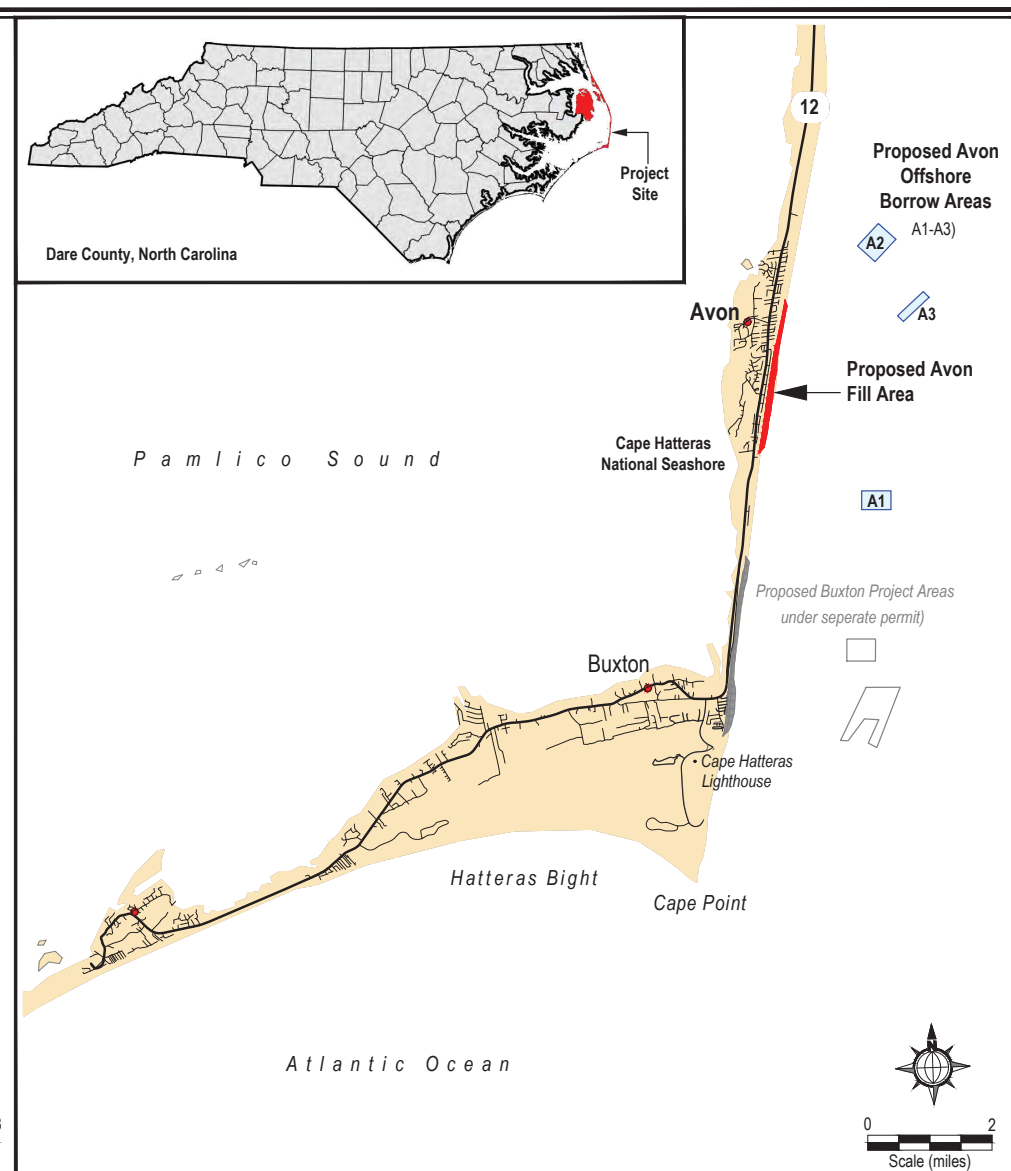
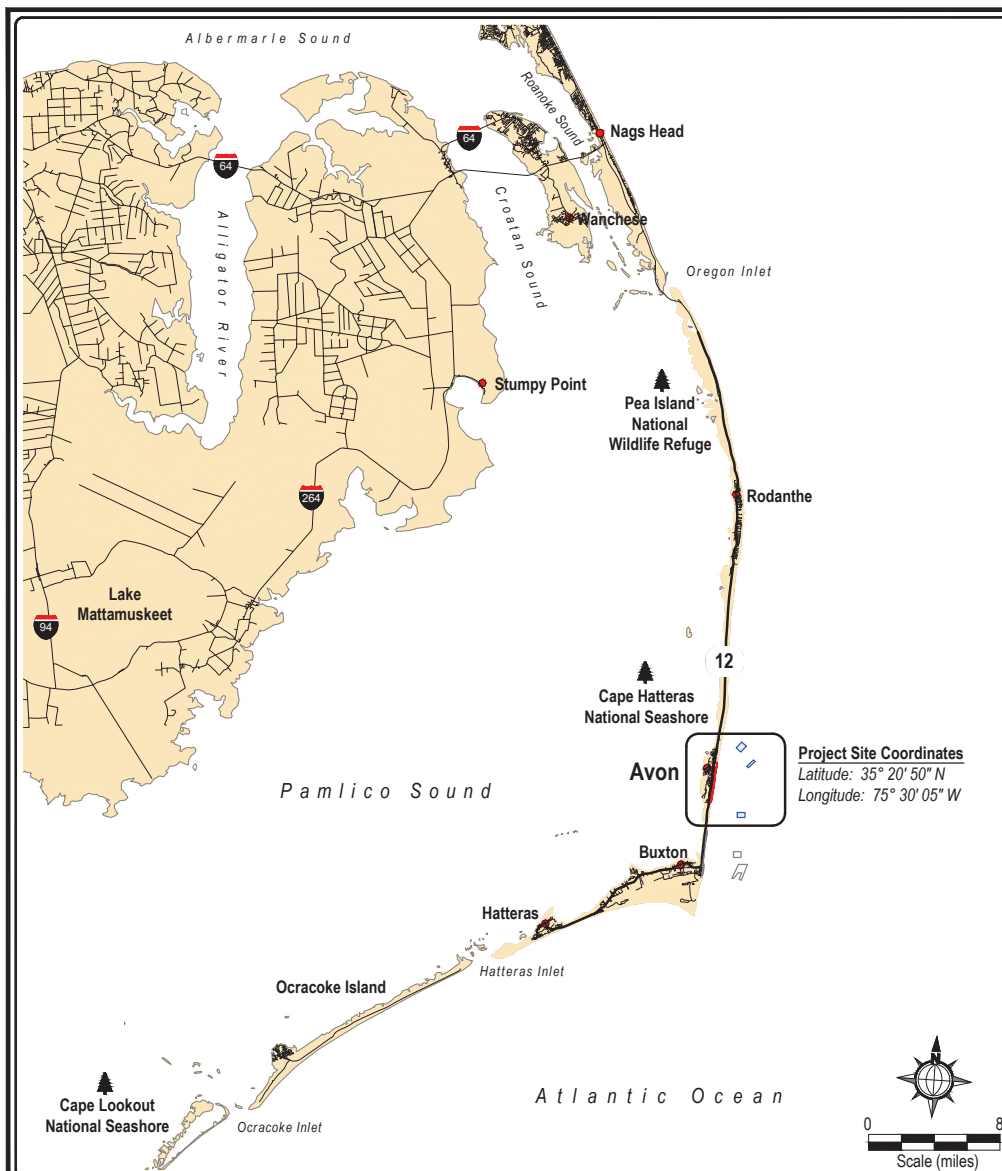




Directions From Nags Head to Avon:
Follow NC-12 S/Cape Hatteras National Park Rd approximately 40 miles to Avon.

Proposed project limits are from the Southern border of Avon Village, extending 2.5 miles North.



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

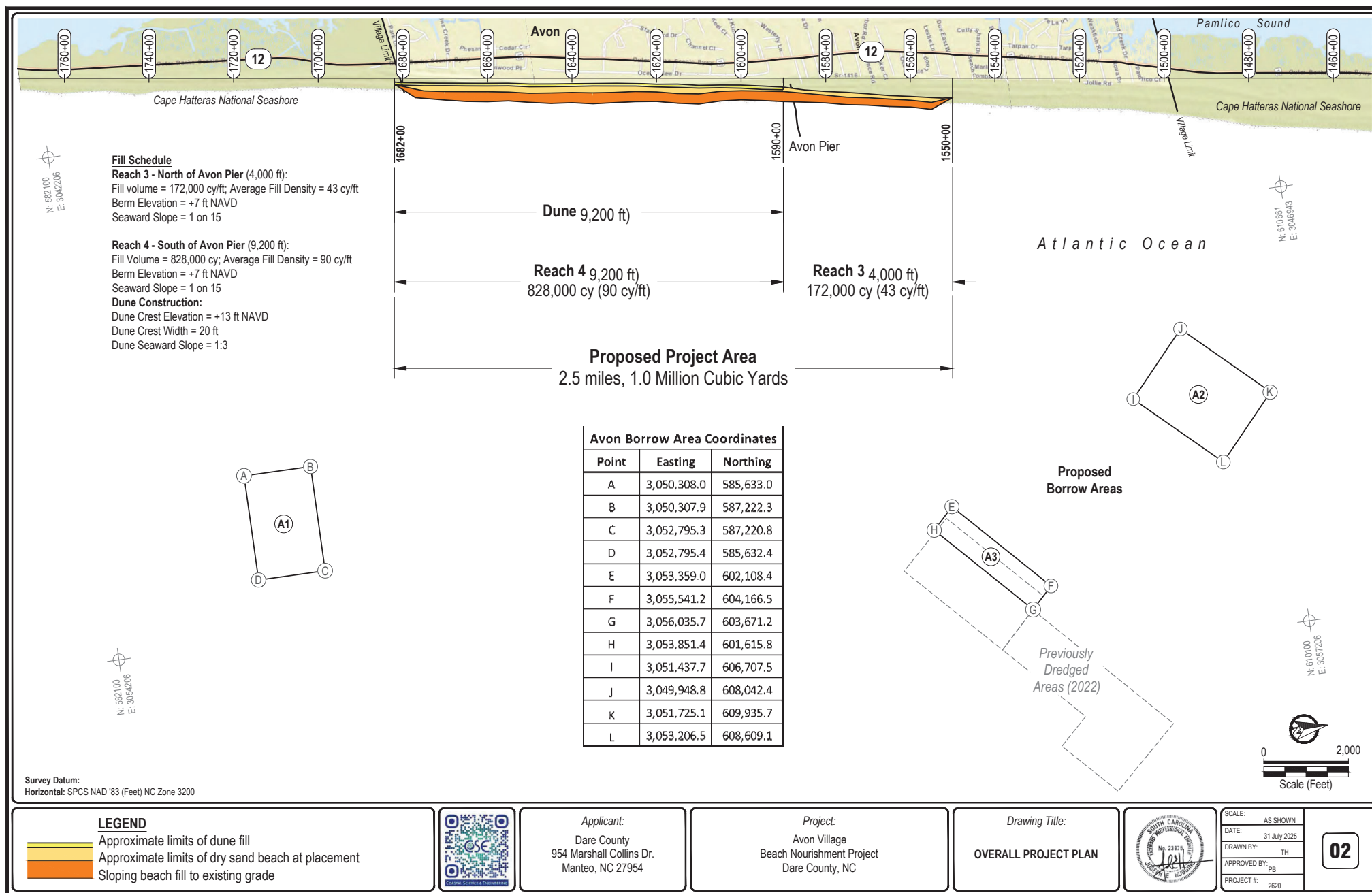
Project:
Avon Village
Beach Nourishment
Dare County, NC

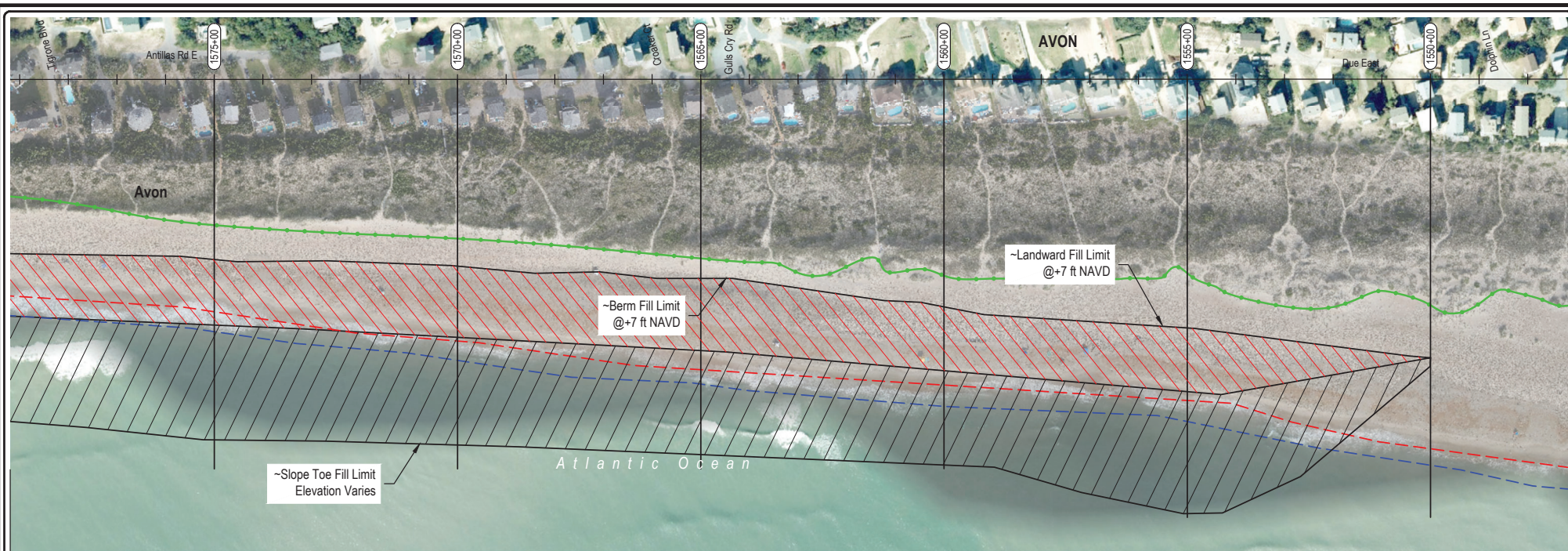
Drawing Title:
Project Location
Vicinity Map



SCALE: AS SHOWN
DATE: 31 July 2025
DRAWN BY: TH
APPROVED BY: PB
PROJECT #: 2620

01





Continued)

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 the 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 3
172,000 cy
4,000 lf

Fill Schedule

Reach 3 - North of Avon Pier (4,000 ft):

Fill volume = 172,000 cy/ft; Average Fill Density = 43 cy/ft

Berm Elevation = +7 ft NAVD

Seaward Slope = 1 on 15

No dune to be constructed along Reach 3.

Project Fill Limit
Sta 1550+00)



0 200
Scale (Feet)

LEGEND	
---	MHW (+1.05 FT NAVD)
---	MLW (-1.94 FT NAVD)
●	FIRST LINE OF VEGETATION
/	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

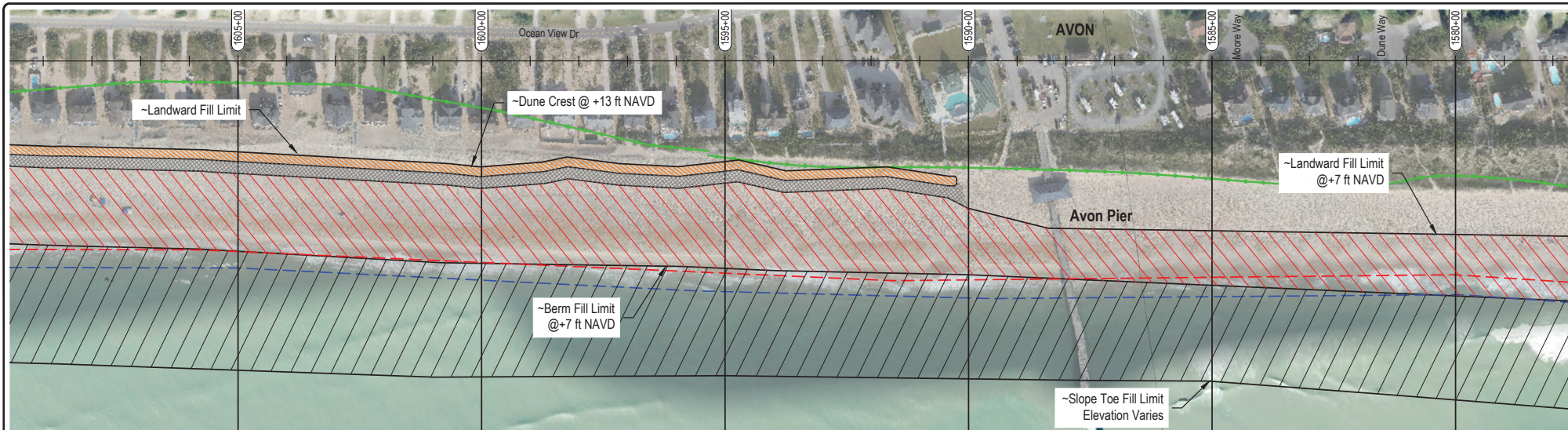
Project:
Avon Village
Beach Nourishment Project
Dare County, NC

DRAWING TITLE:
PROJECT PLAN
Reach 3
STA 1550+00 to STA 1578+00



SCALE: AS SHOWN
DATE: 31 July 2025
DRAWN BY: TH
APPROVED BY: PB
PROJECT #: 2620

03



Continued)

Reach 4
828,000 cy
9,200 lf

1590+00

Reach 3
172,000 cy
4,000 lf

Continued)

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.

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Note:

Dunes will be built along Reach 4 during nourishment 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 100-200 ft wide.

* No fill is to be placed under Pier, exposed walkovers or houses.

Fill Schedule

Reach 3 - North of Avon Pier (4,000 ft):

Fill volume = 172,000 cy/ft; Average Fill Density = 43 cy/ft
Berm Elevation = +7 ft NAVD
Seaward Slope = 1 on 15

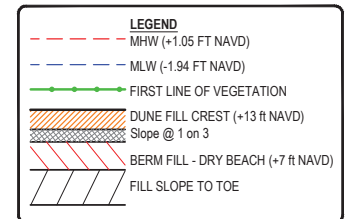
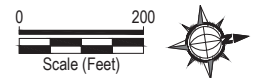
No dune to be constructed along Reach 3.

Reach 4 - South of Avon Pier (9,200 ft):

Fill Volume = 828,000 cy; Average Fill Density = 90 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



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

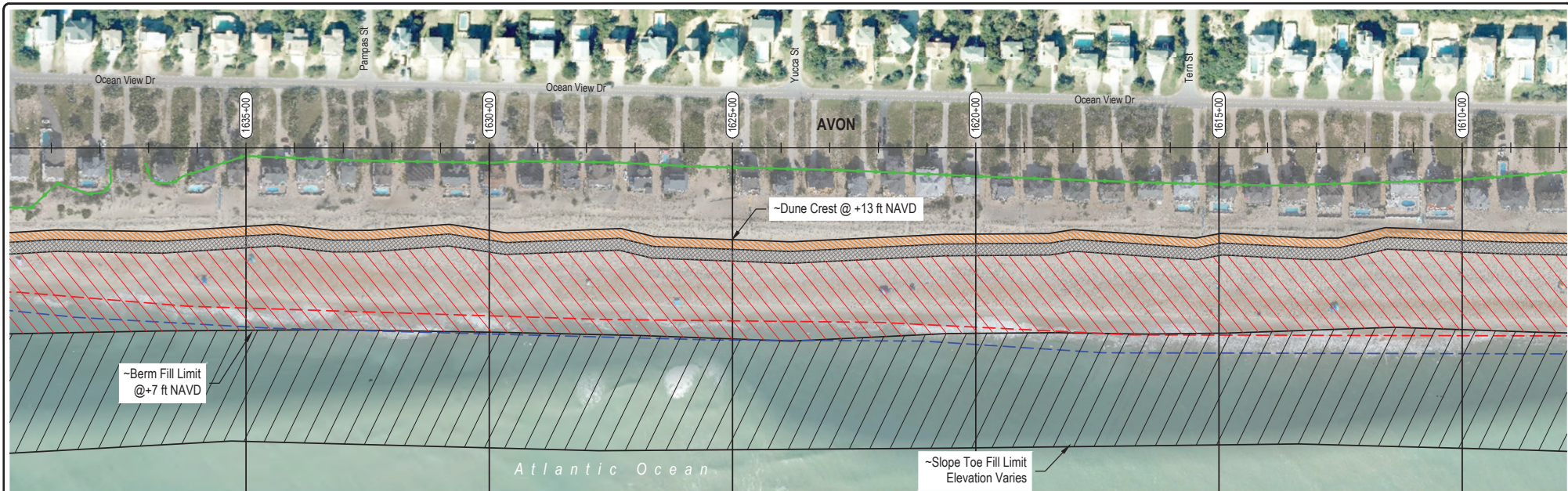
Project:
Avon Village
Beach Nourishment Project
Dare County, NC

DRAWING TITLE:
PROJECT PLAN
Reach 3 and 4
STA 1578+00 to STA 1608+00



SCALE: AS SHOWN
DATE: 31 July 2025
DRAWN BY: TH
APPROVED BY: PB
PROJECT #: 2620

04



Continued)

Reach 4
828,000 cy
9,200 lf

Continued)

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 the 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:

Dunes will be built along Reach 4 during nourishment 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 100-200 ft wide.

* No fill is to be placed under Pier, exposed walkovers or houses.

Reach 4 - South of Avon Pier (9,200 ft):

Fill Volume = 828,000 cy; Average Fill Density = 90 cy/ft

Berm Elevation = +7 ft NAVD

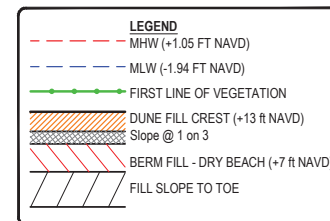
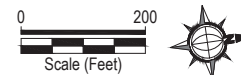
Seaward Slope = 1 on 15

Dune Construction:

Dune Crest Elevation = +13 ft NAVD

Dune Crest Width = 20 ft

Dune Seaward Slope = 1:3



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

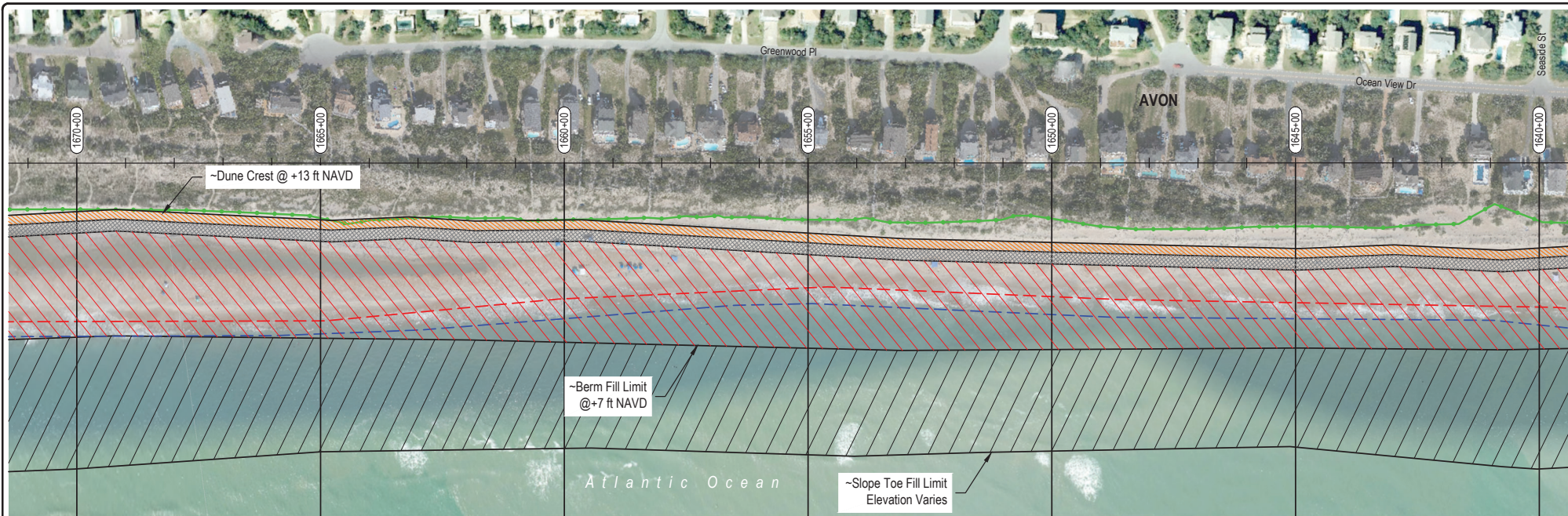
Project:
Avon Village
Beach Nourishment Project
Dare County, NC

DRAWING TITLE:
PROJECT PLAN
Reach 4
STA 1608+00 to STA 1640+00



SCALE: AS SHOWN
DATE: 31 July 2025
DRAWN BY: TH
APPROVED BY: PB
PROJECT #: 2620

05



Continued)

Reach 4
828,000 cy
9,200 lf

Continued)

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 the 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:

Dunes will be built along Reach 4 during nourishment 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 100-200 ft wide.

* No fill is to be placed under Pier, exposed walkovers or houses.

Reach 4 - South of Avon Pier (9,200 ft):

Fill Volume = 828,000 cy; Average Fill Density = 90 cy/ft

Berm Elevation = +7 ft NAVD

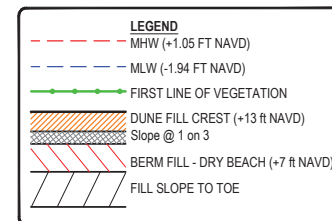
Seaward Slope = 1 on 15

Dune Construction:

Dune Crest Elevation = +13 ft NAVD

Dune Crest Width = 20 ft

Dune Seaward Slope = 1:3



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

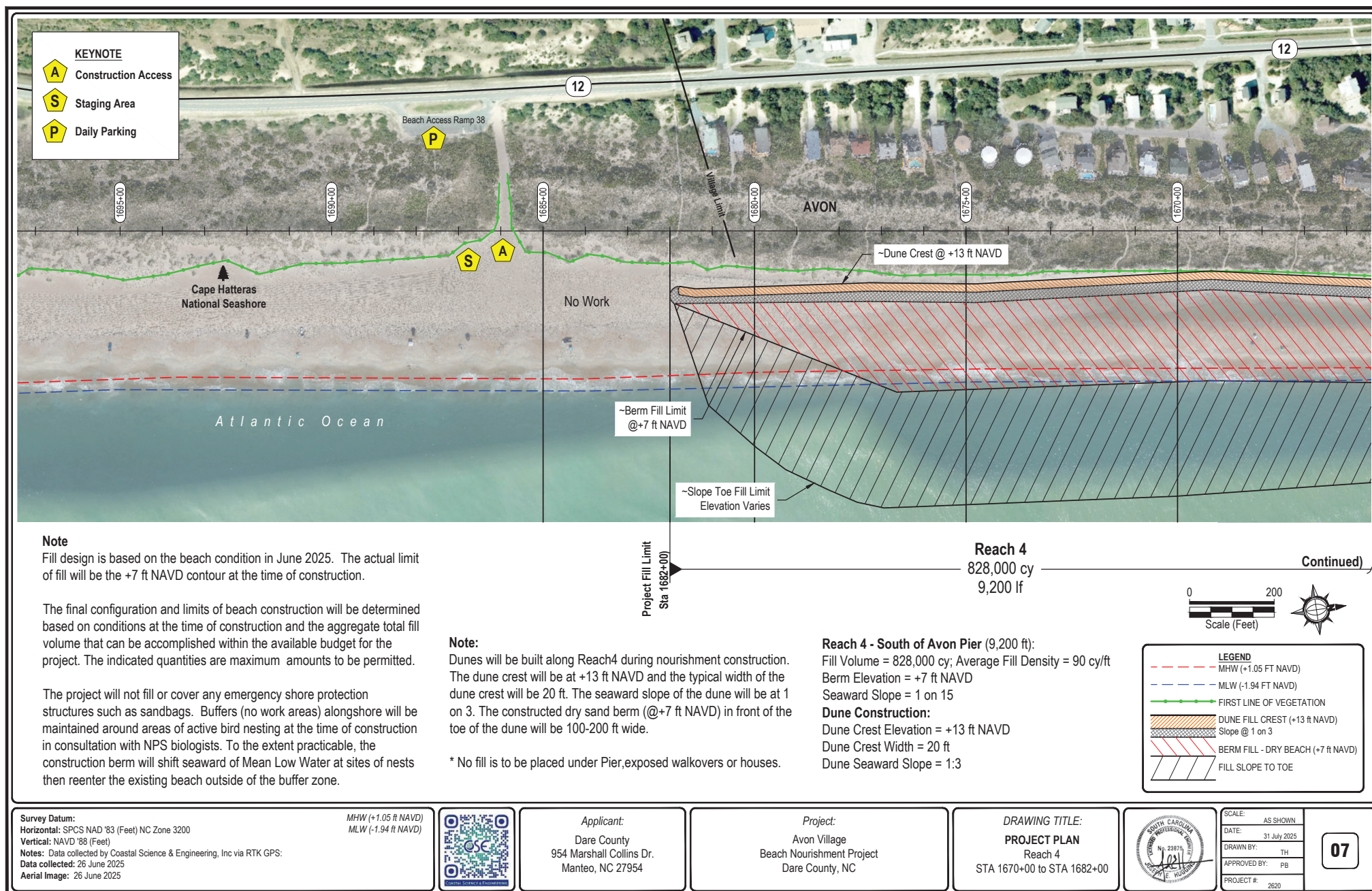
Project:
Avon Village
Beach Nourishment Project
Dare County, NC

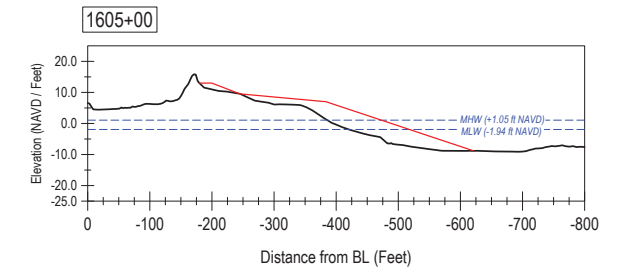
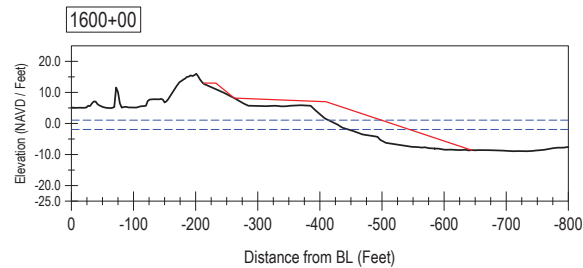
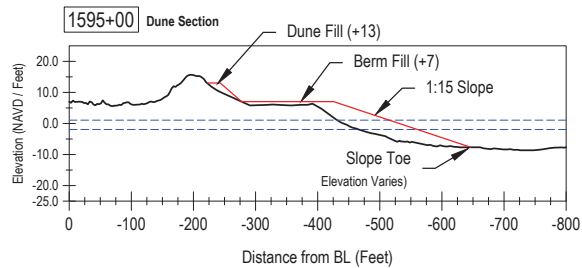
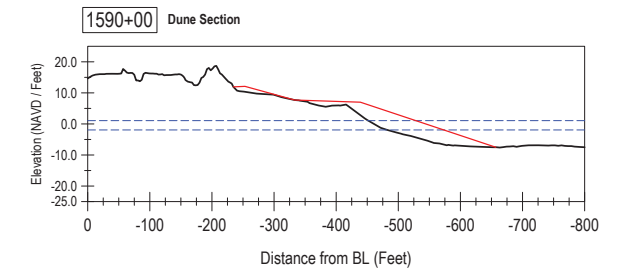
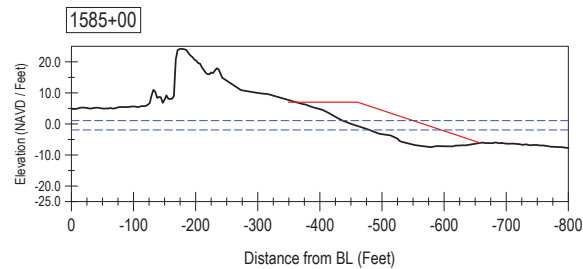
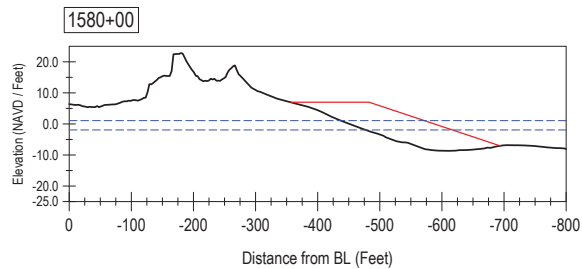
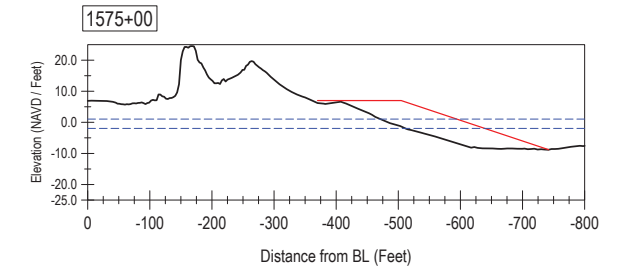
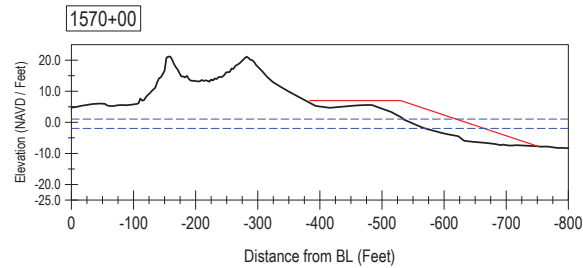
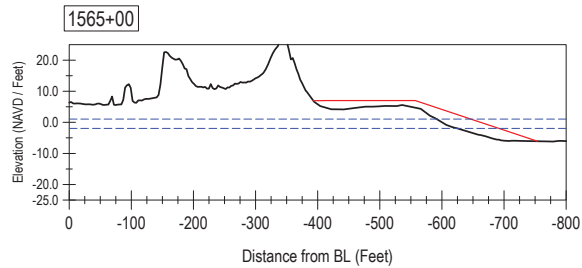
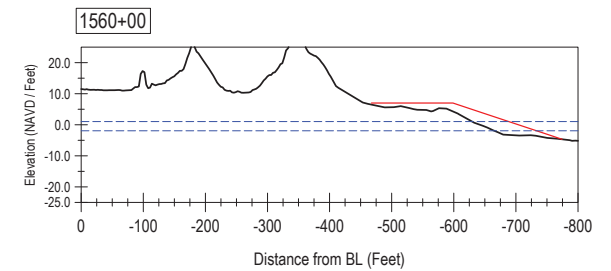
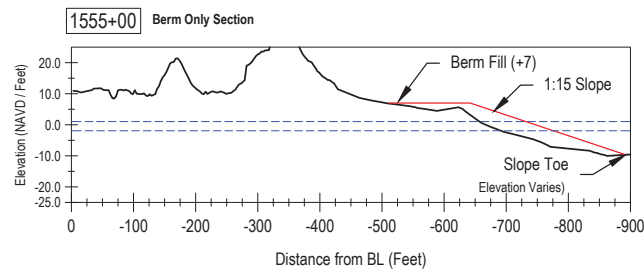
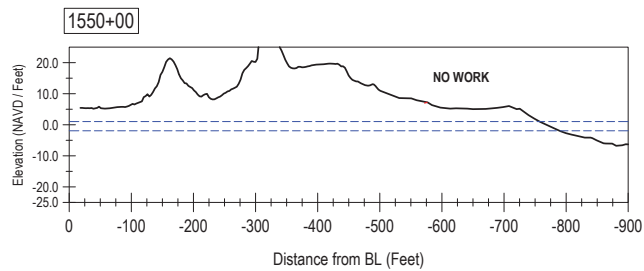
DRAWING TITLE:
PROJECT PLAN
Reach 4
STA 1640+00 to STA 1670+00



SCALE: AS SHOWN
DATE: 31 July 2025
DRAWN BY: TH
APPROVED BY: PB
PROJECT #: 2620

06





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

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



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

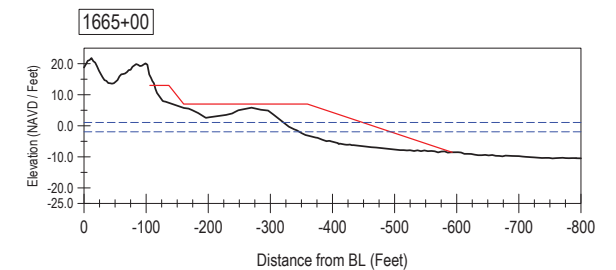
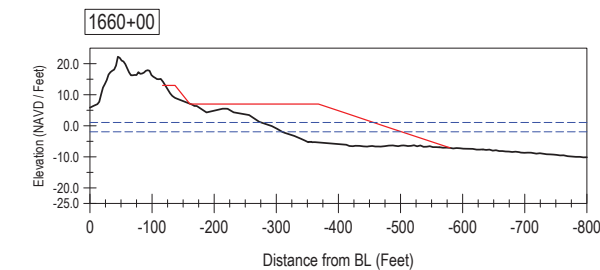
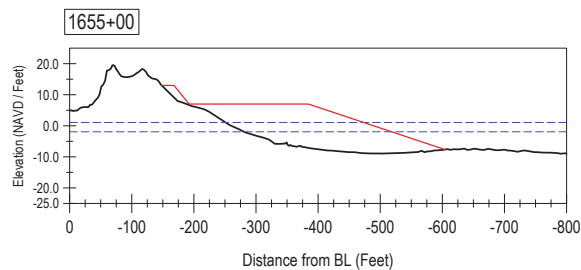
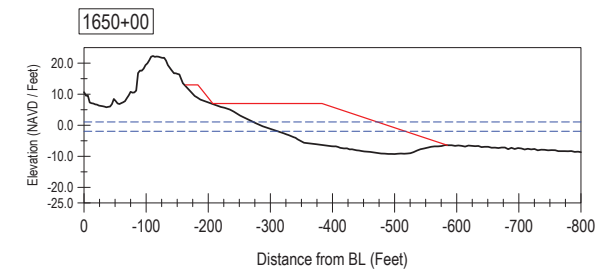
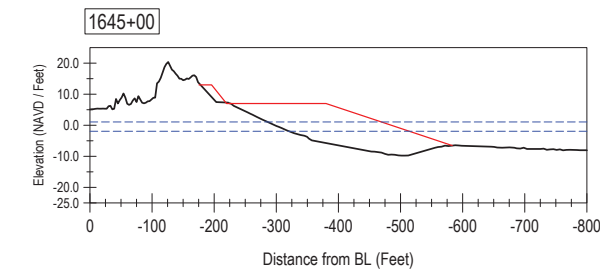
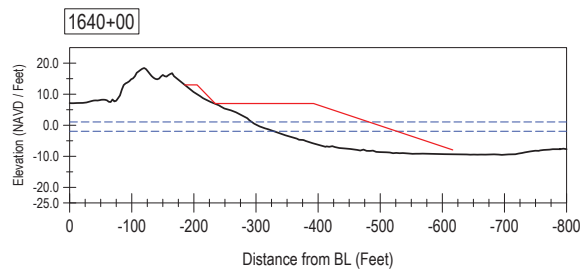
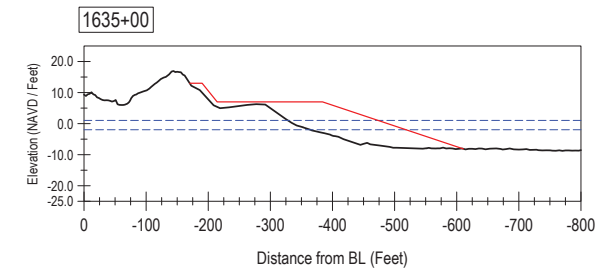
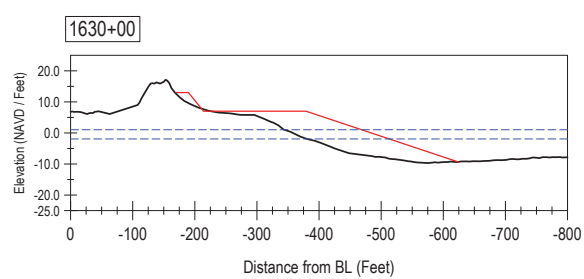
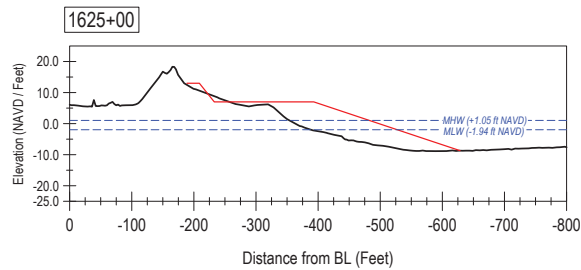
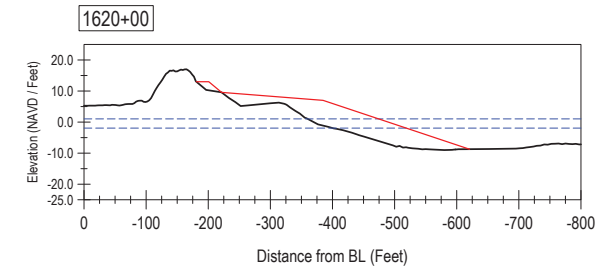
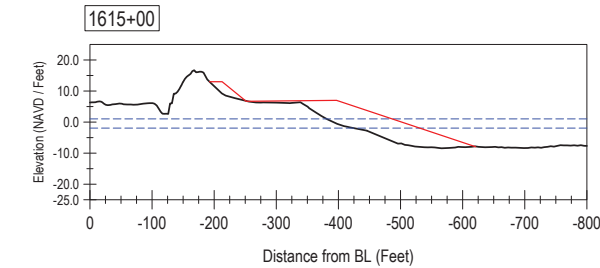
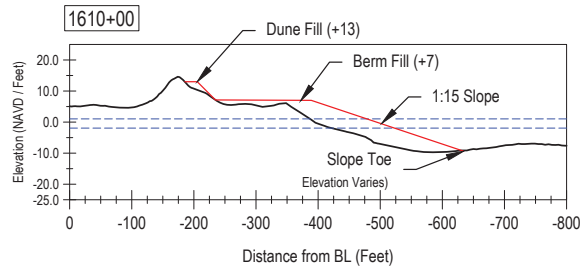
Project:
Avon Village
Beach Nourishment Project
Dare County, NC

DRAWING TITLE:
PLAN FILL SECTIONS
STA 1550+00 to 1605+00



SCALE: AS SHOWN
DATE: 31 July 2025
DRAWN BY: TH
APPROVED BY: PB
PROJECT #: 2620

08



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

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



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

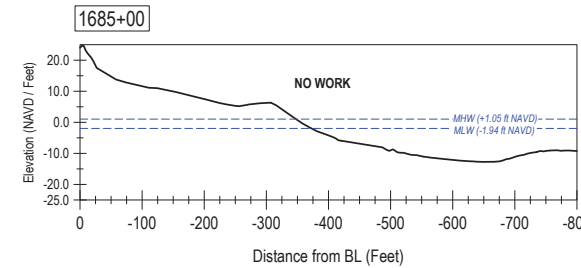
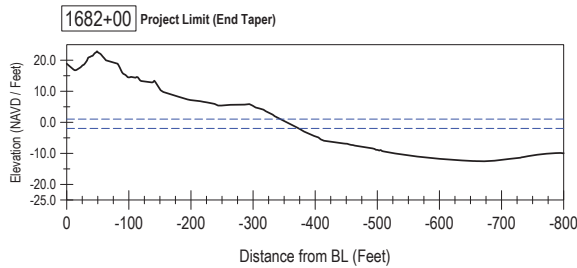
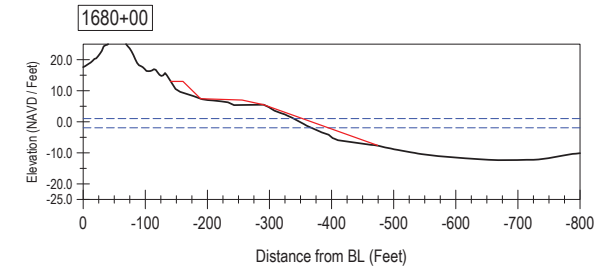
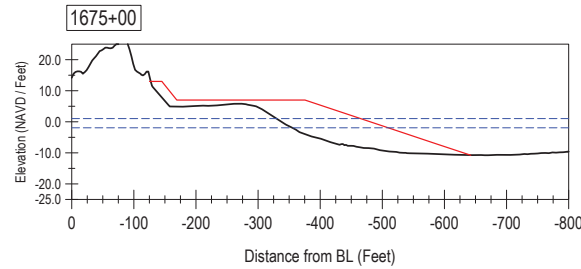
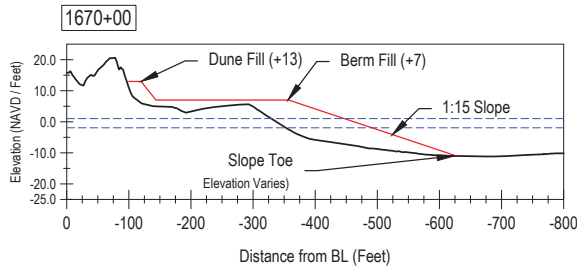
Project:
Avon Village
Beach Nourishment Project
Dare County, NC

DRAWING TITLE:
PLAN FILL SECTIONS
STA 1610+00 to 1665+00



SCALE: AS SHOWN
DATE: 31 July 2025
DRAWN BY: TH
APPROVED BY: PB
PROJECT #: 2620

09



Fill Schedule

Reach 3 - North of Avon Pier (4,000 ft):

Fill volume = 172,000 cy/ft; Average Fill Density = 43 cy/ft

Berm Elevation = +7 ft NAVD

Seaward Slope = 1 on 15

No dune to be constructed along Reach 3.

Reach 4 - South of Avon Pier (9,200 ft):

Fill Volume = 828,000 cy; Average Fill Density = 90 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

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 the 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:

Dunes will be built along Reach 4 during nourishment 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 100-200 ft wide.

* No fill is to be placed under Pier, exposed walkovers or houses.

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

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



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

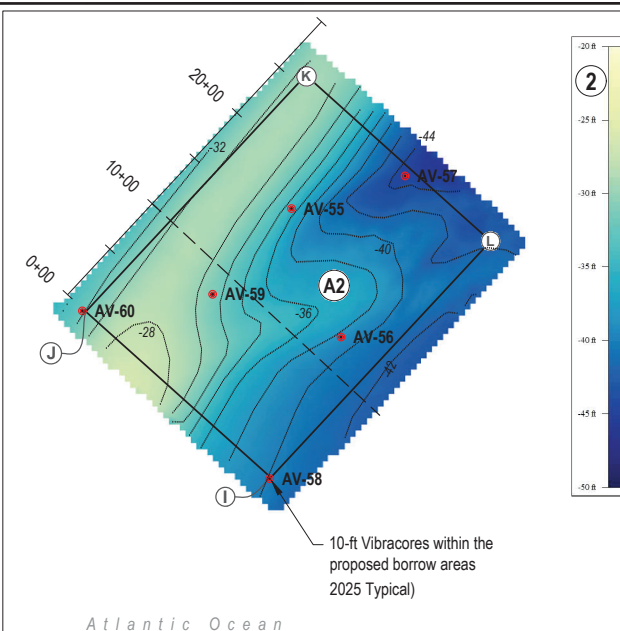
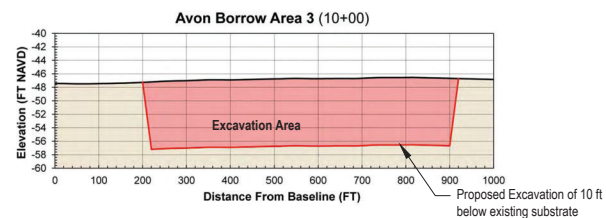
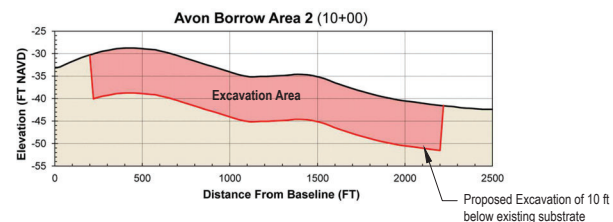
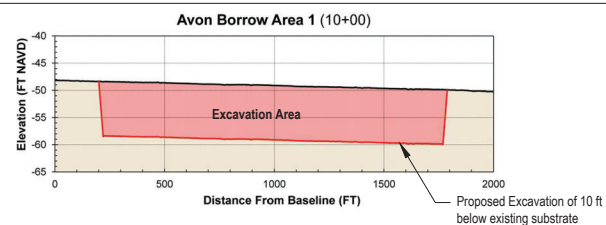
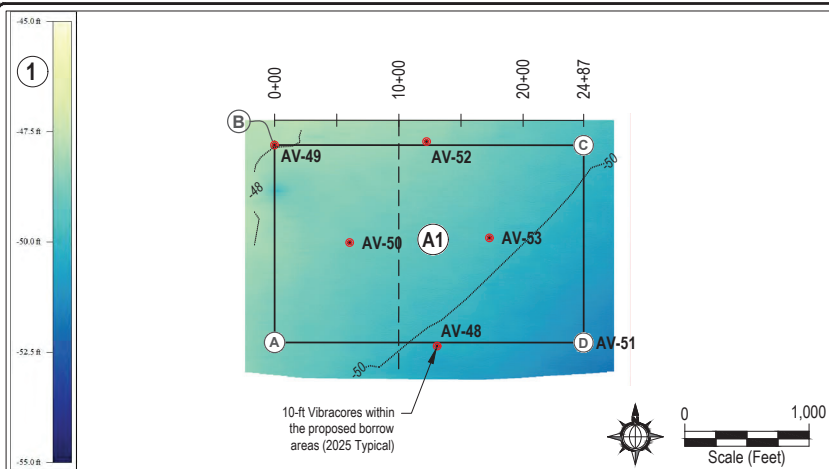
Project:
Avon Village
Beach Nourishment Project
Dare County, NC

DRAWING TITLE:
PLAN FILL SECTIONS
STA 1670+00 to 1685+00



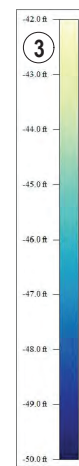
SCALE: AS SHOWN
DATE: 31 July 2025
DRAWN BY: TH
APPROVED BY: PB
PROJECT #: 2620

10



Avon Borrow Area Coordinates

Point	Easting	Northing
A	3,050,308.0	585,633.0
B	3,050,307.9	587,222.3
C	3,052,795.3	587,220.8
D	3,052,795.4	585,632.4
E	3,053,359.0	602,108.4
F	3,055,541.2	604,166.5
G	3,056,035.7	603,671.2
H	3,053,851.4	601,615.8
I	3,051,437.7	606,707.5
J	3,049,948.8	608,042.4
K	3,051,725.1	609,935.7
L	3,053,206.5	608,609.1



Proposed Borrow Areas

Borrow Area A1 (10-ft Cut) 90 acres
10-ft Borings (6) - 1 core per ~15 acres

Borrow Area A2 (10-ft Cut) 119 acres
10-ft Borings (6) - 1 core per ~20 acres

Borrow Area A3 (10-ft Cut) 48 acres
10-ft Borings (3) - 1 core per ~16 acres

Proposed borrow areas after cultural resource evaluation.

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:
Bathymetric Data collected: June 2025



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

Project:
Avon Village
Beach Nourishment Project
Dare County, NC

DRAWING TITLE:
BORROW AREA PLAN &
EXCAVATION SECTIONS

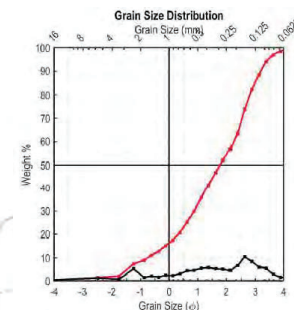
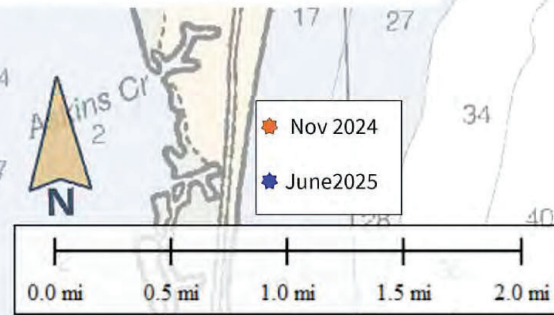


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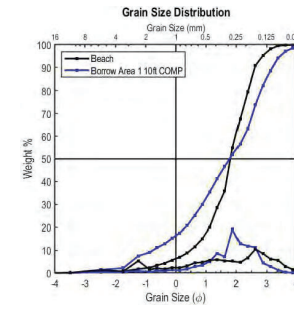
Borrow Area 2	Mean mm	Granules (%)	Gravel (%)	Shell
AVON 41	0.459	4.5	0.0	27.1
AVON 42	0.330	12.1	0.0	24.3
AVON 46	0.402	13.5	2.1	29.5
AVON 55	0.335	3.0	0.0	21.3
AVON 56	0.325	5.3	1.0	25.7
AVON 57	0.517	7.4	6.7	28.6
AVON 58	0.222	4.7	0.0	19.7
AVON 59	0.381	4.8	1.4	29.5
AVON 60	0.402	4.4	0.0	26.1
BA2	0.366	7.0	1.8	25.8

Borrow Area 3	Mean mm	Granules (%)	Gravel (%)	Shell
AVON 54	0.220	2.8	0.0	15.8
AVON 61	0.391	7.3	5.1	37.1
AVON 62	0.245	3.6	2.6	25.0
BA3	0.277	4.7	3.9	26.0

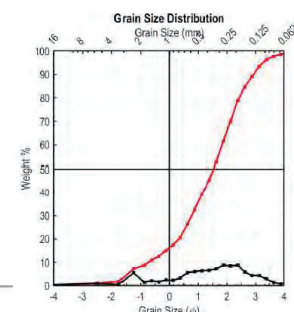
Borrow Area 1	Mean mm	Granules (%)	Gravel (%)	Shell
AVON 38	0.335	14.4	0.0	25.4
AVON 39	0.273	4.1	0.0	15.1
AVON 48	0.312	4.1	0.0	18.5
AVON 49	0.341	6.0	1.4	26.4
AVON 50	0.399	6.5	2.1	24.0
AVON 51	0.216	4.7	0.0	17.3
AVON 52	0.321	4.7	3.0	25.0
AVON 53	0.398	6.7	4.8	30.0
BA1	0.319	6.9	2.2	22.7



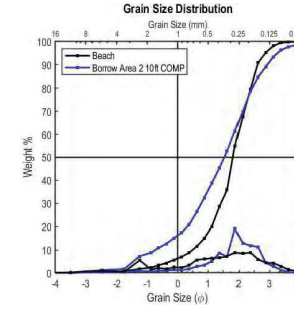
Project Location: AVON, NC
Date: 06 12 2025
Station: BA1
Sample Interval: 10 ft COMP
Mean: 0.319 mm
STD: 0.356 mm
Skewness: -0.716
USCS: Wentworth
SP: Medium Sand
Poorly Sorted
Coarse Skewed
Mesokurtic
Total weight (gram): 105.37
% finer than 0.0625 mm (dry): 1.38
% granule (2-4 mm): 6.88
% gravel (>4 mm): 2.17
CaCO3: 24.0



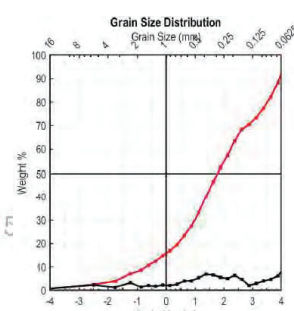
Project Location: AVON, NC
Date: Jun 2025
Beach Mean: 0.289 mm
Beach STD: 0.521 mm
Beach Skew: -1.384 mm
Beach Kurt: 6.120 mm
Beach Shell: 4.0 %
B1 10 ft COMP Mean: 0.319 mm
B1 10 ft COMP STD: 0.357 mm
B1 10 ft COMP Skew: 0.692 mm
B1 10 ft COMP Kurt: 2.887 mm
B1 10 ft COMP Shell: 21.7 %



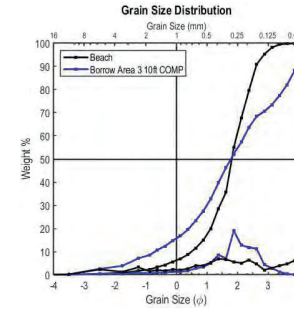
Project Location: AVON, NC
Date: 06 12 2025
Station: BA2
Sample Interval: 10 ft COMP
Mean: 0.366 mm
STD: 0.385 mm
Skewness: -0.688
USCS: Wentworth
SP: Medium Sand
Poorly Sorted
Coarse Skewed
Mesokurtic
Total weight (gram): 105.07
% finer than 0.0625 mm (dry): 1.41
% granule (2-4 mm): 6.99
% gravel (>4 mm): 1.77
CaCO3: 25.7



Project Location: AVON, NC
Date: Jun 2025
Beach Mean: 0.289 mm
Beach STD: 0.521 mm
Beach Skew: -1.384 mm
Beach Kurt: 6.120 mm
Beach Shell: 4.0 %
B2 10 ft COMP Mean: 0.366 mm
B2 10 ft COMP STD: 0.388 mm
B2 10 ft COMP Skew: 0.619 mm
B2 10 ft COMP Kurt: 3.243 mm
B2 10 ft COMP Shell: 25.8 %



Project Location: AVON, NC
Date: 06 12 2025
Station: BA3
Sample Interval: 10 ft COMP
Mean: 0.277 mm
STD: 0.301 mm
Skewness: -0.546
USCS: Wentworth
SP: Medium Sand
Poorly Sorted
Coarse Skewed
Mesokurtic
Total weight (gram): 105.27
% finer than 0.0625 mm (dry): 11.72
% granule (2-4 mm): 4.73
% gravel (>4 mm): 3.88
CaCO3: NaN



Project Location: AVON, NC
Date: Jun 2025
Beach Mean: 0.289 mm
Beach STD: 0.521 mm
Beach Skew: -1.384 mm
Beach Kurt: 6.120 mm
Beach Shell: 4.0 %
B3 10 ft COMP Mean: 0.276 mm
B3 10 ft COMP STD: 0.303 mm
B3 10 ft COMP Skew: 0.588 mm
B3 10 ft COMP Kurt: 2.754 mm
B3 10 ft COMP Shell: 26.0 %

Notes:
Beach sediment samples (n=70) 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.



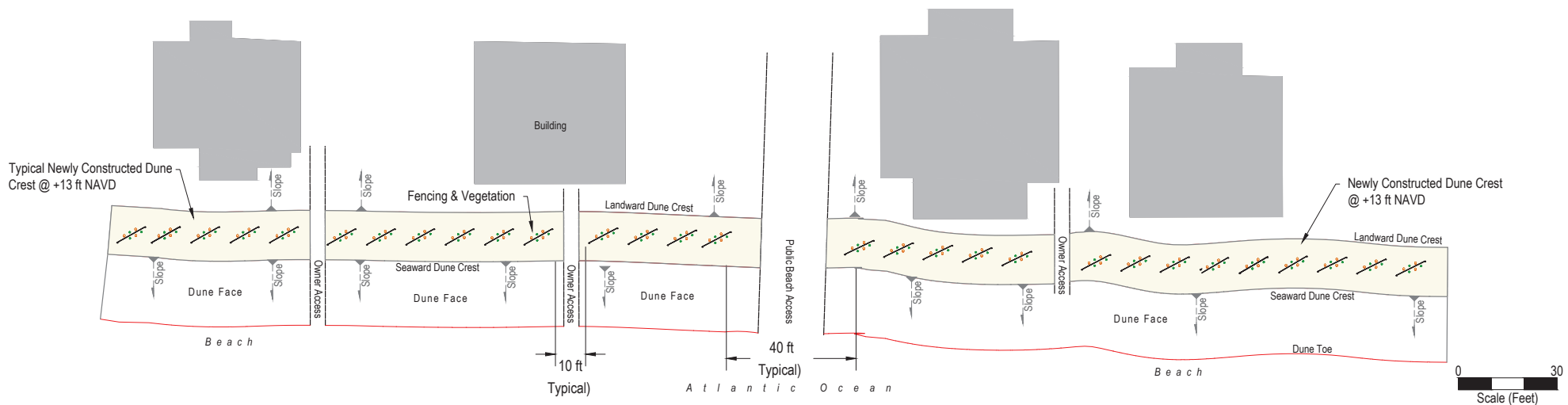
Applicant:
Dare County
954 Marshall Collins Dr.
Manteo, NC 27954

Project:
Avon Village
Beach Nourishment Project
Dare County, NC

DRAWING TITLE:
BORROW AREA CORES &
SEDIMENT ANALYSIS

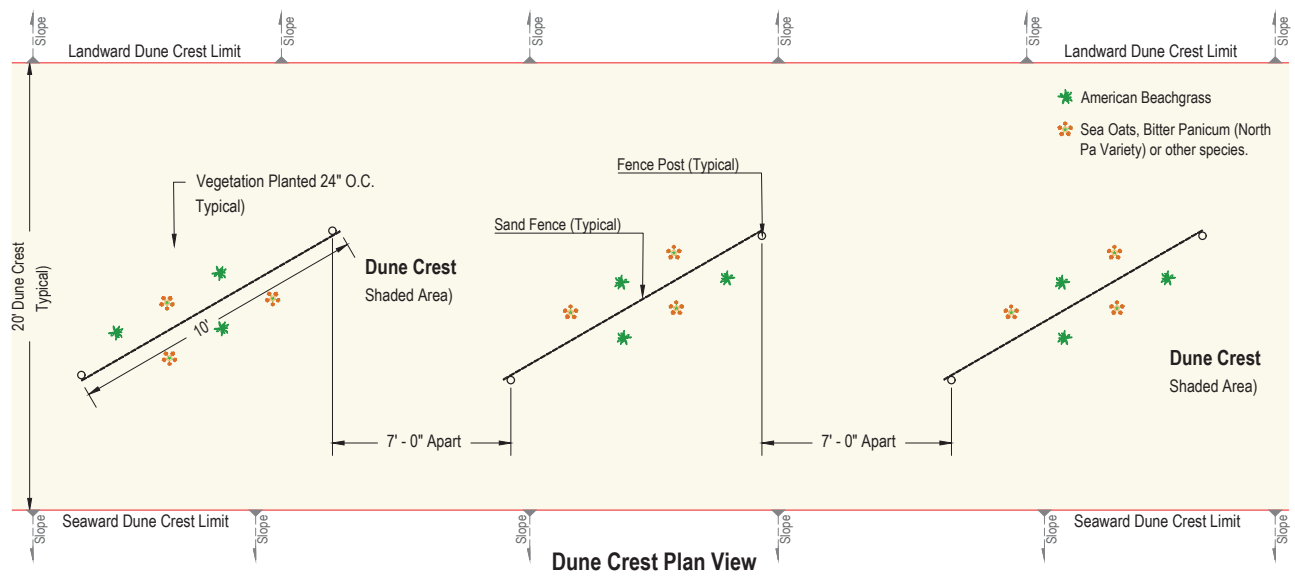


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PROJECT #: 2620



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.



Notes:

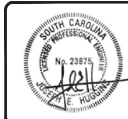
Sand fencing will be installed and vegetation will be planted along the entire project area following nourishment completion.



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Dare County, NC

DRAWING TITLE:
SAND FENCING &
VEGETATION



SCALE: AS SHOWN
DATE: 31 July 2025
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APPROVED BY: PB
PROJECT #: 2620

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