

**ANNUAL REVIEW FOR 2019
OF THE CAPE MAY POINT, NJ MUNICIPAL BEACHES**

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Introduction:

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the zero elevation datum position on each cross section. This elevation represents the “shoreline” position; it approximates the proper change horizontally for any shoreline point selected on the beachface subject to daily wave run-up. The unit sand volume computed for the cross section in cubic yards of sand per foot of shoreline is multiplied by the distance between the groins in Cape May Point to arrive at the net volume in the right column for each cell.

Table 1.
Profile Shoreline & Sand Volume Changes
April 2018 to May

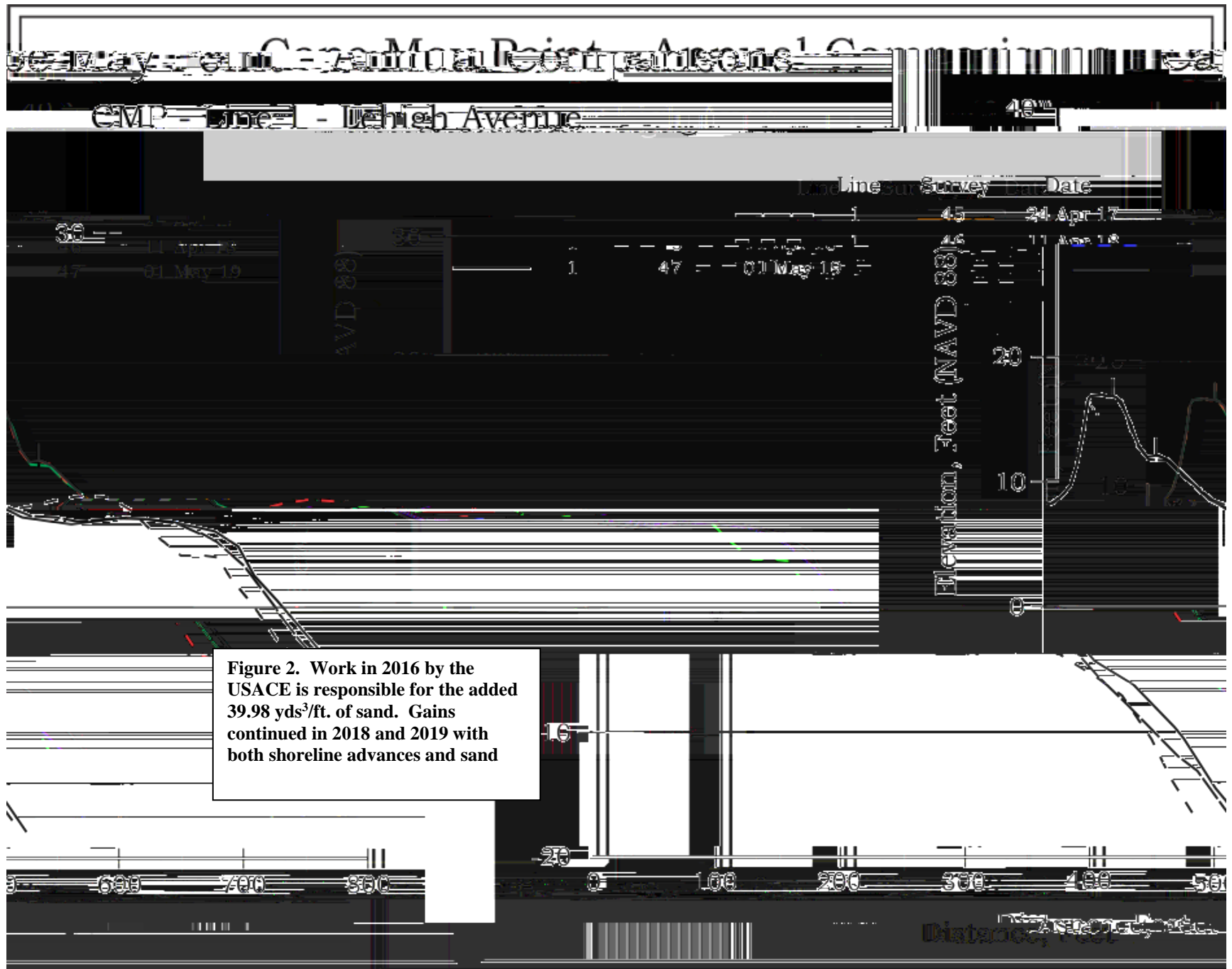
CMP-0 is the northeastern-most cell that borders the State Park and is bounded to the southwest by a rock groin. This location has benefited tremendously from the USACE Lower Cape May Meadows – Cape May Point restoration project, where initial construction was completed June 2007. The project added over 250 feet of recreational beach berm and established a stable dune system 100 feet wide at the toe with a crest elevation of 18 feet NAVD88. Prior to the initial project the beach was narrow; a small dune armored with tensor mats on the seaward slope protecting the exposed dune system from severe erosion. There is no public access from Lighthouse Avenue to the beach.

The USACE authorized a second maintenance project with construction from November 2012 to January 2013. The project restored the design beach width and elevation. The beach width increased by 58 feet with 63.13yds³/ft. of sand added per foot of shoreline seaward of the dune toe. Following the project the beach elevation ranged from 10-11 feet NAVD 88 and extended 275 feet seaward of the dune toe.

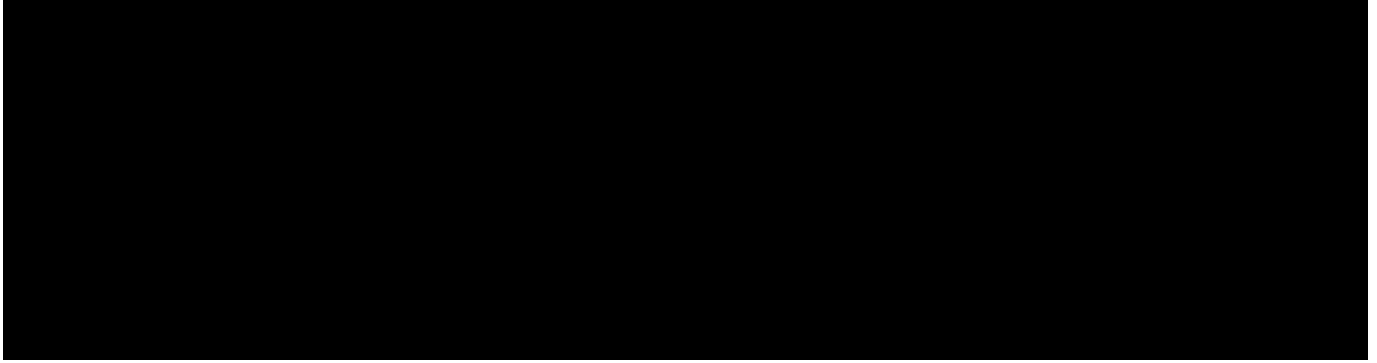
In 2016, USACE activity added 78,184 cubic yards of new material to this site and the Lehigh Avenue beach immediately to the southwest. The cross sections show that the beach grew wider following the 2016 survey and remained stable since adding additional sand volumes in 2018 and 2019, totaling 43,232 cubic yards.

Lehigh Avenue

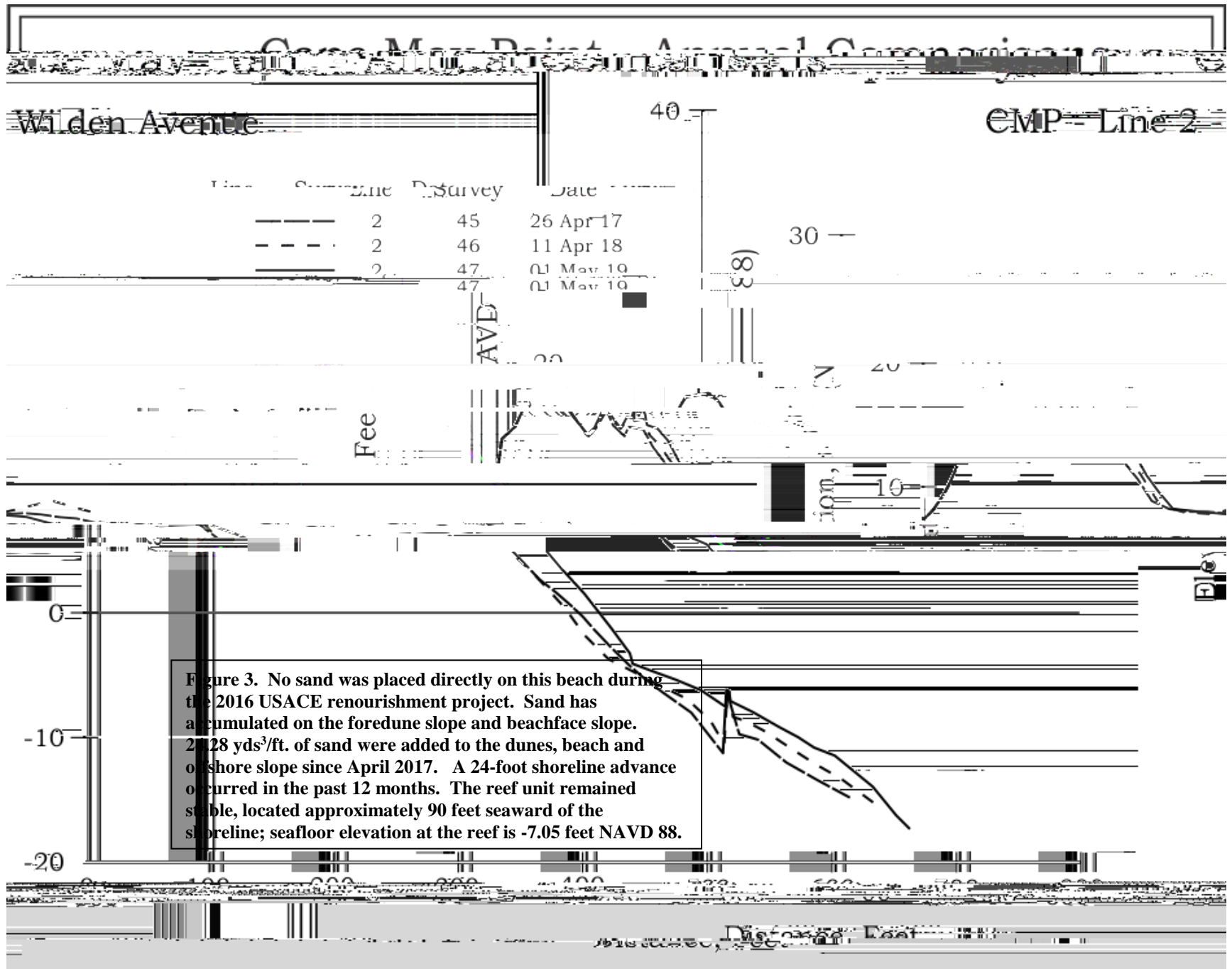
CMP-1 stretches from the Lighthouse Avenue groin to Lehigh Avenue. Prior to the initial USACE project no dry beach was present between the rock groins. Shore protection was provided by a rock seawall that armored the seaward dune slope. Beyond the groins the seafloor steeply dropped into the



Lehigh to Whilden Avenues



The CMP-2 beach is the southeastern-most of the groin cells with an early installation of the “Beachsaver” units from 1993, which still are functioning and show on the profile cross-section at the 520-foot distance from the reference point and remain stable. Sand added to the system during



Whilden to Coral Avenues;



Figure 4. This view from the profile reference position on April 12, 2018 shows the dune vegetation and the beach

CMP-3 is bounded by rock groins at Whilden Avenue and Coral Avenue. This beach cell was the other original 1993 “Beachsaver” unit installation in Cape May Point. Sand added to the system during the initial USACE project had resulted in the near burial of the entire beach unit structure. No additional sand was placed here during the 2nd maintenance cycle (2012-2013). No new sand was added here during the 2016 USACE project either. Sand accumulated on the dunes, and minimally on the beach. The largest sand volume gain occurred at and beyond the beachsaver reef offshore creating a much flatter slope offshore.

This site has seen near burial of the “beachsaver” reefs where the elevation relief on the concrete structures has been reduced from 5.0 feet showing above the seabed in 2016 to 2.25 to 2.5 feet showing May 1, 2019. Large volumes of sand have been added further seaward of the structures. Last year’s berm has been flattened out, with material added to widen it to the beachface. Since 2017, 18.69 yds³/ft. in new sand has been added. The reef structures are presently located less than 100 feet seaward of the zero elevation position.

Cape May Point - Annual Comparisons

CMP - Line 3 - Coral Avenue

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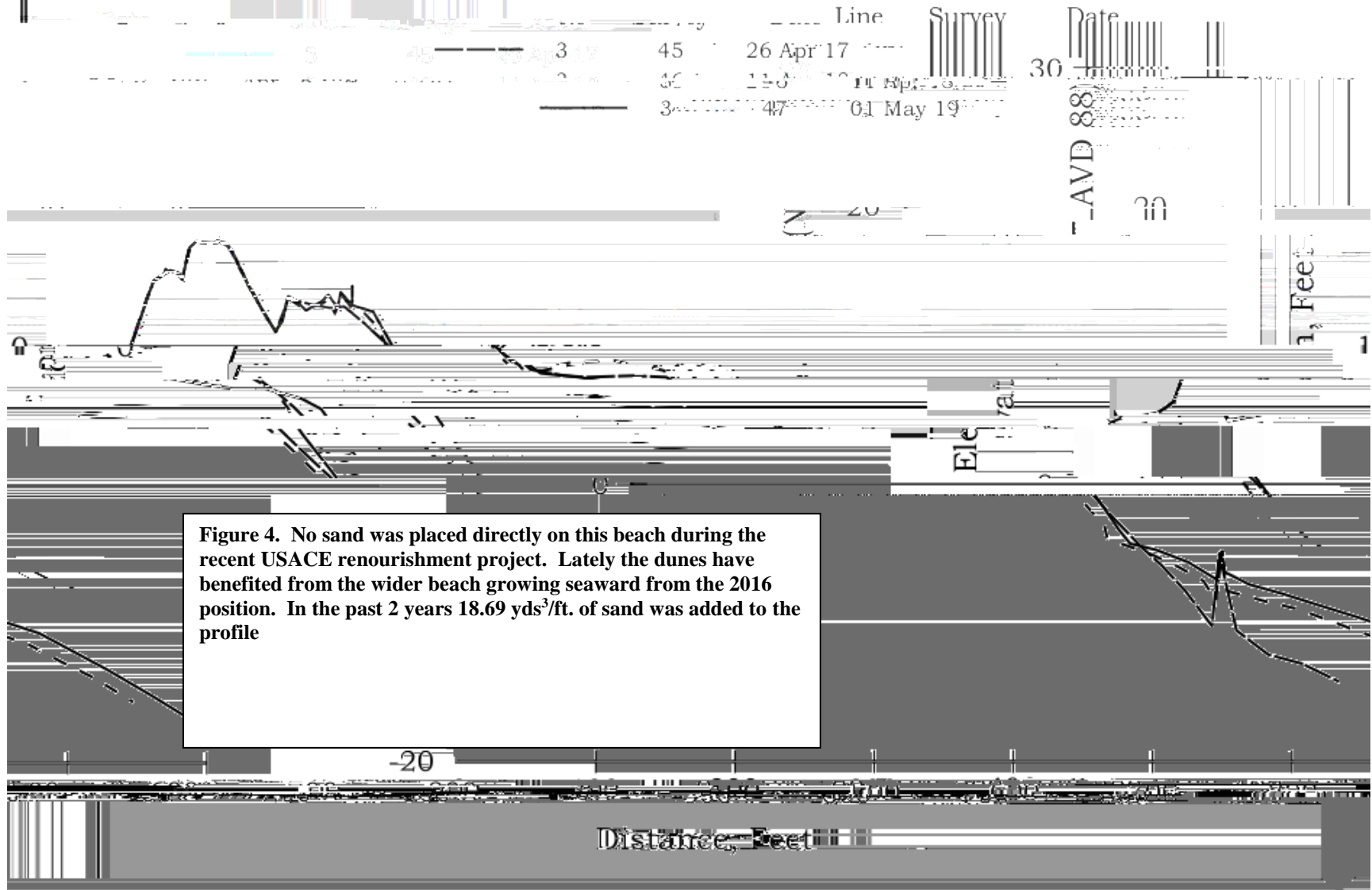


Figure 4. No sand was placed directly on this beach during the recent USACE renourishment project. Lately the dunes have benefited from the wider beach growing seaward from the 2016 position. In the past 2 years 18.69 yds³/ft. of sand was added to the profile

Coral Avenue to Lake Drive

The Lake Drive (CMP-4) beach cell is bounded by the rock groins at Coral Avenue and south of Lake Drive (closer to Surf Avenue). This cell does not contain any nearshore “Beachsaver” structures but it has received sand both during the initial project and in the 2nd maintenance cycle nourishment project. Over the 2012/2013 winter, the USACE reported s (m00912 0 6)0.00000912 0 612 792 reW*hBT/F2 12 Tf1 0 0 1 153.02

Figure 5. The USACE project added 42,300 cubic yards of sand to this site. By May 1, 2019, the upper beach had accumulated sand from the seaward dune toe across the beach, but the beachface retreated 10 feet. Offshore sand appeared to form a terrace making seasonal use a better experience.

Surf to Cape Avenues

CMP-5 contains the nearshore “beachsaver” units installed in 2002 during the USACE CMP-227 experimental project. The breakwater units are still present, located just over 240-feet seaward of the zero elevation shoreline position. These units are furthest from the shoreline and lowest in elevation in the cell’s mid-section where swimming is allowed. That prevents individuals from encountering the units. In this cell the units pose little threat to recreational swimming but swimming along the rock groins should be restricted where the units are closer to shore due to sand accumulation at the rocks.

Sand did accumulate on the landward side of the beachsaver array making wave surge over them much lower in intensity, but offshore the very steep decline has been replaced by much shallower seafloor due to sand accumulation.

No sand was placed west of Lake Drive during the 2012-2013 USACE renourishment project or during the recent 2016 effort, but natural processes have moved sand from east to west along the Borough’s shoreline over time. The wider beaches have provided a source of sand for the wind to move sand onto the seaward slope and crest of the dune.

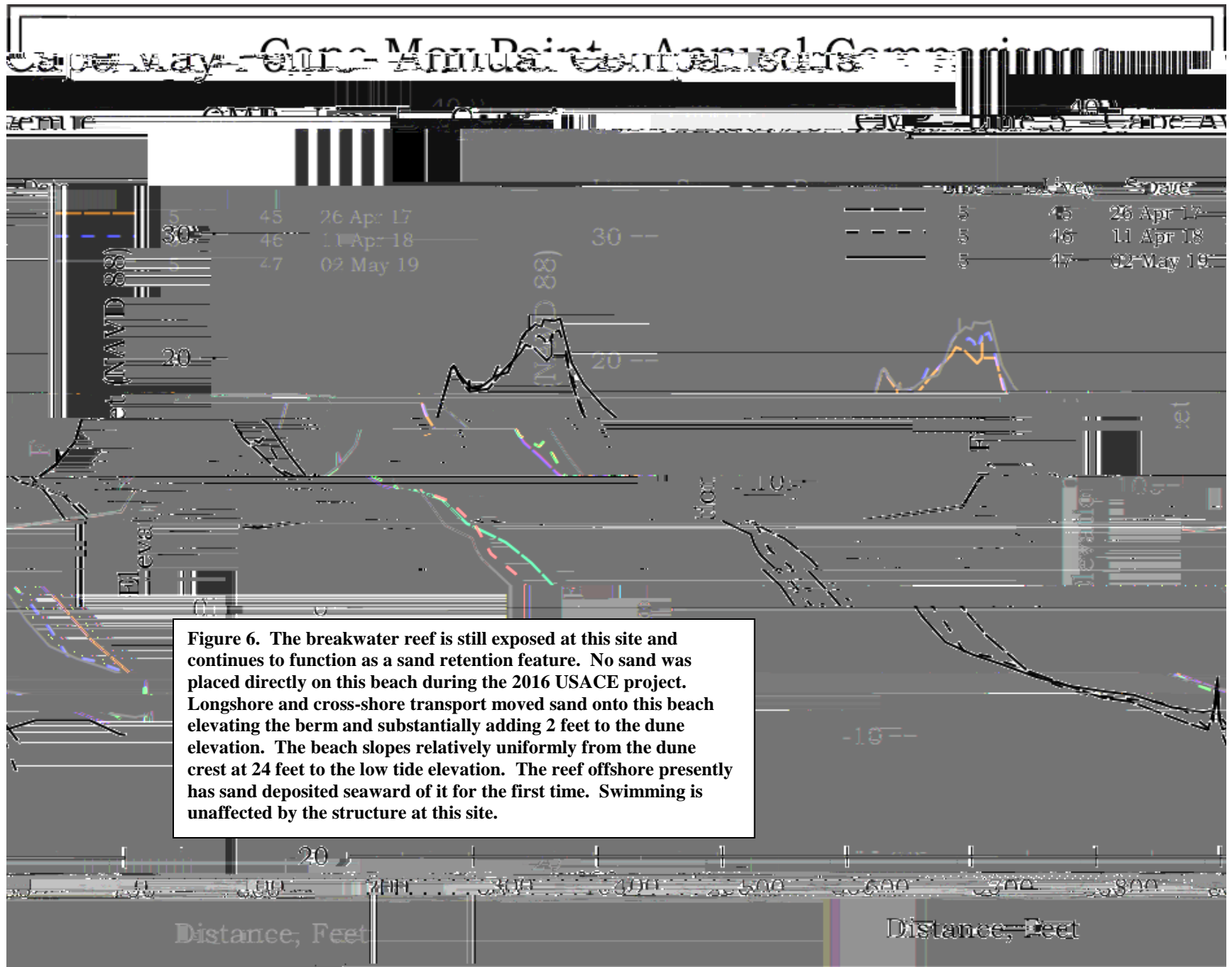


Figure 6. The breakwater reef is still exposed at this site and continues to function as a sand retention feature. No sand was placed directly on this beach during the 2016 USACE project. Longshore and cross-shore transport moved sand onto this beach elevating the berm and substantially adding 2 feet to the dune elevation. The beach slopes relatively uniformly from the dune crest at 24 feet to the low tide elevation. The reef offshore presently has sand deposited seaward of it for the first time. Swimming is unaffected by the structure at this site.

Cape to Pearl Avenues

CMP-6 is bounded by the rock groins at Cape Avenue and Pearl Avenue. The nearshore bay floor contains the “Double Tee” structures that were installed as part of the USACE

Pearl to Stites Avenues



Figure 8. The May 2, 2019 view at CMP-7 shows the scale of the dunes defending this cell's beach. The entire vegetated foredune zone behind the two early birds on the beach has been deposited since 2007 as natural wind deposition.

Profile CMP-7, located southeast of Brainard Avenue, is bounded by the rock groins near Pearl Avenue and Stites Avenue. The cell has not received any sand directly from the past USACE beach restoration or maintenance projects. Natural processes dominated by longshore drift continue to transfer sand from east to west along the Borough's shoreline. With no submerged offshore structures present at this location the wide dry beach should provide beach patrons with abundant recreational area and good nearshore swimming conditions for the summer season.

Dune crest elevations in excess of 30 feet NAVD 1988 provide excellent storm protection, especially since the beach faces southwest where major events do not directly impact the shoreline. The 2017 to 2019 shoreline change was an advance of 5 feet combined with a gain of 14.4 yds³/ft. In the past 12 months the shoreline advanced 22 feet with 13.6 yds³/ft. in sand addition. This means that the 2018 - 2019 season was very beneficial of the past 24 months.

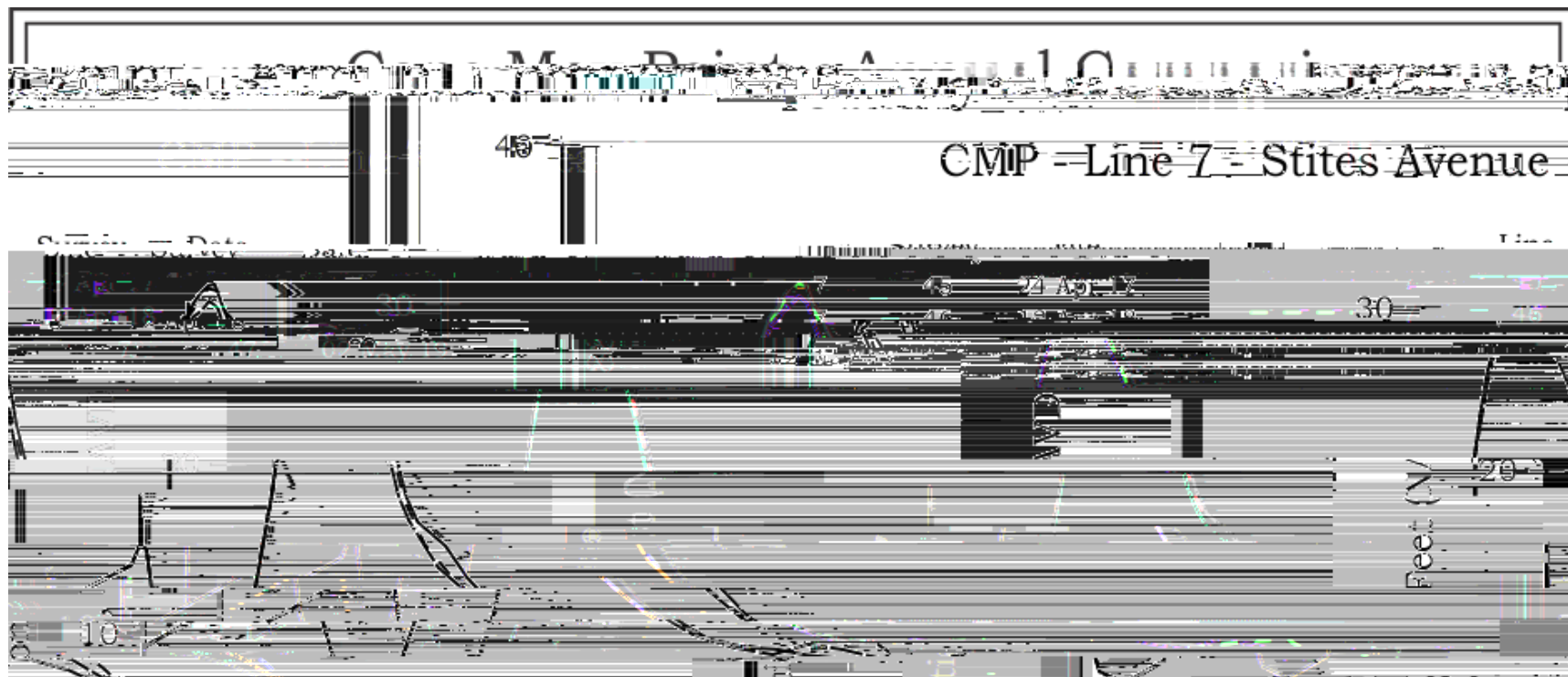


Figure 8. No sand was reportedly placed directly on this beach during the most

Stites to Alexander Avenues

The Alexander Avenue location, CMP-8 is the western most beach cell in the Borough. Sand placement was never included for this location during the USACE projects. Natural processes have moved sand from the project beaches to this location. The beach extends seaward nearly to the tip of the western groin. Sediment loss from this cell moves onto the western Delaware Bay shoreline and shoals locally

northwest winds continued to influence this beach. All else remained stable to marginally accretional. The site added 2.5 yds³/ft. this past year as the shoreline retreated 6 feet. The wind deposit at the dune toe was 3.03 yds³/ft. just in the area shown in the cross section plot below.

Swimming has not been permitted at this beach, reserving it for fishing and beach sitting only.

recreational berm is about the same this year. The relatively shallow water between groins make wading and swimmer relatively safer for beach patrons.

5. Cells 5 (Cape Ave.) and 6 (Pearl Ave.) contain the newer submerged breakwater units but they pose minimal risk for swimming in 2019. Both reef structures lie in greater than -8 feet of water approximately 200 hundred feet from the shoreline at low tide. The landward trough filled in at Cell 5 as well, generating a fairly flat area between the reef and the shoreline. The “Double Tee” structure in Cell 6 is buried with additional sand. Swimming near the groins should always be avoided since the units are slightly closer to the beach adjacent to the rocks.

6. Cell 7 at Stites Avenue benefited from a stable