

III. SURVEY DATA COLLECTION

Data used in this study included twelve (12) different data sets collected from September 2013 to June 2025. See Table 1 below for dates and description of the datasets that were used.

Table 1. Dataset Descriptions

Agency/Firm	Survey Type	Date	Transects
CPE (APTIM)	Profile Survey	September 2013	D-01 to D-34
CPE (APTIM)	Profile Survey	May 2015	D-01 to D-34
CPE (APTIM)	Profile Survey	December 2017	D-01 to D-34
CPE (APTIM)	Profile Survey	June 2018	D-01 to D-34
CPE (APTIM)	Profile Survey/Offshore Bathymetry	May 2019	D-01 to D-34
CPE (APTIM)	Profile Survey	December 2019	D-10 to D-19
CPE	Profile Survey	June 2020	D-01 to D-34
CPE	Profile Survey	April 2021	D-01 to D-34
TI Coastal	Profile Survey	October 2022	D-10 to D-19
TI Coastal	Profile Survey	January 2023	D-10 to D-19
TI Coastal	Profile Survey	May 2023	D-01 to D-34
CPE	Profile Survey	June 2024	D-01 to D-34
CPE	Profile Survey	June 2025	D-01 to D-34

In April 2021, CPE began surveying one additional station (D-10.5) that had not been surveyed in previous years and has continued to survey this station during subsequent monitoring events. Most monitoring stations are spaced approximately 1,000 feet apart along the Town’s oceanfront beach. CPE only collected survey data along the upland portion of the profiles located at stations D-19, D-20, D-21, D-22, and D-23 due to the USACE FRF request not to approach the shoreline in this area with survey vessels. Offshore data was obtained by the USACE FRF staff who regularly survey the offshore portions of those profiles. The USACE FRF data for the 2025 monitoring was collected on May 30, 2025.

Beach profile data were collected along each of the monitoring stations listed in Table 2. Coordinates shown in Table 2 are referenced to the North Carolina State Plane coordinate system in feet NAD83 and the profile azimuth refers to degrees referenced to true north. Cross section plots of the beach profiles surveyed in June 2025 at each station are included in Appendix A – 2025 Town of Duck Beach Profile Cross Section Plots. The survey data from the June 2025 survey is provided in Appendix B – 2025 Dare County Data Acquisition Survey Report.

Beach profile surveys extended landward until a structure was encountered or to a range of 25 feet beyond the landward toe of dune, whichever was more seaward. Elevation measurements were also taken seaward along the profile to at least the -30-foot NAVD88 contour. Upland data collection included grade breaks and changes in topography to provide a representative description of the conditions at the time of the work. The maximum spacing between data records along individual profiles was 25 feet. The upland survey extended into wading depths sufficiently to allow the offshore portion to overlap the upland portion by a minimum of 50 feet.

Table 2. Monitoring Survey Baseline and Azimuth

Monitoring Station	Easting	Northing	Azimuth
D-01	2951387.5	918267.7	70
D-02	2951733.8	917384.4	70
D-03	2952103.0	916429.4	70
D-04	2952464.0	915495.3	70
D-05	2952849.3	914598.0	70
D-06	2953224.4	913696.9	70
D-07	2953607.3	912798.8	70
D-08	2953983.0	911897.9	70
D-09	2954356.7	910994.8	70
D-10	2954759.1	910066.7	70
D-10.5	2954914.2	909703.5	70
D-11	2955158.1	909133.1	70
D-12	2955461.4	908412.5	70
D-13	2955874.3	907478.4	70
D-14	2956252.1	906578.3	70
D-15	2956628.6	905677.8	70
D-16	2956978.7	904767.7	70
D-17	2957333.7	903863.9	70
D-18	2957718.8	902886.5	70
D-19	2957932.5	902331.0	70
D-20	2958139.7	901760.7	70
D-21	2958472.1	900958.7	70
D-22	2958754.0	900228.8	70
D-23	2958992.7	899515.6	70
D-24	2959267.2	898739.8	70
D-25	2959601.7	897824.3	70
D-26	2959928.6	896902.3	70
D-27	2960250.6	895981.9	70
D-28	2960604.1	895073.0	70
D-29	2960963.6	894166.2	70
D-30	2961317.7	893257.6	70
D-31	2961676.7	892350.7	70
D-32	2962078.1	891379.4	70
D-33	2962439.4	890553.2	70
D-34	2962839.6	889616.1	70