

**FINAL REPORT FOR 2018
ON THE CONDITION OF THE MUNICIPAL BEACHES
IN
THE CITY OF BRIGANTINE BEACH, ATLANTIC COUNTY, NEW JERSEY**



View from a drone of the recently completed US Army Corps shore protection project's maintenance, which got underway January 26, 2018. The dredge obtained sand in Brigantine Inlet placed it starting on the "feeder beach" for about 1,500 feet north of development to provide added material as the project proceeded south to Roosevelt Blvd. The taper into the pre-existing beach can be seen in the distance where a series of nearshore sand bars already demonstrate sand transport south toward the Absecon Inlet jetty eventually. Also, the dramatic widening of the beach south of the resort hotel at 15th Street South demonstrates where oceanfront sand supplies are being preferentially deposited.

**PREPARED FOR: THE CITY OF BRIGANTINE BEACH
1417 WEST BRIGANTINE AVENUE
BRIGANTINE, NJ 08203**

**PREPARED BY: THE STOCKTON UNIVERSITY COASTAL RESEARCH CENTER
30 WILSON AVENUE
PORT REPUBLIC, NEW JERSEY 08241**

February 28, 2019

TABLE OF CONTENTS

Introduction	1
Beach Monitoring Methodology	1
Table 1: Beach Profile Locations	1
Surveys Completed	1
Beach Performance	2
Annual & Seasonal Changes	2
Table 2: Annual 2016 - 2017 Sand Volume and Shoreline Changes	3
Table 3: Semi-Annual 2017 Sand Volume and Shoreline Changes	3
Individual Profile Site Descriptions Including Figures 1a - 1b to 9a - 9b (Photographs)	4
Figures 1c - 9c: Municipal Survey Site Cross-section Plots	5
Summary	22

Annual Report for 2018 to the City of Brigantine Beach on the Condition of Municipal Ocean Beaches

Introduction:

This report presents the status of the beaches within the City of Brigantine Beach from October 2017 to October 2018. This year January and February were cold and relatively quiet in terms of storms. But, in March, April and May, there were 5 significant northeast storms once per week starting March 2 & 3, 2018. They continued into April with lower intensity, and ended May 13th on Mother's Day weekend. The effects were detailed in the spring evaluation report that showed large volumes of sand moved south along the shoreline, but little negative impacts on beach widths or sand volumes. Sand moved offshore forming large bar systems, but no damage was observed to the dunes. The initial northeast storm event in the fall of 2018 occurred October 29 & 30, 2018 with minor impacts observed.

The US Army Corps of Engineers (USACE) completed its most recent maintenance work on their Brigantine shore protection project in 2018 to replace sand along the engineered segment of the Brigantine beach from the feeder zone north of development, to approximately Roosevelt Boulevard along the oceanfront. The dredge pumped the sand slurry along a submerged pipeline from the inlet to the discharge locations along the project beach. The 2013 USACE post-Sandy restoration project was conducted in two phases (phase one 667,000 cubic yards [CY], January 2013 and phase two 250,000 CY, July 2013) and placed a reported 917,000 CY of sand on the project beaches. The 2018 effort placed 767,000 CY of material to the north end beach was complete by the end of March 2018 (Erik Rourke, USACE-NAP project manager).

Beach Monitoring Program Methodology

The CRC established a coastal monitoring program for the City of Brigantine in June 1992, commencing research on the beaches between two major northeast events that affected the Jersey shore in October 1991 and December 1992. The program collects data from nine shoreline-perpendicular beach profile stations, initially monitored on a quarterly basis, to analyze beach changes. Starting in 2008 the program was resumed at a survey frequency of twice annually. Beginning at a fixed reference position, a profile includes the dune system, beach, berm, nearshore and offshore to a water depth of approximately -14.0 feet (NAVD88). Table 1 lists the Brigantine sites where cross sections, photographs and field notes are presented.

**Table 1:
Beach Profile Locations**

- **Brig 134** - North end Green Acres undeveloped area (NJBPN #134)
- **Brig 220** - At the north end of the feeder beach, 1200 feet from road end
- **Brig 12** - 12th Street North
- **Brig 4** - 4th Street North (NJBPN #133)
- **Brig 5** - 5th Street South
- **Brig 15** - 15th Street South (NJBPN #132)
- **Brig 27** - 27th Street South
- **Brig 43** - 43rd Street South (NJBPN #131)
- **Brig 1** - 'South Beach' 600 feet north of the Absecon Inlet Jetty

Surveys Completed

The CRC completed three surveys between October 2017 and October 2018.

- October 4, 2017 Survey 90
- April 30 & May 1, 2018 Survey 91
- October 31, 2018 Survey 92

Beach Performance

Brigantine’s last major beach fill project occurred in 2018 as USACE maintenance work placed 767,000 CY of sand on the engineered beach and restored the federal project beach template.

Construction of the first Federal shore protection project in the City of Brigantine Beach commenced in 2006. Since placement, the USACE engineered beach sustained several significant storm events but maintained its storm protection value to the community during Hurricanes Irene (2011) and Sandy (2012) by preventing major flooding and property damage from storm waves. The recently completed work added 767,000 CY to the total providing 3,867,000 CY of new sand to the Brigantine shoreline since 1996.

Annual & Seasonal Beach Changes:

Table 2 displays sand volume changes expressed in cubic yards per foot of beach (yds³/ft.), while shoreline changes are given in feet. Calculating the average volume change between adjacent profiles and multiplying by the distance separating the sites yields a net volume change expressed in cubic yards (yds³) for the distance between the two sites. Adding the cumulative volume change provides a net volume for the entire City of Brigantine beach over the entire length of surveyed cross section. Shoreline position changes are measured as the horizontal movement (toward the ocean (+) or toward land (-)) in the zero elevation point on each profile.

This table presents the annual change in shoreline positions and the net sand volume change across the entire length of the profile survey. While the northernmost survey line over a mile north of Brigantine’s development lost sand volume this year, the shoreline advanced 18 feet. The majority of the loss occurred offshore. However, the next four sites from the feeder beach just north of development (Site 220) gained large volumes of sand derived from the USACE beach project ending in March. While the gains decreased in volume to the south by 5th Street South, they represent early sand redistribution by the never-changing wave transport mechanism. A minor loss was seen at 15th Street South, then gains resumed over a multi-thousand foot segment of beach. The southernmost profile just north of the Absecon Inlet jetty did lose a minor amount of sand totally the result of the formation of a deep offshore bar trough by the fall of 2018.

Since the USACE project added 767,000 cubic yards of new sand to the northern beaches, the net change across the entire Brigantine beachfront represents an astounding 1,035,470 cubic yards of added material. This large a number has never been seen previously. Subtracting the USACE material, Brigantine’s oceanfront accumulated another 268,470 cubic yards of sand due to natural processes. The lion’s share of which appeared between 15th and 43rd Streets South. It has been a very good year!

Table 2
Brigantine Shoreline and Sand Volume Changes
Fall 2017 to Fall 2018

Profile	Shoreline Change (feet)	Volume Change (yds³/ft.)	Avg. Volume Change (yds³/ft.)	Distance Between (feet)	Net Volume Change (yds³)
Brig-134	18	-23.72			
			36.074	3,122	112,623
Brig-220	148	95.87			
			128.152	1,860	238,363
Brig-12	274	160.43			
			120.022	1,951	234,162
Brig-4	127	79.61			
			55.740	1,805	100,611
Brig-5	58	31.87			
			14.215	2,729	38,791
Brig-15	17	-3.44			
			18.223	3,042	55,434
Brig-27	150	39.89			
			39.130	4,132	161,685
Brig-43	28	38.37			
			16.560	5,855	96,959
Brig-1	-7	-5.25			
			-5.254	601	-3,158
Absecon Jetty					
			Total Volume Change =		1,035,470

Table 3
Brigantine Shoreline and Volume Changes
March 15, 2018 to October 31, 2018

Profile	Shoreline Change (feet)	Volume Change (yds³/ft.)	Avg. Volume Change (yds³/ft.)	Distance Between (feet)	Net Volume Change (yds³)
Brig-134	-18	-2.12			
			6.123	3,122	19,116
Brig-220	79	14.37			
			-8.944	1,860	-16,636
Brig-12	-50	-32.26			
			-20.967	1,951	-40,906
Brig-4	-32	-9.68			
			1.717	1,805	3,099
Brig-5	6	13.11			
			0.357	2,729	973
Brig-15	35	-12.40			
			4.863	3,042	14,792
Brig-27	72	22.12			
			20.566	4,132	84,977
Brig-43	43	19.01			
			11.793	5,855	69,048
Brig-1	-11	4.58			
			4.577	601	2,751
Absecon Jetty					
			Total Volume Change =		137,214

Table 3 shows the summer seasonal trend. The shoreline retreated at 4 sites starting at the northern natural location, and ending at the Absecon Inlet jetty. No one of the retreats was significant and expected at 12th Street North as this site erodes rapidly. Apparently, either sand from the natural area arrived at the feeder beach (Brig 220) or sand from the promenade segment moved north this summer as southeast winds dominated the wave directions adding to the feeder beach. The 12th Street North site saw the beachface from the berm elevation to the offshore trough retreat 50 feet landward in a uniform amount across that elevation difference. This summer the largest gains occurred between 15th Street and 43rd Street South. This corresponds with the annual accumulation reported for this area, meaning this sand arrived in large part this summer. These three locations provided 168,817 cubic yards of the total 268,470 documented for the entire oceanfront in the year.

Individual Profile Descriptions

This section describes the changes documented at each of the beach profile locations from October 2017 to October 2018 and includes photographs and cross-sections that show the semi-annual and annual comparisons (Figures 1 – 27).

- **Profile Brig-134: Green Acres - North end** (Figures 1a, 1b & 1c)

The profile line is located 4,752 feet north of the promenade at the north end of Brigantine Avenue. Located within the NJ Green Acres Park, there has been no sand added to the site during any of the past nourishment projects. The closest sand placement activity occurred at the “feeder beach” almost 3,500 feet south of this location. This region is typically influenced by the dynamics in action at Brigantine Inlet to the north. Aperiodic episodes of sand supplies crossing the inlet from Little Beach and moving south adds to the beach in this region.

The Hurricane Sandy dune damage has been restored as material has slowly increased the dune elevation and grasses have propagated on the ridge generated. The beach remained quite stable with the greatest shifts in elevation occurring offshore in the height of the bar system decreased between October 2017 and the following spring.

Profile Brig-134: Green Acres - North end



Figure 1a taken on October 4, 2017 demonstrates a low gradient slope beach. The dune grass propagated down slope onto the upper beach, while the berm developed a decent ridge at the water’s edge.

(Figures 1a & 1b)



Figure 1b taken October 30, 2018 looking south along the edge of the dunes: a minor storm on the 28th and 29th clipped the seaward slope and left debris at the base of the grass. The beach became flatter in profile slope as well.

City of Brigantine - Annual Comparison

BRIG - 134 North End Green Acres (NJBPN #134)

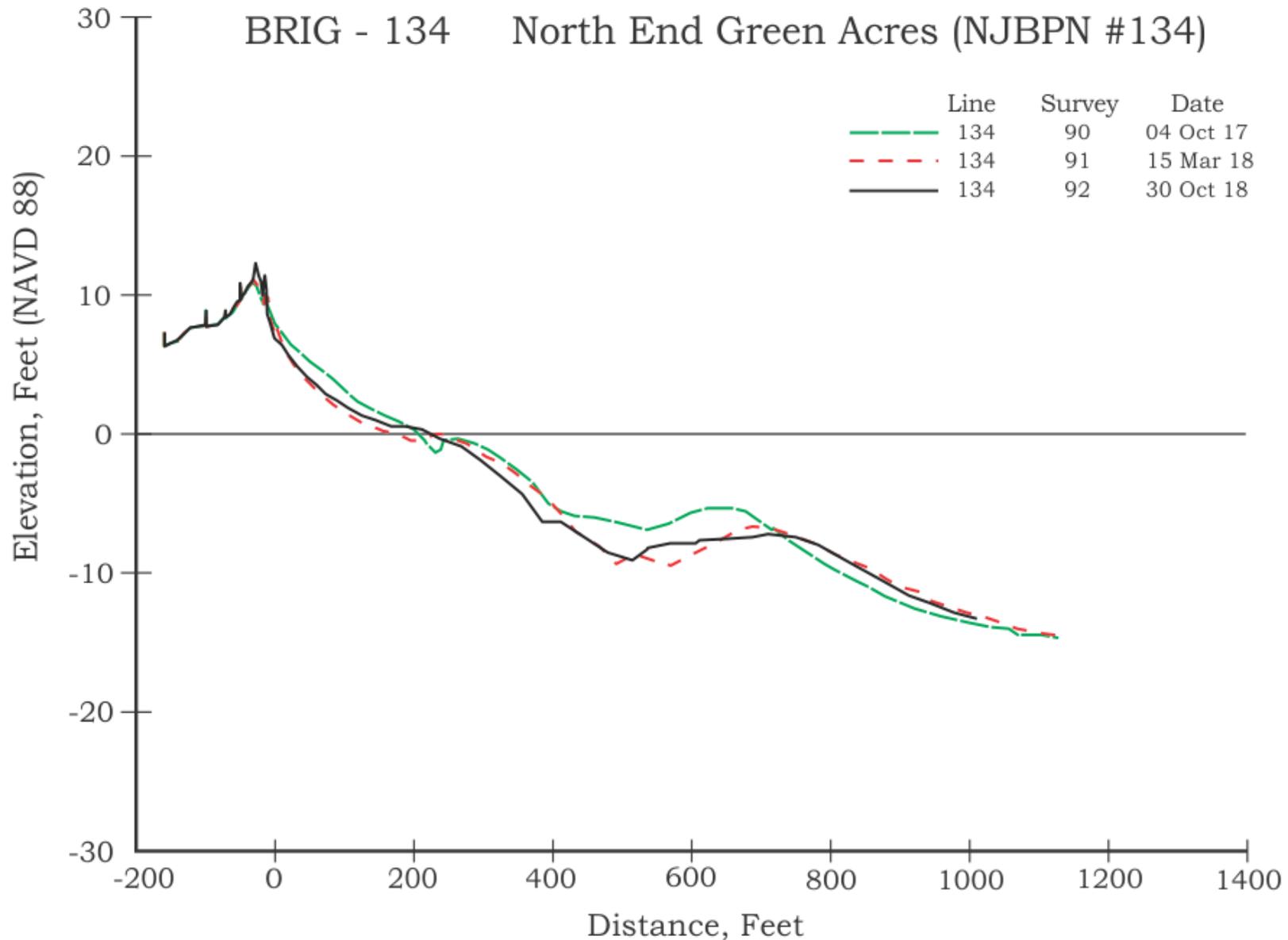


Figure 1c - Three cross sections show modest loss at the beach and immediately offshore. The October northeast storm a day earlier produced a flatter beach which advanced seaward 18 feet in spite of a 23.72 yds³/ft. sand volume loss.

• **Profile Brig-220: Feeder Beach - Line 00+1200**

(Figures 2a, 2b & 2c)

The site is located on the “feeder beach” portion of Brigantine’s engineered beach, 1200 feet north of the promenade in the natural area. Sand shed from this location provides advance nourishment to the downdrift erosional “hotspot” that is located to the south along the revetment/promenade. Established in 1996 during the very first municipal beach project between the NJDEP and the City of Brigantine, the goal for this section of beach was to provide an available sand source for recreational beaches to the south. This sand source was intended to erode and move south into the developed portion of the project area to slow erosion in front of the revetment to a more sustainable rate and extend project benefits for a longer period. This process has been documented and has performed better than expected since initial construction, provided sufficient sand volume remains in this segment of beach. Once the “feeder beach” erodes landward of the promenade the benefits diminish.

Over the course of the past year (2016-2017) sand did erode from this location, however, the shoreline did not migrate toward the dunes meaning that sand was arriving in the area just slightly slower than it was leaving to move south.

The original “feeder beach” was initially created to be 2,400 feet in length extending 600 feet beyond the municipal boundary with the NJ State owned open space of northern Brigantine. Park officials declined to permit future activities of beach nourishment within the park boundaries, so all subsequent work extends 1,600 feet north of all oceanfront development to the City boundary with the open space lands.

Profile Brig-220: Feeder Beach - Line 00+1200

(Figures 2a & 2b)



Figure 2a was taken October 4, 2017 shows a more normal profile without a runnel trough between the ridge and dry beach.

Figure 2b taken October 30, 2018 following the weekend northeast storm. The debris shows into the lower dune slope grass along with a piling that washed up.

City of Brigantine - Annual Comparison

BRIG - 220 Feeder Beach

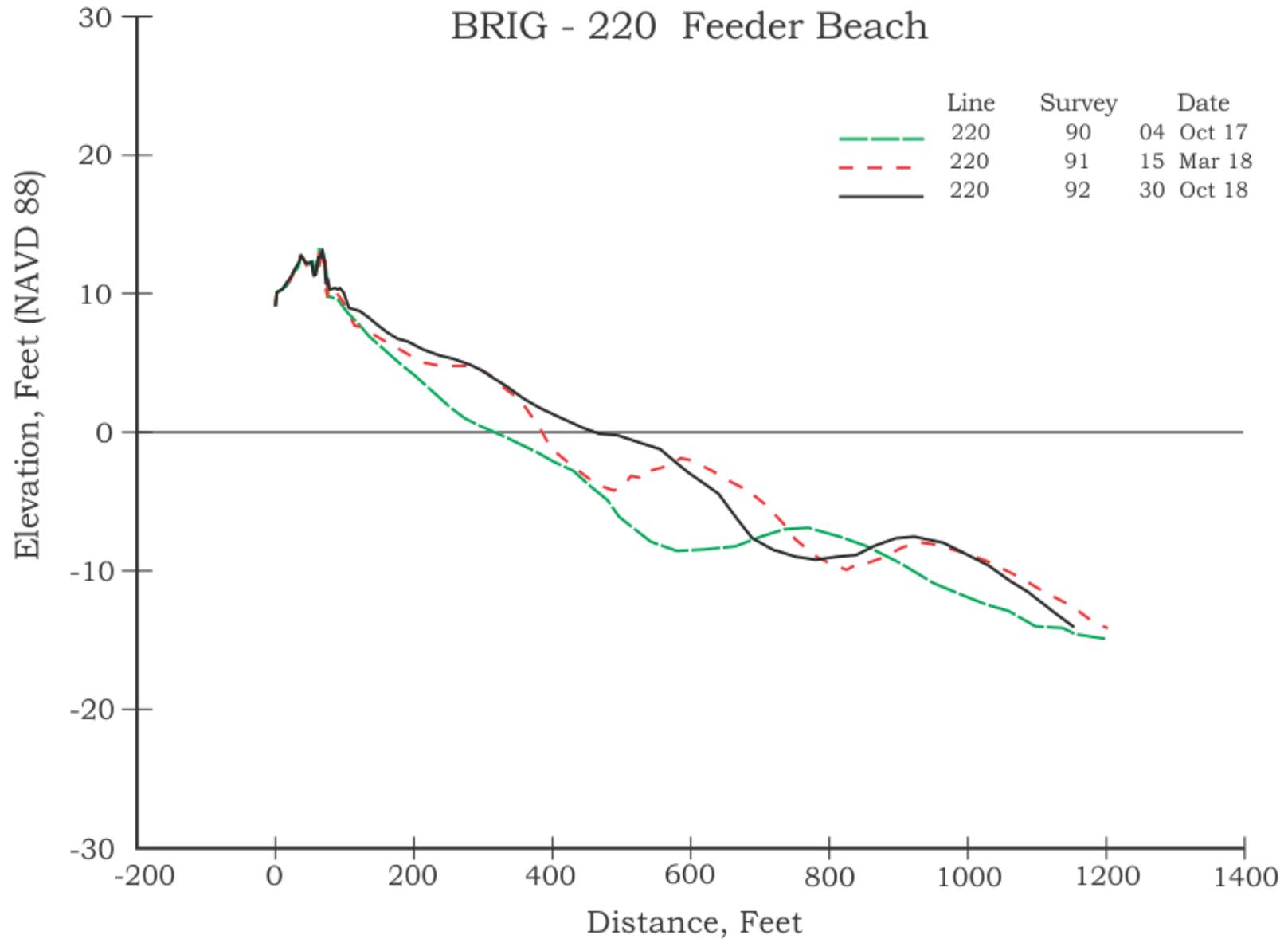


Figure 2c - Sand placed here by the USACE added substantially to the beach elevation and width, while offshore the bar developed at the 1,000-foot distance. The site gained 95.87 yds³/ft. as the shoreline advanced 148 feet seaward.

• **Profile Brig-12: 12th Street North**

(Figures 3a, 3b & 3c)

This profile site was established June 1992 along the north side of 12th Street North. The profile includes the road, promenade and bulkhead revetment structure that was completely reconstructed prior to the 1997 beach nourishment project. The Federal project placed sand here in February 2006, eventually adding 171.45 yds³/ft. of sand to the beach. This site is within a region of chronic erosion due to the orientation of the beach and revetment that protects the north end of Brigantine Blvd. As the beach retreats to the promenade the rock revetment protection is exposed. The hard structure revetment reflects wave energy, so return flow scours the beach elevation downward rapidly. Left unchecked, the erosion spreads rapidly south along the revetment towards oceanfront development near 8th Street North. The “feeder beach” was designed to alleviate this from occurring by providing advanced sand nourishment to this region in order to maintain a minimal beach seaward of the revetment and prevent exposure of the hard structure.

Hurricane Sandy eroded the beach to the revetment. In 2013, the USACE restored the damaged shoreline to the full beach template design at this site. The Federal project placed 209.55 yds³/ft. of sand while the shoreline position advanced seaward 311 feet. Over 2014, this section of shoreline rapidly eroded losing nearly 77 yds³/ft. of sand, along with 113 feet of shoreline retreat. Combining the 2014 and 2015 losses accounted for 80% of the placed sand lost in just two years following sand placement in 2013.

The October 2017 survey preceded the start of the current Federal maintenance effort designed to add 755,000 cubic yards of Brigantine Inlet sand to this part of the shoreline. There was a narrow dry beach at the end of 2017 and sand placed as of this writing has started to accumulate along the revetment south to this profile.

Profile Brig-12: 12th Street North

(Figures 3a & 3b)



Figure 3a taken October 2, 2017 following the summer beach accretion. A small berm had developed filling in around the rocks leaving a narrow dry beach in place.



Figure 3b taken October 30, 2018 shows the completed work on the beach by the USACE. The bulldozer pushed up material to the top of the bulkhead while the rocks were covered during sand slurry placement.

City of Brigantine - Annual Comparison

BRIG - 12 12th Street North

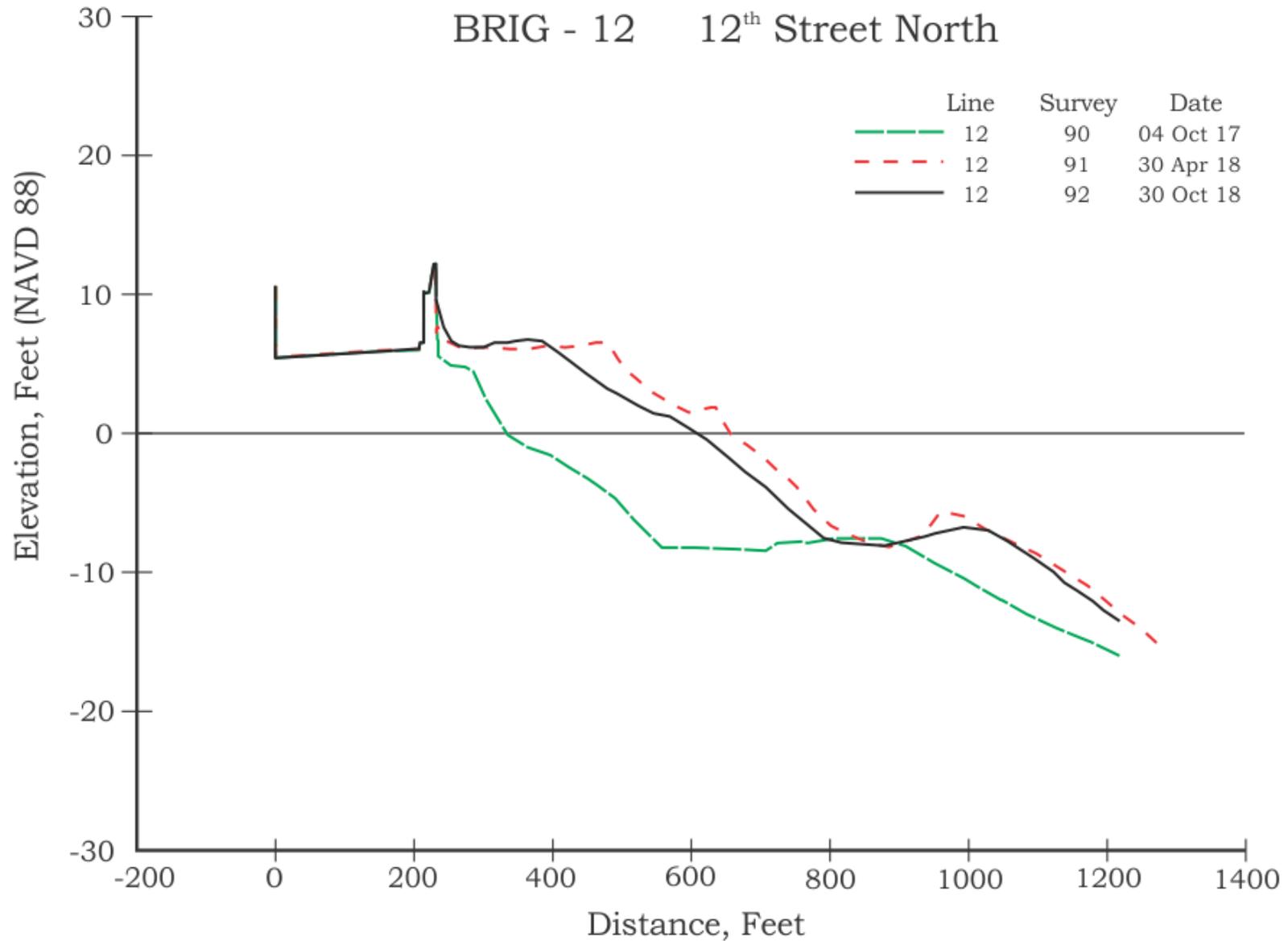


Figure 3c - This profile site was restored by the USACE project with 160.43 yds³/ft. causing the shoreline to advance seaward by 274 feet.

- **Profile Brig-4: 4th Street North**

(Figures 4a & 4b)

Brig-4 was established as part of the New Jersey Beach Profile Network in 1986, and included in the City's monitoring project in June 1992. The location is at the southern end of the original city engineered beach nourishment project area approximately 100 feet south of station 2800-00. The initial Federal project extended further south and placed 80.57 yds³/ft. of sand at this site.

During 2013, the USACE maintenance project added nearly 75 yds³/ft. of sand to restore the Federal beach template in this region. During the second half of the year the project berm and nearshore experienced modest erosion that swept sand away from the site. The net loss was about 30 yds³/ft. or approximately 40% of the sand placed. Changes observed over 2014 were minimal, with modest accumulations at the dune toe and seaward beach berm. This resulted in a net sand volume gain of 13.28 yds³/foot. This site experienced modest shoreline retreat and erosion in 2015 and 2016. Between 2016 and 2017, berm sand was relocated seaward to the sandbar and there was a modest shoreline advance during the year.

Dune erosion has been relatively rare here since beach nourishment began in 1997. The beach slope remains gentle and allows waves to dissipate over a fairly wide distance so the dunes are not frequently affected.

Profile Brig-4: 4th Street North

(Figures 4a, 4b & 4c)



Figure 4a taken October 4, 2017 showing the wet/dry line about a hundred feet seaward of the dune toe. There is little berm deposition present at this time.

Figure 4b taken October 30, 2018 along the dune toe where wind transport has already deposited new sand. The USACE project had a positive impact here as well.

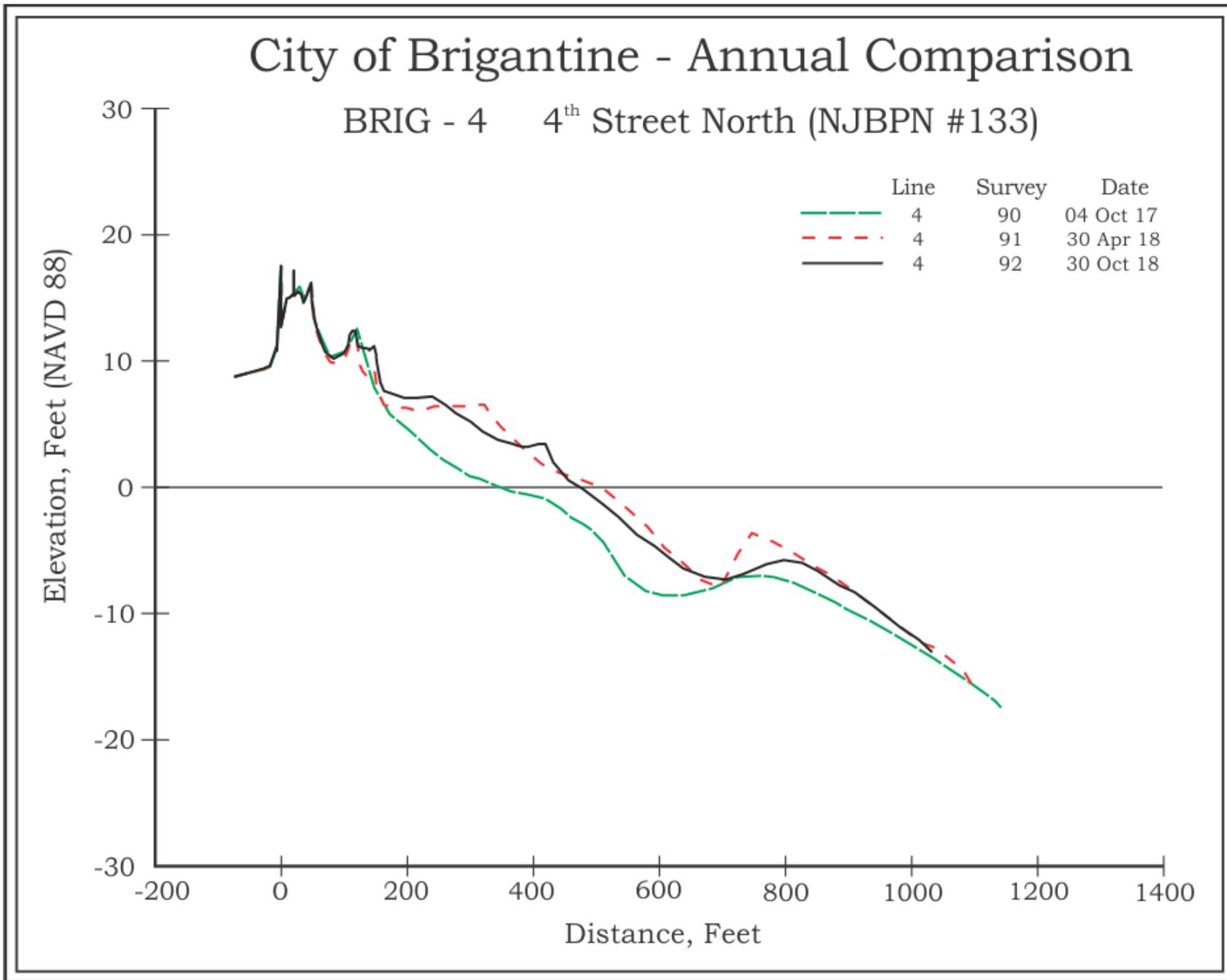


Figure 4c - Located south of the promenade, this site also gained sand (79.61 yds³/ft.) as the shoreline advanced 127 feet seaward. Offshore a bar emerged as a pronounced feature.

• **Profile Brig-5: 5th Street South**

(Figures 5a, 5b & 5c)

This profile station was selected and established at 5th Street South in December 1998. The location is approximately midway between the end of the initial (1997) project beach at 4th Street North and the established site at 15th Street South. This site has a well-developed dune system composed of three significant ridges. The dune system is more expansive than along the northern engineered beach at approximately 225 feet in width. Seaward growth through aeolian processes had added volume and width to the dunes annually until Sandy cut into the developed foredune ridge. Monitoring trends at this site over the years indicate a transitional zone exist in this region between chronic erosion to the north and accumulation on the southern beaches as sand moves south through this region on littoral currents. The initial Federal project placed a small volume of sand on this beach in 2006 and no sand was placed this far south during the 2011 USACE maintenance project.

No sand was placed directly on this section of shoreline during the 2013 USACE post-Sandy maintenance fill project. The project tapered into the existing beach conditions just north of this location at 3rd Street South. The current (2018) Federal project will stop at Roosevelt Avenue five blocks to the north. The site has experienced swings in volume gains and losses since 2014, but overall remains stable.

Profile Brig-5: 5th Street South

(Figures 5a & 5b)



Figure 5a photo on October 4, 2017 looking north closer to the dune toe. The beach was uniformly sloped from the dune toe to the water's edge at this point in time.



Figure 5b photo taken October 30, 2018 looking north along the dune toe. The beach width was unaffected by the northeast storm two days earlier, but the water did reach nearly to the dune toe slope.

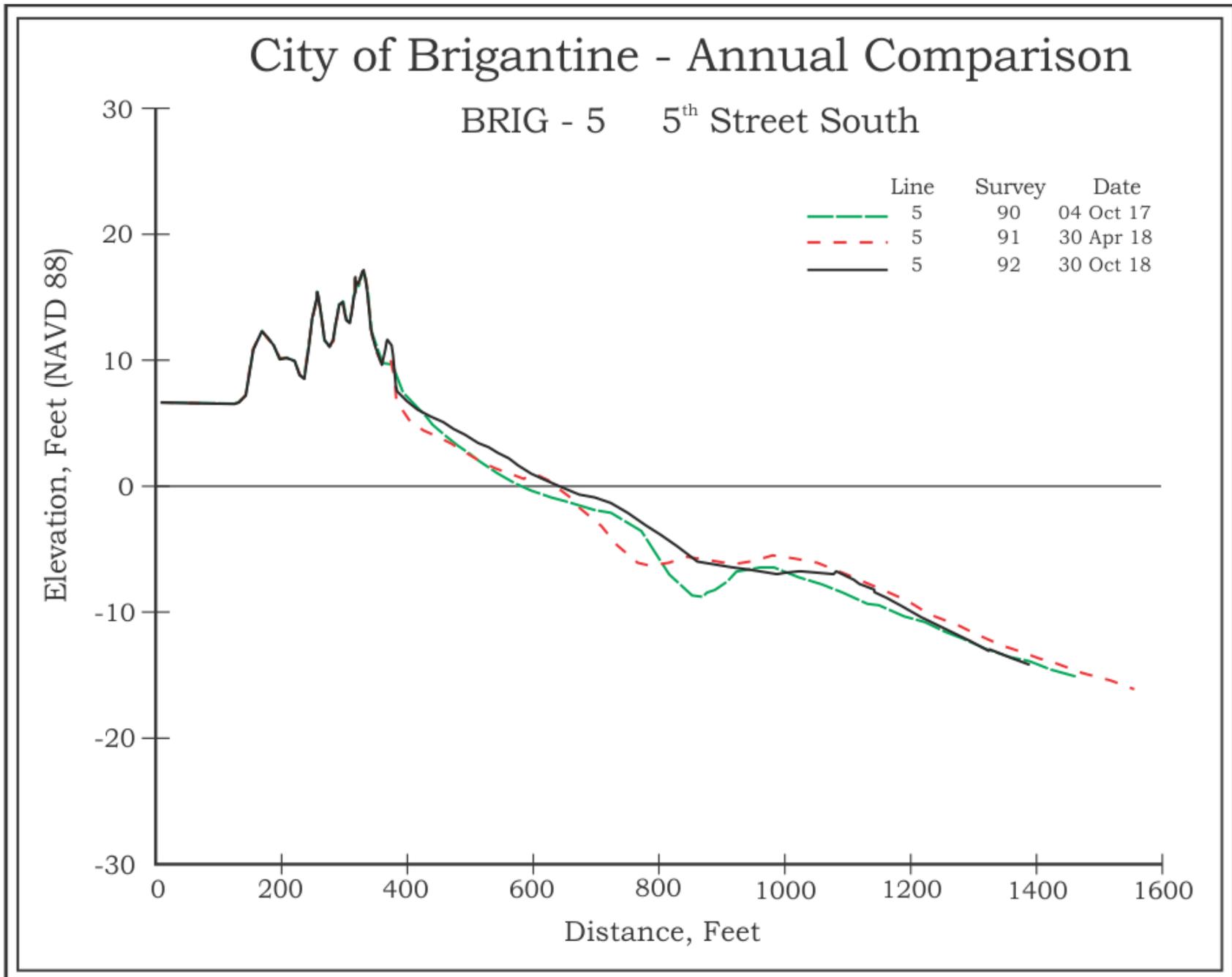


Figure 5c - The 5th Street South site was not involved in direct sand placement, but rapid transport southward will augment the sand volume. Already 31.87 yds³/ft. in sand was added producing a 58-foot shoreline advance.

• **Profile Brig-15: 15th Street South**

(Figures 6a, 6b & 6c)

At 15th Street South, the dune is interrupted by the Legacy Vacation Resort (old Brigantine Hotel, built in 1929). Shore protection for the seaward properties is limited in this two block section between 14th and 15th Street South to the aging exposed wooden bulkhead. North of 14th Street South and south of 15th Street South any bulkhead is buried below a well-developed dune system that provides significant storm protection for seaward properties. This site was located near the nodule point for the City beaches both from a geographical location and sand deposition and erosion perspective. No sand has been placed here directly during previous beach nourishment efforts as natural sand accumulation due to southerly littoral transport has been sufficient to produce an increasingly wider beach since 1997. Beach nourishment has shifted the node between erosion and deposition further north to approximately 5th Street South.

This year the beach has a flatter slope that extends the shoreline position seaward by 17 feet, while the sand volume slightly declined (-3.44 yds³/ft.). The beach lost 5.74 yds³/ft. while sand accumulated somewhat offshore. A substantial offshore bar remains at the 1000-foot distance from the reference position.

Profile Brig-15: 15th Street South

(Figures 6a & 6b)



Figure 6a taken October 5, 2017 looking north mid-beach. The wide beach was in excellent condition.



Figure 6b taken October 31, 2018 closer to the bulkhead and resort beach development. The flat beach remains over 200 feet wide to the berm crest, but at a low elevation susceptible to storm wave approach.

City of Brigantine - Annual Comparison

BRIG - 15 15th Street South (NJBPN #132)

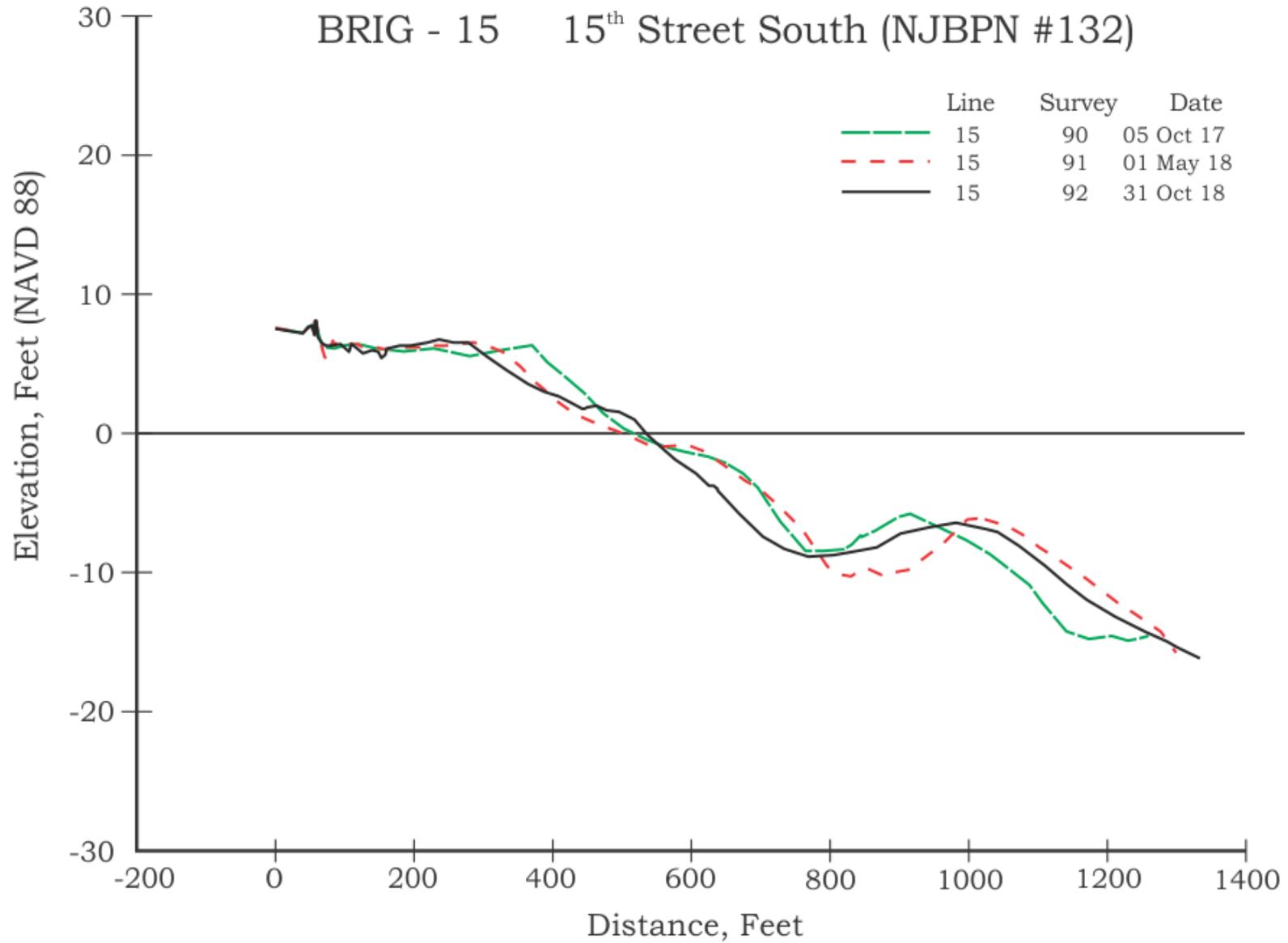


Figure 6c - At 15th Street South sand has been delivered by littoral processes ever since 1997. This year 3.44 yds³/ft. were lost as the shoreline advanced 17 feet seaward largely due to beach surface flattening by the northeast storm. The recent USACE material has yet to arrive.

- **Profile Brig-27: 27th Street South**

(Figures 7a, 7b & 7c)

This site was established in 1992 for the city's beach monitoring program. The location was selected to fill a void between two pre-existing NJBPN sites, located at 15th Street South and 43rd Street south. In contrast to 15th Street South, Brig-27 has a well-established dune system nearly 375 feet wide supported with a 300-foot wide beach. Multiple dune ridges provide significant storm protection against storm wave damage to the oceanfront properties. The Absecon Inlet jetty has created a region of sand accumulation that continues to extend north past this site. The jetty will continue to trap sand moving south transported by longshore currents towards the inlet providing a source of sand to feed this dune system and continue seaward growth of the beach for the foreseeable future.

The 27th Street South beach also achieved a flatter slope in comparison to that seen in both October 2017 and this past April. The net effect was a 150-foot shoreline advance seaward, the largest seen on an un-maintained beach. Offshore the bar shifted seaward 400 feet without much change in configuration. The sand volume increased 40 yds³/ft. as well. The dunes added elevation at the frontal crest at each successive survey.

Profile Brig-27: 27th Street South

(Figures 7a & 7b)



Figure 7b Photo taken October 5, 2017, looking south shows the extent of the dry beach and the dramatic seaward dune slope.

Figure 7b Photo taken October 31, 2018 from the primary dune crest looking south. The beach width is evident as is the extensive width of the dune system.

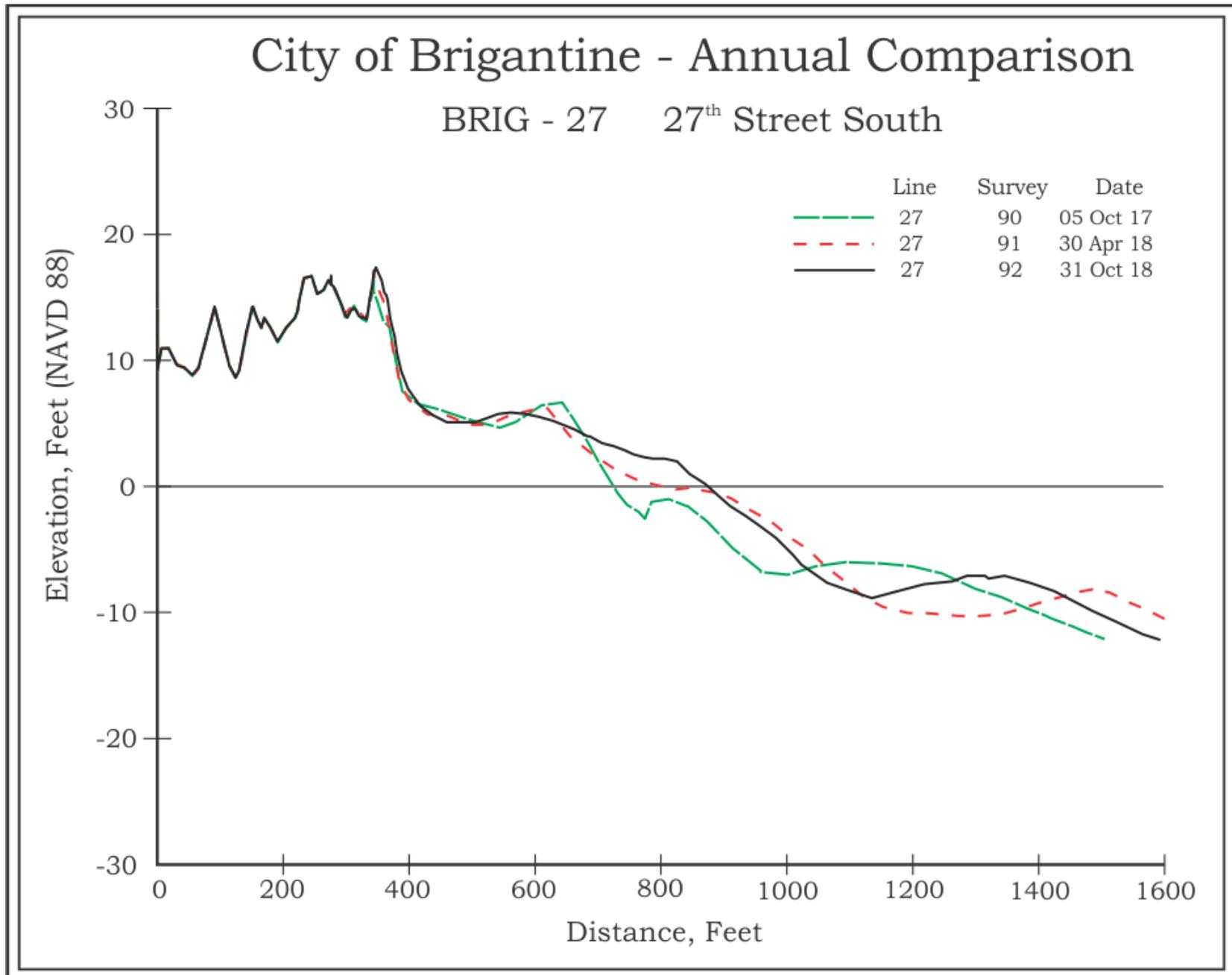


Figure 7c - 27th Street South expanded substantially as storm processes impacted bar material that added to the beach this summer. The sand volume gain was 39.89 yds³/ft. and the shoreline advanced seaward 150 feet, which is impressive for an un-nourished beach in one year.

- **Profile Brig-43: 43rd Street South**

(Figures 8a, 8b & 8c)

This site was established in 1986 as part of the New Jersey Beach Profile Network and was incorporated in the City's monitoring project in June 1992. The profile is located in an area dominated by the sand retention characteristics of the Absecon Inlet jetty. Sand retention benefits extend from the Absecon Inlet jetty to about 5th Street South. In 1986 the end of the street was the start of the beach with little dune growth. The present shoreline here is almost a half mile seaward of the shoreline position before the inlet jetty was built in 1944. The dune system occupies over 800 feet of width between the development and the seaward toe of the dune. The current recreation beach berm extends over 600 feet seaward of the dune toe.

This site was relatively stable with few significant changes seen on the entire cross section. Sand added to the foredune slope, added at the backshore just seaward of the dune while the berm became slightly lower in slope gradient. Sand did deposit immediately offshore as a bar about to attach to the beachface.

Profile Brig-43: 43rd Street South

(Figures 8a & 8b)



Figure 8a. Photo taken October 5, 2017 looking north along the extensive dry beach extending to the Legacy Resort in the far distance at 15th Street South.



Figure 8b. Photo taken October 31, 2018 approximately in the middle of the vast beach surface at 43rd Street South. Water sat here during the northeast storm as indicated by the wind-generated ripple marks on the surface, but no damage occurred.

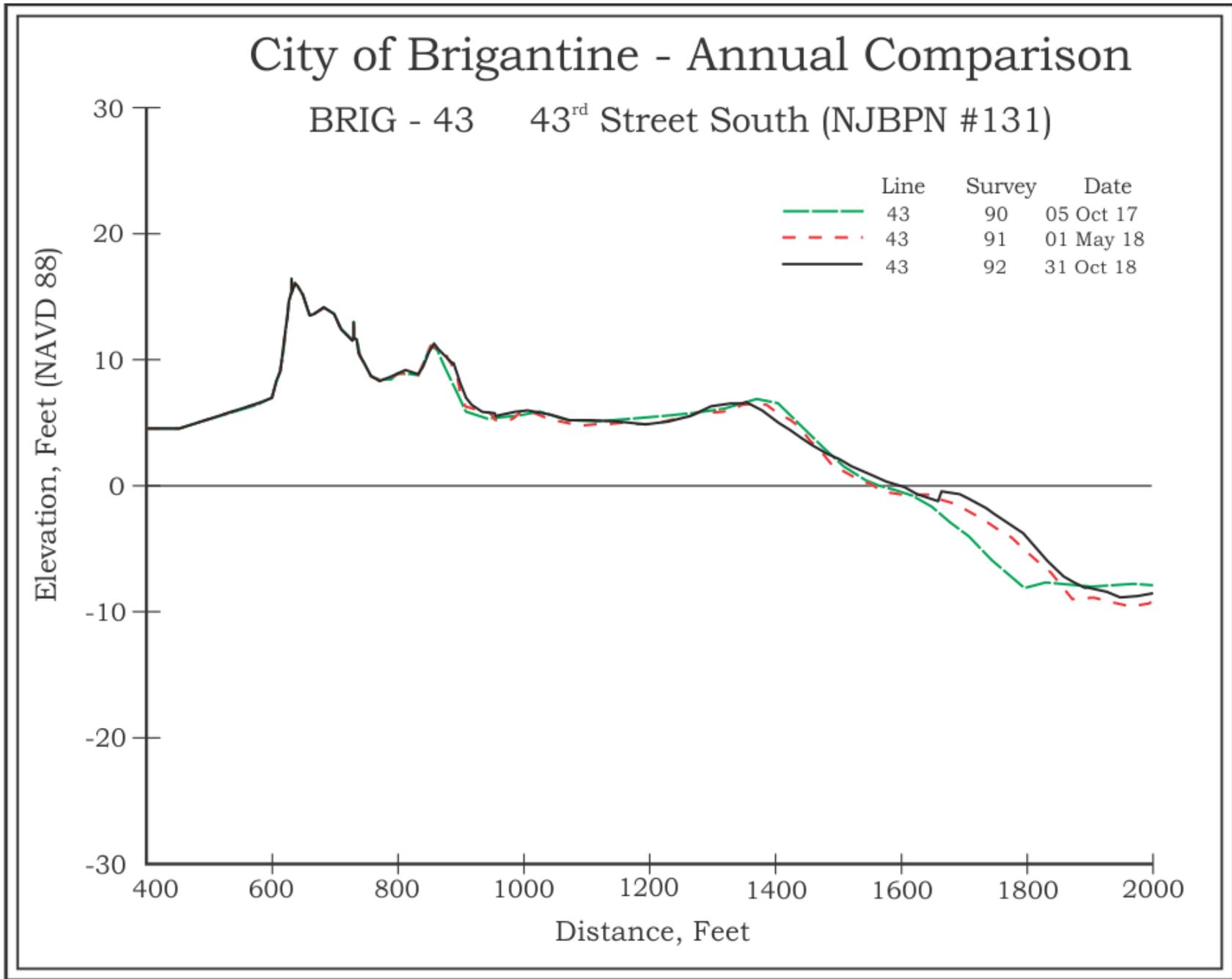


Figure 8c – This site has tripled its width over the 32-year monitoring history. This year the site added 38.37 yds³/ft. as the shoreline advanced 28 feet seaward. No dramatic features were enhanced or removed this year, but sand keeps arriving almost every season.

- **Profile Brig-1: South Beach**

(Figure 9a, 9b & 9c)

This site is located just 600 feet from the jetty, established to determine if sand is retained, eroded and or bypasses the structure. After years of observation around this structure including the inlet shoreline, sand moves around the Absecon jetty in cycles of retention, erosion then bypassing of the jetty. The current jetty configuration and length has essentially reached its capacity to retain new sand moving into the system. Once the beach width has expanded seaward to near the seaward end of the jetty and is exposed to storm erosion the sand moves offshore to the ebb shoal system or onto the inlet shoreline inside the jetty. Current dune configuration at this site extends over 1000 feet seaward of the development with approximately 300 feet of additional dry beach width.

There is a sharply defined dune with very steep back and fore-slopes to the beach. Sand added to the berm between the dune and the berm crest out on the beach, while a deeper trough developed by May that remained as of October 31st.

Profile Brig-1: South Beach

(Figure 9a, 9b & 9c)



Figure 9a Photo taken on October 5, 2017 looking south along the berm crest toward Atlantic City. This beach is extremely popular for recreational vehicle associated beach uses, both here and along the Absecon Inlet beach on the Brigantine side.



Figure 9b Photo taken October 31, 2018 looking southeast toward Atlantic City with the dune in the foreground. The beach has advanced to within 200 feet of the end of the inlet jetty, but storm waves do move sand around and over the structure.

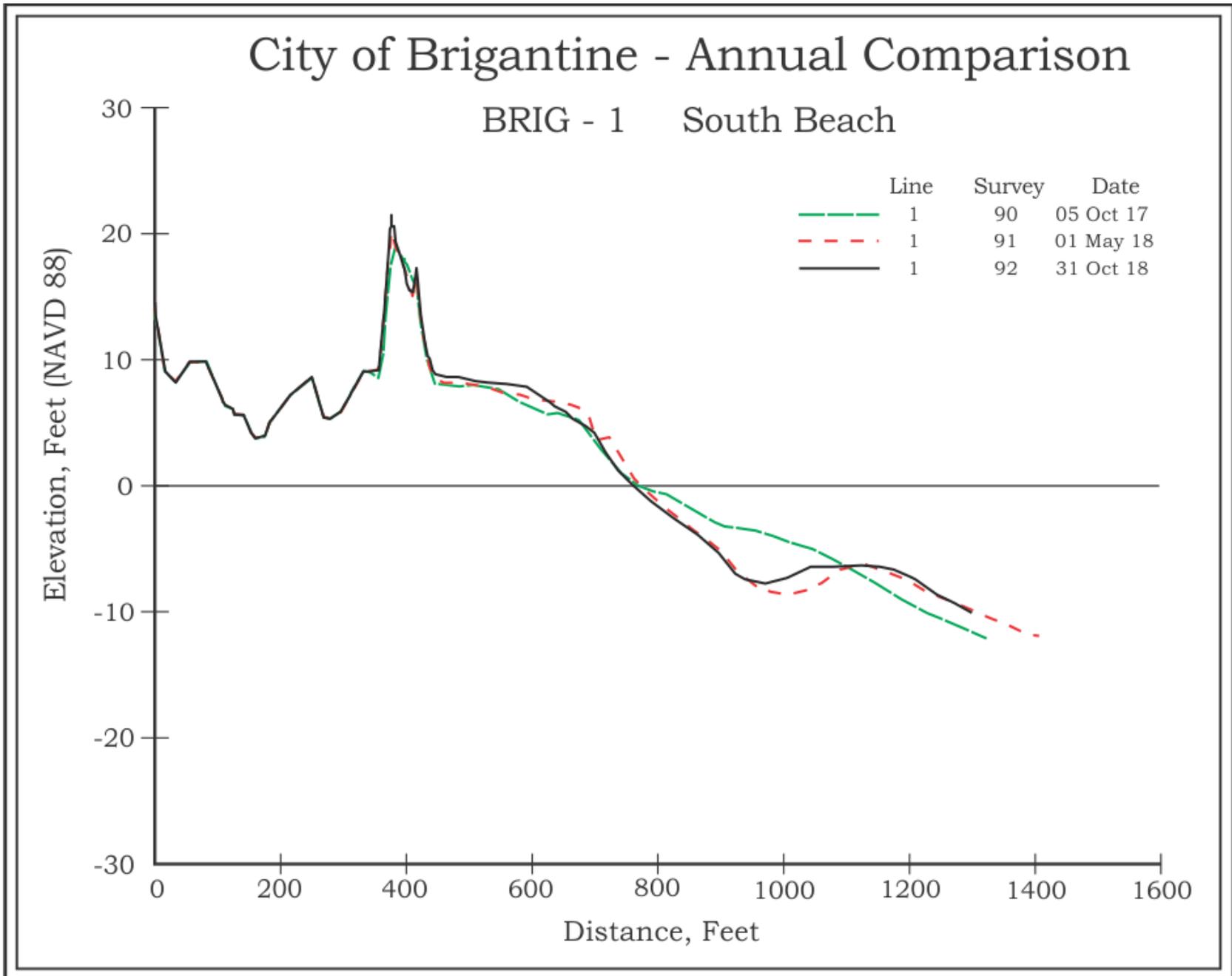


Figure 9c – Positioned just 600 feet north of the inlet jetty, this site exhibits gains and losses more related to storm wave interaction with the jetty. The October 28th & 29th northeast storm acted on this beach to move material around or over the structure. This year the beach volume declined by 5.25 yds³/ft. as the shoreline retreated 7 feet.

Summary:

In 2018, the net gain was 1,035,470 cubic yards (the largest gain in profiling history), largely due to the shore protection maintenance by the USACE adding 767,000 cubic yards of new sand derived from Brigantine Inlet borrow site. Sand was placed on the “feeder beach” as pre-nourishment material destined for the promenade oceanfront shoreline, while the majority of the sand was deposited from 14th Street North to 5th Street South. Material had yet to appear at 15th Street South, but the transfer process is underway as the cover picture demonstrates.

In addition, the southern non-nourished beaches added almost 300,000 cubic yards of sand to the collected oceanfront profile, on the dunes, on the beach and offshore at all but the BRIG-1 site 600 feet north of the Absecon Inlet jetty. A mild northeast event October 28 & 29th is the likely cause of the site’s minor erosion. Other profiles demonstrated beach flattening in slope to the water’s edge and storm debris was evident at the grass edge in the dunes at site BRIG-220 and at the northern natural site (BRIG-134).

The Coastal Center requests that City officials study the cover photograph with care and contemplate research into a funding mechanism to utilize some of the millions of cubic yards of sand deposited between 15th Street South and the Absecon Inlet jetty as management material to prolong the residence time for the USACE project efforts. The back-passing methodology is now established along the Jersey shore as a cost-effective means to add durability to expensive hydraulic dredging projects and could be an effective means to save time and funds for this community. We predict interest on the parts of both the USACE officials and the NJ Division of Coastal Engineering, the project partners with Brigantine City.