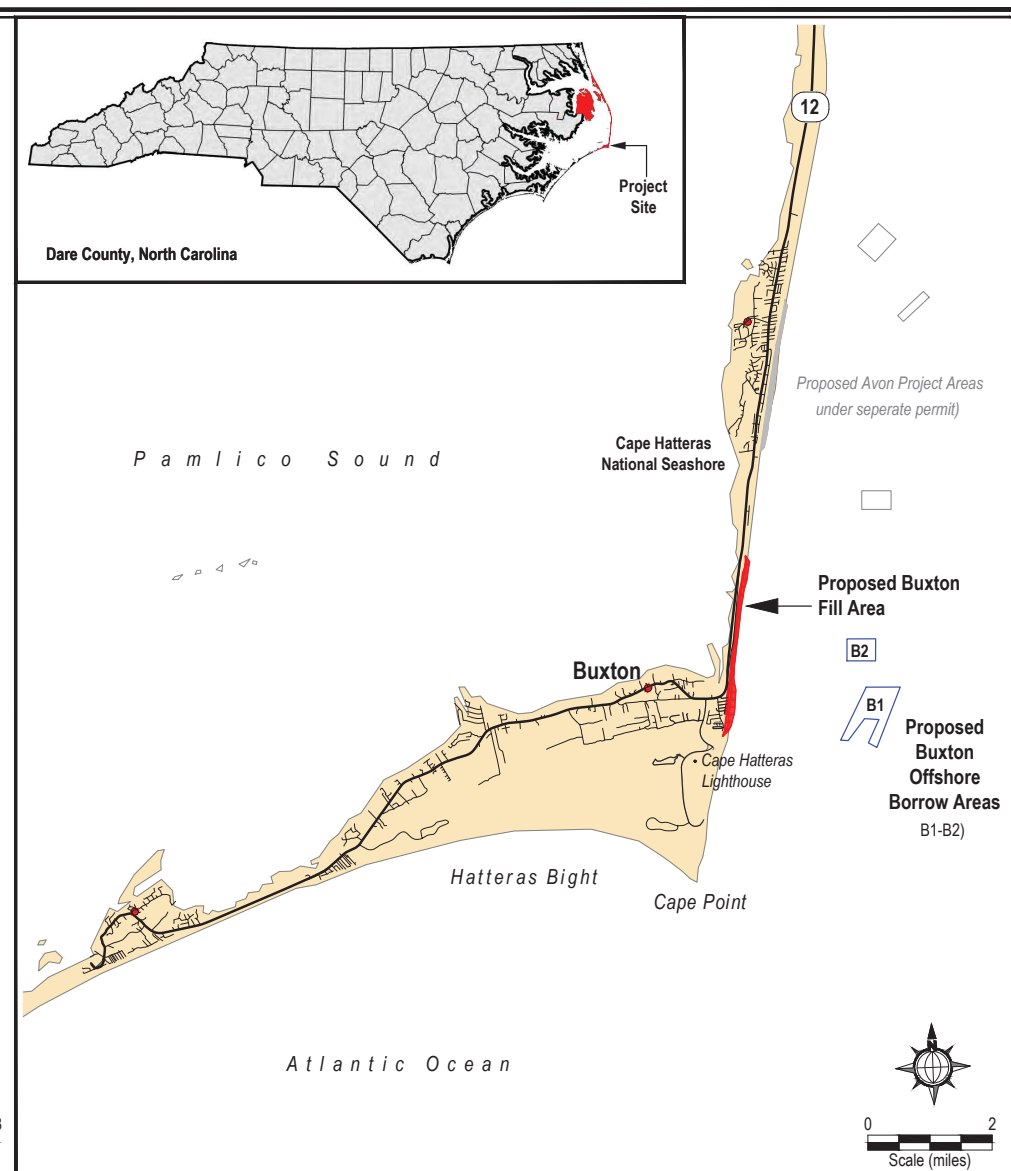
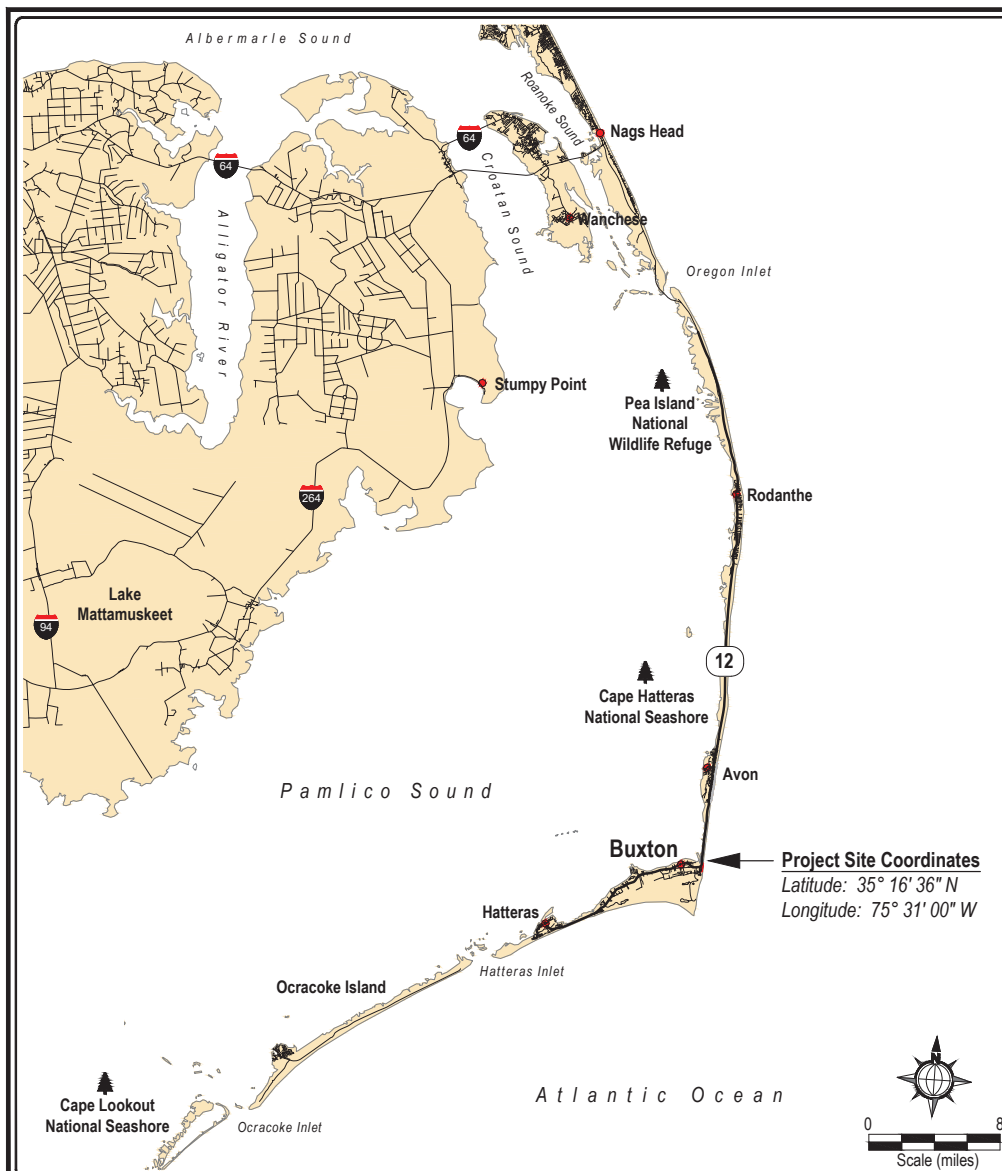




Project site directions, from Nags Head, NC:
Follow NC-12 S/Cape Hatteras National Park Hwy South.
Continue to follow NC-12 S for 44.3 miles to Haulover public beach access parking area.
North project limit is on beach side of NC-12 (National Park Service Beach) and extends 15,500 feet South toward Buxton, NC. South project limit is in the vicinity of the old Cape Hatteras Lighthouse location.



Applicant:
Dare County
954 Marshall Collins Dr.
Manteo, NC 27954

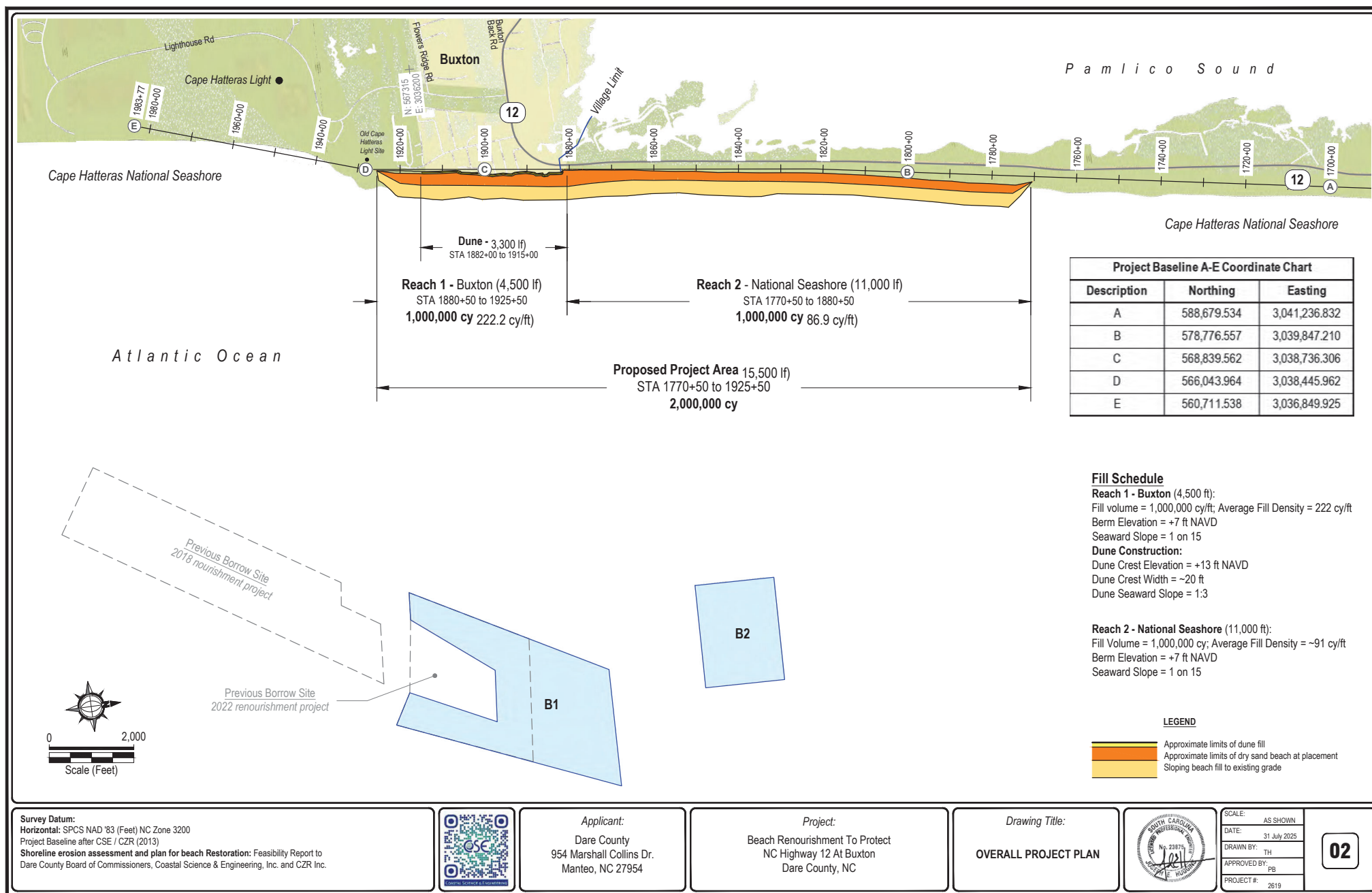
Project:
Beach Renourishment To Protect
NC Highway 12 At Buxton
Dare County, NC

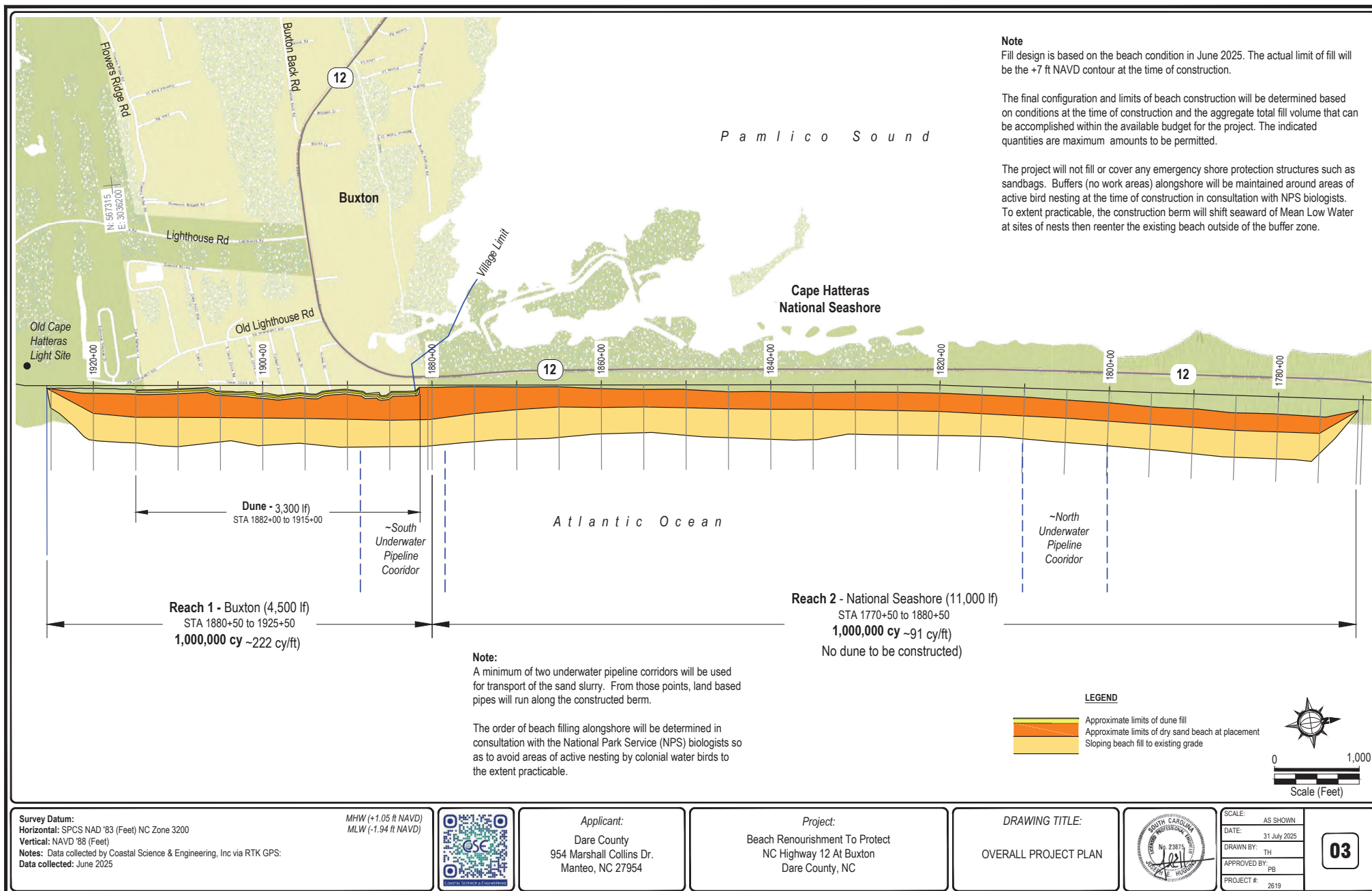
Drawing Title:
Project Location
Vicinity Map



SCALE: AS SHOWN
DATE: 31 July 2025
DRAWN BY: TH
APPROVED BY: PB/ST
PROJECT #: 2619

01







Reach 1 - Buxton

1,000,000 cy
4,500 lf

~Slope Toe Fill Limit
Elevation Varies

Note

Fill design is based on the beach condition in June 2025. The actual limit of fill will be the +7 ft NAVD contour at the time of construction.

The final configuration and limits of beach construction will be determined based on conditions at the time of construction and the aggregate total fill volume that can be accomplished within the available budget for the project. The indicated quantities are maximum amounts to be permitted.

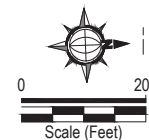
The project will not fill or cover any emergency shore protection structures such as sandbags. Buffers (no work areas) alongshore will be maintained around areas of active bird nesting at the time of construction in consultation with NPS biologists. To extent practicable, the construction berm will shift seaward of Mean Low Water at sites of nests then reenter the existing beach outside of the buffer zone.

Note:

Initial dunes will be built along the Village of Buxton during renourishment construction. The dune crest will be at +13 ft NAVD and the typical width of the dune crest will be 20 ft. The seaward slope of the dune will be at 1 on 3. The constructed dry sand berm (@+7 ft NAVD) in front of the toe of the dune will be 225-250 ft wide.

No fill is to be placed on exposed emergency sand bags, or under exposed walkovers and houses.

Staging, Parking and Access areas are located at the end of Old Lighthouse Road.



Survey Datum:
Horizontal: SPCS NAD '83 (Feet) NC Zone 3200
Vertical: NAVD '88 (Feet)

Notes: Data collected by Coastal Science & Engineering, Inc via RTK GPS:
Data collected: 26 June 2025
Aerial Image: 26 June 2025

MHW (+1.05 ft NAVD)
MLW (-1.94 ft NAVD)



Applicant:
Dare County
954 Marshall Collins Dr.
Manteo, NC 27954

Project:
Beach Renourishment To Protect
NC Highway 12 At Buxton
Dare County, NC

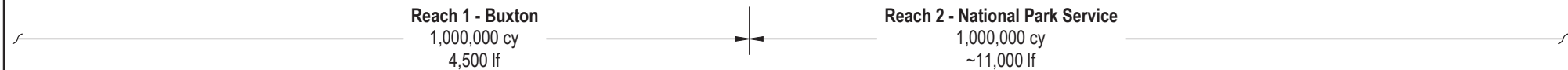
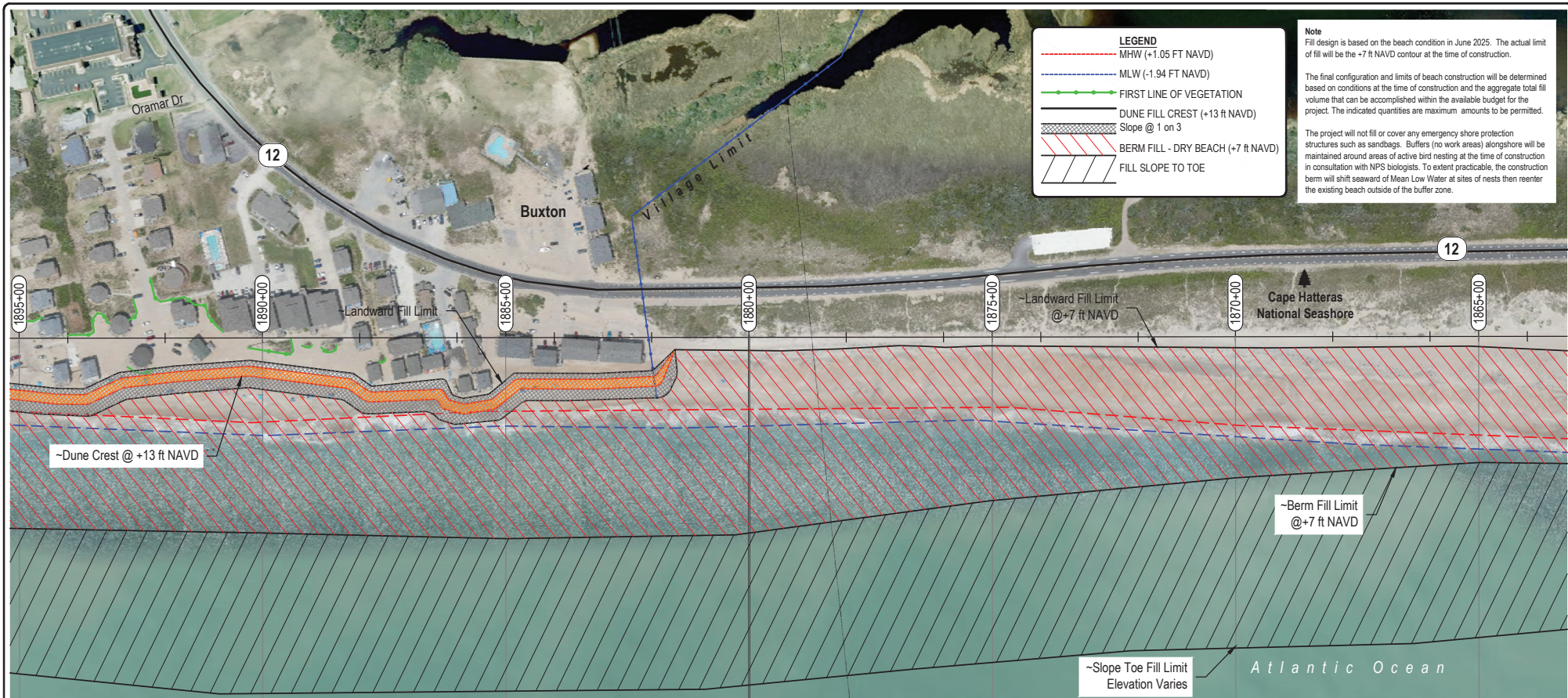
DRAWING TITLE:

PROJECT PLAN
STA 1925+50 to STA 1895+00



SCALE: AS SHOWN
DATE: 31 July 2025
DRAWN BY: TH
APPROVED BY: PB
PROJECT #: 2619

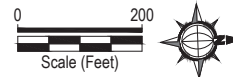
04



Note:
Initial dunes will be built along the Village of Buxton during renourishment construction. The dune crest will be at +13 ft NAVD and the typical width of the dune crest will be 20 ft. The seaward slope of the dune will be at 1 on 3. The constructed dry sand berm (@+7 ft NAVD) in front of the toe of the dune will be 225-250 ft wide.

No fill is to be placed on exposed emergency sand bags, or under exposed walkovers and houses.

Note:
No dune will be constructed along Reach 2 - National Seashore.



Survey Datum:
Horizontal: SPCS NAD '83 (Feet) NC Zone 3200
Vertical: NAVD '88 (Feet)
Notes: Data collected by Coastal Science & Engineering, Inc via RTK GPS:
Data collected: 26 June 2025
Aerial Image: 26 June 2025

MHW (+1.05 ft NAVD)
MLW (-1.94 ft NAVD)



Applicant:
Dare County
954 Marshall Collins Dr.
Manteo, NC 27954

Project:
Beach Renourishment To Protect
NC Highway 12 At Buxton
Dare County, NC

DRAWING TITLE:
PROJECT PLAN
STA 1895+00 to STA 1864+00



SCALE: AS SHOWN
DATE: 31 July 2025
DRAWN BY: TH
APPROVED BY: PB
PROJECT #: 2619

05



Reach 2 - National Park Service

1,000,000 cy
~11,000 lf

Note:
No dune will be constructed along Reach 2 - National Seashore.

LEGEND	
	MHW (+1.05 FT NAVD)
	MLW (-1.94 FT NAVD)
	FIRST LINE OF VEGETATION
	DUNE FILL CREST (+13 ft NAVD)
	BERM FILL - DRY BEACH (+7 ft NAVD)
	FILL SLOPE TO TOE



Survey Datum:
Horizontal: SPCS NAD '83 (Feet) NC Zone 3200
Vertical: NAVD '88 (Feet)
Notes: Data collected by Coastal Science & Engineering, Inc via RTK GPS.
Data collected: 26 June 2025
Aerial Image: 26 June 2025

MHW (+1.05 ft NAVD)
MLW (-1.94 ft NAVD)



Applicant:
Dare County
954 Marshall Collins Dr.
Manteo, NC 27954

Project:
Beach Renourishment To Protect
NC Highway 12 At Buxton
Dare County, NC

DRAWING TITLE:
PROJECT PLAN
STA 1862+00 to STA 1832+00



SCALE: AS SHOWN
DATE: 31 July 2025
DRAWN BY: TH
APPROVED BY: PB
PROJECT #: 2619

06



Note

Fill design is based on the beach condition in June 2025. The actual limit of fill will be the +7 ft NAVD contour at the time of construction.

The final configuration and limits of beach construction will be determined based on conditions at the time of construction and the aggregate total fill volume that can be accomplished within the available budget for the project. The indicated quantities are maximum amounts to be permitted.

The project will not fill or cover any emergency shore protection structures such as sandbags. Buffers (no work areas) alongshore will be maintained around areas of active bird nesting at the time of construction in consultation with NPS biologists. To extent practicable, the construction berm will shift seaward of Mean Low Water at sites of nests then reenter the existing beach outside of the buffer zone.

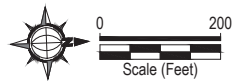
Reach 2 - National Park Service

1,000,000 cy

~11,000 lf

Note:

No dune will be constructed along Reach 2 - National Seashore.



Survey Datum:
Horizontal: SPCS NAD '83 (Feet) NC Zone 3200
Vertical: NAVD '88 (Feet)
Notes: Data collected by Coastal Science & Engineering, Inc via RTK GPS:
Data collected: 26 June 2025
Aerial Image: 26 June 2025

MHW (+1.05 ft NAVD)
MLW (-1.94 ft NAVD)



Applicant:
Dare County
954 Marshall Collins Dr.
Manteo, NC 27954

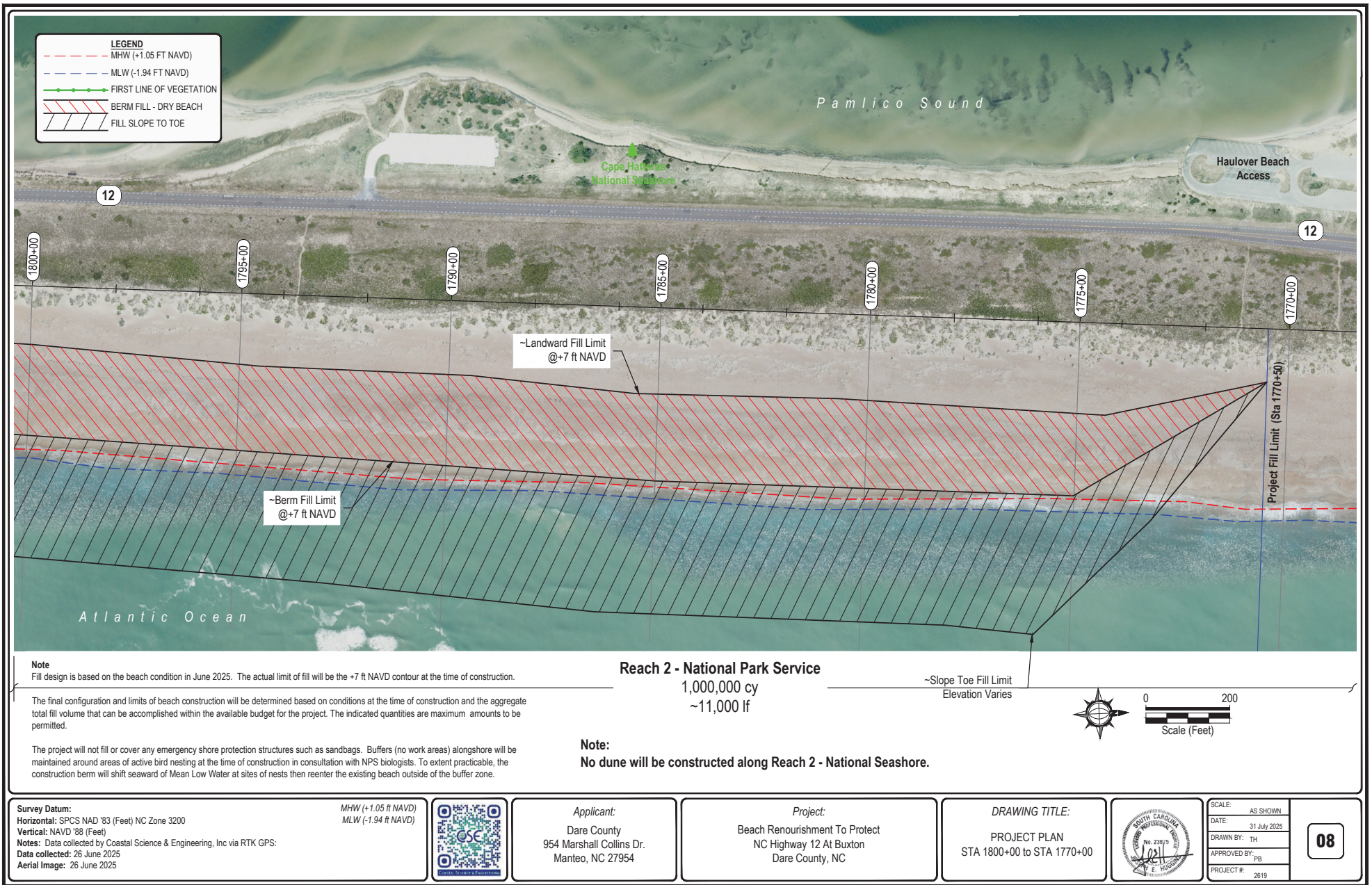
Project:
Beach Renourishment To Protect
NC Highway 12 At Buxton
Dare County, NC

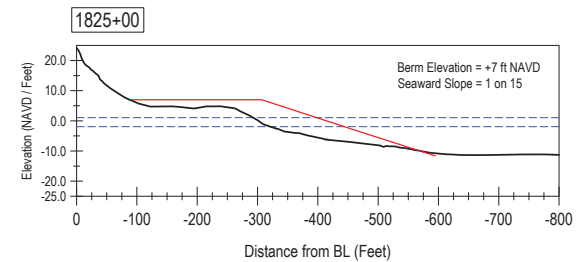
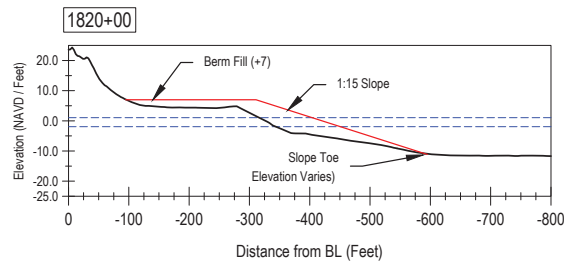
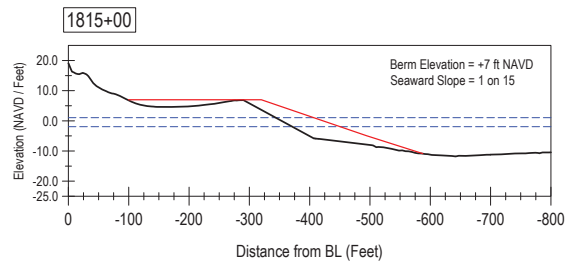
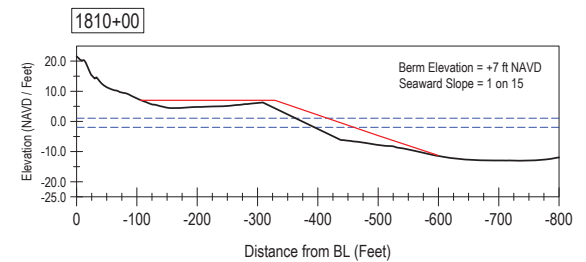
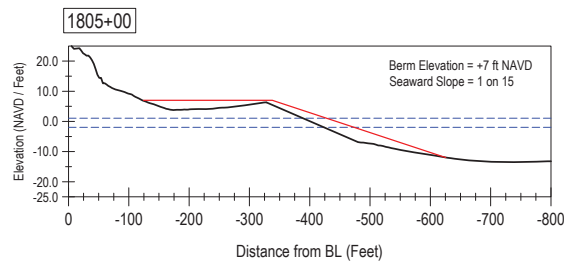
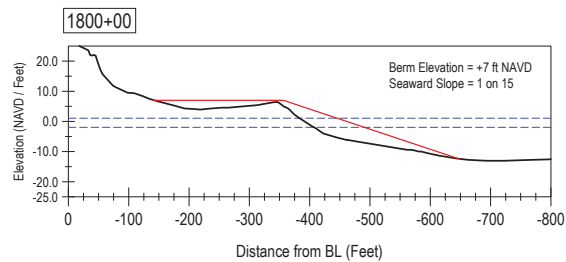
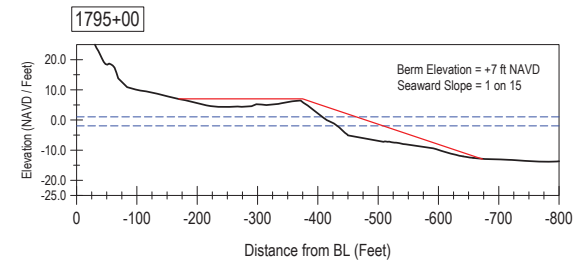
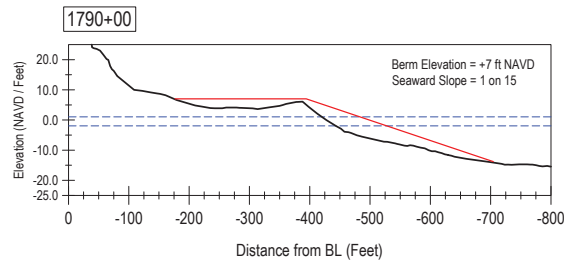
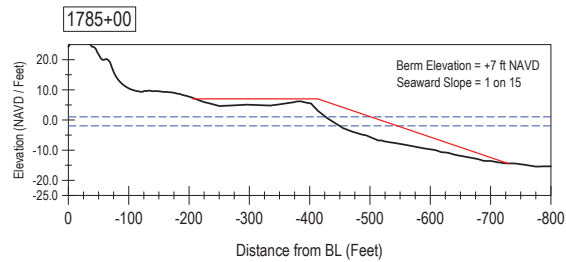
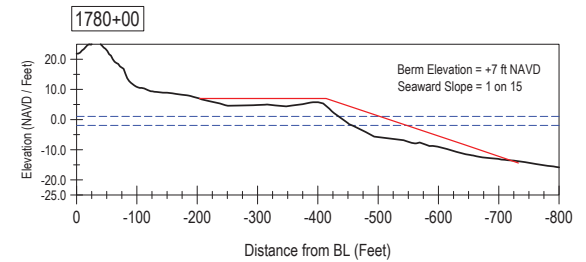
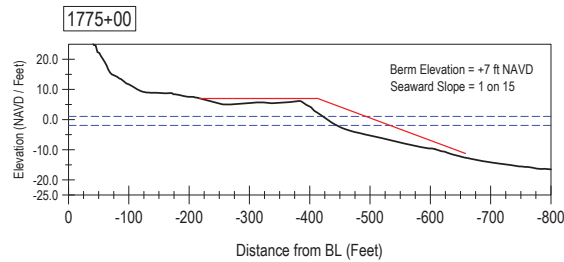
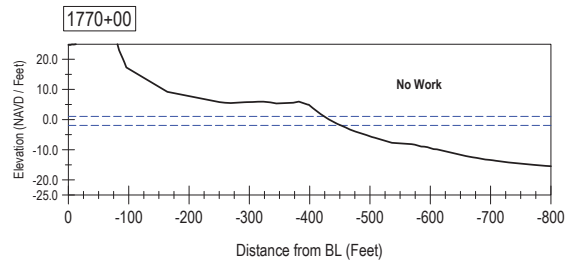
DRAWING TITLE:
PROJECT PLAN
STA 1832+00 to STA 1800+00



SCALE: AS SHOWN
DATE: 31 July 2025
DRAWN BY: TH
APPROVED BY: PB
PROJECT #: 2619

07





Survey Datum:
Horizontal: SPCS NAD '83 (Feet) NC Zone 3200
Vertical: NAVD '88 (Feet)
Vertical Exaggeration: 10:1
Notes: Data collected by Coastal Science & Engineering, Inc via RTK GPS:
Data collected: June 2025

MHW (+1.05 ft NAVD)
MLW (-1.94 ft NAVD)



Applicant:
Dare County
954 Marshall Collins Dr.
Manteo, NC 27954

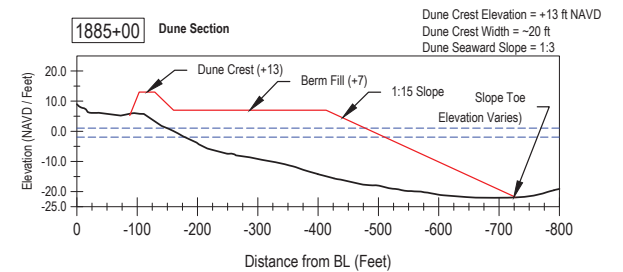
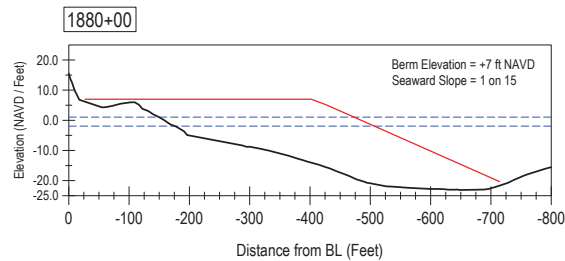
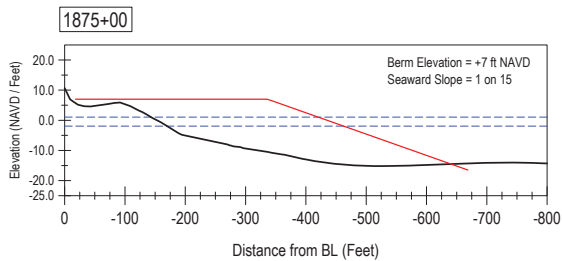
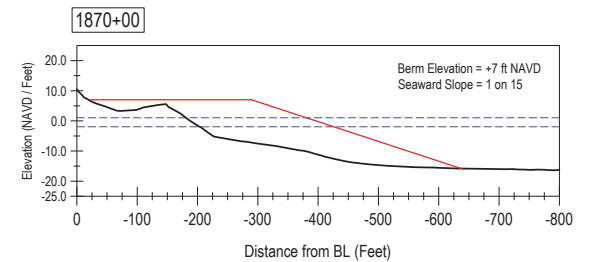
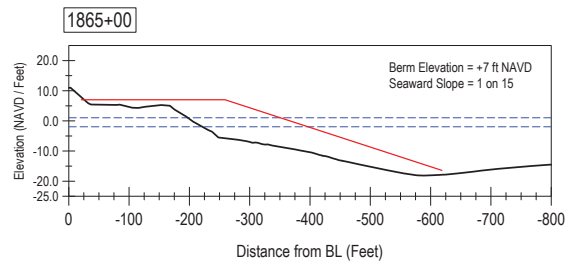
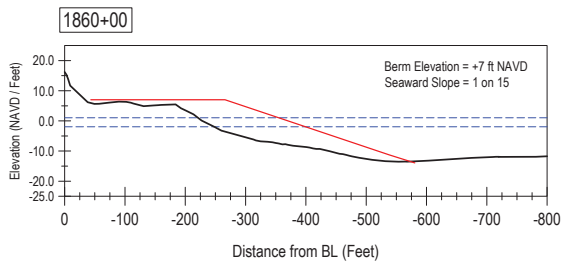
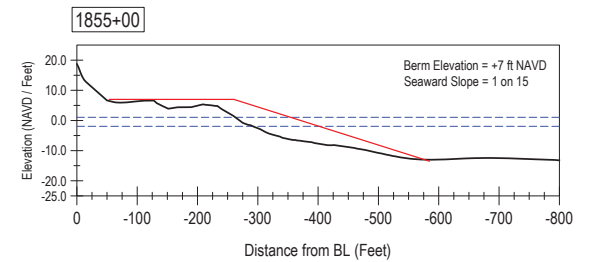
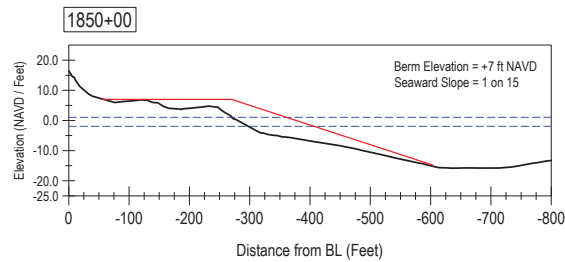
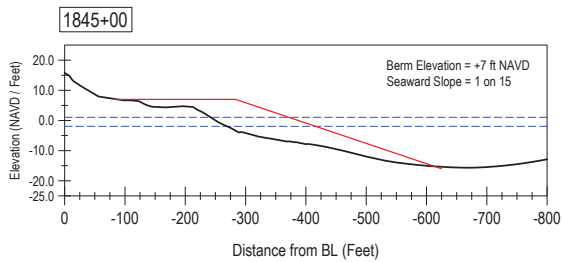
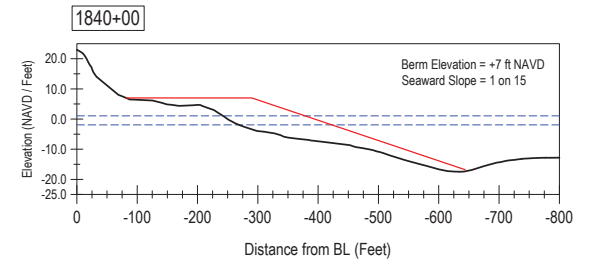
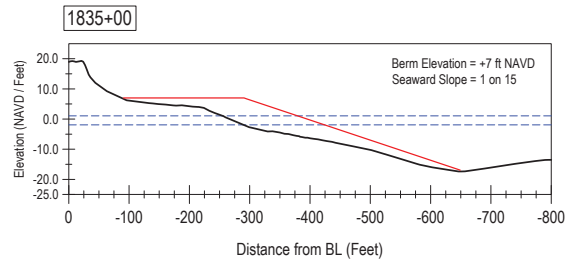
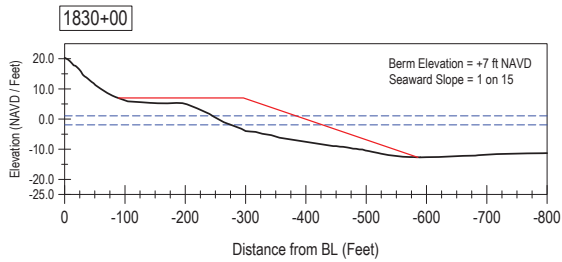
Project:
Beach Renourishment To Protect
NC Highway 12 At Buxton
Dare County, NC

DRAWING TITLE:
PLAN FILL SECTIONS
STA 1770+00 to 1825+00



SCALE: AS SHOWN
DATE: 31 July 2025
DRAWN BY: TH
APPROVED BY: PB
PROJECT #: 2619

09



Survey Datum:
Horizontal: SPCS NAD '83 (Feet) NC Zone 3200
Vertical: NAVD '88 (Feet)
Vertical Exaggeration: 10:1
Notes: Data collected by Coastal Science & Engineering, Inc via RTK GPS:
Data collected: June 2025

MHW (+1.05 ft NAVD)
MLW (-1.94 ft NAVD)



Applicant:
Dare County
954 Marshall Collins Dr.
Manteo, NC 27954

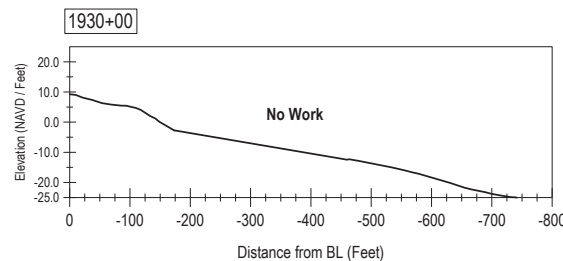
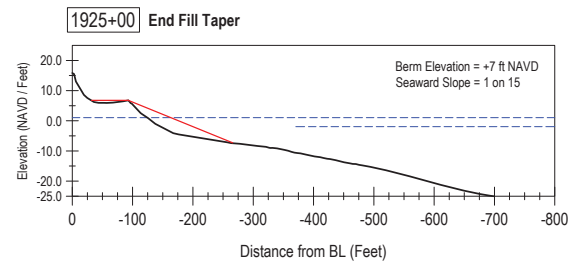
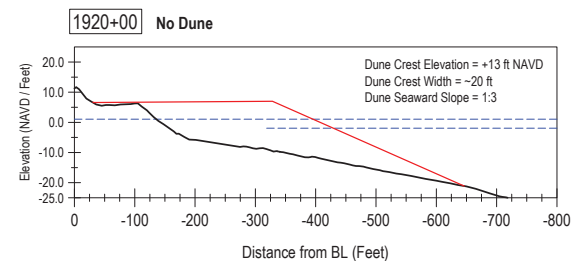
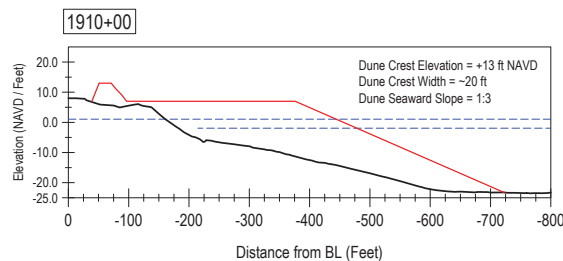
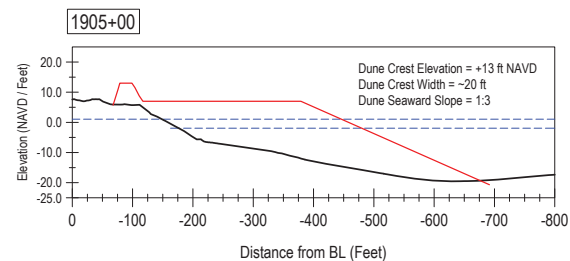
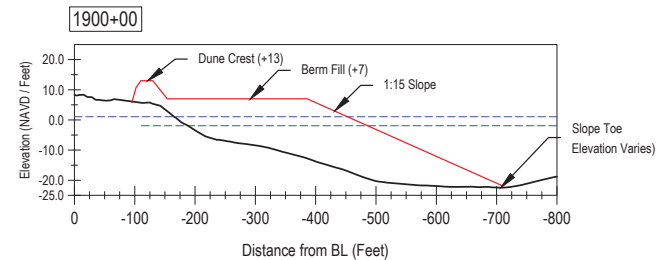
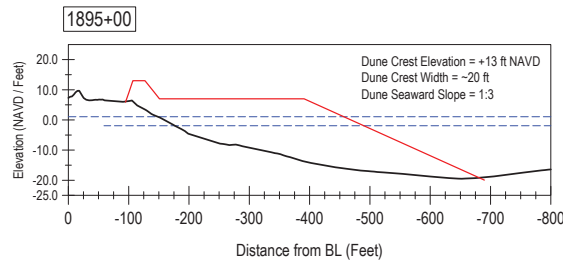
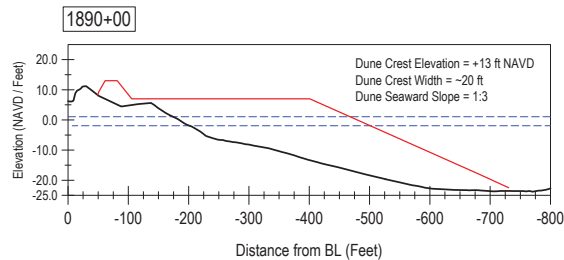
Project:
Beach Renourishment To Protect
NC Highway 12 At Buxton
Dare County, NC

DRAWING TITLE:
PLAN FILL SECTIONS
STA 1830+00 to 1885+00



SCALE: AS SHOWN
DATE: 31 July 2025
DRAWN BY: TH
APPROVED BY: PB
PROJECT #: 2619

10



Note

Fill design is based on the beach condition in June 2025. The actual limit of fill will be the +7 ft NAVD contour at the time of construction.

The final configuration and limits of beach construction will be determined based on conditions at the time of construction and the aggregate total fill volume that can be accomplished within the available budget for the project. The indicated quantities are maximum amounts to be permitted.

The project will not fill or cover any emergency shore protection structures such as sandbags. Buffers (no work areas) alongshore will be maintained around areas of active bird nesting at the time of construction in consultation with NPS biologists. To extent practicable, the construction berm will shift seaward of Mean Low Water at sites of nests then reenter the existing beach outside of the buffer zone.

Note:

Initial dunes will be built along the Village of Buxton during renourishment construction. The dune crest will be at +13 ft NAVD and the typical width of the dune crest will be 20 ft. The seaward slope of the dune will be at 1 on 3. The constructed dry sand beach in front of the toe of the dune will be 225-250 ft wide.

No fill is to be placed on exposed emergency sand bags, or under exposed walkovers and houses.

Fill Schedule

Reach 1 - Buxton (4,500 ft):
Fill Volume = 1,000,000 cy/ft; Average Fill Density = 222 cy/ft
Berm Elevation = +7 ft NAVD
Seaward Slope = 1 on 15
Dune Construction:
Dune Crest Elevation = +13 ft NAVD
Dune Crest Width = ~20 ft
Dune Seaward Slope = 1:3

Reach 2 - National Seashore (11,000 ft):
Fill Volume = 1,000,000 cy; Average Fill Density = ~91 cy/ft
Berm Elevation = +7 ft NAVD
Seaward Slope = 1 on 15

Survey Datum:
Horizontal: SPCS NAD '83 (Feet) NC Zone 3200
Vertical: NAVD '88 (Feet)
Vertical Exaggeration: 10:1
Notes: Data collected by Coastal Science & Engineering, Inc via RTK GPS:
Data collected: June 2025

MHW (+1.05 ft NAVD)
MLW (-1.94 ft NAVD)



Applicant:
Dare County
954 Marshall Collins Dr.
Manteo, NC 27954

Project:
Beach Renourishment To Protect
NC Highway 12 At Buxton
Dare County, NC

DRAWING TITLE:
PLAN FILL SECTIONS
STA 1890+00 to 1930+00



SCALE: AS SHOWN
DATE: 31 July 2025
DRAWN BY: TH
APPROVED BY: PB
PROJECT #: 2619

11



Atlantic Ocean

Atlantic Ocean

Atlantic Ocean

Atlantic Ocean

Atlantic Ocean

Atlantic Ocean



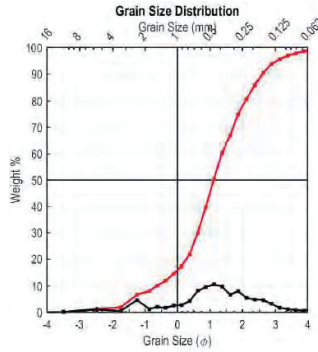
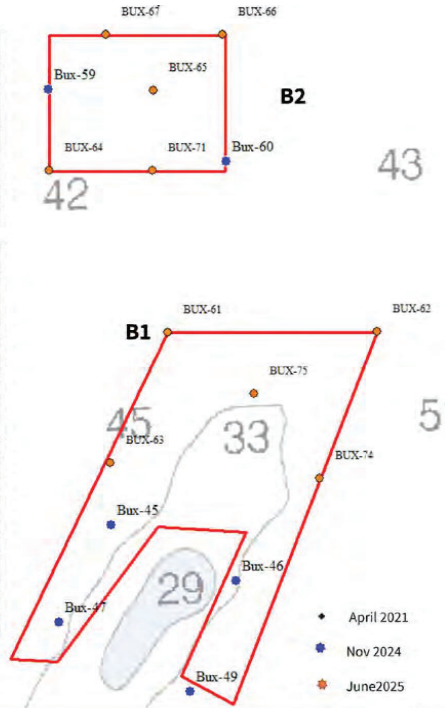
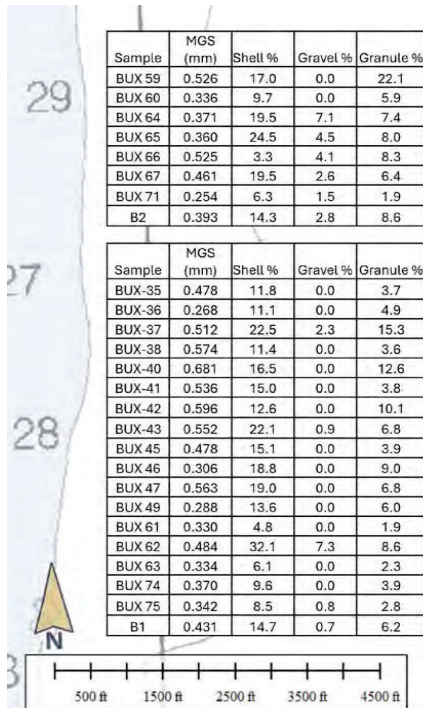
Atlantic Ocean

Atlantic Ocean

Atlantic Ocean



Atlantic Ocean



Project Location: Buxton, NC

Date: 06 12 2025

Station: BA1

Sample Interval: 10 ft COMP

Mean: 0.431 mm

STD: 0.417 mm

Skewness: -0.407

USCS: Wentworth

SP: Medium Sand

Medium Sand

Poorly Sorted

Poorly Graded

Symmetrical

Mesokurtic

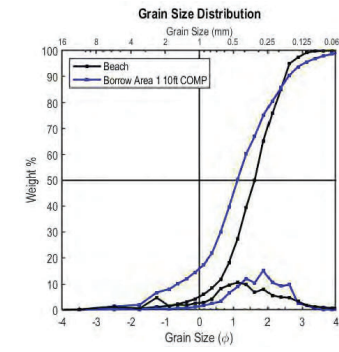
Total weight (gram): 101.88

% finer than 0.0625 mm (dry): 1.34

% granule (2-4 mm): 5.37

% gravel (>4 mm): 1.38

CaCO3: 14.7



Project Location: Buxton, NC

Date: Jun 2025

All Beach Mean: 0.321 mm

All Beach STD: 0.552 mm

All Beach Skew: -1.045 mm

All Beach Kurt: 5.621 mm

All Beach Shell: 7.2 %

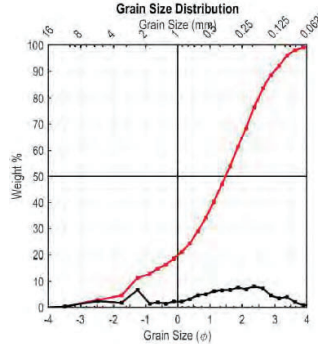
B1 10 ft COMP Mean: 0.431 mm

B1 10 ft COMP STD: 0.417 mm

B1 10 ft COMP Skew: 0.407 mm

B1 10 ft COMP Kurt: 3.659 mm

B1 10 ft COMP Shell: 14.7 %



Project Location: Buxton, NC

Date: 06 12 2025

Station: BA2

Sample Interval: 10 ft COMP

Mean: 0.393 mm

STD: 0.346 mm

Skewness: -0.695

USCS: Wentworth

SP: Fine Sand

Fine Sand

Poorly Sorted

Coarse Skewed

Mesokurtic

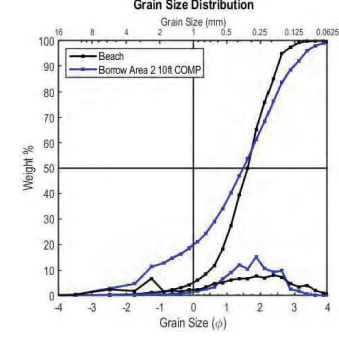
Total weight (gram): 105.44

% finer than 0.0625 mm (dry): 1.00

% granule (2-4 mm): 8.55

% gravel (>4 mm): 2.83

CaCO3: 14.3



Project Location: Buxton, NC

Date: Jun 2025

All Beach Mean: 0.321 mm

All Beach STD: 0.552 mm

All Beach Skew: -1.045 mm

All Beach Kurt: 5.621 mm

All Beach Shell: 7.2 %

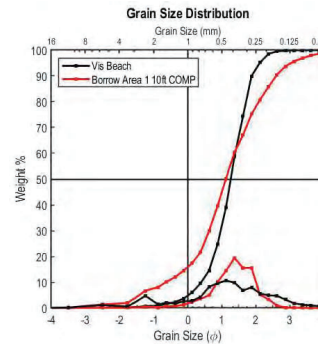
B2 10 ft COMP Mean: 0.393 mm

B2 10 ft COMP STD: 0.346 mm

B2 10 ft COMP Skew: 0.695 mm

B2 10 ft COMP Kurt: 3.006 mm

B2 10 ft COMP Shell: 14.3 %



Project Location: Buxton, NC

Date: Jun 2025

Vis Beach Mean: 0.400 mm

Vis Beach STD: 0.636 mm

Vis Beach Skew: -1.073 mm

Vis Beach Kurt: 6.358 mm

Vis Beach Shell: 7.2 %

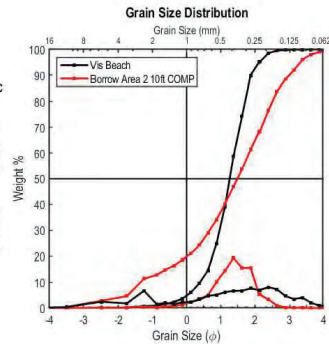
B1 10 ft COMP Mean: 0.431 mm

B1 10 ft COMP STD: 0.417 mm

B1 10 ft COMP Skew: 0.407 mm

B1 10 ft COMP Kurt: 3.659 mm

B1 10 ft COMP Shell: 14.7 %



Project Location: Buxton, NC

Date: Jun 2025

Vis Beach Mean: 0.400 mm

Vis Beach STD: 0.636 mm

Vis Beach Skew: -1.073 mm

Vis Beach Kurt: 6.358 mm

Vis Beach Shell: 7.2 %

B2 10 ft COMP Mean: 0.393 mm

B2 10 ft COMP STD: 0.346 mm

B2 10 ft COMP Skew: 0.695 mm

B2 10 ft COMP Kurt: 3.006 mm

B2 10 ft COMP Shell: 14.3 %

Notes:

Beach sediment samples (n=140) obtained in June 2025 and analyzed by Coastal Science & Engineering, Inc.

Offshore borings obtained in June 2025 (10-ft long, 3 inch tubes). Grain size distributions based on dry sieving at 0.25 phi intervals.



Applicant:

Dare County

954 Marshall Collins Dr.

Manteo, NC 27954

Project:

Beach Renourishment To Protect

NC Highway 12 At Buxton

Dare County, NC

DRAWING TITLE:

BORROW AREA

SEDIMENT ANALYSIS



SCALE: AS SHOWN

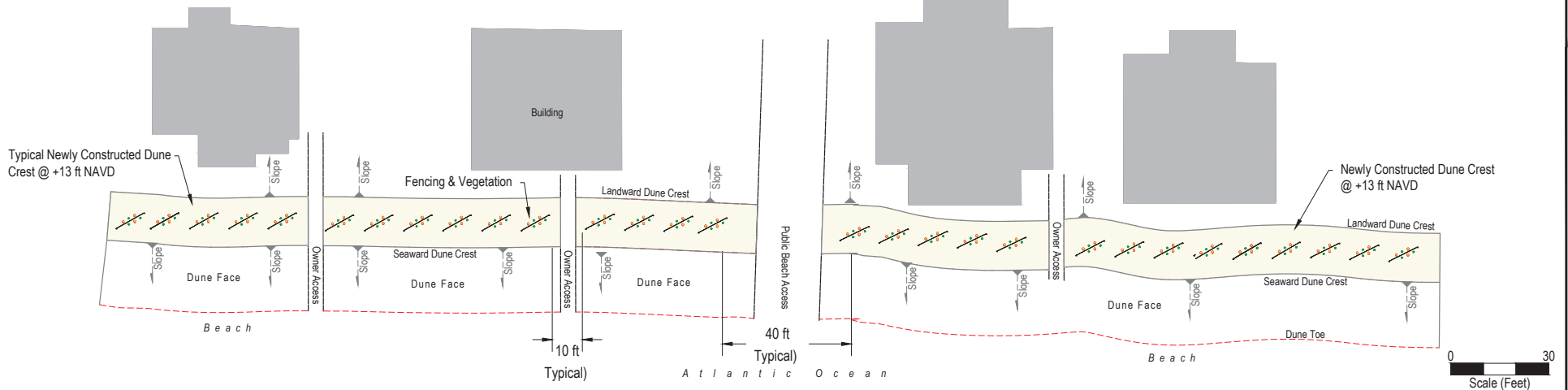
DATE: 31 July 2025

DRAWN BY: TH

APPROVED BY: PB

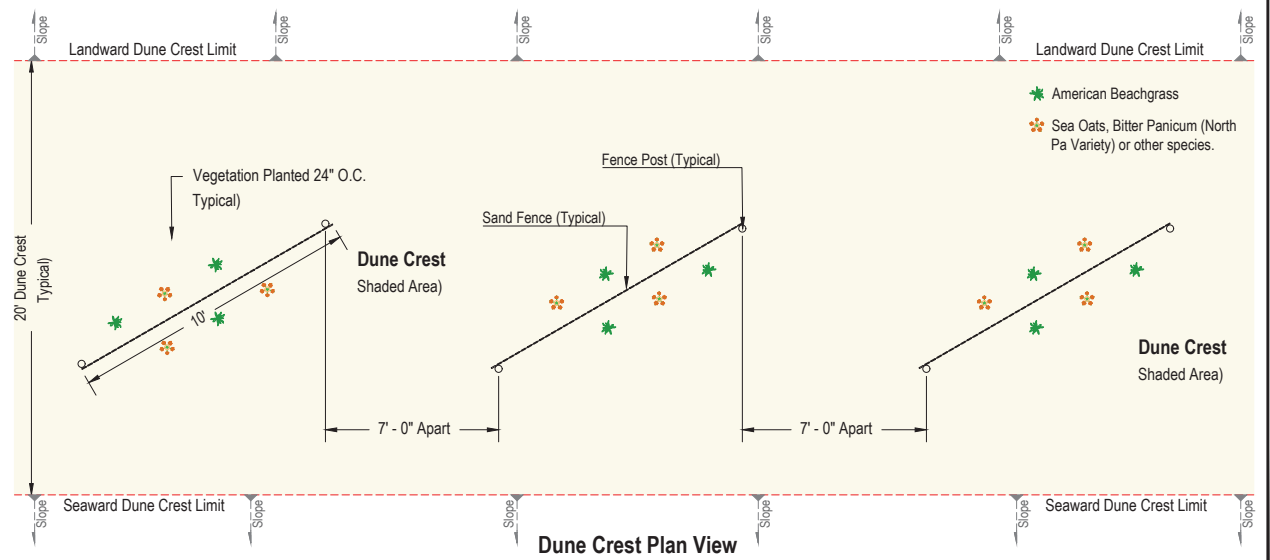
PROJECT #: 2619

13



The general sand-fencing installation guidance issued by *USFWS/NCDCM* states below.

- All sand fencing installations will comply all current statutes and regulations as specified by the NCDCM and under the NC Coastal Area Management Act (CAMA).
- Sand fence will be placed in a sea turtle compatible design and be made of biodegradable material.
- Sand fence will be installed on the newly constructed dune crest and not down the slope of the dune.
- Sand fence will be designed and installed as follows: a maximum of ten (10) foot long spurs of sand fencing spaced at a minimum of seven (7) feet on a diagonal alignment (facing the predominate wind direction - from the south for the Avon project area)
- Only one row of sand fencing will be installed in sea turtle nesting habitat.
- Existing native dune vegetation will be disturbed only to the minimum extent necessary. Only native, salt tolerant plan species will be installed.
- Education signs will be placed where appropriate at beach access points explaining the importance of the area to sea turtles and/or the life history of sea turtle species that nest in the area.



Typical Newly Constructed Dune @ +13 ft NAVD)

Notes:

Sand fencing will only be installed along Reach 1 - Buxton.
Vegetation will only be planted along Reach 1 - Buxton



Applicant:
Dare County
954 Marshall Collins Dr.
Manteo, NC 27954

Project:
Beach Renourishment To Protect
NC Highway 12 At Buxton
Dare County, NC

DRAWING TITLE:
SAND FENCING &
VEGETATION



SCALE: AS SHOWN
DATE: 31 July 2025
DRAWN BY: TH
APPROVED BY: PB/ST
PROJECT #: 2619