TOWN OF HIGHLAND BEACH
TOWN COMMISSION MEETING
AGENDA

Tuesday, April 16, 2024 AT 1:30 PM

LIBRARY COMMUNITY ROOM, 3618 S. OCEAN BLVD.,
HIGHLAND BEACH, FL

Town Commission

Natasha Moore	**Mayor**
David Stern	**Vice Mayor**
Evalyn David	**Commissioner**
Donald Peters	**Commissioner**
Judith M. Goldberg	**Commissioner**
Marshall Labadie	**Town Manager**
Lanelda Gaskins	**Town Clerk**
Leonard G. Rubin	**Town Attorney**

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1. **CALL TO ORDER**
2. **ROLL CALL**
3. **PLEDGE OF ALLEGIANCE**
4. **APPROVAL OF THE AGENDA**
5. **PRESENTATIONS / PROCLAMATIONS**

   A. State Legislative Updates by Senator Lori Berman

   B. Sea Turtle Presentation by Joanne Ryan, FWC Turtle Permit Holder

   C. Resolution No. 2024-012

   A Resolution of the Town Commission of the Town of Highland Beach, Florida, donating funds to support Highland Beach Sea Turtle Team, Inc., a 501(c)(3) Nonprofit Organization; and providing for an effective date.

   D. Presentation of the 2023 Beach Restoration Feasibility Study.

6. PUBLIC COMMENTS

Public Comments will be limited to five (5) minutes per speaker.

7. ORDINANCES (Public Comments will be limited to three (3) minutes per speaker per item after Commission initial discussion.)

A. None.

8. CONSENT AGENDA (These are items that the Commission typically does not need to discuss individually, and which are voted on as a group.) Public Comments will be limited to three (3) minutes per speaker per item after Commission initial discussion.

A. Approval of Meeting Minutes

February 20, 2024 Town Commission Meeting Minutes

March 05, 2024 Town Commission Meeting Minutes

9. UNFINISHED BUSINESS (Public Comments will be limited to three (3) minutes per speaker per item after Town Commission initial discussion.)

A. Resolution No. 2024-008

A Resolution of the Town Commission of the Town of Highland Beach, Florida, dedicating the Highland Beach Fire Rescue Department, Station No. 120 in honor of Former Mayor Douglas Hillman.

B. Fire Rescue Implementation Update

C. Florida Department of Transportation (FDOT) RRR Project Update

D. Continued discussion of Milani Park.

10. NEW BUSINESS (Public Comments will be limited to three (3) minutes per speaker per item after Town Commission initial discussion.)

A. Resolution No. 2024-009

A Resolution of the Town Commission of the Town of Highland Beach, Florida, ratifying the selection, appointments, and term of office of members of the Planning Board; and providing for an effective date.

B. Resolution No. 2024-010

A Resolution of the Town Commission of the Town of Highland Beach, Florida, ratifying the selection, appointments, and term of office of members of the Natural Resources Preservation Advisory Board; and providing for an effective date.

C. Resolution No. 2024-011

A Resolution of the Town Commission of the Town of Highland Beach, Florida, ratifying the selection, appointments, and term of office of members of the Financial Advisory Board; and providing for an effective date.

D. Consideration to cancel the May 07, 2024 Town Commission Regular Meeting.

E. Discussion of Highland Beach Community Post Office (CPO), a contractual service of the United States Postal Service.

11. TOWN COMMISSION COMMENTS

Commissioner Judith M. Goldberg

Commissioner Donald Peters

Commissioner Evalyn David

Vice Mayor David Stern

Mayor Natasha Moore

12. TOWN ATTORNEY'S REPORT

13. TOWN MANAGER'S REPORT

14. ANNOUNCEMENTS

Board Vacancies

Board of Adjustment and Appeals Board	One (1) vacancy for an unexpired term ending September 21, 2024
Financial Advisory Board	One (1) vacancy for a three-year term
Natural Resources Preservation Advisory Board	Two (2) vacancies for three-year terms

Meetings and Events

May 01, 2024	11:00 A.M.	Natural Resources Preservation Advisory Board Regular Meeting
May 09, 2024	9:30 A.M.	Planning Board Regular Meeting
May 14, 2024	1:00 P.M.	Code Enforcement Board Regular Meeting
May 21, 2024	1:30 P.M.	Town Commission Meeting

Town Hall closed May 27, 2024 in observance of Memorial Day

Board Action Report

None.

15. ADJOURNMENT

NOTE: Any person, firm or corporation decides to appeal any decision made by the Town Commission with respect to any matter considered at this meeting, such person will need to ensure that a verbatim record including testimony and evidence upon which the appeal is to be based. (State Law requires the above Notice. Any person desiring a verbatim transcript shall have the responsibility, at his/her own cost, to arrange for the transcript.) The Town neither provides nor prepares such record.

In accordance with the Americans with Disabilities Act, persons who need accommodation in order to attend or participate in this meeting should contact Town Hall 561-278-4548 within a reasonable time prior to this meeting in order to request such assistance.

File Attachments for Item:

C. Resolution No. 2024-012A Resolution of the Town Commission of the Town of Highland Beach, Florida, donating funds to support Highland Beach Sea Turtle Team, Inc., a 501(c)(3) Nonprofit Organization; and providing for an effective date.

RESOLUTION NO. 2024-012

A RESOLUTION OF THE TOWN COMMISSION OF THE TOWN OF HIGHLAND BEACH, FLORIDA, DONATING FUNDS TO SUPPORT HIGHLAND BEACH SEA TURTLE TEAM, INC. A 501(C)(3) NONPROFIT ORGANIZATION; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, Highland Beach Sea Turtle Team, Inc. is a 501(c)(3) nonprofit organization, incorporated in April 2023, dedicated to the conservation and protection of sea turtles along the beachfront of the Town; and

WHEREAS, the mission of Highland Beach Sea Turtle Team, Inc. encompass the marking and management of all sea turtle activity in the designated area, public education on the protection of threatened and endangered species of sea turtles, and the execution of these tasks under the auspices of Florida Fish and Wildlife Conservation Commission (FWC) permit no. 100; and

WHEREAS, Highland Beach Sea Turtle Tea, Inc. maintains a committed team of up to 25 volunteers, each listed on the FWC permit, who contribute their time and effort toward the conservation efforts, ensuring the meticulous collection and reporting of all relevant data to the FWC; and

WHEREAS, the efforts of Highland Beach Sea Turtle Team, Inc. align with the environmental conservation and community education values held by the Town of Highland Beach, signifying a mutual interest in the safeguarding of our natural resources and the promotion of biodiversity; and

WHEREAS, in May of 2023, the Town Commission approved a $2,500.00 contribution in support of Highland Beach Sea Turtle Team, Inc.

NOW, THEREFORE, BE IT RESOLVED BY THE TOWN COMMISSION OF THE TOWN OF HIGHLAND BEACH, FLORIDA THAT:

Section 1. The Town Commission hereby agrees to donate $2,500.00 annually to Highland Beach Sea Turtle, Inc. as a gesture of support for their commendable work in the conversation of sea turtles and their habitats along with the Town beachfront, if funding is available in the Town Commission budget.

Section 2. The Town's donation is made with the intention of assisting the Highland Beach Sea Turtle Team, Inc. in their ongoing projects related to the tracking, protection, and public education concerning sea turtles, thereby contributing to the broader goal of wildlife conversation and environmental stewardship.

Section 3. The Town of Highland Beach commits to fostering a relationship of support and collaboration with Highland Beach Sea Turtle Team, Inc., aiming to further the cause of

environmental conversation and public education on the significance of protecting endangered species, including sea turtles.

Section 4. This Resolution shall become in full force and effect immediately upon its passage and adoption.

DONE AND ADOPTED by the Town Commission of the Town of Highland Beach, Florida, this **16th** day of **April** 2024.

ATTEST:

Natasha Moore, Mayor

REVIEWED FOR LEGAL SUFFICIENCY

Lanelda Gaskins, MMC
Town Clerk

Leonard G. Rubin, Town Attorney
Town of Highland Beach

VOTES:	**YES**	**NO**
Mayor Natasha Moore		
Vice Mayor David Stern		
Commissioner Evalyn David		
Commissioner Donald Peters		
Commissioner Judith Goldberg		

File Attachments for Item:

D. Presentation of the 2023 Beach Restoration Feasibility Study.

TOWN OF HIGHLAND BEACH
AGENDA MEMORANDUM

MEETING TYPE: Town Commission Meeting

MEETING DATE April 16, 2024

SUBMITTED BY: Ingrid Allen, Town Planner, Building Department

SUBJECT: 2023 Beach Restoration Feasibility Study.

SUMMARY:

At the May 23, 2023 Town Commission meeting, the Commission approved a proposal from Aptim Environmental & Infrastructure, LLC ("Aptim") for an update to the 2013 Beach Restoration Feasibility Study ("Study"). The 2023 Study has been completed by Aptim (see attached) and Mr. Douglas Mann, P.E., Lead Coastal Engineer, will present the general findings of the report to the Commission.

Previous hearing related to this subject matter:

November 1, 2022 – Ms. Nikki Stansfield, Chair of the Natural Resources Preservation Advisory Board (NRPAB), made a presentation to the Commission on the Board's Dune Management Informational Outreach efforts. In addition, the Town Commission discussed updating the 2013 Beach Restoration Feasibility Study.

ATTACHMENTS:

APTIM 2023 Beach Feasibility Study Update

APTIM Proposal – May 23, 2023

Town Commission meeting minutes - May 23, 2023

2013 Beach Restoration Feasibility Study

RECOMMENDATION:

At the discretion of the Commission.

TOWN OF HIGHLAND BEACH
BEACH RESTORATION FEASIBILITY STUDY
2023

Submitted to:
The Town of Highland Beach

Prepared By:

Aptim Environmental & Infrastructure, LLC
6401 Congress Avenue, Suite 140
Boca Raton, FL 33487

January 2024

TOWN OF HIGHLAND BEACH
BEACH RESTORATION FEASIBILITY STUDY
2023

EXECUTIVE SUMMARY

The Town of Highland Beach requested that Aptim Environmental & Infrastructure, LLC (APTIM) develop a feasibility report that evaluates options for protecting and restoring the beach within the Town as a follow-up to the feasibility report completed in 2013. The Town has since participated in a joint climate change resiliency study, and the beach and dune system has been subject to episodic erosional stresses caused by waves, tides, and storm surges. The beach is one of the Town's most valuable assets and the Town requested that APTIM evaluate and update options that would protect the beach's natural resources, coastal property, and public health and safety.

APTIM evaluated the Town's 2.84-mile beach. The survey of the shoreline was conducted in August and September 2023 and shoreline data from 1975 to 2008 was reviewed. In summary, the beach in the southern portion of the Town is narrow and the berm is low. The shoreline in the southern section appears to be controlled by three rock outcrops, of which Yamato Rock at the southern extremity is the most prominent. The average shoreline retreat rate at the southern end of Town is -1.8 feet/year though the average shoreline change for the entire section of beach is an advance of 1.2 feet/year. The beach in the northern 1.85 miles of the Town has benefitted from repeated beach nourishments in Delray Beach. The beach in this area is wider, higher and has an established, vegetated dune system.

While the historic shoreline changes are a basis for optimism, the dune toes are eroded, and the berm is low in elevation. This suggests that the beach and dune system is vulnerable to storm surges.

APTIM evaluated several alternatives including a no action alternative, upland sand placement via truck haul, a larger scale beach nourishment project, and installation of coastal structures. It is recommended that a larger scale beach nourishment project be pursued long term. It is further recommended that the dune toes and the dry beaches be nourished to restore the storm protective capacity of the beach and dune system in the near term.

A large-scale beach nourishment project encompasses dredging sand from offshore and placing it along the southern 2 miles of the Town's beach. The cost of construction is estimated at $14M, assuming a project is constructed in 2024.

Recommendations were reviewed in conjunction with the 2021 Coastal Resilience Partnership Multi-Jurisdictional Climate Change Vulnerability Assessment report.

Limited public beach access will limit availability of County, State or Federal funding. It is recommended that other options be considered to fund a beach nourishment program, such as an Ad Valorem Tax, Erosion Prevention District, or Municipal Service Benefit Unit.

TOWN OF HIGHLAND BEACH
BEACH RESTORATION FEASIBILITY STUDY

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TOWN OF HIGHLAND BEACH
BEACH RESTORATION FEASIBILITY STUDY
2023

1. INTRODUCTION

The Town of Highland Beach requested that Aptim Environmental & Infrastructure, LLC (APTIM) update the 2013 feasibility report that evaluates options for protecting and restoring the Town's beach. The beach is one of the Town's most valuable assets and the Town requested that APTIM evaluate options that in general would:

1. Maximize protection of the beach's natural resources, coastal property and development, and public health and safety;
2. Maximize the quality of the beach for both human activities and environmental needs;
3. Minimize economic losses that may result from a beach erosion event by being prepared;
4. To efficiently, economically, and responsibly respond to and restore the beach as soon as possible after sustaining any significant beach loss;
5. Minimize the potential negative impacts (visual, audio, environmental, and beach sand loss) of the proposed sand, and;
6. Maximize the potential benefits of any future renourishment activities.

This report is derived from the following engineering and surveying activities:

1. A current beach and dune profile survey.
2. An engineering inspection of the beach and dune conditions both on a regional and individual property basis.
3. An updated comparison of the beach surveys to identify trends in the beach and dune changes.
4. An evaluation of the coastal forcing (winds, waves, storm surge, sea level rise) that affect Highland Beach's coastal zone.
5. An evaluation of engineering alternatives that could be considered by the Town or individual owners.
6. A presentation of funding alternatives for this predominantly private beach.
7. Incorporation of the recommendations from the regional climate change report, as appropriate, to protecting the beach and dune system.

This report will first present the coastal setting within the Town of Highland Beach, discussing the tides, storm events, history of shoreline and volumetric changes, and offshore resources. This will be followed by a general discussion of the current condition of the Town's beach. The next section, Problem Identification and Alternatives, will evaluate various alternatives available to address the beach condition. This discussion will be followed by an outline of the potential funding mechanisms. The last section will contain APTIM's recommendations.

2. COASTAL SETTING

2.1 Beach, Dune, and Surf Zone Terminology

The management of beaches has resulted in a unique set of geographic and geomorphic descriptions of specific features at "the beach". To assist the reader with understanding of various sections of the report, the following select definitions are provided (Figures 1 and 2). These definitions include a list by Komar, (1976) with additions as necessary.

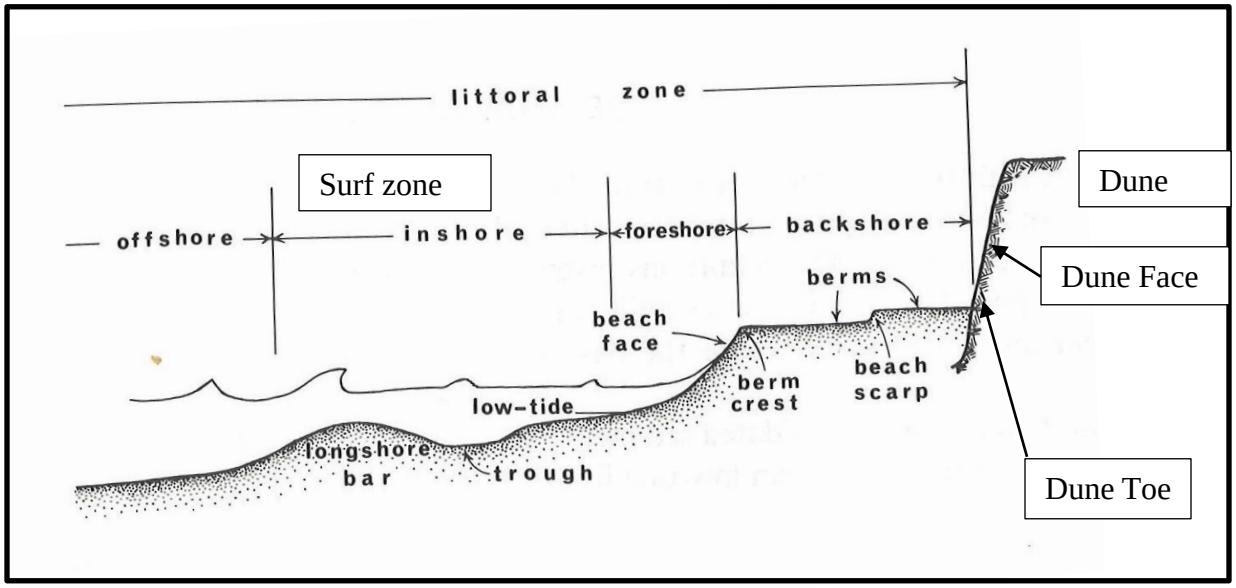

Figure 1. Definition sketch of the nearshore zone, beach, and dune components.

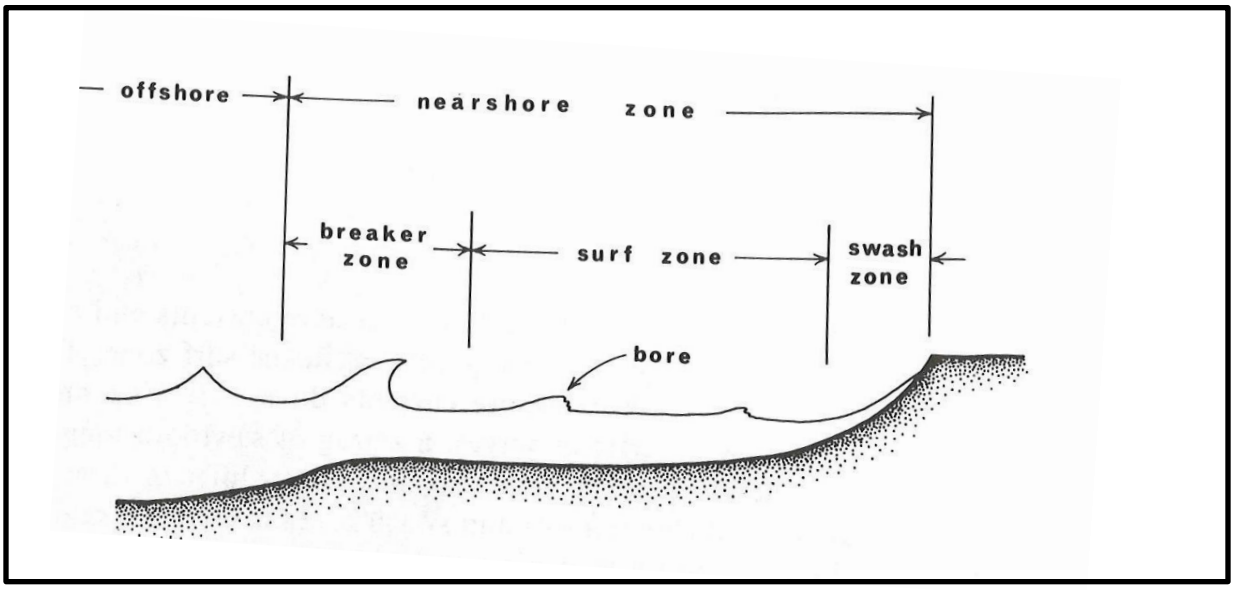

Figure 2. Definition sketch of the nearshore zone focusing on wave and hydrodynamic processes.

Backshore: The zone of the beach profile extending landward from the sloping foreshore to the point of development of vegetation or change in physiography (sea cliff, dune field, and so on).

Beach face: The sloping section of the beach profile below the berm which is normally exposed to the action of the wave swash.

Beach scarp: An almost vertical escarpment notched into the beach profile by wave erosion. Its height is commonly less than a meter, although higher examples are found.

Berm (beach berm): A nearly horizontal portion of the beach or backshore formed by the deposition of sediment by the receding waves. Some beaches have more than one berm, while others have none.

Berm crest (berm edge): The seaward limit of a berm. May be a distinct break in the slope of the beach profile. Sometimes, a location of gradual transition in beach slope.

Breaker zone: The portion of the nearshore region in which the waves arriving from offshore reach instability and break. With very simple uniform waves, such as may be generated in a laboratory wave tank, the zone may be reduced to a breaker line. On a wide, flat beach, secondary breaker zones may occur in which reformed waves break for a second time. May also be referred to as the surf zone.

Depth of closure: A water depth where the net cross shore sediment transport by waves is zero when measured on an annual basis.

Dune: An unconsolidated mound of sand at the landward portion of the beach, that is often deposited by winds. The dune may or may not be vegetated.

Dune toe: The portion of the dune that is usually within 1 to 3 feet (vertically) of the unvegetated beach berm. The dune toe may mimic the slope of the dune or be near vertical as a result of recent erosion.

Dune face: The seaward portion of the dune.

Dune crest: The portion of the dune which is at its highest elevation and is usually horizontally flat. The width of a dune crest can vary significantly.

Fetch: The uninterrupted distance that winds below across a body of water.

Foreshore: The sloping portion of the beach profile lying between a berm crest (or in the absence of a berm crest, the upper limit of wave swash at high tide) and the low-water mark of the backrush of the wave swash at low tide. This term is often nearly synonymous with the beach face but is commonly more inclusive, containing also some of the flat portion of the beach profile below the beach face.

Inshore: The zone of the beach profile extending seaward from the foreshore to just beyond the breaker zone, or surf zone.

Intertidal: That portion of the beach located in the vicinity of the shoreline between mean high water and mean low water.

Littoral transport: The volume of sand actively moving in the surf zone. May also be referred to as sediment transport.

Longshore bar: A ridge of sand running roughly parallel to the shoreline. It may become exposed at low tide. At times there may be a series of such ridges parallel to one another but at different water depths.

Longshore trough: An elongated depression extending parallel to the shoreline and any longshore bars that are present. There may be a series at different water depths.

Nearshore hardbottom: A ridge of exposed Anastasia formation (limestone) located within the nearshore zone and may extend onto the dry beach. Sections submerged at all tide levels will usually be encrusted with corals, sponges, algae, etc. and form a basis of a shallow water marine ecosystem. The nearshore hardbottoms frequently contain juvenile fish; thus, the hardbottoms functions as part of a larger ecosystem. May be referred locally as reefs.

Offshore: The comparatively flat portion of the beach profile extending seaward from beyond the breaker zone (the inshore) to the edge of the continental shelf. This term *is* also used to refer to the water and waves seaward of the nearshore zone.

Pioneer zone: That portion of the vegetated dune that is closest to the shoreline. This area is subject to the largest amount of salt spray, and wave impacts. Plants within the pioneer zone are the most salt tolerant and/or hardy. In Palm Beach County, pioneer dune species include, but are not limited to, sea oats, marsh hay cordgrass, and railroad vine, or similar species.

Scarp: A near vertical elevation change within the beach berm or dune that results from wave action, with or with elevated tides.

Shore: The strip of ground bordering any body of water, whether the ground is rock or loose sediment. If it is unconsolidated sediment, then *shore* becomes synonymous with *beach* used in its restricted sense.

Shoreline: The line of demarcation between the water and the exposed beach.

Subtidal: That portion of the beach (profile) that is always submerged, or below mean low water.

Surf zone: The portion of the nearshore region in which the waves arriving from offshore reach instability and break.

Swash zone: The section of the beach where broken waves advance and recede principally as a sheet of water.

Wrack (line): A localized area on the beach where floating vegetative and other debris accumulates. In Palm Beach County, the wrack primarily consists of decaying Sargassum weed, a naturally occurring vegetation in the ocean. The wrack is usually aggregated in a semi-continuous line and is located near the maximum wave uprush during a period of time. Wrack can provide a food source for wading birds.

2.2 Winds

Winds indirectly cause the littoral transport of sand by generating waves. Northeast wind events typically produce the largest waves due to a long, uninterrupted fetch and the duration of the winds. Winds from the east and southeast typically do not create large waves in the project area because of the limited fetch between southeast Florida and the Bahamas, and the limited duration of weather patterns from these directions.

Winds associated with tropical storms may also affect the shoreline. Due to the cyclonic nature of the winds associated with tropical storms and hurricanes, the winds can come from any direction. If the winds are in an onshore direction, a storm surge will be created and in conjunction with the higher waves will cause accelerated erosion of the beach. Figure 3 demonstrates the annual wind data at the Lake Worth Pier collected between May 2022 to April 2023.

The wind data presented in Figure 3 indicates that the predominant directions of winds is from the southeast with a range from due south to slightly north of due east. Winds can come from all

directions. The majority of the winds are less than 20 mph from all directions. Of interest to the beach is the data that suggests that the greatest frequency of winds that are greater than 20 mph are occurring from the northeast quadrant. These winds will generate seas and swells from the northeast across the unlimited Atlantic fetch and will dominate the wave driven sediment transport in a southerly direction. While there are strong winds from the southern direction, these occur over a shorter wave fetch and do not create substantive northerly directed waves.

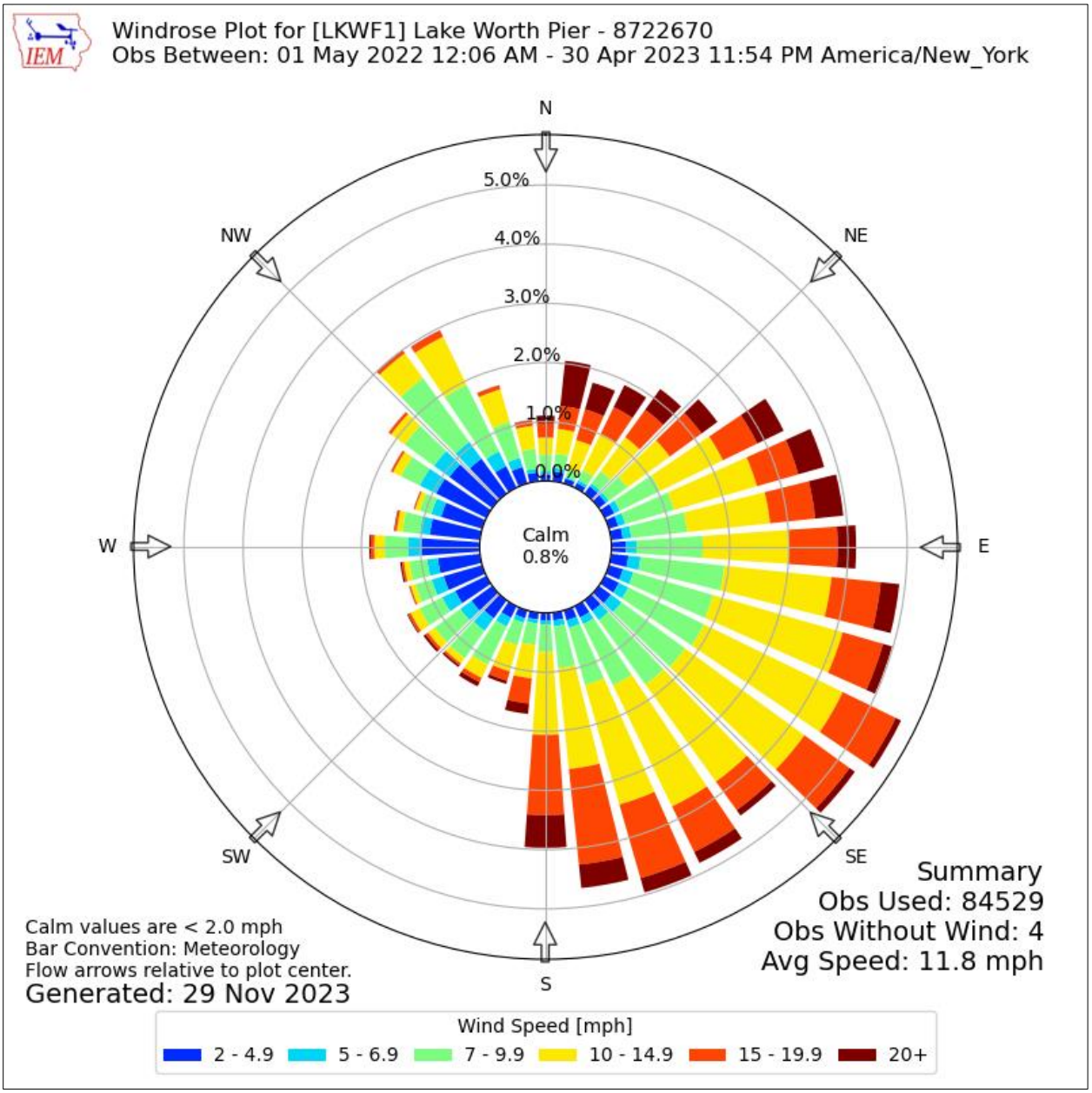

Figure 3. Windrose data collected at Lake Worth Pier (Source: Iowa State University).

2.3 Waves

One of the principal causes of beach erosion is waves breaking on the beach and washing sand into the ocean. This wave induced sediment movement can be in the longshore direction, and the onshore-offshore direction. Due to the general north-south orientation of the Town's shoreline, waves from the east cause little longshore movement of sand. In contrast, waves from the north and northeast cause a net movement of sand to the south, while waves from the south and southeast cause a net movement of sand to the north.

One important factor that contributes to the wave climate observed within the Town of Highland Beach project area is the presence of the Bahama Banks. This geological formation limits the fetch (the length of open water) for eastern, southeastern and some northeastern waves. Since the largest waves affecting the project area (on average) are from the northeast, the annual net movement of sand in Highland Beach (or Palm Beach County) is to the south.

2.3.1 Extreme Wave Analysis for Highland Beach

To assess the potential for waves during rare events to affect Highland Beach, the following analysis of hindcasted wave data was performed. Hindcasted wave data was obtained from the USACE's Wave Information Study (WIS) (**https://wisportal.erdc.dren.mil/#**) at station ST63464 which is located at 26.3333°N, 79.9167 °W, where the estimated water depth is 810 feet. The data set spans from 1980 until 2023 (43 years). To determine the return frequencies of extreme waves, a Peak Over Threshold (POT) analysis was conducted on the data to analyze the peak wave height values. A threshold value was chosen as 6 feet.

The return periods and corresponding wave heights and wave periods were then calculated by fitting extreme value distributions to the POT data obtained. The extreme value curves were fitted to the largest 50 events. The results are shown in Table 1. The data shows that offshore of Highland Beach there are annual events of 13.5 feet waves at 9.4 second periods and that during rarer events the wave heights and periods are much larger. Thus, there are deepwater conditions that pose a general risk to Highland Beach. Conditions at deepwater do not directly reflect conditions at the beach. All waves go through transformation as they propagate onshore, most importantly depth limited breaking. Waves may break and lose energy several times on their approach to the beach. Therefore, the waves that an observer sees at the beach are smaller than the deepwater conditions.

Table 1. Extreme Wave Analysis Offshore of Highland Beach

Return Period (years)	Wave Height H_{mo} (feet)	Wave Period T_p (seconds)
1	13.5	9.4
2	15.7	10.8
5	19.4	12.0
10	22.8	12.9
20	26.4	13.8
25	27.6	14.1

50	31.6	14.9
100	35.8	15.7
200	40.3	16.6
500	43.0	17.1

2.4 Storms

Surges and waves caused by extratropical and tropical storms (including hurricanes) are major threats to the shoreline of Highland Beach. The hurricane season extends from June 1 through November 30. Palm Beach County has averaged 1.0 land-falling tropical storms per 10 nautical miles of shoreline from 1871 to 1973 (USACE, 1987). In recent years, the number of tropical storms affecting the Atlantic and Caribbean waters have been above the long-term historic averages. Whether this is due to climate change or is cyclical will be determined in decades to come.

Extratropical storms that generate waves out of the northeast also have a significant effect on the Town's shoreline. These storms are characterized by strong winds of long duration (several days) that generate swell waves. Northeaster storms typically cause more beach erosion along the coast of Highland Beach than any other event. One recent example is the northeast storm of December 15-17, 2023, which caused significant wave action, and elevated tides for Palm Beach County (and elsewhere).

2.5 Tides

The closest NOAA tide gauge to the project area is located on the Lake Worth Pier. The tides are semi-diurnal (two high and two low tides per day) with a mean tidal range of 2.9 feet. Tidal datums appear in Table 2.

Table 2. Tidal Datums at the Lake Worth Pier

	Elevation (feet, NAVD)
Mean Higher High Water (MHHW)	0.55
Mean High Water (MHW)	0.37
Mean Sea Level (MSL)	-0.97
Mean Low Water (MLW)	-2.35
Mean Lower Low Water (MLLW)	-2.51

Source: NOAA (2023), https://tidesandcurrents.noaa.gov/datums.html?id=8722670

2.5.1 King Tides

While the preceding paragraph discusses the expected tides as predicted by NOAA, the South Florida area is experiencing tides (not associated with storms) that are the result of solar and lunar alignments, seasonal variations of the position and inclination of the sun and moon, velocity changes in the flow of the Gulfstream Current located directly offshore, and other minor causes. These (semi) predictable events result in tides that are above traditional predicted tidal elevations. These are often referred to as king tides in the media. King tides can occur in any month, but the combination of individual contributions is

usually maximum in the months of October and November during spring tides (times of new and full moons). For example, measured peak tidal elevations at the Lake Worth Pier occurred on October 1 and October 29, 2023, at elevation 2.4 feet NAVD, and on November 16, 2023, at elevation 2.45 feet NAVD. If these king tides coincide with wind events, significant changes to the beaches can occur.

2.6 Storm Surge

Storm surge refers to elevated tides that are induced by storms. They are influenced by changes in atmospheric pressure and wind stress acting on the ocean. In the surf zone, the breaking of waves causes an increase in the mean water level as well. Two common ways to estimate storm surge is from (1) recurrence intervals of measured total water levels (measured at tide stations) and (2) numerical simulation of hurricanes of known frequencies. These are discussed in the following sections.

2.6.1 Measured Tides

Due to the limited number of tidal gauges along Florida's coast, the extreme water levels return period was derived by NOAA from measured data collected at Virginia Key (Table 3). The gage is located within a sheltered marine environment, so this table excludes the effects of wave setup in the nearshore beach zone which results in underestimating the total water level at the beach for a given return period.

Table 3. Estimated Storm Stage from Tidal Measurements

Return Period (years)	Storm Stage Level (feet, NAVD)
50	3.94
25	3.92
17.5	2.94
12.5	2.69
9	2.67
6	1.95
2	1.71
1	0.97

2.6.2 Numerical Hindcasts of Hurricane Induced Storm Surges

Storm surge is defined as the rise of the sea surface above its astronomical tide level due to storm forces. The increased elevation is attributable to a variety of factors including wave setup, wind shear stress, and atmospheric pressure. Dean et al (1992) estimated the storm surge along Palm Beach County using numerical simulations of landfalling hurricanes (Table 4).

Table 4
Hindcasted Storm Surge Elevations for
Southern Palm Beach County
(After Dean, et al., 1992)

Return period (years)	Combined total storm tide level above NAVD (ft) profile 4 (186-227)
500	13.1
200	11.3
100	10.1
50	8.4
20	6.2
10	4.2
5	1.7

Table 4 shows even a 10-year return period storm will support wave action on top of the existing beach berm in Highland Beach.

2.7 Sea Level Rise

The global sea level has both risen and fallen throughout geological history. Recent trends in local sea level changes can be used as indicators of what will occur in the near future. Experience indicates that as the relative sea level rises, the shoreline will be subjected to increased flooding, shoreline recession, and profile erosion. NOAA has published sea level trends for regions along the United States coasts based on measured yearly mean sea level records. The longest tide gage record in southeast Florida is based in Key West (Figure 4). Based on the Key West tide gage records, NOAA has estimated that sea level is rising along the southeast Florida coast at 2.57 mm/year (NOAA). This is equivalent to 0.84 feet/century.

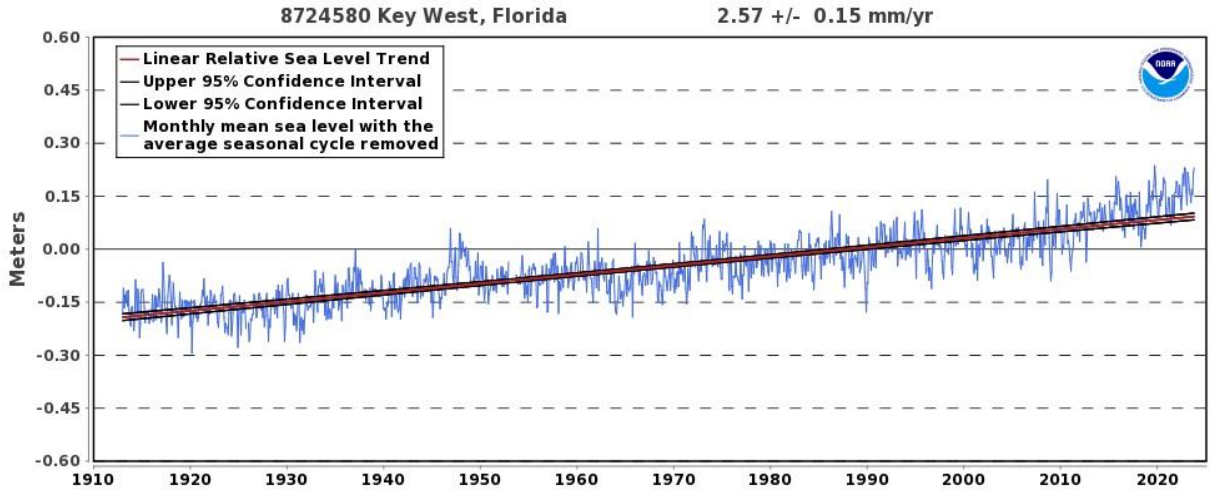

Figure 4. Long term record of sea level rise in Key West, Florida.

The Southeast Florida Climate Change Compact (SFCCC) has reviewed recent trends in measured sea level rise and made recommendations to its members (4 southern counties) that sea level rise may accelerate as shown in Figure 5. Figure 5 shows the relative increase in sea level relative to the year 2000 as a function of future time (years). While the acceleration is small since 2010 (Figure 4), there is a measured short-term trend. The SFCCC has suggested that there are four (4) probable scenarios that may occur in the future (Figure 5). Other scenarios may also occur. The SFCCC has suggested that the use of the NOAA Intermediate High scenario be used for planning purposes for future activities in Southeast Florida.

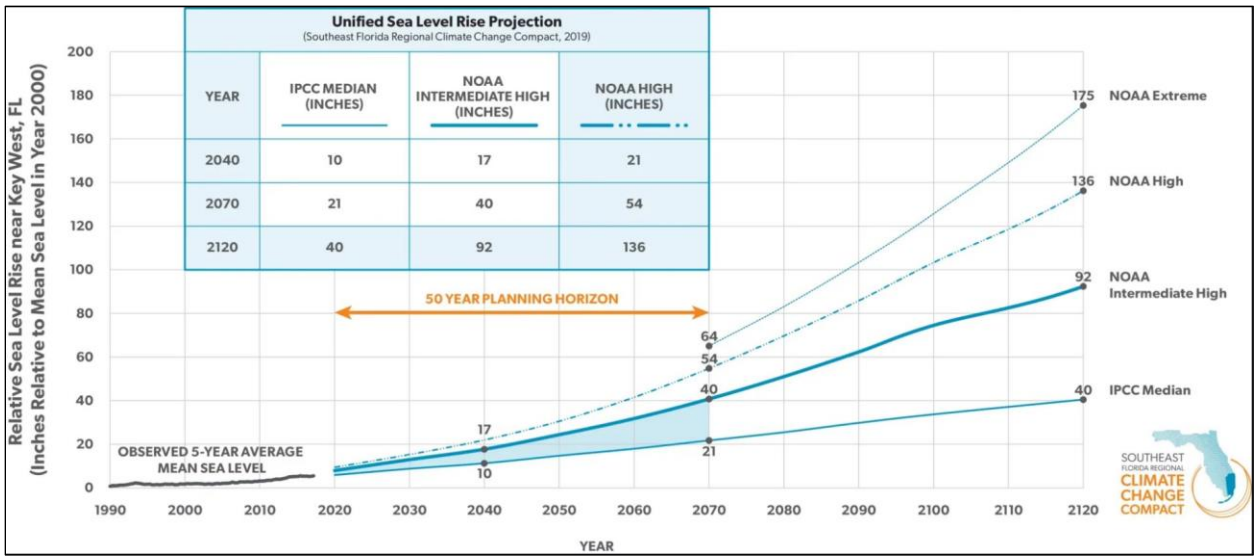

Figure 5. Projection of Sea Level Rise (Source. Southeast Florida Climate Change Compact).

2.7.1 Recessional Effects of Sea Level Rise on Beaches

Bruun (1962) proposed a formula for estimating the rate of shoreline recession based on the local rate of relative sea level rise. This methodology also includes consideration of local topography and bathymetry. Bruun's approach assumes that with a rise in sea level, the beach profile will attempt to re-establish the same bottom depths relative to the previous sea level. As a result, the beach profile shape relative to the mean water level will re-establish itself. If the longshore littoral transport in and out of a given shoreline area is equal, the quantity of material required to re-establish the nearshore slope must be derived from shoreline recession. The effects of sea level rise on the shoreline recession can be approximated using Bruun's (1962) relationship:

$$R = LS / (h+b) \qquad \text{[Equation 1]}$$

where R = shoreline recession,
S = sea level rise,
b = berm height,
h = depth of the limit of the active profile,
L = horizontal distance from the beach to the limit of the active profile.

The annual limit of the depth of the active profile, h, has been estimated using cross-shore beach profiles collected by the State (Appendix A). For Highland Beach, the profiles suggest that the depth limit of the active profile averages –28 feet, NAVD.

The estimate of shoreline recession due to relative sea level rise used –28 feet, NAVD as the depth of closure. The distance, L, from the mean-high-water line (+0.44 feet, NAVD) to the depth of closure is estimated to be 1,500 feet (an average value was calculated from surveys collected along FDEP survey monuments R-191 through R-204). Using a berm height, B, of 7 feet and a linear sea level rise rate of 0.0084 feet/year, the shoreline recession due to sea level rise is calculated to be 0.36 feet/year using Bruun's rule. This relatively small value would be difficult to measure directly in the field.

2.7.2 Flooding and Inundation Effects of Sea Level Rise on Beaches

An increase in sea level will also reduce the appearance of the width of the beach due to higher mean water levels. The data in Figure 4 suggests that mean sea level is approximately 1 foot higher today than it was in 1910 (at the beginning of the Key West tidal record). As many beaches in Palm Beach County have a beach face slope of 1V:10H, the increase in water level has reduced the apparent width of the beach by 10 feet in the last century. Ongoing sea level rise (linear or accelerated) will further reduce the apparent width of the beach.

2.7.3 Future Storm Surges

The estimates of storm surge for recurring storms presented in Table 4 were computed based on a specific tidal elevation (Dean et al., 1992). With increasing time since the 1992 study, the expected value of the storm surge should also increase based on the actual rise in sea level (Figure 4). Increased storm surge elevations will result in increased shoreline recession, beach erosion, and dune impacts.

3. MEASURED BEACH AND DUNE CONDITIONS

This section discusses the historic shoreline changes, and beach and dune volumetric changes within the Town of Highland Beach.

3.1 Data

The Florida Department of Environmental Protection (FDEP) and Palm Beach County have collected beach surveys over the last several decades. An additional survey was performed by APTIM surveyors in August 2023. All of these surveys have been collected at FDEP monuments (or reference points) which are spaced at approximately 1000 feet apart along the sandy shorelines of the State of Florida. The northern limit of the Town of Highland Beach is located approximately 950 feet north of FDEP monument R-191 and 200 feet south of R-190. The southern limit of the Town of Highland Beach is located approximately 175 feet south of FDEP monument R-204.

The earliest available beach profile data set was collected in January 1975 (FDEP, 2013). Other available data sets that included the entire beach profile from the dune crest out to the depth of closure include October 1990, October 2008, and August 2023 surveys.

3.2 Shoreline Change Analysis

A shoreline change analysis was performed using the available survey data (Tables 5 and 6). Table 5 identifies, that over the long term, the beach throughout most of the Town of Highland Beach is advancing in a seaward direction. The average shoreline advance is 1.2 feet/year between January 1975 and August 2023 (Table 6).

The greatest shoreline advancement is occurring at the northern limits where it is influenced by the long-term nourishment of the City of Delray Beach's nourishment program. The effects of the nourishment program are most evident in the January 1975-August 2023 column between R-191 and R-199 (Table 5). South of R-199 there is little influence of the City of Delray Beach's nourishment on the shorelines.

Tables 5 and 6 also show that the beach is advancing inconsistently, with some recessions observed at select profiles in the north, center, and south sections of the Town. While there is the long-term advancement, there are times of recession and locations where shoreline recession has occurred.

Table 5. Shoreline Change Summary

	Shoreline Change (feet)					
Profile	**Jan 1975 to Oct 1990**	**Oct 1990 to Apr 2004**	**Apr 2004 to Nov 2004**	**Nov 2004 to Oct 2008**	**Oct 2008 to Aug 2023**	**Jan 1975 to Aug 2023**
R-191	83.1	5.3	-24.7	53.2	49.7	166.6
R-192	68.1	34.7	-26.6	82.1	-19.0	139.3
R-193	68.0	55.4	-55.2	14.4	34.1	116.7
R-194	49.3	62.5	-79.3	33.4	7.8	73.7
R-195	10.8	49.1	-29.8	22.2	-3.9	48.4
R-196	50.5	-10.0	-15.8	19.0	28.3	72.0
R-197	28.2	13.2	-18.9	5.0	11.5	39.0
R-198	8.4	19.4	-45.8	35.3	2.8	20.1
R-199	-14.9	3.5	2.6	-1.6	22.7	12.3
R-200	-33.7	12.7	-38.6	31.1	21.5	-7.0
R-201	5.9	0.3	-15.3	28.4	-9.8	9.5
R-202	-18.7	1.3	-27.7	24.3	25.5	4.7
T-203	-27.0	24.3	-56.2	26.8	58.4	26.3
R-204	43.0	20.2	-42.2	32.0	27.5	80.5
Average	**22.9**	**20.9**	**-33.8**	**29.0**	**18.4**	**57.3**

Table 6. Annualized Shoreline Change Summary

	Annualized Shoreline Change (feet/year)					
Profile	Jan 1975 to Oct 1990	Oct 1990 to Apr 2004	Apr 2004 to Nov 2004	Nov 2004 to Oct 2008	Oct 2008 to Aug 2023	Jan 1975 to Aug 2023
R-191	5.3	0.4	-41.2	13.6	3.3	3.5
R-192	4.3	2.6	-44.3	21.1	-1.3	4.7
R-193	4.3	4.1	-92.0	3.7	2.3	2.5
R-194	3.1	4.6	-132.2	8.6	0.5	2.0
R-195	0.7	3.6	-49.7	5.7	-0.3	1.6
R-196	3.2	-0.7	-26.3	4.9	1.9	1.3
R-197	1.8	1.0	-31.5	1.3	0.8	0.8
R-198	0.5	1.4	-76.3	9.1	0.2	0.5
R-199	-0.9	0.3	4.3	-0.4	1.5	-0.3
R-200	-2.1	0.9	-64.3	8.0	1.4	-0.8
R-201	0.4	0.0	-25.5	7.3	-0.7	0.6
R-202	-1.2	0.1	-46.2	6.2	1.7	-0.6
T-203	-1.7	1.8	-93.7	6.9	3.9	-1.0
R-204	2.7	1.5	-70.3	8.2	1.8	1.6
Average	**1.5**	**1.5**	**-56.4**	**7.4**	**1.2**	**1.2**

3.3 Volumetric Change Analysis

While the shoreline can be indicative of the condition of the entire beach profile, a better representation of the beach condition is the volume of sand within the beach profile. For example, natural onshore and offshore movement of sand will occur throughout the year causing the shoreline to move; although the beach can still be in a healthy condition with no volumetric change. A volumetric change analysis from the dune out to -28.0 feet, NAVD (1975 to 2008) and -30 feet NAVD (2008- 2023) describes the total beach profile evolution.

3.3.1 Volume Changes above -30 feet NAVD

Table 7 shows that all of the profiles within the Town of Highland Beach accreted sand between 1975 and 2008. Because only every third profile line was surveyed to -28 feet in 1975, the volumetric changes are aggregated in 3000-foot increments. During this period, the total beach accumulated 2.1M cy.

Table 7. Volumetric Change Summary above -28.0 feet, NAVD

Profile		Distance between Profiles (feet)	Volumetric Change above -28.0 feet, NAVD (cubic yards)		
From	To		Jan 1975 to Oct 1990	Oct 1990 to Oct 2008	Jan 1975 to Oct 2008
Limit of THB	R-191	955	80,000	88,400	168,400
R-191	R-192	1,209	101,200	111,900	213,100
R-192	R-195	2,662	254,900	224,300	479,200
R-195	R-198	3,300	294,400	242,500	536,900
R-198	R-201	3,052	228,700	170,800	399,500
R-201	R-204	3,627	233,100	127,200	360,300
R-204	Limit of THB	175	8,700	5,100	13,800
Total		**14,980**	**1,201,000**	**970,200**	**2,171,200**

Table 8 shows the volumetric changes between 2008 and 2023 above the -30 feet NAVD contour. While the overall beach accumulated 263,000 cy of sand during this 15-year period, there were small losses of sand within the profiles at the northern end of Town. The largest accumulations were at the south end of the Town. The accumulation of sand between R-203 and R-204 is more influenced by the City of Boca Raton's beach conditions as profile R-204 is south of Yamato Rock which restricts sand movements in both directions. The City nourished their northern beaches in 2010, 2014, and in 2020; thereby contributing to the condition of profile R-204.

Table 8. Volumetric Change Between 2008 and 2023 above -30.0 feet, NAVD

Profile Area	Distance (ft)	Volumetric Changes (cy) DOC
R-191 to R-192	1,208	7,617
R-192 to R-193	1,233	-5,799
R-193 to R-194	778	-2,675
R-194 to R-195	640	-3,901
R-195 to R-196	1,341	7,154
R-196 to R-197	850	10,897
R-197 to R-198	1,107	25,953
R-198 to R-199	1,087	31,024
R-199 to R-200	858	20,069
R-200 to R-201	1,104	13,221
R-201 to R-202	1,157	29,974
R-202 to T-203	1,112	64,713
T-203 to R-204	1,352	64,687
Project Area (R-191 to R-204)	**13,827**	**262,934**

Over the long term (Table 7), there is a general trend of greater accretion at the north end of the Town and less accretion at the south end of the Town. This again suggests that the volumetric increase is a function of sand migrating south from the Town from Delray Beach. Delray Beach has placed in excess of 6.25M cubic yards of sand on their beach since 1973, so approximately 1/3 of this volume has moved into the Town of Highland Beach. Examining the beach profiles in Appendix A suggests that the majority of this sediment has stayed in the offshore portion of the profile. While sand in the offshore profile does not provide direct protection of the upland infrastructure, it supports a gradual sloping profile which supports offshore wave breaking and reduced wave energy that reaches the dry beach. Well-nourished offshore beach profiles will assist in stabilizing any sand placed above mean high water by upland property owners.

3.3.2 Volumetric Changes Above Mean High Water

Although the Town's beach has benefited from the accumulation of sediment from the north, the natural offshore transport (during storms, for instance) has not resulted in year-over-year beach berm growth, nor facilitated natural dune build-up. To demonstrate this finding further, a volumetric analysis was performed that showed the beach volumetric gain above mean high water (0.44 feet, NAVD) was only 84,900 cubic yards between 1975 and 2008, which is around 4% of the total volumetric gain. Since 2008, the beach and dune above mean high water has gained 67,000 cubic yards (Table 9). While this represents approximately 26% of the total gain during the same time frame, it represents only 2 cy/ft of beach on average, which should be considered minimal.

Table 9. Volumetric Change Summary Above Mean High Water (+0.44 feet, NAVD)

Profile		Distance between Profiles (feet)	NEW Distance between Profiles (feet)	Volumetric Change above +0.44 feet, NAVD (cubic yards)	
From	To			Jan 1975 to Oct 2008	Oct 2008 to Aug 2023
R-191	R-192	1,209	1,208	41,900	9,795
R-192	R-193	1,238	1,233	19,700	4,973
R-193	R-194	781	778	9,700	2,612
R-194	R-195	643	640	19,100	-1,274
R-195	R-196	1,341	1,341	31,600	71
R-196	R-197	851	850	8,300	1,601
R-197	R-198	1,108	1,107	9,400	7,739
R-198	R-199	1,090	1,087	-3,200	8,467
R-199	R-200	858	858	-8,100	1,690
R-200	R-201	1,105	1,104	-400	-920
R-201	R-202	1,157	1,157	-21,500	-1,192
R-202	T-203	1,111	1,112	-25,600	12,169
T-203	R-204	1,358	1,352	4,000	20,931
Total		**13,850**	**13,827**	**84,900**	**66,662**

3.4 Environmental Resources

As described in CB&I (2013), there are numerous rock out crops (hardbottom) throughout the Town of Highland Beach. The nearshore hardbottom resources within Highland Beach are part of the Nearshore Ridge Complex (NRC), a combination of shallow colonized pavement and ridges of relatively flat, low-relief carbonate rock (Walker, 2012). Most of the exposed rock is located at the south end of the Town, the most prominent being Yamato Rock.

The NRC potentially serves a variety of ecosystem functions, including settlement and nursery areas, spawning sites, feeding areas, and shelter for hundreds of species of macroalgae, fish and invertebrates such as stony corals and octocorals (Lindeman *et al.*, 2009; Lindeman and Snyder, 1999). The hardbottom resources adjacent to Highland Beach are located in the intertidal and subtidal zones and are subject to high wave energy and constant sand movement. The benthic community is generally dominated by turf algae and macroalgae, with invertebrates including tunicates and sponges. It is characterized by a low-density coral community, predominantly of small colonies of *Siderastrea* spp. (less than 2 cm), a species that dominates the nearshore habitat of south Florida and is considered relatively sediment tolerant (Lirman *et al.*, 2002).

Much of this hardbottom is ephemeral in nature but is important for the environmental system and must be considered when evaluating beach restoration alternatives within the Town. There are around 1.2 acres of nearshore hardbottom within the Town.

4. EXISTING BEACH AND DUNE CONDITIONS

Beach observations were conducted in August and September 2023 to document the condition of the visible or dry portion of the beach and dune system. The observations were performed on a property-by-property basis. Details are provided in Appendix B. In the following sections, are descriptions of select areas which were felt to be representative of various sections of Highland Beach.

4.1 2355 to 2545 South Ocean Boulevard

The beach in the northernmost quarter mile of the Town is backed by single family homes (2355 to 2545 South Ocean Boulevard). There is a well-developed, vegetated dune system with the crest elevation of the dune between 13.5 feet and 15 feet NAVD, which is in excess of the 100 year return period storm surge (Table 4). The beach was wide with a berm and a mild foreshore slope; however, at the Delray Beach-Highland Beach municipal boundary, the seaward berm was observed to have a higher elevation, with 20 inches of berm scarp at 2355 South Ocean Boulevard (Photo 1). This scarp diminishes to the south. The dune in this area appears to have 1-2.5 feet of scarp, where the waves have washed up over the berm (Photo 2). Historic wrack lines were observed at the toe of the dune as well as the mid-berm trough. Profile R-191 is representative of this stretch of beach. Profiles comparing the beach condition in October 2008 and August 2023 can be found in Appendix A.

Photo 1. View looking south at the Highland Beach-Delray Beach municipal boundary. The berm has an approximate 20-inch scarp which diminishes to the south.

Photo 2. Eroded dune face with historical wrack lines at the toe of the dune.

4.2 2575 to 3407 South Ocean Boulevard

The next mile of beach (2575 to 3407 South Ocean Boulevard, Townhouses of Highland Beach Condominium to the Clarendon Condominium) is composed primarily of condominiums apart from the Delray Sands serving as the only oceanfront resort in Highland Beach. There is a vegetated dune throughout this area, however it varies from 75 to 100 feet wide in the northern section to 40 feet wide in front of the Ambassadors Condominiums. Most of the dune in this area exhibited scarps or dune face erosion at the base of the vegetation (Photo 3). The beach in front of the vegetated dune varied from 60 to 90 feet. The beach had a berm and relatively flat foreshore slope indicative of a healthy beach profile. However, some minor berm scarps were observed fronting the property of 2575 (Townhouses of Highland Beach) ranging from 6-10 inches across the property. Profiles R-192 (Photos 4 and 5) through R-196 show the historic beach cross-sections in this section of the beach (Photos 6 and 7).

Photo 3. (From right to left) The scarped dune toe in front of Ocean Pines Condo. The scarped dune toe is hidden behind the seagrapes in front of Ocean Dunes Condo.

Photo 4. Southerly view of the beach berm and dune near R-192.

Photo 5. View of the beach berm and dune near R-192 looking north.

Photo 6. View looking south along the beach in front of the Delray Sands. Note the berm and mild foreshore slope.

Photo 7. View to the north along the beach in front of the Ambassadors South Condo. Note the scarped dune face and dune toe.

4.3 3419 to 3907 South Ocean Boulevard

The section of beach from 3419 to 3907 South Ocean Boulevard is approximately 0.55 miles long and is mostly composed of single-family homes except for a few condos at the north end (Le Sanctuaire, Villanova, Villas at Highland Beach Ocean Reef Condo, and Ocean Villas Condo). This section also contains the beach club for Toscana and the beach access of the Highland Beach Club. Thus, there is a high recreational value for the beach in this section.

Along this section of the Town's shoreline, sections of the dunes are well vegetated, however, some areas have been undermined at the base of the vegetation and some dune scarps were visible along the shoreline (Photo 8). The elevation of the dune ranges from +15 feet, NAVD to +23 feet, NAVD. Profile R-199 had a lower dune elevation at +12 feet, NAVD, which provides limited protection.

Photo 8. Dune face scarping is resulting in undermining of the dune vegetation[1] in front of 3715 South Ocean Boulevard.

[1] Dune vegetation is often a continuous transition from pioneer species to back dune species. Pioneer species usually includes sea oats, marsh hay cordgrass, and railroad vine, which are best suited to be immediately behind the beach. Back dune species include seagrapes, which are shallow rooted, but grow well within Palm Beach County. The presence of seagrapes on an eroded dune face or toe may be problematic. While the species will grow in the pioneer zone (Photo 8), it does not utilize a deep root system to handle the fluctuating sand elevations that accompany being at the landward edge of the beach. Further discussion regarding seagrapes is included in Appendix C.

4.4 3912 to 4307 South Ocean Boulevard

The section of beach from 3912 South Ocean Boulevard, Regency Highland Club to 4307 South Ocean Boulevard, consists primarily of single-family homes and low-density condominiums (Ocean Place Villas). The Regency Highland Club has a beach access in this reach. The beach is sufficiently wide to provide recreational benefits to the Club's 210 units.

Only two homes do not have a vegetated dune in front of their property (3921 and 4001 South Ocean Boulevard). All the other properties have a vegetated dune though the width and height vary. The beach is slightly wider compared to the 2008 profiles of this area (with the exception of R-201, where the shoreline position has moved landward). Nevertheless, the beach is relatively narrow, the dunes are not sustainable over the long term, and the dunes can be impacted by a major storm event. However, the beach in this section will provide some storm damage protection benefits to the homes under higher frequency, low intensity storms.

Persistent hardbottom first appears in this reach (Photos 9 and 10). In Photo 9, the outcrop in this area acts as a breakwater, holding the sand up on the adjacent property. In Photo 10, the rock outcrop functions more like a low-profile groin with a wider beach on the north side of the outcrop fronting 4201 and a receded shoreline on the south side of the outcrop, fronting Ocean Place Villas.

Photo 9. Looking north, the exposed hardbottom observed in front of the Regency Highland Club and 3907 South Ocean Boulevard.

Photo 10. Looking north, the beach narrows to the south of the outcrop, fronting Ocean Place Villas.

4.5 Ocean Place Estates to the South Town Limit

The 0.62 miles at the south end of the Town extending from the Ocean Place Estates to the Admiral Walk Towers beach access, south of Yamato Rock, consists primarily of single-family homes, townhomes, and low-density condominiums (Parker Highland Condominium). The beach has a sufficient berm and a relatively flat foreshore. There were some areas of exposed hardbottom observed in the swash zone for this stretch.

There are several properties in Ocean Place Estates which exhibited severe scarping of the dunes (Photo 11); however, some properties have recently re-established a planted dune. While the dune erosion is prevalent, there is a buried seawall in front of the homes to provide secondary protection.

The 45 Ocean Condominium is the only property that does not have a vegetated dune in front of their property. The seawall encompassing the property varies in height, with the lowest section of the wall being 6.5-7 feet above the berm. All the other properties in this stretch have a vegetated dune though the width and height vary.

The next stretch of properties located to the north of Yamato Rock, consist of single-family homes, townhomes, and the Parker Highland Condominium. These properties have higher, vegetated dunes, except for the 4515-4519 townhomes, where the dune fronting this property is approximately 3-4 feet lower than the adjacent properties. Although the remaining properties have densely vegetated, high dunes, undermining is occurring at the base of these plants, with ~4-5 feet of scarp in some areas (Photo 12).

Photo 11. The most significant erosion observed in the Ocean Place Estates.

Photo 12. Some properties to the north of Yamato Rock have densely vegetated, high dunes; however, undermining is occurring at the base of these plants, with ~4-5 feet of scarp in some areas north of the stairs.

South of Yamato Rock, the beach is stable and healthy, and the three properties (4713, 4715 and 4801 South Ocean Boulevard) have a 50-foot-wide vegetated dune and an approximate 80 to 100-foot beach in front of the structures (Photo 13). Historically, this section of beach has benefited from the North Boca Raton Beach nourishment projects constructed in 1988, 1998, 2010, 2014, and 2020.

The beach access for the Admiral Walk Towers is at the limits of Highland Beach, with a 100-foot-wide vegetated dune with no structures present on this beach parcel. While the dune is wide in this area, the dune crest is at approximately +10 feet, NAVD (FDEP profile R-204, Appendix A), which is the lowest dune in Highland Beach. The dune crest is at the elevation of 100-year return period storm surge (Photo 14).

Photo 13. View of the beach looking south at Yamato Rock.

Photo 14. West view of the two single family homes and a portion of the Boca Highland Beach Club. Note the elevation of the dune relative to the adjacent Milani Park parcel.

5. PROBLEM IDENTIFICATION AND ALTERNATIVES

The preceding review of historic beach changes suggests that the Town's beaches are performing well overall. They have benefited from the beach nourishment projects constructed in Delray Beach and the City of Boca Raton and the natural north to south transport of sand. This natural movement of sand has widened the beaches at the north end of the Town and resulted in a relatively stable beach in the center of the Town.

The field observation of the beach suggests the following:

- that the berm elevations are lower (than Delray Beach);
- many of the dune toes are scarped;
- there are numerous wrack lines in the vicinity of the toe of the dune, which indicate where the wave uprush limits are occurring in recent timeframes;
- and the nearshore hardbottoms in the south end of the Town act like semi permeable groins-stabilizing sand on the north side and increasing local erosional stresses on the southside.

This alternative picture indicates that the Town's beaches have been subject to episodic storms and erosional events. Coupled with long-term sea-level rise, the occurrence of impacts to the upper dry beach and dune system should be expected to continue to occur and may worsen over the long term. As the beaches are not excessively wide, there is insufficient sand available to transport landward to the dunes as a result of onshore winds. Therefore, any natural onshore/offshore sediment transport cycling that may occur (in Delray Beach, for example), should not be expected to occur in Highland Beach.

To address both short-term and longer-term beach and dune needs, the following options, undertaken by the Town or by individual property owners are available:

5.1 No Action by the Town of Highland Beach

The Town's beaches can be viewed as performing relatively well and no infrastructure is under imminent threat. The No Action alternative is a non-proactive approach to beach and dune management or is an acknowledgment that any Town wide repairs (including engineering and permitting) to the beach and dune can be accomplished post-storm. Individual residents are responsible to respond to any future storm events, and to the long-term effects of sea-level rise on their property. There is no immediate cost to the Town under this alternative. If the current trend in sea-level rise continues, this alternative will become less feasible as storm action will cause more impacts to the beach berm (if present), and the dunes. Permanent impacts to vegetation will occur.

5.2 No Action by Private Residents

The Town's beaches can be viewed as performing relatively well and no infrastructure is under imminent threat. Individual owners may elect to take no action with a low risk of storm impact over the short term. If the current trend in sea-level rise continues, this alternative will become less feasible as storm action will cause more impacts to the beach berm (if present), and the dunes. Permanent impacts to vegetation will occur. A perceived loss of upland property may or will occur. There is no immediate cost to the individual owners under this alternative.

Select properties in the south end of the Town have a history of restoring their dunes due to a combination of storm action, and nearshore rock interruptions of sediment transport. For those properties, this alternative is not recommended.

The two single family homes and the Boca Highland Beach Club at the south end of Town have the lowest dune elevations in the Town. For those properties, this alternative is not recommended.

5.3 Dune Toe Enhancement

The majority of the dunes within the Town exhibit impacts to the seaward toe of the dune (Photos, 2, 3, 6, 7, 8, and 11). These impacts are associated with annual storm events or storms of similar size. If the current trend in sea-level rise continues, these storm and erosion events may become more frequent. To offset the long-term impact from repetitive storm events, a restoration of the toe of the dune could be accomplished with small placements of beach compatible sand (~2 cy/ft)

and vegetative restoration to prevent or reduce windblown sand transport. This could be accomplished on a Town wide or individual property basis. Sand would need to be replaced every few years as storm impacts (continue to) occur. General recommendations for individual properties are provided in Appendix B. Specific vegetation discussions are included in Appendix C.

5.3.1 Regulatory Requirements

Reconstruction of the dunes using sand from upland borrow sources can be permitted as a FDEP field permit. For quantities less than 200 cubic yards, individual property owners can apply for, and be issued a permit by the FDEP's field representative, who is based in West Palm Beach.

Permits for volumes more than 200 cubic yards are issued as a field permit by FDEP staff in Tallahassee. The basic permit requirements are for the sand to be beach compatible.

5.3.2 Post-Storm Regulatory Procedures

Following significant storm events, such as a tropical storm or severe northeaster, the FDEP may issue an Emergency Order. A typical Emergency Order allows the Town to issue permits to individual property owners in lieu of an FDEP permit and allows:

- Activities to secure structures for safety purposes.
- Restoration of a damaged dune system using beach compatible sand.

Emergency orders are usually issued on a Countywide basis and are posted on FDEP's website. Permit conditions and/or restrictions are included in the Emergency Order.

This alternative is the recommended near-term alternative. It can repair damage to the toe of the existing dunes and raise the berm elevation of the dry beach. This alternative is best implemented on a Town wide scale, but individual owners (or groups of adjacent owners) could implement parts of the recommendations to best protect their properties, if the Town elects not to act.

5.3.3 Construction Challenges

Delivering sand to any property within Highland Beach can be challenging due to limited public or private access points (discussed later). Small quantities may be transported via driveways and limited side yards via a bobcat or similar equipment. Some contractors have narrow conveyor belt systems to transport sand over the dune. These can be installed adjacent to houses. If there is no access across an individual property, delivering sand via distant access points and along the beach can be accomplished between November 1 and February 28 (outside of sea turtle nesting season).

Given that dune toe restorations are typically performed on a small scale (up to a dozen truck loads per owner), there is limited impact on the Town's infrastructure or traffic patterns.

5.3.4 Opinion of Probable Construction Cost

The cost of small-scale operations can be estimated at $100 per linear foot of dune with additional cost due to potential limited access for construction equipment and sand delivery.

5.4 Dune Restoration and Dry Beach Enhancement

As indicated in previous sections, the dune toes have been impacted and the beach berms are lower in elevation than may be prudent considering episodic storm events, king tides, and long-term sea-level trends. A Town wide dune and dry beach restoration and enhancement project could be developed to increase storm damage prevention to upland infrastructure. A minimum dune template would be developed for various sections of the Town that would meet the needs of the upland property owners. It is possible that a proposed dune section would be completely encompassed by the current beach and dune profile such that the project would not need to be constructed at a given location at this time. For programmatic purposes, the minimum recommended dune and dry beach nourishment volume is six (6) cubic yards/foot. This equates to a fill volume of approximately 90,000 cubic yards. For planning purposes, sand would be obtained from inland sand mines and trucked to the project site. The scale of this project would best be accomplished by the Town on behalf of its residents.

There are several advantages to this approach:

- Once engineered and constructed, the Town could apply for FEMA reimbursement to rebuild the dunes if the project was impacted by a large storm event and the County was included in a Federal Emergency Declaration.
- This project would be constructed via truck haul allowing small quantities to be placed in discrete locations.
- By limiting sand placement above mean high water, the effort to obtain a permit is reduced.
- There are no impacts to the riparian rights of the upland property owners. Upland property owners currently own the land to the mean high water, and they would retain this right.

The disadvantages to this approach include:

- Sand would only be placed above mean high water limiting the volume of sand that could be placed and limiting the storm protective value of the nourishment.
- There would be no seaward shift of the shoreline and thus no increase in recreational space along the beach.
- The cost of upland sand placement has a high per cubic yard cost due to the cost of transporting the sand from inland mines to the project site.
- A significant level of coordination will be required by the Town to develop, administer, and maintain the permit.

- Sand placed on the dry beach will be impacted during annual storm events. While contributing to storm protection, some of the sand may erode immediately. There may be negative public comments as a result.
- The project will occur on private property. This will require temporary construction easements to place sand on the beach and to allow construction equipment and labor to work along the beach. A unified effort by the residents to provide easements will be required.

5.4.1 Regulatory Requirements

FDEP permits would be required under 62B-33, F.A.C., or 62b-41, F.A.C. as determined by FDEP staff in Tallahassee based on potential impacts to nearshore hardbottoms. All construction activity would be restricted to occur outside of sea turtle nesting season.

However, in the case of a storm event, the Town would hold a permit to reconstruct the dunes and dry beach in the impacted area. As with beach nourishment designs, the Town holding a permit in hand greatly expedites restoring the dune after a major storm event.

Despite efforts to minimize impacts, there may be perceptions of potential environmental impacts to nearshore hardbottoms. These impacts may require mitigation or substantive design modifications.

5.4.2 Construction Challenges

Delivering sand to any property within Highland Beach can be challenging due to limited public or private access points. If there is no access across an individual property, delivering sand via distant access points and along the beach can be accomplished between November 1 and February 28 (outside of sea turtle nesting season). While there are multiple accessible locations to deliver sand to the beach, most are privately owned, and some have constructability issues for their use during sand delivery. The Town should seek out willing owners to develop sand delivery points within the Town. Otherwise, the Town will need to negotiate use of adjacent municipalities access points, which will likely come with their own conditions for use.

Given the scope of the dune and dry beach nourishment, and the likely requirement to construct the project outside of sea turtle nesting season, limited impacts to Town traffic patterns should be expected.

5.4.3 Probable Construction Cost

For a 90,000 cy dune and dry beach nourishment, the project will be best constructed using truck hauled inland sands. As discussed above, there are limited locations to deliver sand to the beach and will require relative long alongshore haul distances to place the sand. A unit cost of $45/ton (1.4 tons/cy) will result in a $5.75M project cost.

5.5 Beach Nourishment Project

CB&I (2013) recommended the following alternative:

A beach nourishment project would likely involve advancing the shoreline seaward by approximately 50 feet as this is a similar design cross section used in Delray Beach and North Boca Raton projects. This would provide greater storm damage reduction and recreational benefits to Highland Beach residents. Delray Beach and North Boca Raton have wider beaches than this to account for their local background erosion rates, but the Town of Highland Beach has a relatively stable beach and would not require this additional fill. The design berm elevation of the Delray Beach and North Boca Raton beach nourishment projects is at +7.5 feet, NAVD and a similar berm crest elevation is proposed for the Town of Highland Beach. The approximate fill volume required to construct this template throughout the entire 2.84 miles of the Town is approximately 1.0M cubic yards.

The beach nourishment would be built wider than the 50-foot design width for constructability purposes. The construction template will erode as sand is shifted offshore. This process might take up to a year, though a large storm would speed the "equilibration" process.

The cost to construct this project in 2024 would be approximately $14M. This includes a mobilization cost of $4.0M and a unit cost of $10.00 per cubic yard. It would be possible to reduce this cost by sharing in the mobilization cost with either Boca Raton or Delray Beach when they construct their next project. The permit for initial construction of such a project is good for five (5) years, providing time to coordinate with your neighboring municipalities.

Some of the advantages of a full beach nourishment project include:

- The project would provide significant storm damage reduction benefits.
- The project would provide additional recreational benefits.
- The Town could apply for FEMA reimbursement to rebuild a portion of the project if the project was impacted by a large storm event and Palm Beach County was included in a Federal Emergency Declaration.
- The unit cost for this type of fill is much lower than a truck haul project.

The disadvantages of a beach nourishment project:

- A nourished beach becomes State land seaward of the pre-construction mean high water line. An Erosion Control Line (ECL) is established as part of the permitting process, which is the mean high-water line prior to construction of the project. This becomes the seaward property line of each upland property owner. Dry beach seaward of the ECL is State owned (public) land. Some upland property owners may object to the loss of one of their riparian rights between the ECL and the mean high-water line.
- There is a high capital outlay for the construction of the project.

5.5.1 Regulatory Considerations

Environmental permits will be required by both FDEP and the U.S. Army Corps of Engineers. Permitting may take at least one (1) year to obtain once a design has been established.

The persistent hardbottom at the south end of Town will present some permitting challenges. While the acreage of impacted nearshore rock is low (approximately 1.2 acres) the permitting agencies may require avoidance of some of this rock (specifically Yamato Rock) or mitigation in the form of an offshore artificial reef. For planning purposes, mitigation costs are nominally $1M to $1.5M/acre. Avoiding some of this rock will be difficult to implement or will restrict the nourishment volume greatly such that the effectiveness of any remaining nourishment volume in this avoidance area is reduced.

5.5.2 Sand Source

APTIM (and its legacy firms) has performed considerable offshore sand search investigations for the cities of Boca Raton and Delray Beach and is confident that sufficient sand resources are available directly offshore of the Town of Highland Beach. The USACE (2012) has collected data further north and directly offshore of the Town of Highland Beach. The data confirmed that the same sand feature dredged to construct the North Boca Raton Project extends further into the Town of Highland Beach though a detailed investigation of this potential source still needs to be performed.

5.5.3 Summary

This is the recommended long-term alternative. It ensures that sufficient storm damage protection is present and recreational areas are available throughout the Town. The beach berm design can be increased over the coming decades to address sea level rise.

6. COASTAL STRUCTURES

Coastal structures are appealing because it is assumed that they prevent sand from washing away. In reality, coastal structures simply redistribute sand within a littoral cell. For example, building a groin will hold additional sand on the north (updrift) side of the groin, but that sand will be deprived from the south side of the groin causing an erosional area. This concept is evident in some of the nearshore rock outcrops in the south end of Town (Photo 13). There is no additional sand introduced into the system as is the case with a beach nourishment project. Strategic use of coastal structures is possible in areas that have alternating areas of erosion and accretion. The concept is to reduce the erosion in one area by reducing accretion in another. Strategic use of coastal structures can also be successful if implemented with beach nourishment. Various coastal structures were evaluated within the Town of Highland Beach based on these concepts.

6.1 Groins

Groins are shore perpendicular structures that work by intercepting sand flowing along the shoreline. They generally result in a saw-toothed pattern in the shoreline with sand building up on the north side of the groin (in the case of Town of Highland Beach) and a corresponding recession

in the shoreline on the south side of the groin. The groins are designed such that the downdrift shoreline location meets the design beach goals. They are often constructed in conjunction with a beach nourishment project to mitigate initial downdrift erosion and shoreline retreat (i.e., pre-fill the groin field).

In Highland Beach, the shoreline is quasi uniform and there are no areas that are well suited to the construction of a single groin or a groin field (multiple groins). The beach is currently receiving the downdrift benefits of the Delray Beach nourishment project and the insertion of groins in the northern section of the Town will interrupt the current long-term benefit.

Groins can be constructed of either rubblemound structures which can be pricey, or concrete piles with concrete panels, which can be economically efficient.

6.2 Emergent Offshore Breakwaters

Breakwaters are shore parallel rock structures with crests above the water. They provide protection to the shoreline by waves breaking directly against the structure and providing shelter to the shoreline in its lee. Wave energy is dissipated in the gap due to diffraction of the wave energy. The breakwaters will hold sand behind them at the expense of the sandy beach adjacent to the breakwater. The shoreline then has a cuspate shape. Given that the shoreline along the Town of Highland Beach is currently relatively stable along the northern half to two thirds, a breakwater field is not a recommended option in this area due to potential changes to the alongshore sediment transport. The application of breakwaters in the southern third of the Town could be considered but must work in concert with the existing nearshore hardbottoms which will be technically challenging to optimize the beach benefits while minimizing environmental impacts. As the erosion in the south part of the Town is localized, and may be episodic, only select breakwaters could possibly be required. Permitting such structures in environmental sensitive area has proven to be difficult.

6.3 Submerged Offshore Breakwaters

A submerged rock breakwater has a crest below mean low water while an emergent breakwater typically has a breakwater crest a few feet above mean high water. The benefit of a submerged structure is that there are fewer concerns with negative impacts to sea turtle nesting. Also, because the structure is submerged it does not have the same aesthetic concerns as an emergent structure.

The drawback of a submerged structure is that it is not nearly as effective as an emergent structure. They have to be much wider than an emergent breakwater to be effective and are similar in cost, if not more expensive. They can be hazardous to boats and will have to be marked with navigation warning signs. Lastly, they have the potential to initiate rip currents between submerged structures because waves break over the structure, but the return flow is restricted by the structure. This flow will then be funneled towards a gap between the structures resulting in a recurrent rip current. For longer, continuous submerged structures, an alongshore current can be created due to wave setup across the structure resulting in an erosional stress on the shoreline. Thus, there are substantive design challenges. There is only one set of submerged offshore breakwaters in the State and their condition is such that the effectiveness has diminished.

Considering the long-term sea-level rise trends and projections, the effectiveness of such a structure will diminish with time resulting in a need for future rehabilitation. This structure is not appropriate for Highland Beach.

6.4 Patented Technologies

There are several "patented technologies" that claim to prevent shoreline erosion and build beaches. These are often marketed as having no downdrift impacts or negative environmental benefits. We caution considering the installation these "technologies". The FDEP regularly reviews these claims, requiring a permitting process and peer review of any field tests. We recommend the Town ask the FDEP's opinion of their performance, if approached.

6.5 Coastal Structures Summary

Coastal structures are not recommended for implementation by the Town given the stable to accretional nature of the shoreline, uniform longshore transport rate, and no definable erosion hot spots. The cost of the structures will exceed the benefit.

Individual property owners may want to consider structures in front of their property in order to expand the dry beach width. We recommend that the Town advise the property owner to investigate this possibility at the property owner's cost. The Town will be required to provide a finding of consistency with the Town's Coastal Management Plan as part of the owner's FDEP permit application process. The individual property owner should submit the engineering design basis to the Town for review prior to the Town providing such a letter. This (APTIM's) report should not be viewed as a definitive negative response for such applications. As stated previously, strategic use of structures can be beneficial but must be carefully designed and monitored. There is no Town benefit for the installation of coastal structures at this time.

7. FUNDING MECHANISMS

The cost of coastal protection efforts is significant and may strain the Town's Capital Improvement budget. This section discusses other possible funding sources and mechanisms.

7.1 Federal Funding

Some of the beach nourishment projects around the State of Florida are cost shared by the Federal Government through the U.S. Army Corps of Engineers (USACE). North Boca Raton and Delray Beach are two examples of projects with Federal funding programs. This program includes a complicated design and approval process and requires several years to develop documents to support this funding. The Town is located within the general authorized limits of 1962 Palm Beach County federal authority (House Document 164/87/1), but at present no federal project has been designated due to the lack of public beach access within the Town (USACE, 1987). It is highly unlikely that the Town would successfully obtain Federal funding. If the County were to construct the park at the south end of Town and have sufficient parking on the west side of A1A, Federal funding would still be limited to less than 10% of the total construction cost because of the limited alongshore distance that this public access would provide.

7.2 State Funding

The State of Florida recognizes the benefit of beaches for storm damage protection and supporting the tourism industry. The Beach Management Funding Assistance Program (Chapter 161,F.S., 62B-36, F.A.C.) is funded based on State taxes and administered through the FDEP. The funding for the program is used to support the Department and provide construction funds to eligible projects. The State will cost share up to 50% of the non-Federal cost on eligible beaches. Eligibility is described in the following sections.

First, the State will only fund beaches that are deemed to be "critically eroded". The Town of Highland Beach is not currently deemed to be a critically eroded shoreline. Given the Town's history of shoreline advance since 1975, as documented in Section 3 of this report, convincing the FDEP that the shoreline is critically eroded may be challenging.

Second, the State has a beach access requirement for receiving State funds. A "primary beach access", defined as a beach access with at least 100 public parking places and public restrooms, will allow for funding of a beach project up to ½ mile from the access. A "secondary beach access", defined as an access that may have public amenities but does not qualify as primary access, will provide for funding based on the number of available public parking places. Given that there are currently no public beach access points within the Town, State funding is not a potential funding source at this time. Construction of the County Park would open the potential for State funding but depending on the type and size of the park, funding would still be limited to the portion of the project within ½ mile of the park.

In summary, it is unlikely that the Town will be successful in securing State funding.

7.3 County Funding

Palm Beach County funds their beach program using a portion of the funds collected through the Tourist Development Tax (or "Bed Tax"). This is a 6% tax on any short-term rental. The County follows the same criteria that the State uses to allocate funds between projects. Again, the lack of current public beach access will thwart any Town request for County funding assistance. If the County Park were to be constructed, funding might still be limited as they use the State's ranking criteria.

7.4 Town Funding Methods

Given the low probability of receiving Federal, State or County funding, the Town will have to fund any beach and dune initiatives themselves. Several options are available to the Town and are discussed in the following sections. Table 10 shows a range of funding alternatives that the Town could use to raise funds locally for a beach program. Often each local government identifies a funding mechanism that is unique to their Town. Principal methods employed are discussed below.

7.4.1 Ad Valorem Tax

The Town could petition the Board of County Commissioners to levy a separate Ad Valorem tax or to increase the millage rate on all Town property to generate additional revenue to pay for the project. The general revenue approach would have all Town

property owners (regardless of whether they reside on the ocean or elsewhere in Town) pay for the project in proportion to the assessed value of their property. The County would collect the tax and then turn this over to the Town to administer.

Ad Valorem taxes can be pledged as security for a Town issued bond to pay for a beach project. Voter approval would be needed at a referendum for the Town to issue a bond to pay the costs of the project.

7.4.2 Erosion Prevention District

The State Legislature may create a separate beach and shore preservation district. The district would be self-governed by a Board of Directors who are residents in the district. In Longboat Key, taxing is setup such that those properties located west (seaward) of Gulf of Mexico Drive pay 80% of the required funding while those on the east side pay 20%. A similar mechanism could be considered by the Town with those located east of South Ocean Boulevard paying a larger percentage because they have greater benefit due to having ocean front property.

7.4.3 Municipal Services Benefit Unit (MSBU)

MSBU's are authorized by FS 125. A petition by the majority of the property owners to the Board of County Commissioners is required in order to pass an ordinance establishing the MSBU. Public hearings are held to levy the assessment. MSBU's do not require a vote by referendum and involve only property owners. This is beneficial because property owners may visit seasonally and have their voter registration in another State. An MSBU will allow them to be included in the process. Once established, the MSBU has taxing and assessing authority, and bonding and borrowing capability, using assessed property values as security.

Table 10. Alternative Local Funding Mechanisms (from Stevens & Assoc, 1986)

	ALTERNATIVE	DESCRIPTION	HOW ESTABLISHED	PROS	CONS
1.	Ad Valorem Tax	Uniform Property Tax	Budgetary Process	Existing authority	Non- continuous source; competition w/others; Poor Management
2.	Bonding	Selling bonds to create revenue - bond retired by Ad Valorem Tax	Referendum	New revenue covers large initial costs	Non- continuous source; time delays; confined to specific projects; poor tool for management and planning
3.	Independent Special Taxing Districts	Independent Gov't established by Legislature to collect property tax for special purpose	By act of Legislature	Continuous source of funds	New government added -not favored by Legislature; voter dependent
4.	Dependent Special Taxing District	Ad Valorem tax collected and administered by the County for a special purpose	By act of Legislature	Ability to fund projects	Limited by total County capital of 10 mils subject to political climate
5.	Municipal Service Taxing Unit (MSTU)	Property tax of a specific area for service	By petition of property owners; local authority under FS 125	Existing authorization; not project limited	Taxes only in improved area, adjacent property owners
6.	Municipal Service Benefit Unit (MSBU)	Special assessments of benefitted properties	Petitions of majority of property owners	Existing authority; no competition with others	Project limited; difficult to establish
7.	Erosion Prevention Districts (FS 161)	A dependent taxing district collecting property taxes	Established by ordinance of the County under FS161	Existing authorization; benefit zones can be taxed differently	Included in total County millage cap; politically affected
8.	Private Funding	Donations	By mutual agreement	Addresses needs of private property	Not practical for countywide funding
9.	Parking Meters and Park Feed	User Fees	Locally initiated	User benefits = pay	Private benefit is not assessed; limited funding
10.	Beach Management Districts (Regional)	Larger government spanning a number of Counties with property taxing authority	State Legislature	Stable funding source; larger tax base; not politically motivated	Funds may be disproportionately used

8. IMPLEMENTATION OF REGIONAL CLIMATE CHANGE RECOMMENDATIONS RELATIVE TO THE TOWN'S BEACHES AND DUNES

Appendix 4 of the Coastal Resilience Partnership (CRP, 2021) report on regional climate change outlines a series of Town specific goals to increase the resiliency and sustainability of the Town in the face of climatic change. These goals are broad, and in some cases, lack specific action items for the Town or its individual property owners. This section correlates the previously described beach and dune alternatives with the CRP goals and allows for further consideration of the potential for long term climatic change to influence the Town's beach and dune preservation efforts.

While the CRP's Appendix 4 recommendations address the potential for storm surge (with or without sea level rise) to affect the Town, the impacts and strategies discussed are focused on the effects of storm surge and sea level rise to flood the Town via the Intracoastal Waterway and not directly from the beach and dune system. The majority of the current dune system is sufficiently elevated and wide enough to prevent overtopping of the dunes by expected storm surge and flooding the Town directly from the Atlantic Ocean.

Nevertheless, the Town residents who live along the Ocean are subject to direct storm surge (with or without sea level rise) and its potential effects on the dry beach, and dunes. Storm surge will cause erosion of the dunes which offer protection to upland private infrastructure. The efforts described above to protect the dunes against storm surge and sea level rise are compatible with the general recommendations of Appendix 4 of the CRP vulnerability assessment.

9. SUMMARY AND RECOMMENDATIONS

The beach in the Town of Highland Beach has benefited from the beach nourishment projects in Delray Beach and to a lesser extent Boca Raton. The shoreline has advanced an average of over 1 foot/year since 1975. The beach at the north end of the Town has advanced the most while the beach at the south end of the Town has mildly receded. Overall, the beach is in good condition and does not have an immediate need for a renourishment project.

However, many of the upland properties have suffered minor losses of sand from the dune toes and dune faces. While the shoreline will recover from episodic storm events, upland property owners will have to independently address damage to the dune system because the dunes will not recover naturally in a short period of time.

Two recommendations are provided to the Town:

1. Near Term. Construct a dune toe repair project and/or dry beach nourishment. This will restore the storm protective capacity of the beach and dune system. Maintaining this project will offset the effects of sea level rise. If the Town elects not to pursue the dune toe repair or the dry beach nourishment, individual owners may consider implementing the dune toe repair on a property-by-property basis.

2. Long Term. Construct a beach nourishment project with sand on the dry beach plus sand in the offshore beach profile to protect the upland infrastructure. Beach nourishment projects can take several years to design and permit so this process should be initiated well in advance of need. The nourished beach can offset the effects of long-term sea-level rise.

   An initial estimate of the construction cost of a beach nourishment project is $14M, assuming construction in the winter of 2024. Cost savings could be realized by coordinating construction with either Delray Beach or Boca Raton, which could save some of the dredge mobilization costs.

   A local funding plan needs to be developed concurrently with the beach nourishment design and permitting. The Town may wish to consider several funding mechanisms for the project including Ad Valorem taxes, creating an Erosion Prevention District, or creating a Municipal Services Benefit Unit.

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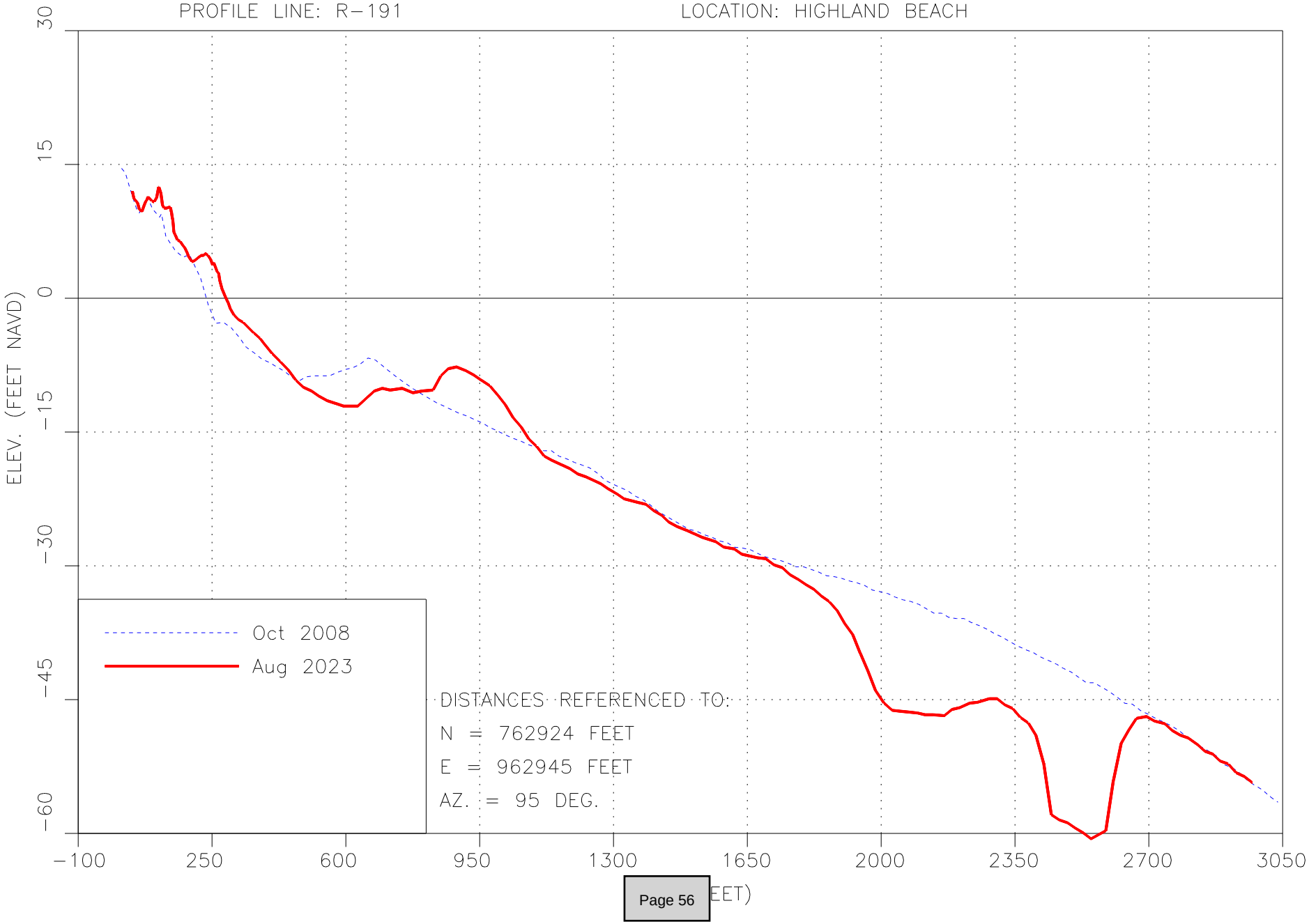
APPENDIX A

BEACH PROFILE CROSS-SECTIONS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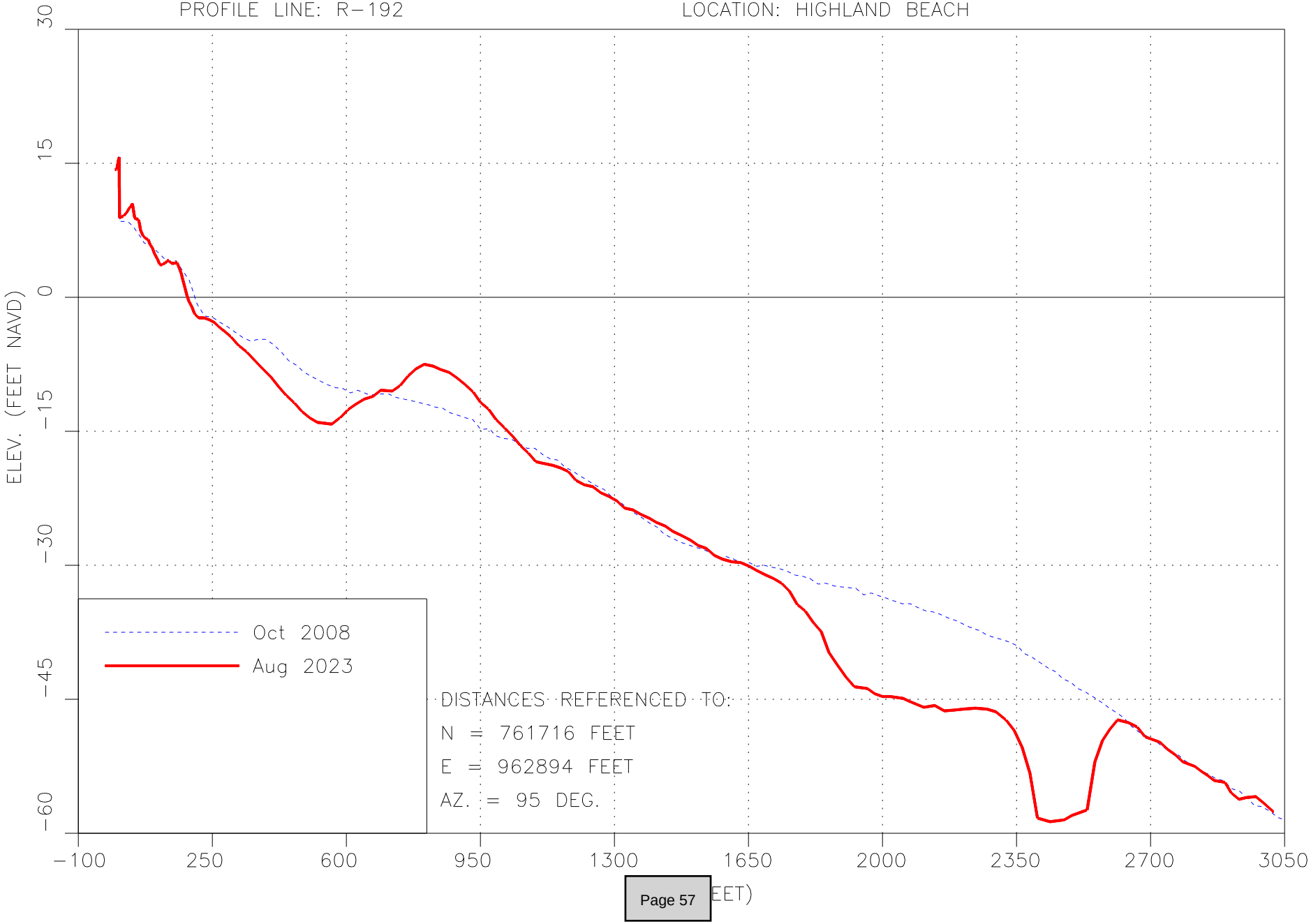
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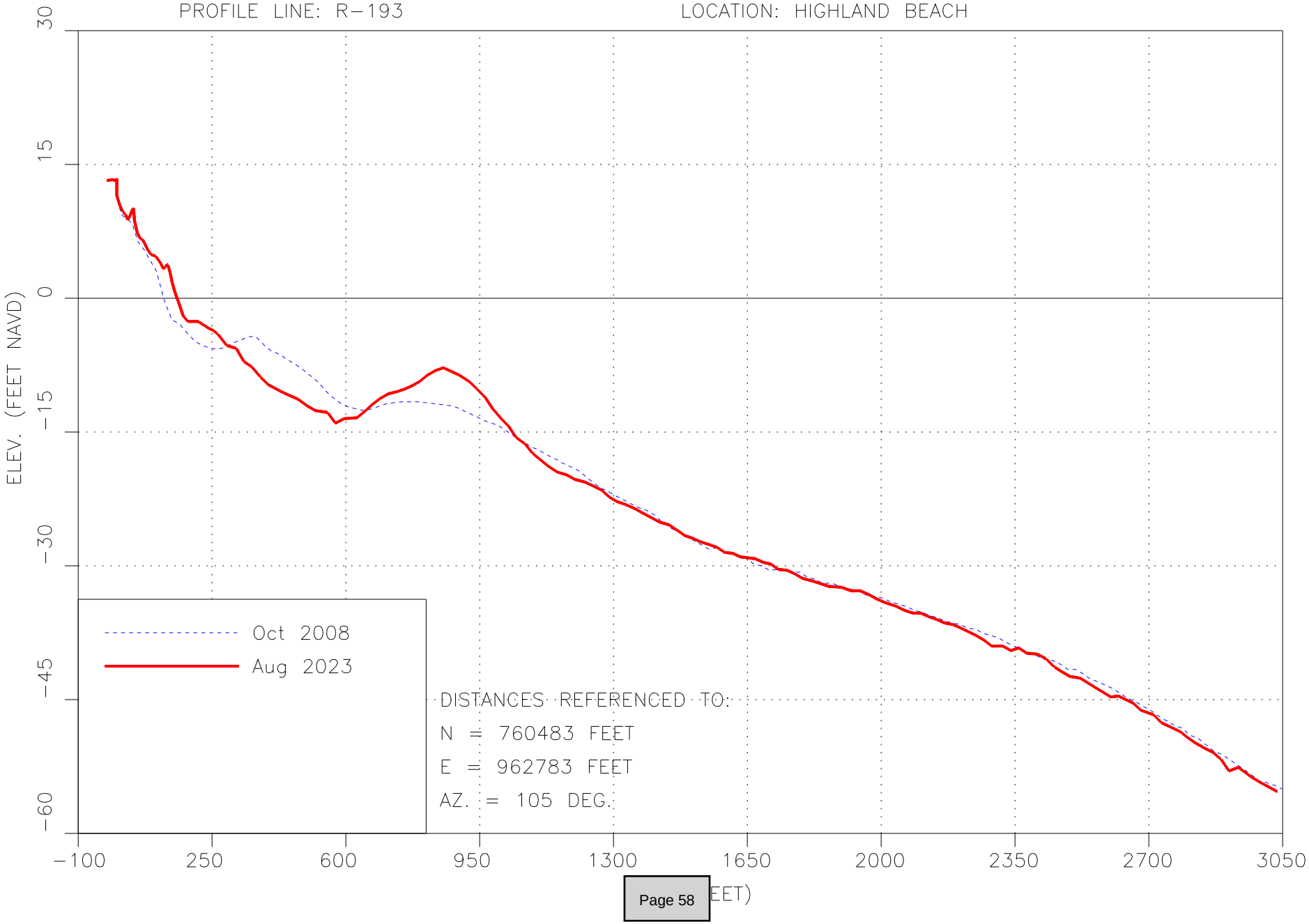
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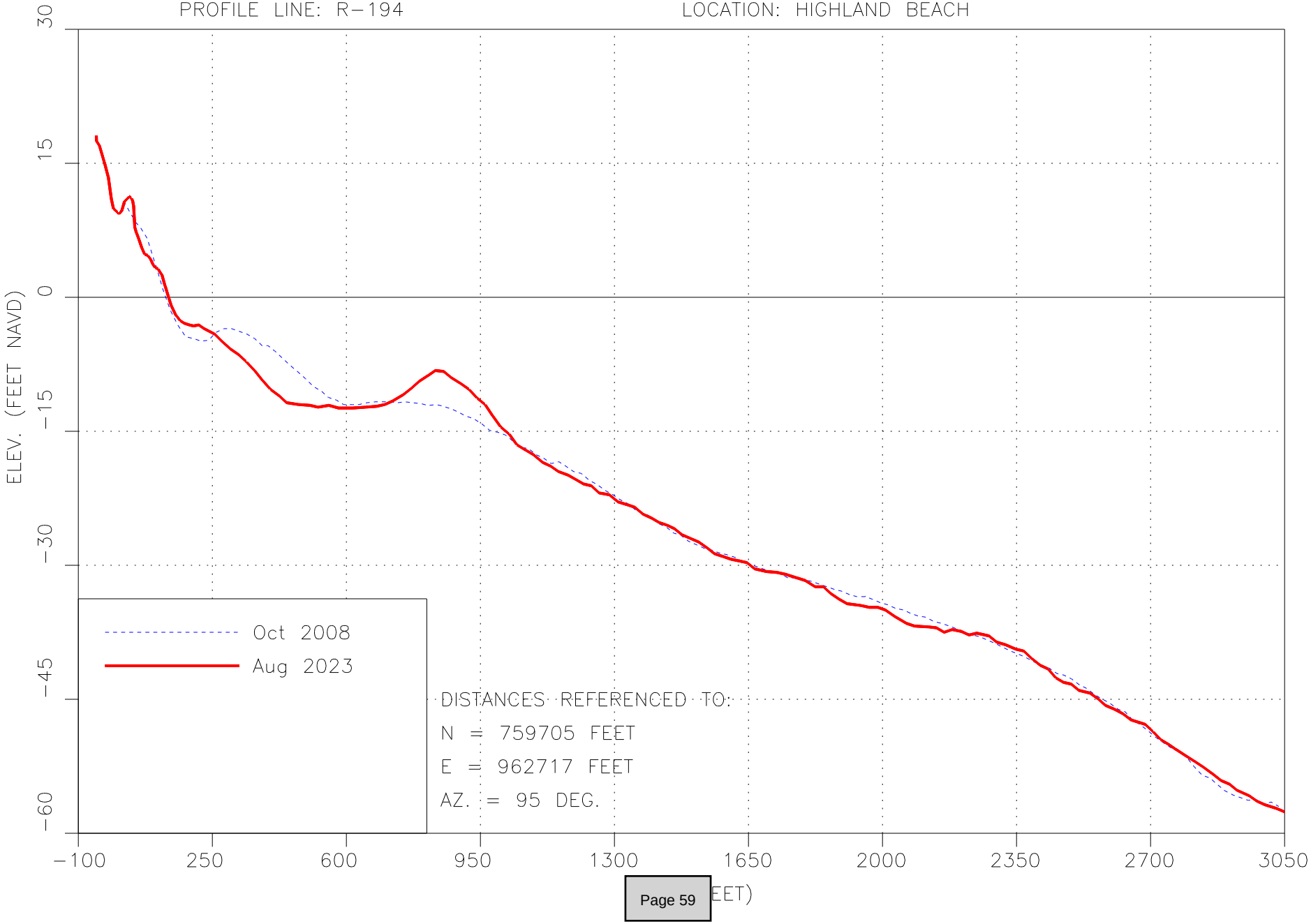
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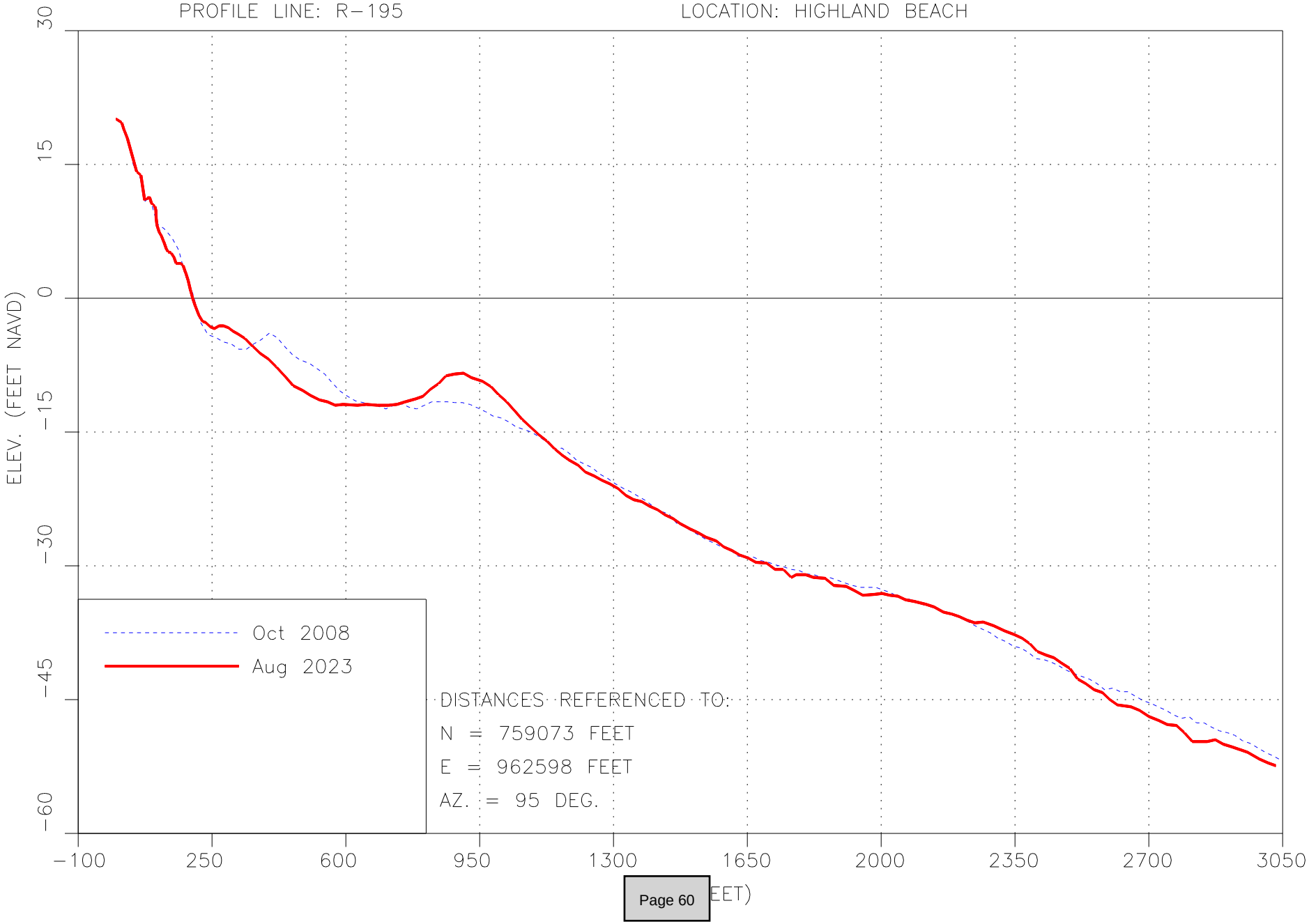
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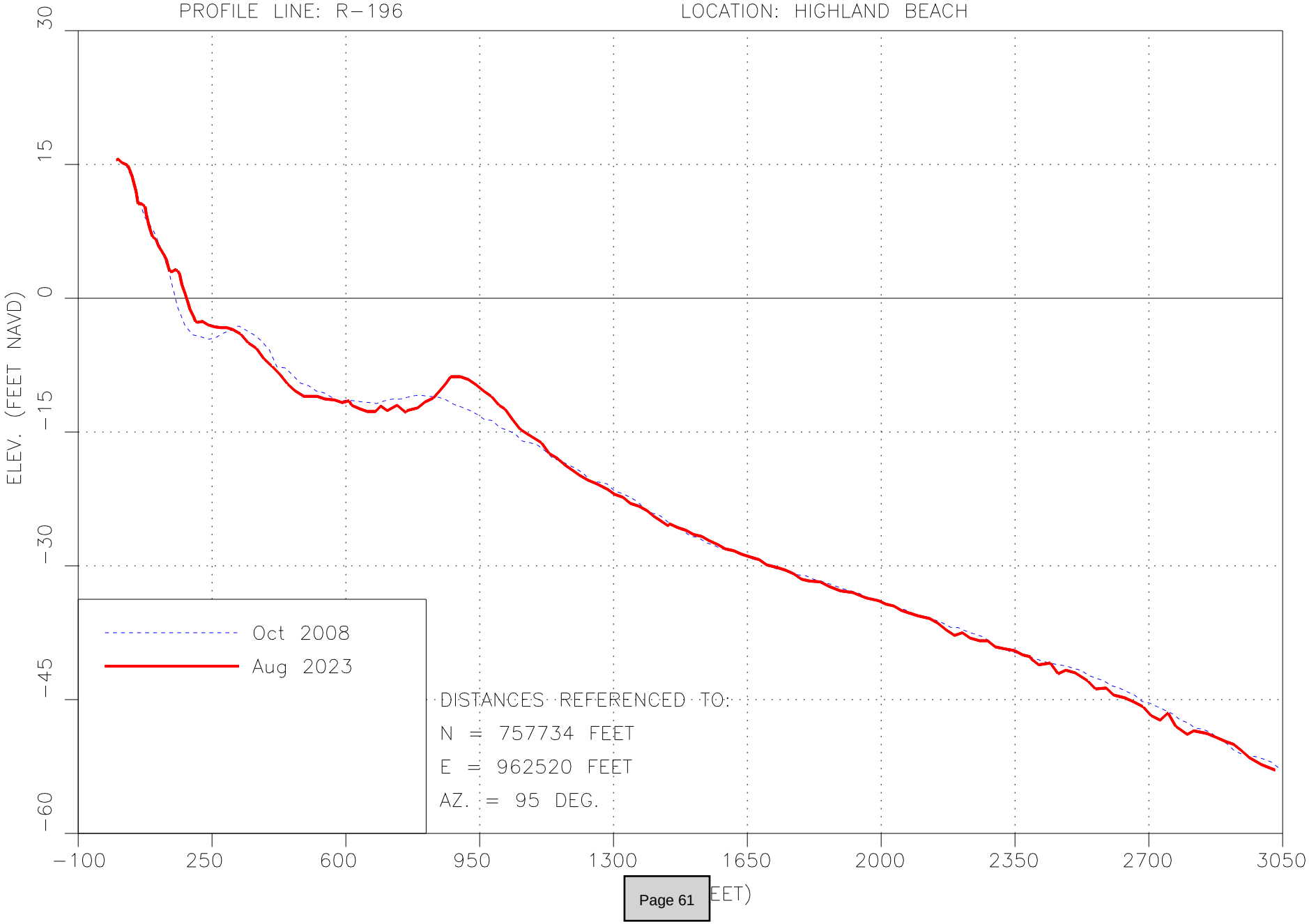
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Aug 2023
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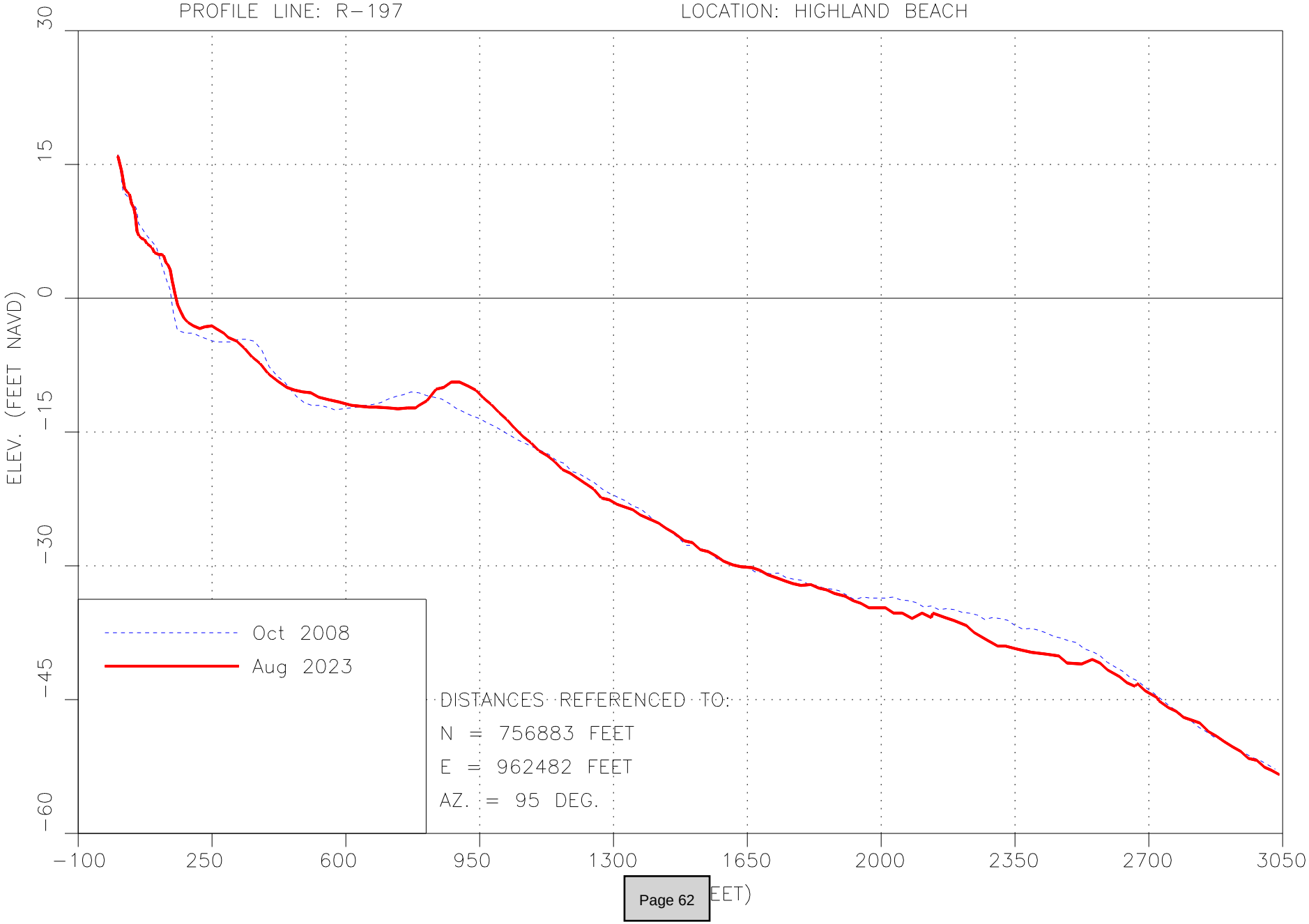
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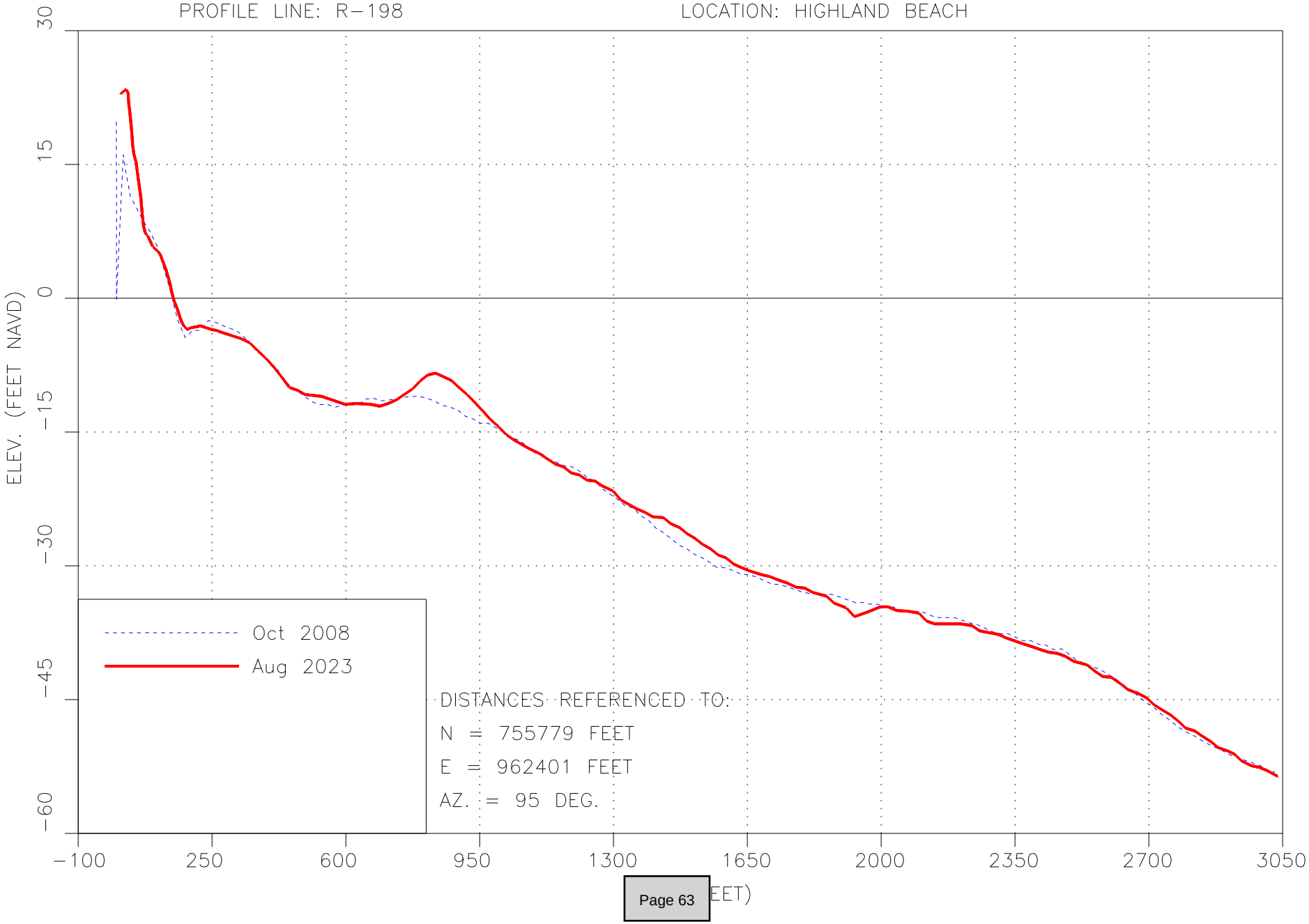
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Aug 2023
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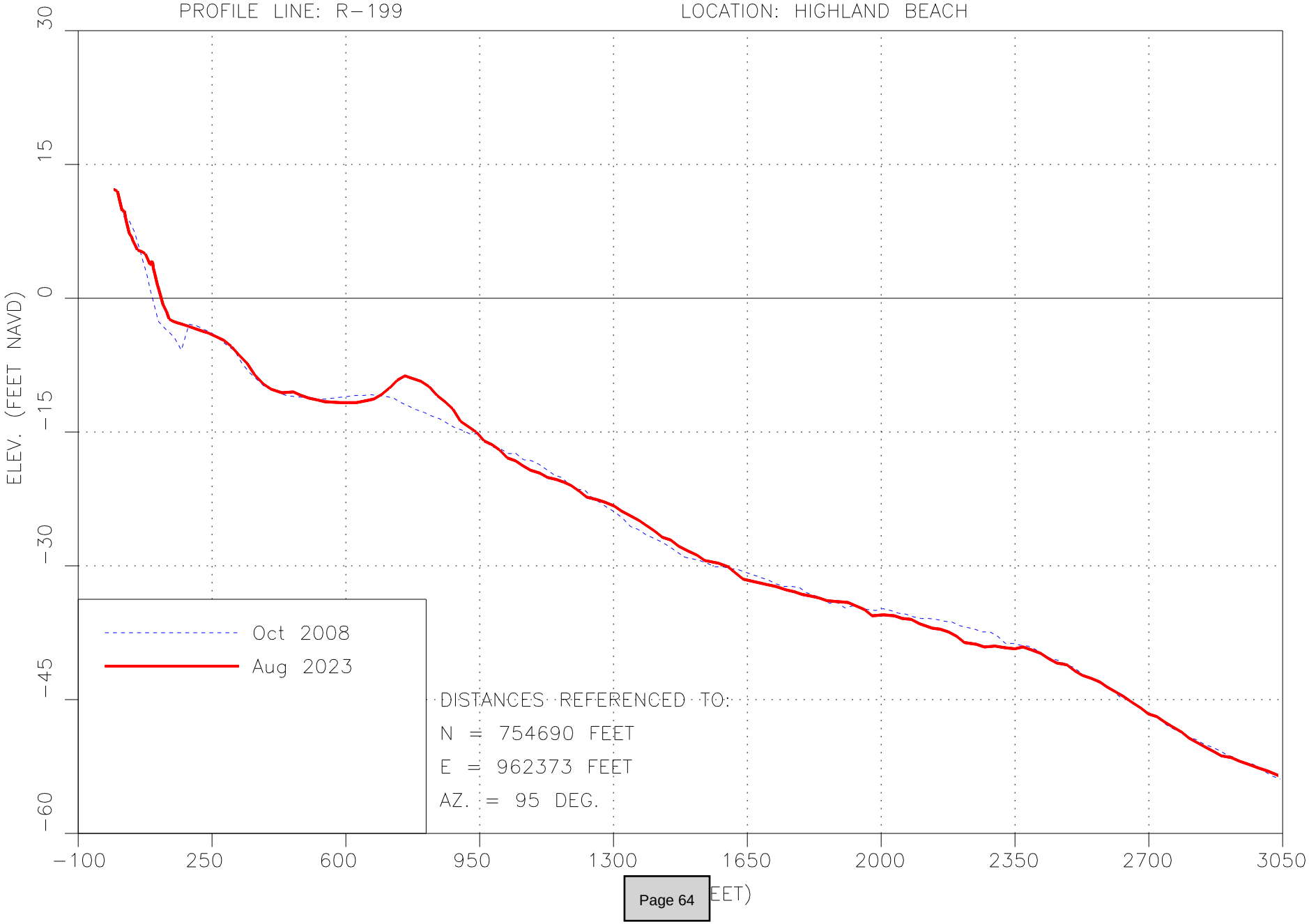
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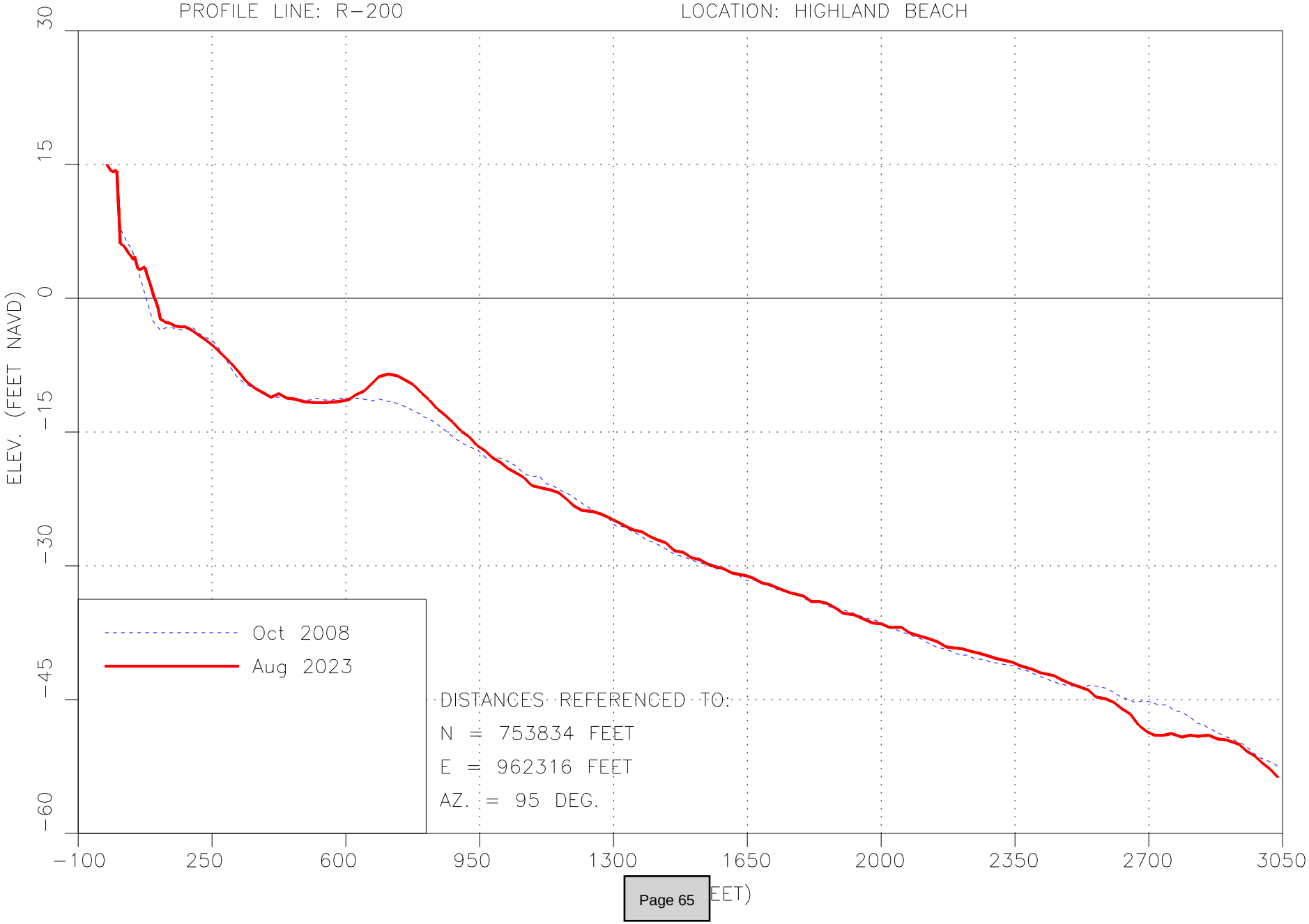
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Oct 2008
Aug 2023
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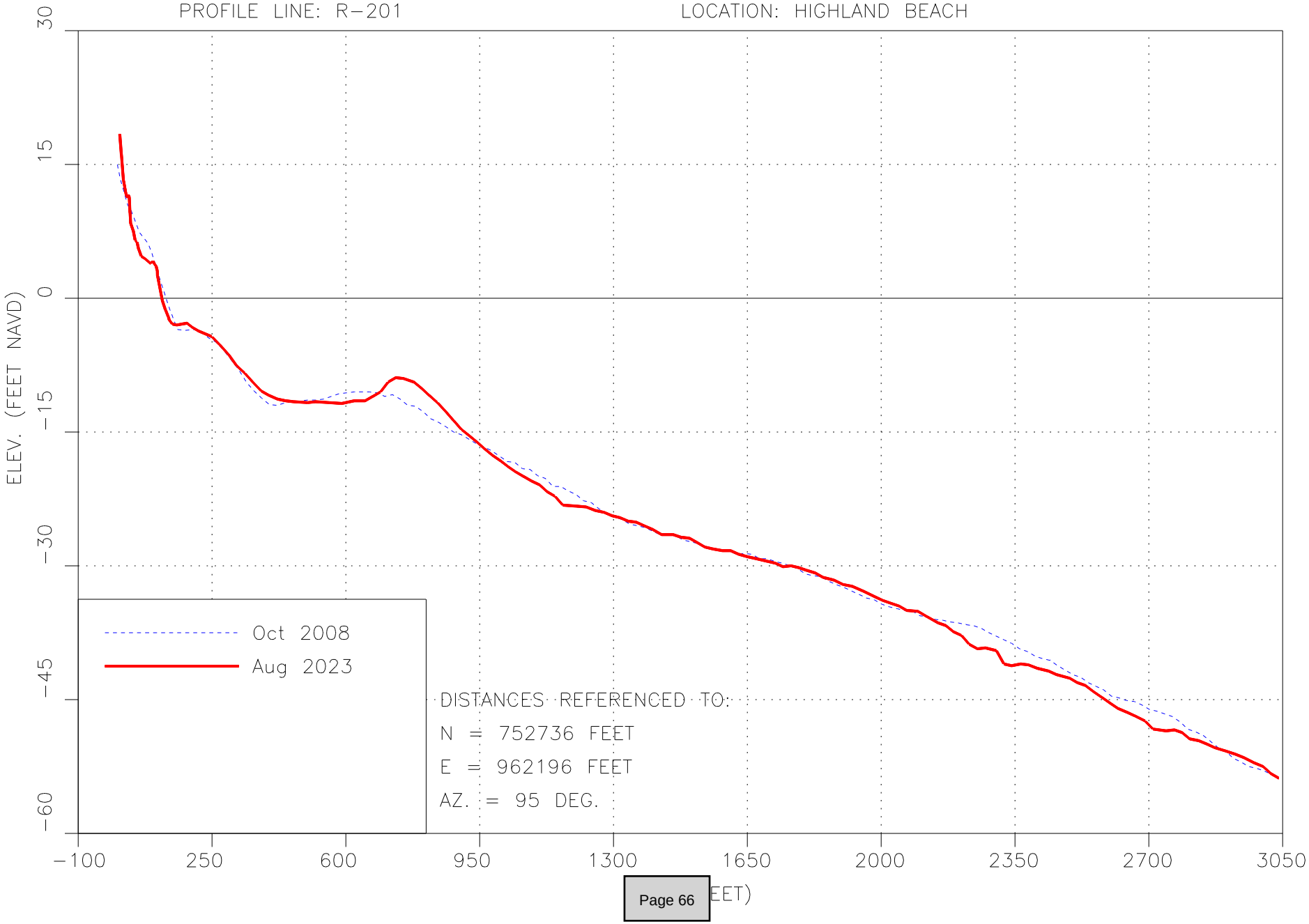
AZ. = 95 DEG.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Oct 2008
Aug 2023
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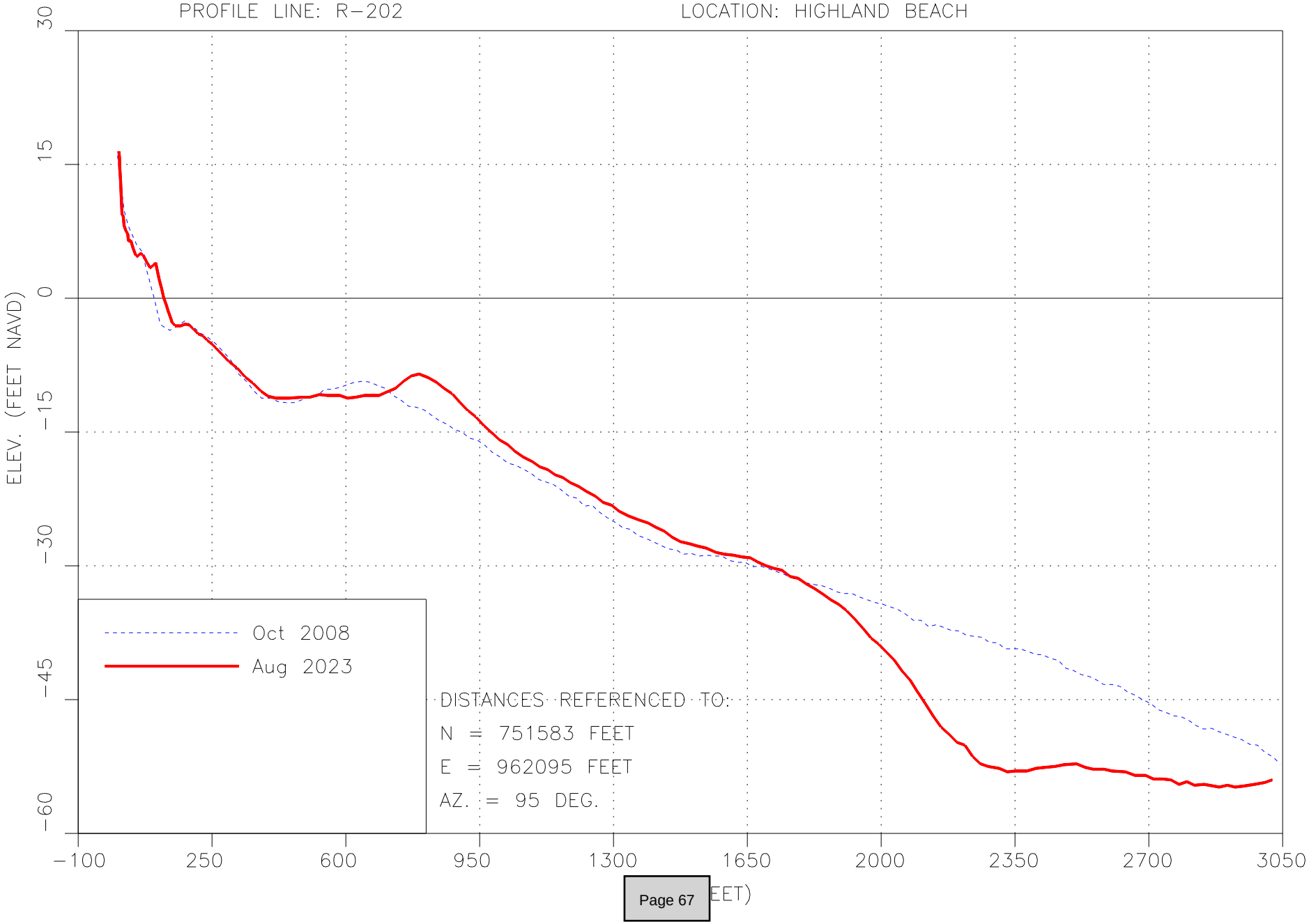
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EET)
Oct 2008
Aug 2023
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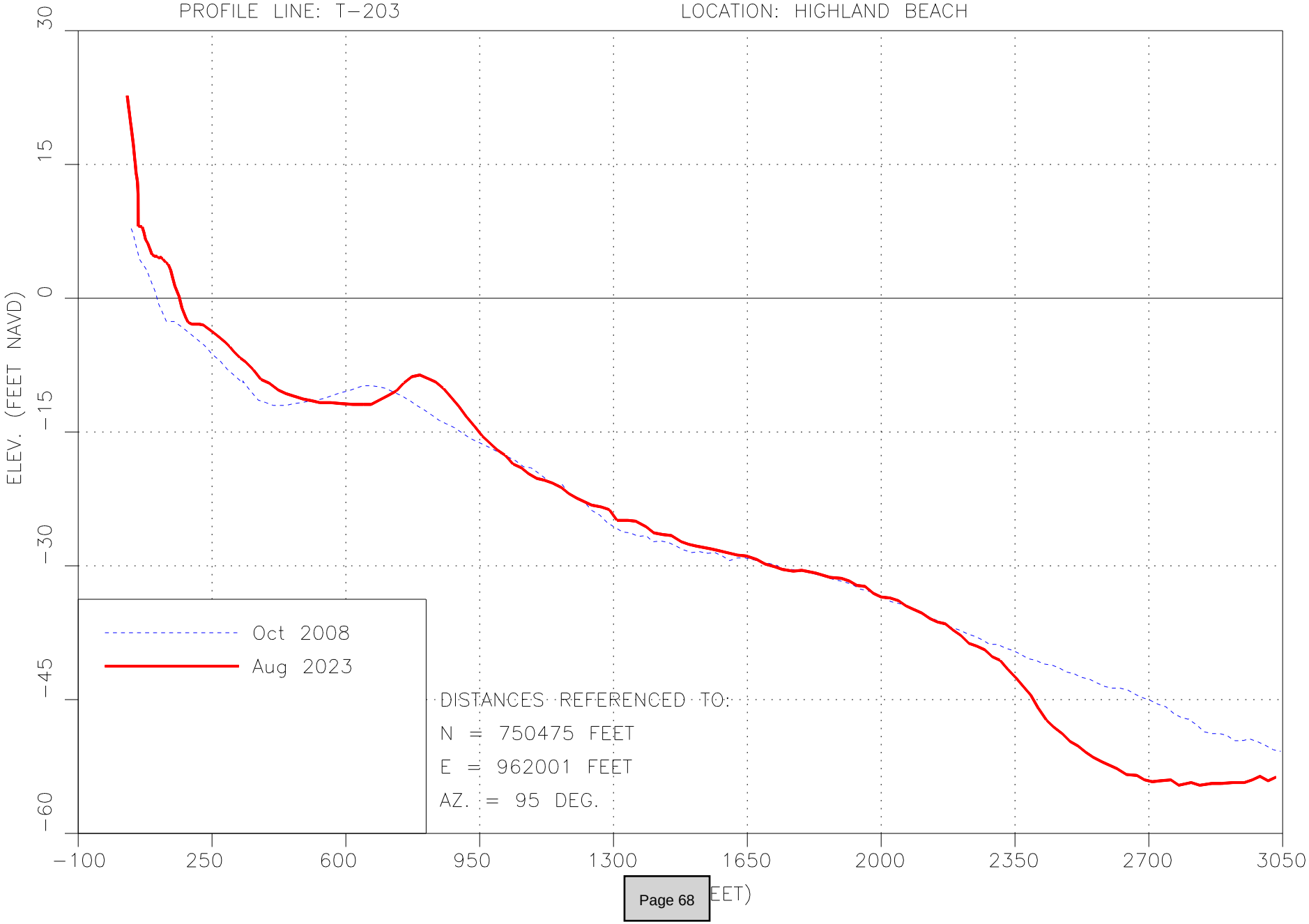
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Aug 2023
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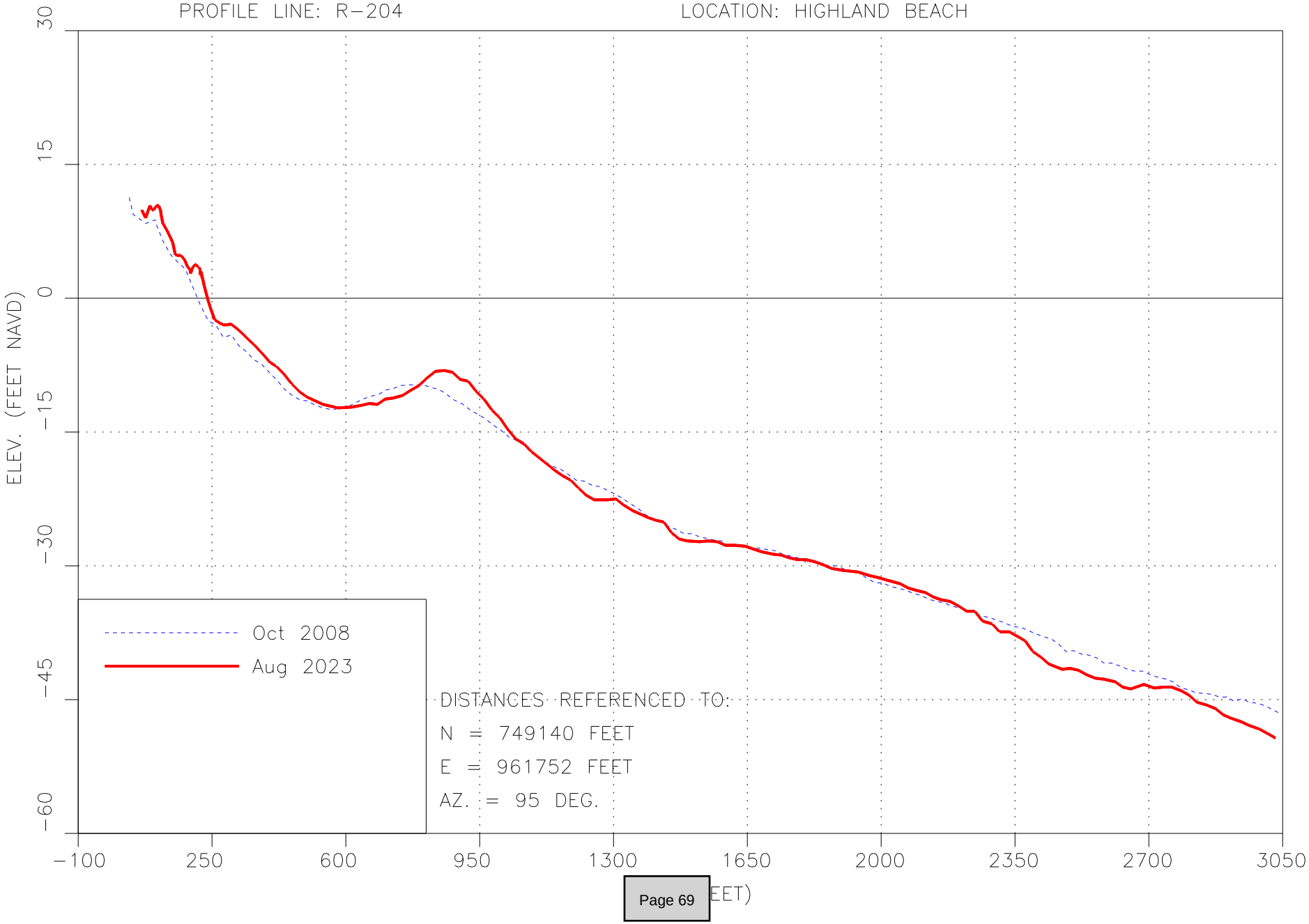
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2350
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3050
EET)
Oct 2008
Aug 2023
DISTANCES REFERENCED TO:
N = 749140 FEET
E = 961752 FEET
AZ. = 95 DEG.

APPENDIX B

BEACH AND DUNE OBSERVATIONS

Highland Beach - Beachfront Property Evaluation [North-to-South]

Property	Photo	Observation	Dune Condition	Is there rock?	Any visible seawalls?	**Recommendations**
2355 S Ocean Blvd		- Wide beach - Delray gray sands - ~20" berm scarp - Historical wrack line at the toe of the dune - There is a depressed area mid-berm with 2 additional wrack line - Nearshore bar with a 12-18" trough at the low-tide water line. - High tide/wave run-up	- Dune crest elevation is ~3-3.5' above berm elevation - ~2-2.5' of dune scarp, with a 1H:2V seaward slope - 1V:5H slope from scarp to toe - Back dune areas have a 2H:1V slope towards the dune crest - Top of dune comprised of panic grass, sea oats; railroad vines at the toe of the scarped dune; dense vegetation (sea grape) towards the back of the dune - Seaward dune vegetation thinning/dying at scarp line	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
2359 S Ocean Blvd		- Wide beach - Delray gray sands - ~19" berm scarp - Historical wrack line at the toe of the dune - There is a depressed area mid-berm with 2 additional wrack line - Nearshore bar with a 12-18" trough at the low-tide water line. - High tide/wave run-up	- Dune crest elevation is ~3.5-4' above berm elevation - ~2.5-3' of dune scarp, with a 1H:3V seaward slope - 1V:5H slope from scarp to toe - Back dune areas have a 2H:1V slope towards the dune crest - Top of dune comprised of panic grass, sea oats; railroad vines at the toe of the scarped dune; dense vegetation (sea grape) towards the back of the dune - Seaward dune vegetation thinning/dying at scarp line	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
2363 S Ocean Blvd		- Wide beach - Delray gray sands - ~18" berm scarp - Historical wrack line at the toe of the dune - There is a depressed area mid-berm with 2 additional wrack line	- Dune crest elevation is ~4.5-5' above berm elevation - ~2.5-3' of dune scarp, with a 1H:3V seaward slope - 1V:5H slope from scarp to toe - Back dune areas have a 2H:1V slope towards the dune crest - Top of dune comprised of panic grass, sea oats; railroad vines at the toe of the scarped dune; dense vegetation (sea grape) towards the back of the dune - Seaward dune vegetation thinning/dying at scarp line	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
2365 S Ocean Blvd		- Wide beach - Delray gray sands - ~16" berm scarp - Historical wrack line at the toe of the dune - There is a depressed area mid-berm with 2 additional wrack line	- Dune crest elevation is ~4.5-5' above berm elevation - ~2.5-3' of dune scarp, with a 1H:2V seaward slope - Other areas of dune have a 2H:1V slope - Top of dune comprised of panic grass, sea oats; railroad vines at the toe of the scarped dune; dense vegetation (sea grape) towards the back of the dune - Seaward dune vegetation thinning/dying at scarp line	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.

1. Seawalls include all types of retaining structures (seawalls, revetments, retaining walls, etc.). Detailed review of property specific plans was not performed.

Highland Beach - Beachfront Property Evaluation [North-to-South]

Property	Photo	Observation	Dune Condition	Is there rock?	Any visible seawalls?	**Recommendations**
2367 S Ocean Blvd		- Wide beach - Delray gray sands - ~12" berm scarp - Historical wrack line at the toe of the dune - There is a depressed area mid-berm with 2 additional wrack line	- Dune crest elevation is ~3.5-4' above berm elevation - ~2.5-3' of dune scarp, with a 1H:2.5V seaward slope - Some seaward vegetated areas of dune scarp have 1H:1V slope (wave run-up) - Other areas of dune have a 2H:1V slope - Top of dune comprised of panic grass, sea oats; railroad vines at the toe of the scarped dune; dense vegetation (sea grape) towards the back of the dune	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
2375 S Ocean Blvd		- Wide beach - Delray gray sands - ~8-10" berm scarp - Historical wrack line at the toe of the dune - There is a depressed area mid-berm with 2 additional wrack line	- Dune crest elevation is ~3.5-4' above berm elevation - ~2.5-3' of dune scarp, with a 1H:2.5V seaward slope - Some seaward vegetated areas of dune scarp has 1H:1V slope (wave run-up) - Other areas of dune have a 2H:1V slope - Top of dune comprised of panic grass, sea oats; railroad vines at the toe of the scarped dune; dense vegetation (sea grape) towards the back of the dune - Dune vegetation at N property line (near walkway) is thinning/dying on seaward side	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
2395 S Ocean Blvd		- Wide beach - Delray gray sands - ~4-6" berm scarp - Historical wrack line at the toe of the dune - There is a depressed area mid-berm with 2 additional wrack line	- Dune crest elevation is ~2.5-3' above berm elevation - ~1.5-2' of dune washout/scarp, with a 2H:1V seaward slope - Vegetation on top of dune crest is thinned out ~10 landward - Top of dune comprised of panic grass, sea oats; railroad vines at the toe of the scarped dune; dense vegetation (sea grape) towards the back of the dune	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
2425 S Ocean Blvd		- Wide beach - Delray gray sands - berm scarp leveled off - Historical wrack line at the toe of the dune - There is a depressed area mid-berm with 2 additional wrack line	- Dune crest elevation is ~3.5-4' above berm elevation - ~2.5-3' of dune scarp, with a 1H:2V seaward slope - Some seaward vegetated areas of dune scarp have 1H:1V slope (wave run-up) - Other areas of dune have a 2H:1V slope - Top of dune comprised of panic grass, sea oats; railroad vines extend to mid-berm; dense vegetation (sea grape) towards the back of the dune - Seaward dune vegetation thinning/dying at scarp line	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.

Highland Beach - Beachfront Property Evaluation [North-to-South]

Property	Photo	Observation	Dune Condition	Is there rock?	Any visible seawalls?	**Recommendations**
2435 S Ocean Blvd		- Wide beach - Delray gray sands - berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has 1 additional wrack line	- Dune crest elevation is ~3.5-4' above berm elevation -Northern side of the dune higher than southern side - ~2-2.5' of dune scarp, with a 1H:2V seaward slope on N property & 1H:1V slope on S property - Back dune areas have a 2H:1V slope - Top of dune comprised of panic grass, sea oats; railroad vines extend to mid-berm; dense vegetation (sea grape) towards the back of the dune - Seaward dune vegetation thinning/dying at scarp line & thinning extends on top of dune crest landward	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
2445 S Ocean Blvd		- Wide beach - Delray gray sands - berm scarp leveled off - Historical wrack line at the toe of the dune -Mid-berm has 1 additional wrack line	- Dune crest elevation is ~2.5-3' above berm elevation - ~0.5-1' dune scarp on N property line & ~1.5-2' of dune scarp the rest of the property with a 1H:2V seaward slope - Back dune areas have a 2H:1V slope - Top of dune comprised of panic grass, sea oats; railroad vines extend to dune toe; dense vegetation towards the back of the dune - Seaward dune vegetation thinning/dying at scarp line & thinning extends on top of dune crest landward	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
2455 S Ocean Blvd		- Wide beach - Delray gray sands - berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has 1 additional wrack line	- Dune crest elevation is ~2-2.5' above berm elevation - Dune's crest appears to be positioned more landward then neighboring properties - ~1-1.5' of dune washout/scarp, with a 2H:1V seaward slope to gradual, 3H:1V slope to the toe - Vegetation on top of dune crest is thinned out ~10 landward - Top of dune comprised of panic grass, sea oats; railroad vines at the toe of the scarped dune; dense vegetation (sea grape) towards the back of the dune	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
2475 S Ocean Blvd		- Wide beach - Delray gray sands - berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has 2 additional wrack line	- Dune crest elevation is ~2-2.5' above berm elevation - ~1.5-2' of dune scarp, with a 1H:2V seaward slope - Vegetation on top of dune crest is thinned out ~10 landward - Other areas of dune have a 2H:1V slope - Top of dune comprised of panic grass, sea oats; railroad vines at the toe of the scarped dune; dense vegetation (sea grape) towards the back of the dune - Seaward dune vegetation thinning/dying at scarp line	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.

Highland Beach - Beachfront Property Evaluation [North-to-South]

Property	Photo	Observation	Dune Condition	Is there rock?	Any visible seawalls?	**Recommendations**
2525 S Ocean Blvd		- Wide beach - Delray gray sands - berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has 1 additional wrack line	- Dune crest elevation is ~2-2.5' above berm elevation - ~1.5-2' of dune scarp, with a 2H:1V seaward slope - Other areas of dune have a 2H:1V slope - Top of dune comprised of panic grass, sea oats; railroad vines at the toe of the scarped dune; dense vegetation (sea grape) towards the back of the dune - Seaward dune vegetation thinning/dying at scarp line	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
2545 S Ocean Blvd		- Wide beach - Delray gray sands - berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line	- Dune crest elevation is ~2-2.5' above berm elevation - ~1-1.5' of dune scarp, with a 2H:1V seaward slope - Other areas of dune have a 2H:1V slope - Top of dune comprised of panic grass, sea oats; railroad vines at the toe of the scarped dune; dense vegetation (sea grape) towards the back of the dune - Seaward dune vegetation thinning/dying at scarp line	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
Townhouses of Highland Beach 2575 S Ocean Blvd		- Wide beach - Delray gray sands - ~6-8" berm scarp north-to-mid property, & ~8-10" berm scarp mid-to-south property - Historical wrack line at the toe of the dune - Mid-berm has 2 additional wrack line	- Dune crest elevation is ~2.5-3' above berm elevation - The dune in front of the N. building is positioned more landward than the dune in front of the S. building; the southern dune falls in line with adjacent northern properties - Dune crest elevation lower in the middle of the property (~2' above berm) compared to the edges - ~1.5-2' of dune washout/scarp, with a 2H:1V seaward slope - Seaward vegetation up to the dune crest is thinned out, ~5-6' of front dune veg before dense sea grape back dune; especially the south dune - Dune comprised of panic grass, sea oats; sea grape	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
2635 S Ocean Blvd		- Wide beach - Delray gray sands - berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line	- Dune crest elevation is ~2.5-3' above berm elevation - ~1' of dune scarp, with a 2H:1V seaward slope that gradually become 3H:1V slope to the toe - ~5' washed out vegetation extending into the toe - Little to no dune vegetation/grasses along south property line - Top of dune comprised of panic grass, sea oats; railroad vines at the toe of the scarped dune; dense vegetation (sea grape) towards the back of the dune	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.

Highland Beach - Beachfront Property Evaluation [North-to-South]

Property	Photo	Observation	Dune Condition	Is there rock?	Any visible seawalls?	**Recommendations**
2633 S Ocean Blvd		- Wide beach - Delray gray sands - berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has 2 additional wrack line	- Dune crest elevation is ~1.5-2' above berm elevation - ~1' of dune scarp, especially around the center of the property, with a 1H:1V seaward slope that gradually become a 3H:1V slope to the toe - ~5' washed out vegetation extending into the toe - Little to no dune vegetation/grasses along south property line - Top of dune comprised of panic grass, sea oats; railroad vines at the toe of the scarped dune; dense vegetation (sea grape) towards the back of the dune	No	No	Restore dune toe with 1cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
Carlton House 2701 S Ocean Blvd		- Wide beach - Delray gray sands - Berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line	- Dune crest elevation is ~1-1.5' above berm elevation from north-to-mid property, and is ~2-2.5' from mid-to-south property - No dune scarp but rather wave runup to ~2' above the berm, only observed mid-to-south; the northern dune is at a lower elevation and has been washed over, with little/thinned vegetation before back dune - 2H:1V seaward slope where vegetation remains than gradually 3H:1V slope to the toe/wrack line - North property edge has sea grapes rather then a planted dune - Dune comprised of ~5-10' of thinned sea oats before the dense back dune vegetation (sea grape); railroad vines growing in wrack line	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation. Consider raising the crest elevation of the dune.
Jamaica Manor 2711 S Ocean Blvd		- Wide beach - Delray gray sands - Berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line	- Dune crest elevation is ~1.5-2' above berm elevation - No dune scarp but rather wave runup to crest of the dune - 3H:1V seaward slope where vegetation remains; back dune slope levels off, with a 10H:1V slope to the seawall - North property edge has sea grapes rather then a planted dune - Dune comprised of ~5-10' of thinned sea oats before the dense back dune vegetation (sea grape); railroad vines growing in wrack line	No	Yes. Historical revetment partially buried.	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation. Consider raising elevation of dune crest.
Villa Magna 2727 S Ocean Blvd		- Wide beach - Delray gray sands - Berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line	- Dune crest elevation is ~2' above berm elevation north of steps and ~3' south of step, fronting the pool structure - North end has wave runup to crest of the dune, extending ~10-15' into the thinned vegetation with a 6H:1V seaward slope in these areas - South end has ~2.5' runup/slight scarp with a 3H:1V seaward slope; dying vegetation at scarp line - Back dune slope levels off, with a 10H:1V slope to the seawall - Dune comprised of ~50' of thinned sea oats before the dense back dune vegetation (sea grape); railroad vines growing in wrack lines	No	Unknown	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.

Highland Beach - Beachfront Property Evaluation [North-to-South]

Property	Photo	Observation	Dune Condition	Is there rock?	Any visible seawalls?	**Recommendations**
Delray Sands 2809 S Ocean Blvd		- Beach getting thinner - Delray gray sands - Berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line	- Dune crest elevation is ~2-2.5' above berm elevation north of the steps and is ~3-4' south of the steps - North dune has ~2' scarp with a 1H:2V seaward slope and the south dune has ~3' scarp with a 1H:3V slope - Wave runup over parts of the north dune - Areas of thinned/dying vegetation on the seaward slopes - Dune comprised of panic grass, sea oats, with a denser sea grape back dune; the sea grapes along the south end of the property extend seaward to the dune crest	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
Highlands Place 2901 S Ocean Blvd		- Beach getting thinner - Delray gray sands - Berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line	- No visible dune fronting the dense Seagrape vegetation at both end of the property; these plantings are ~1' above berm elevation - Dune crest elevation from mid-property is ~2-3' above berm elevation with ~2' scarp with a 1H:1V seaward slope - Wave runup/turtle nests have created depressed parts of seaward dune - Areas of thinned/dying vegetation on the seaward slopes - Dune comprised of sea oats, but is mainly a denser sea grape back dune	No	Unknown	Restore dune toe with 1cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
Wiltshire 2909 S Ocean Blvd		- Beach getting thinner - Delray gray sands, traces of Highland shelly brown sands - Berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line	- North dune crest elevation is ~3-3.5' above berm with ~2' scarp - South dune crest elevation is ~3.5-4' above berm with ~3' scarp - Dune has with a 1H:2V seaward slope with thinned/dying vegetation at scarp line - The dune vegetation tapers landward mid property/at walkway compared to the property edges - Dune comprised of sea oats, railroad vines extending to dune's toe wrack line, and sea grapes start on dune crest extending landward.	No	Yes. ~6' tall	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
Trafalgar of Highland Beach 2917 S Ocean Blvd		- Beach getting thinner - Delray gray sands, traces of Highland shelly brown sands - Berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line	- Dune crest elevation is ~2.5-3' above berm elevation with 2H:1V slope for most of the south half of the property - The dune at the north property line is positioned more seaward and has ~2' scarp with a 1H:2V slope; thinned/dying vegetation at scarp line - The dune vegetation tapers landward mid property/at walkway compared to the property edges, wave runup over the dune crest in this area - Dune comprised of sea oats, but is mainly a denser sea grape back dune to the seawall	No	Yes. ~7-8' tall	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.

Highland Beach - Beachfront Property Evaluation [North-to-South]

Property	Photo	Observation	Dune Condition	Is there rock?	Any visible seawalls?	**Recommendations**
Highland Towers 2921 S Ocean Blvd		- Beach getting thinner - Delray gray sands, traces of Highland shelly brown sands - Berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line - wrack lines are closer together at this property	- Dune crest elevation is ~2.5-3' above berm elevation - Dune has ~2' scarp with a 1H:1V slope; thinned/dying vegetation at scarp line - The north dune crest has been washed over (wave runup) - Dune comprised of ~15-20' of panic grass and sea oats fronting the dense back dune vegetation (sea grape)	No	Yes. ~7' tall	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
Ocean Pines 3009 S Ocean Blvd		- Beach getting thinner - Delray gray sands, traces of Highland shelly brown sands - Berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line - Nearshore sand bar is ~40' from waterline	- North dune crest elevation is ~2-2.5' above berm with ~1.5-2' scarp - South dune crest elevation is ~3-3.5' above berm with ~3' scarp - Dune has with a 1H:2V seaward slope with thinned/dying vegetation at scarp line - Back dune has 2H:1V landward slope - The dune vegetation tapers landward from north to south - Dune comprised of sea oats, fronting a denser back dune (sea grapes) start on dune crest extending landward.	No	Yes. ~6' tall	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
Ocean Dunes 3015 S Ocean Blvd		- Beach getting thinner - Delray gray sands, traces of Highland shelly brown sands - Berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line	- Dune crest elevation is ~3.5' above berm elevation - Dune has ~3' scarp with a 1H:3V slope - Dune comprised of sea oats, fronting a denser back dune (sea grapes) - Barely any dune fronting the sea grape vegetation - The dune crest has been washed over (wave runup) exposing the base of the sea grape - Dune has thinned/dying vegetation at scarp line	No	Unknown	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
Penthouse Towers 3101 S Ocean Blvd		- Beach getting thinner - Delray gray sands, traces of Highland shelly brown sands - Berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line	- Sea grape vegetation on seaward side of the dune - Dune crest elevation is ~2' above berm elevation with a 2H:1V slope where veg remains - Dune has ~1.5-2' scarp, exposes the base of the sea grape - Dune has thinned/dying vegetation at scarp line - The dune vegetation thins tapering landward mid-property/at walkway compared to the property edges - Some areas mid-property have been washed over (wave runup)	No	Yes. ~3.5-4' tall	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.

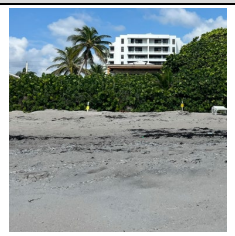
Highland Beach - Beachfront Property Evaluation [North-to-South]

Property	Photo	Observation	Dune Condition	Is there rock?	Any visible seawalls?	**Recommendations**
Ocean Terrace N 3115 S Ocean Blvd		- Beach getting thinner - Delray gray sands, traces of Highland shelly brown sands - Berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line	- Sea grape vegetation present to seaward dune toe - Dune crest elevation is ~3-3.5' above berm elevation at the north/south ends of the property and is ~2.5' above the berm mid-property - Dune has ~1.5-2' scarp, exposes the base of the sea grape '- Dune has with a 1H:2V seaward slope with thinned/dying vegetation at scarp line - Wave runup/turtle nests have created depressed parts the exposed dune - Dune comprised of mainly of denser sea grape and beach naupaka, and some sea oats where some fronting dune is present	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
Beach Walk E 3201 S Ocean Blvd		- Beach getting thinner - Delray gray sands, traces of Highland shelly brown sands - Berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line	- Dune crest elevation is ~2.5-3' above berm elevation - Dune has ~1.5-2' scarp with a 1H:2V slope; thinned/dying vegetation at scarp line - Sea grape vegetation extends to dune toe, base of plants exposed at scarp line - The north dune crest has been washed over (wave runup) - Erosion around steps/walkway locations - Dune comprised of mainly of denser sea grape and beach naupaka, and some sea oats where some fronting dune is present; some railroad vines in wrack line	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
Villa Mare 3211 S Ocean Blvd		- Beach getting thinner - Delray gray sands, traces of Highland shelly brown sands - Berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line	- Dune crest elevation is ~3' above berm elevation with ~2.5' scarp and a 1H:2V slope - Dune comprised of mainly of denser sea grape and beach naupaka, and some sea oats where some dune toe is present - Dune has thinned/dying vegetation at scarp line, exposing base of sea grape/naupaka vegetation - South dune, near steps, has been washed over (wave runup), exposed base of vegetation is positioned ~6 landward compared to rest of dune	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
Ambassadors V - North 3221 S Ocean Blvd		- Beach getting thinner - Delray gray sands, traces of Highland shelly brown sands - Berm scarp leveled off - Historical wrack line at mid-berm	- Dune crest elevation is ~3' above berm elevation at edges of property with ~2.5' scarp/runup to base of vegetation - Dune crest elevation is 3.5-4' above berm at mid dune (fronting pool area) with ~2.5' scarp and a 1H:2V slope - ~25-30' of dune vegetation fronting seawall, which thins out in front of the buildings - Dune comprised of mainly of sea oats and beach naupaka, with some palm trees - Dune has thinned/dying vegetation at scarp line, exposing base of sea grape/naupaka vegetation	No	Yes. ~5' tall	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.

Highland Beach - Beachfront Property Evaluation [North-to-South]

Property	Photo	Observation	Dune Condition	Is there rock?	Any visible seawalls?	**Recommendations**
Ambassadors V - South 3221 S Ocean Blvd		- Beach getting thinner - Delray gray sands, traces of Highland shelly brown sands - Berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line	- North dune crest elevation is ~3.5-4' above berm elevation with ~2.5' scarp/runup to base of vegetation - Mid-property dune crest elevation is ~1' above berm, appears to have been washed over; has a wide flat dune crest -South dune crest elevation at 2.5' above berm elevation with a 1H:2V slope; scarp of 2' at base of sea grape - Dune comprised of mainly of sea oats, sea grape, and beach naupaka, with some palm trees - Dune has thinned/dying vegetation at scarp line, exposing base of sea grape/naupaka vegetation	No	Yes. ~5' tall	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
Coronado at Highland Beach Ocean Club 3321 S Ocean Blvd		- Beach getting thinner - Delray gray sands, traces of Highland shelly brown sands - Berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line	- Dune crest elevation is ~3-3.5' above berm elevation with ~2.5' scarp/runup to base of vegetation and a 1H:2V slope - No fronting dune to the north - Dune comprised of mainly of sea oats, sea grapes, beach naupaka, and snake grass, ~20' wide - Dune has thinned/dying vegetation at scarp line, exposing base of vegetation	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
Ridge O 3401 S Ocean Blvd		- Beach getting thinner - Delray gray sands, traces of Highland shelly brown sands - Berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line	- Dune crest elevation is ~2-2.5' above berm elevation - ~1.5-2' scarp/runup to base of vegetation and a 1H:2V slope - Top of dune comprised of sea oats and sea grape ~50' wide - Dune has thinned/dying vegetation at scarp line	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
Clarendon Condominium 3407 S Ocean Blvd		- Beach getting thinner - Delray gray sands, traces of Highland shelly brown sands - Berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line	- Dune crest elevation is ~1.5-2' above berm elevation - ~1.5' scarp/runup to base of vegetation and a 1H:2V slope - Top of dune comprised of sea oats and sea grape ~50' wide - Dense sea grape fronting tennis court structure, scarp at vegetation base - Dune has thinned/dying vegetation at scarp line	No	No (for building). Yes (for tennis/pool structure); ~20' tall	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.

Highland Beach - Beachfront Property Evaluation [North-to-South]

Property	Photo	Observation	Dune Condition	Is there rock?	Any visible seawalls?	**Recommendations**
3419 S Ocean Blvd		- Beach getting thinner - Delray gray sands, traces of Highland shelly brown sands - Berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line	'- Dune crest elevation is ~3' above berm elevation under sea grape vegetation - ~2' scarp/runup to base of vegetation and a 1H:2V slope - No dune fronting the dense vegetation - Top of dune comprised of dense sea grape/naupaka, with some sea oats - Dune has thinned/dying vegetation at scarp line	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
3421 S Ocean Blvd		- ~6-8" berm scarp - Beach getting thinner - Delray gray sands, traces of Highland shelly brown sands - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line	'- Dune crest elevation is ~3' above berm elevation under sea grape vegetation - ~2' scarp/runup to base of vegetation and a 1H:2V slope - No dune fronting the dense vegetation - Top of dune comprised of dense sea grape/naupaka, with some sea oats - Dune has thinned/dying vegetation at scarp line	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation. Consider reducing seagrape and replacing it with pioneer dune vegetation.
Le Sanctuarie O 3425 S Ocean Blvd		- Beach getting thinner - Delray gray sands, traces of Highland shelly brown sands - Berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line	'- Dune crest elevation is ~3' above berm elevation under sea grape vegetation - ~2-2.5' scarp/runup to base of vegetation and a 1H:2V slope - Dune positioned more landward in front of building - No dune fronting the dense vegetation - Top of dune comprised of dense sea grape/naupaka, with some sea oats - Dune has thinned/dying vegetation at scarp line	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation. Consider reducing seagrape and replacing it with pioneer dune vegetation.
Villa Nova 3505 S Ocean Blvd		- Beach getting thinner - Delray gray sands, traces of Highland shelly brown sands - Berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line	'- Dune crest elevation is ~2.5-3' above berm elevation under sea grape vegetation - ~2-2.5' scarp/runup to base of vegetation and a 1H:2V slope - No dune fronting the dense vegetation - Top of dune comprised of dense sea grape/naupaka with some sea oats - Dune has thinned/dying vegetation at scarp line - Dune veg width tapers landward from north to south	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation. Consider reducing seagrape and replacing it with pioneer dune vegetation.

Highland Beach - Beachfront Property Evaluation [North-to-South]

Property	Photo	Observation	Dune Condition	Is there rock?	Any visible seawalls?	**Recommendations**
Villas at Highland Beach 3511 S Ocean Blvd		- Beach getting thinner - Delray gray sands, traces of Highland shelly brown sands - Berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line	- Dune crest elevation is ~2-2.5' above berm elevation with ~1.5-2' of dune scarp, and a 2H:1V seaward slope - The back dune slope's up to ~8' in elevation - Top of dune comprised of panic grass, sea oats and naupaka; manicured garden hedge at ~25 from of front of dune - Dune has thinned/dying vegetation at scarp line	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
3515 S Ocean Blvd		- Beach getting thinner - Delray gray sands, traces of Highland shelly brown sands - Berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line	- Dune elevation is ~2.5' above berm elevation with ~1.5-2' of dune scarp/wave runup, and a 2H:1V seaward slope - The back dune slope's up to ~6-6.5' in elevation - Top of dune comprised of panic grass and sea oats; sea grape hedge fronting the gazebo ~30 from of front of dune - Dune has thinned/dying vegetation at scarp line	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation. Consider reducing seagrape and replacing it with pioneer dune vegetation.
3519 S Ocean Blvd		- Beach getting thinner - Delray gray sands, traces of Highland shelly brown sands - Berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line	- Dune crest elevation is ~3' above berm elevation with ~2.5' scarp/runup to base of vegetation and a 1H:2V slope - Not much fronting dune remains - Dune comprised of mainly of sparse sea oats fronting the sea grapes; some cactus plants along south property line - Dune has thinned/dying vegetation at scarp line, exposing base of vegetation	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
3521 S Ocean Blvd		- Berm scarp leveled off - Delray gray sands, traces of Highland shelly brown sands - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line	- Dune crest elevation is ~2.5' above berm elevation on north side of property with ~1.5' scarp/runup to base of vegetation (dense cactus plants) - Dune crest elevation is ~2' above berm to the south with ~1.5-2' scarp, especially around base of pine tree - Not much fronting dune exists - Dune comprised of mainly of sparse sea oats and grasses, fronting the denser back dune comprised of sea grapes; some cactus plants along north property line - Dune has thinned/dying vegetation at scarp line, exposing base of seaward vegetation	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation. Remove pine tree (exotic).

Highland Beach - Beachfront Property Evaluation [North-to-South]

Property	Photo	Observation	Dune Condition	Is there rock?	Any visible seawalls?	**Recommendations**
Ocean Reef 3525 S Ocean Blvd		- Berm scarp leveled off - Delray gray sands, traces of Highland shelly brown sands - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line	- Dune crest elevation is ~2.5' above berm elevation with ~2.5' scarp/runup primarily in the center of the property - The seaward dune has a 2H:1V slope where vegetation remains, and a 3H:1V slope back to ~5' in elevation - Dune comprised of sparse sea oats mid-property, with denser sea grape vegetation along the property edges, and the back dune - Several turtle nests fronting the dune	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
Highland Beach Club (access)		- Only consists of an overwalk staircase from the road to the beach	- Dune appears to have 3' scarp/wave run-up under the steps	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
3567 S Ocean Blvd		Berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line - Delray gray and Highland brown sands	- Dune crest elevation is ~2.5-3' above berm elevation with ~2.5' scarp/runup primarily around steps - The seaward dune has a 1H:1V slope up to crest, and a 3H:1V slope back to ~5' in elevation - Dune comprised of naupaka and sea grape veg, that is exposed and scarped at the base	No	No	Restore dune toe with 1cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
3569 S Ocean Blvd		- Berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line - Delray gray and Highland brown sands	- Dune crest elevation is ~2.5-3' above berm elevation with ~2.5' scarp/runup primarily north of the steps; ~1.5' scarp/run-up mid-south property - The seaward dune has a 1H:1V slope up to crest, and a 3H:1V slope back to ~5' in elevation - Dune comprised of dense cactus and sea grape vegetation, that is exposed and scarped at the base - The vegetation to the north of the steps currently sits ~5' landward of the south vegetation	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation. Consider removing seagrape /naupaka and installing pioneer zone vegetation.

Highland Beach - Beachfront Property Evaluation [North-to-South]

Property	Photo	Observation	Dune Condition	Is there rock?	Any visible seawalls?	**Recommendations**
3571 S Ocean Blvd		- Berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line - Delray gray and Highland brown sands	- Dune crest elevation is ~2.5-3' above berm elevation with ~2.5' scarp/runup to dune crest - The seaward dune has a 1H:1V slope up to crest, and a 3H:1V slope back to ~5' in elevation - Dune comprised of sea oats, naupaka and sea grape vegetation, that is exposed and scarped at the base - Tall dense back dune	No	No	Restore dune toe with 1cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
3573 S Ocean Blvd		- Berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line - Delray gray and Highland brown sands	- Dune crest elevation is ~1.5-2' above berm elevation with ~1.5' scarp/runup; most of the front dune is gone - The seaward dune has a 1H:1V slope up to crest, and a 3H:1V slope back to ~8' in elevation - Dune comprised of sparse sea oats of the front dune and dense sea grape vegetation, that is exposed and scarped ~1.5' at the base - The sea grape vegetation to the north of the steps currently extends more seaward out to dune toe, although scarped at base	No	No	Restore dune toe with 1cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
3575 S Ocean Blvd		- Berm scarp leveled off - Historical wrack line at the toe of the dune extending to mid-berm - Delray gray and Highland brown sands - The beach is starting to get more narrow	- Dune crest elevation is ~1.5-2' above berm elevation with ~1.5' scarp/runup; most of the front dune is gone - The seaward dune has a 1H:1V slope up to crest, and a 2H:1V back slope - Dune comprised of sparse sea oats of the front dune and dense sea grape vegetation, that is exposed and scarped ~1.5' at the base - Sea grapes along south property are ~10' landward and front dune has flattened, with a 4H:1V slope fronting the	No	No	Restore dune toe with 1cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation. Consider removing seagrape and installing pioneer zone vegetation.
3615 S Ocean Blvd		- Berm scarp leveled off - Historical wrack line at the toe of the dune extending to mid-berm - Delray gray and Highland brown sands - The beach is more narrow	- North Dune crest elevation is ~1.5-2' above berm elevation with ~1.5' scarp/runup; sea grapes extend out to the dune toe - South of stairs to mid-property, the dune crest elevation is ~2-2.5' above berm elevation with ~2' scarp/runup; most of the front dune has washed out - Mid-to-south property, the dune crest is ~3' above berm elevation, with ~2.5' scarp/runup - The seaward dune has a 1H:1V slope up to crest, and a 2H:1V back slope - Dune comprised of sparse sea oats/grasses on the front dune and dense sea grape vegetation and naupaka	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation. Consider removing seagrape /naupaka and installing pioneer zone vegetation.

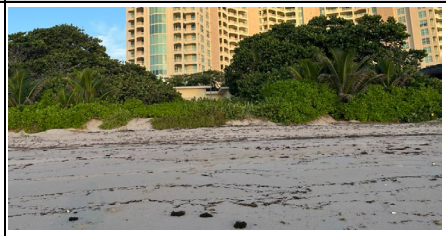
Highland Beach - Beachfront Property Evaluation [North-to-South]

Property	Photo	Observation	Dune Condition	Is there rock?	Any visible seawalls?	**Recommendations**
3621 S Ocean Villas Condo		- Berm scarp leveled off - Historical wrack line at the toe of the dune extending to mid-berm - Delray gray and Highland brown sands - The beach is more narrow - The beach profile appears to have a steeper slope fronting this property	- Dune crest elevation is ~1.5-2' above berm elevation with ~1.5' scarp/runup to crest - The seaward dune has a 1H:1.5V slope up to crest, and a 1H:1V back slope on the tall back dune - ~2' scarp behind each of the beach access steps - Front dune vegetation is sparse, comprised of sea oats/grasses and railroad vines; and dense sea grape vegetation on the back dune	No	No	Restore dune toe with 1cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation. Consider removing seagrape and installing pioneer zone vegetation.
Toscana E 3701 S Ocean Blvd		- Berm scarp leveled off -wrack line at crest of mid-berm slope - Delray gray and Highland brown sands - The beach is more narrow - The beach profile appears to have a steeper slope from the waterline to mid-berm - Nearshore bar is ~50' from waterline	- Dune crest elevation is ~2.5' above berm elevation with ~2' scarp/runup to crest - The seaward dune has a 1H:2V slope up to crest, and a 3H:1V back slope - Dune vegetation comprised of sea oats and sunflowers with a denser sea grape and naupaka vegetation on the back dune	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
3711 S Ocean Blvd		- Berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line - Delray gray and Highland brown sands - The beach is more narrow - The beach profile appears to have a milder slope compared to the northern adjacent property	- Front dune crest elevation is ~2.5' above berm elevation with ~2' scarp/runup at base of vegetation - The seaward dune has a 1H:2.5V slope up to crest, and a 3H:1V back slope - Dune comprised of sea grape and naupaka vegetation with some snake plants	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
3715 S Ocean Blvd		- Berm scarp leveled off - Historical wrack line at the toe of the dune - Mid-berm has additional wrack line - Delray gray and Highland brown sands - The beach is more narrow	- Mid-property front dune crest elevation is ~1.5' above berm elevation with ~1' scarp/runup at base of vegetation - Back dune and base of sea grapes are ~3' above berm with up to ~3' scarp/runup, exposing vegetation roots - The seaward dune has a 1H:1V slope up to crest, and a 1H:3V back slope - Dune comprised of sea grape and naupaka vegetation with some palm trees - 2 layers of sandbags stacked fronting the vegetation to the north of the beach access ramp	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.

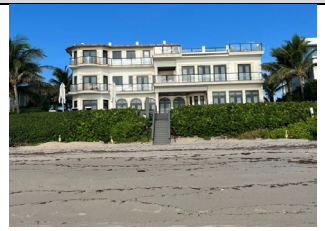
Highland Beach - Beachfront Property Evaluation [North-to-South]

Property	Photo	Observation	Dune Condition	Is there rock?	Any visible seawalls?	**Recommendations**
3719 S Ocean Blvd		- Berm scarp leveled off - Historical wrack line at the toe of the dune extending to mid-berm - Delray gray and Highland brown sands - The beach appears to be narrowing - The beach profile appears to have a steeper slope fronting this property	- Dune crest elevation is ~2.5' above berm elevation with ~2' scarp/runup to crest - The seaward dune has a 1H:2V slope up to crest - Dune's front slope comprised of sea oats; a denser sea grape and naupaka vegetation comprise the back dune - Sea grape vegetation is scarped at base	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
3723 S Ocean Blvd		- Berm scarp leveled off - Historical wrack line at the toe of the dune extending to waterline - Delray gray and Highland brown sands - No visible beach access through dune	- Dune crest elevation is ~3' above berm elevation with ~2' scarp/runup to crest at base of vegetation - The seaward dune has a 1H:1V slope up to crest and a back dune slope of 4H:1V under sea grapes - Dune comprised of sea grape and naupaka vegetation with some palm trees and sea oats	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation. Consider reducing the seagrape and planting pioneer dune vegetation.
3801 S Ocean Blvd		- 4-6" berm scarp, smoothed by runup - Historical wrack line at the toe of the dune extending to waterline - More Highland brown sands and shell hash visible - Beach appears to <50' from seaward edge of structure	- Not much of a pioneer dune present - Dune crest elevation is ~5-6' above berm elevation with ~2' scarp/runup to crest at base of vegetation - The seaward dune has a 2H:1V slope under sea grapes - Dune comprised of sea grape and naupaka vegetation which is positioned more landward than north adjacent property	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation. Consider reducing the seagrape and planting pioneer dune vegetation.
3805 S Ocean Blvd		- Property appears abandoned - 2-4" berm scarp, smoothed by runup - Historical wrack line at the toe of the dune extending to waterline - More Highland brown sands and shell hash visible - Beach appears to <40' from seaward edge of structure (floor elevation appears to be only ~4' above berm)	- Dune crest elevation is ~3' above berm elevation with ~2-2.5' scarp/runup to crest - The seaward dune has a 1H:2.5V slope up to crest - Not much back dune, appears flat - Waves appears to have washed over the mid-property dune - Dune's front slope comprised of sea oats; denser sea grape and naupaka vegetation comprise the north and south property edges of the dune	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.

Highland Beach - Beachfront Property Evaluation [North-to-South]

Property	Photo	Observation	Dune Condition	Is there rock?	Any visible seawalls?	**Recommendations**
3809 S Ocean Blvd		-Minor berm scarp, smoothed by runup - Historical wrack line at the toe of the dune extending to waterline - More Highland brown sands and shell hash visible	- Dune crest elevation is ~3-3.5' above berm elevation with ~2-2.5' scarp/runup - The seaward dune has a 1H:1V slope up to crest with level top; scarped areas of dune have 1H:2V slope - Dune sparsely comprised of sea oats with slightly denser sea grape and naupaka vegetation on dune crest	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation. Remove exotics. Consider reducing the seagrape and planting pioneer dune vegetation.
3813 S Ocean Blvd		- 6-8" berm scarp, smoothed by runup - Historical wrack line at the toe of the dune extending to waterline - More Highland brown sands and shell hash visible - Dune overwalk is ~8' above the berm	- Dune crest elevation is ~3-3.5' above berm elevation with ~2.5-3' scarp; wave runup of dune extends ~5' landward in some areas - The north dune has a 2H:1V slope up to crest with level top; the back dune has 4H:1V slope - The dune, south of the steps, has a 1H:2V slope, with more scarp - Dune sparsely comprised of panic grass, naupaka, and misc. vegetation on dune's scarped slope and dune crest. Denser sea grapes in the back dune	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
3817 S Ocean Blvd		- 8-9" berm scarp - Historical wrack line at the toe of the dune extending to waterline - More Highland brown sands and shell hash visible - Armoring with 2.5-3.5' wide boulders present in front of the dune, more so from north-to-mid property	- Dune crest elevation is ~3-3.5' above berm elevation with ~3' scarp where no armoring is present - The dune has a 2H:1V slope but exhibits a 1H:3V slope where dune scarp is present (mid-south property) - Dune comprised of grasses, sea grapes, naupaka, and misc. vegetation on dune's scarped slope and dune crest	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
3833 S Ocean Blvd		- 4-6" berm scarp, smoothed by runup - Historical wrack line at the toe of the dune extending to waterline - More Highland brown sands and shell hash visible	- Dune crest elevation is ~2-2.5' above berm elevation with ~2' scarp/runup to crest - The seaward dune has a 1H:2V slope up to crest - The back dune is 5-6' above berm elevation - Dune comprised of sea oats and grasses fronting a denser sea grape and naupaka back dune	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.

Highland Beach - Beachfront Property Evaluation [North-to-South]

z	Photo	Observation	Dune Condition	Is there rock?	Any visible seawalls?	**Recommendations**
3901 S Ocean Blvd		- 4" berm scarp, smoothed by runup - Historical wrack line at the toe of the dune extending to waterline - More Highland brown sands and shell hash visible - Narrow beach	- Not much of a pioneer dune present to north, slight dune to south - Back dune elevation is ~3.5-4' above berm elevation with ~2.5' scarp/runup at base of vegetation - The flattened dune has a 2H:1V slope and the scarped seaward dune has a 1H:2V slope up to crest - Dune comprised of sparse grasses fronting a denser sea grape and naupaka back dune, which is scarped at the base of the vegetation - Only ~10-15' of dense vegetation between beach and seaward edge of the patio	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
3905 S Ocean Blvd		- Berm scarp leveled off - Historical wrack line at the toe of the dune extending to waterline - More Highland brown sands and shell hash visible	- North dune crest elevation is ~3' above berm elevation and is positioned under the deck structure and no vegetation - Mid-to-south dune crest elevation is ~4' with ~2.5-3' scarp/runup to base of vegetation - The seaward dune has a 2H:1V slope up to crest - Dune comprised of sparse grasses and denser sea grape - Only ~20' of vegetation between beach and seaward edge of the patio	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
3907 S Ocean Blvd		- Berm scarp leveled off - Berm appears higher north-to-mid property compared to mid-to-south property - Historical wrack line at the toe of the dune extending to waterline - More Highland brown sands and shell hash visible - Rock outcrop visibility extends into 1-2' deep water of swash zone	- Not much of a pioneer dune present - Dune crest elevation is ~3' above berm elevation with a 2H:1V slope and ~1.5' scarp and at south end of property - Back dune has a 1H:1V slope to crest at ~8' above berm elevation - North-to-mid property, the dune is ~15-20' wide - Mid-to-south property, the dune narrows to ~10' wide - Dune comprised of sea grape and sparse sea oat vegetation	Yes; on dry beach, acts like groin	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
Regency Highland Club 3912 S Ocean Blvd		- Berm scarp leveled off - Historical wrack line at the toe of the dune - More Highland brown sands and shell hash visible - Rock outcrop visibility extends into 1-2' deep water of swash zone	-North-to-mid property dune crest elevation is ~2.5' above berm elevation sparsely covered with grasses and sea oats - South dune crest elevation is ~3-3.5' above berm elevation with ~2.5' scarp at base of sea grape vegetation - Areas where wave runup occurred on the dune, has a 1H:1V slope but exhibits a 1H:3V slope where dune scarp is present (north-to-mid property)	Yes; half on dry beach/ partially wet, acts like breakwater	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation. Consider moving beach chairs to the berm.

Highland Beach - Beachfront Property Evaluation [North-to-South]

Property	Photo	Observation	Dune Condition	Is there rock?	Any visible seawalls?	**Recommendations**
3921 S Ocean Blvd		- Berm scarp leveled off - Historical wrack line at the base of wall extending to waterline - More Highland brown sands and shell hash visible - Rock outcrop visibility only in 1-2' deep water of swash zone	- No dune, only a concrete seawall around the property - 0.5-1' of erosion visible at the base of the wall - Seawall only ~6-8' from seaward edge of pool - Runoff erosion occurring at edge of the south property's wall, at the base of the shared seawall face.	Yes; only visible in the shallow water of swash zone	Yes; 6.5' tall concrete	Evaluate feasibility of restoring dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
4001 S Ocean Blvd		- Berm scarp leveled off - Historical wrack line at the base of the wall extending to waterline - More Highland brown sands and shell hash visible - Armoring with 1' to 3.5' wide boulders, primarily along south property, 3' above berm at highest location, only 1-2' above berm for other areas	- No dune, only a steel sheet pile seawall around the property - 0.5-1' of erosion visible at the base of the wall	No	Yes; 7' tall SSP wall (with 1.5' conc cap)	Evaluate feasibility of restoring dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
4005 S Ocean Blvd		- Berm scarp leveled off - Historical wrack line at the toe of the dune extending to waterline - More Highland brown sands and shell hash visible	- Not much of a pioneer dune present - Dune crest elevation is ~2.5-3' above berm elevation with ~2' scarp to dune crest, the base of vegetation and at base of palm trees - The seaward dune has a 1H:1V slope up to crest at mid-property; the scarped dune has a 1H:2V slope - Dune comprised of sparse sea oats, denser sea grape vegetation along north property and the back dune	No	Yes; concrete. ~10 above berm elevation	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
4011 S Ocean Blvd		- Berm scarp leveled off - Historical wrack line at the toe of the dune extending to waterline - More Highland brown sands and shell hash visible	- Not much of a pioneer dune present; appears flattened - Dune crest elevation is ~2-2.5' above berm elevation with ~2' scarp to the north of the steps - The scarped base of the back dune has a 1H:2V slope - Dune comprised of sparse sea oats and palm trees, with sea grape vegetation on the back dune - Only ~20' of vegetation between beach and seaward edge of the patio structure	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.

Highland Beach - Beachfront Property Evaluation [North-to-South]

Property	Photo	Observation	Dune Condition	Is there rock?	Any visible seawalls?	**Recommendations**
4015 S Ocean Blvd		- Berm scarp leveled off - Historical wrack line at the toe of the dune extending to waterline - More Highland brown sands and shell hash visible	- North dune crest elevation is ~6-7' above berm elevation with ~3' scarp and a 1H:3V slope - South dune crest elevation is ~3-4' above berm elevation with ~2.5' scarp/runup to crest and a 1H:2V slope - The dune has a 4H:1V back slope - Dune comprised of sea oats, sea grape, and naupaka vegetation	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
4019 S Ocean Blvd		- Berm scarp leveled off - Historical wrack line at the toe of the dune extending to waterline - More Highland brown sands and shell hash visible - Rock outcrop visibility only in 2-3' deep water of swash zone	- Front dune crest elevation is ~3-3.5' above berm elevation with ~2-2.5' scarp/runup at base of vegetation - The seaward dune has a 1H:2.5V slope up to crest - Dune comprised of some sea oats with some denser sea grape and naupaka vegetation extending from the back dune to the dune toe - ~40-45' of dune fronting the patio structure	Yes; visible in 2-3' deep water, from mid-to-south property; no effect.	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
4023 S Ocean Blvd		- Berm scarp leveled off - Historical wrack line at the toe of the dune extending to waterline - More Highland brown sands and shell hash visible	- Dune crest elevation is ~10' above berm elevation with ~3' of wave runup to the north of the steps, and ~4.5' of runup behind the beach access platform/steps - Erosion along landward side of steps - Dune comprised of some sea oats and grasses with some naupaka along the north property line - ~15' of dune fronting the grass yard	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation. Remove exotics.
4101 S Ocean Blvd		- Berm scarp leveled off - Historical wrack line at the toe of the dune extending to waterline - More Highland brown sands and shell hash visible - Rock outcrop visibility only in 1-2' deep water of swash zone	- Pioneer dune has been mostly washed over; some vegetation remains on the slipped seaward face - Dune crest elevation is ~10' above berm elevation with ~3-5' of scarp/runup - ~4.5' of runup behind the beach access steps - Erosion along landward side of steps - The northern dune has a 1H:3V slope up to crest - The southern dune has a 1H:4V slope to from ~5-10' above the berm and then the slope becomes 1H:1V down to the dune toe - Dune comprised of some sea oats with dense naupaka growing mid-property - ~20' of dune fronting the grass yard	Yes; rocks up on beach and also visible at waterline and shallow water of swash zone; no effect.	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.

Highland Beach - Beachfront Property Evaluation [North-to-South]

Property	Photo	Observation	Dune Condition	Is there rock?	Any visible seawalls?	**Recommendations**
4105 S Ocean Blvd		- Berm scarp leveled off - Historical wrack line at the toe of the dune extending to waterline - More Highland brown sands and shell hash visible - Rock outcrop visibility only in 2-3' deep water of swash zone	- Pioneer dune relatively is flat due to wave runup with a 4.5H:1V slope and crest elevation at 2' above the berm elevation - Mid-dune has a 2H:1V slope and 1.5' scarp in some areas - The back dune has a 3H:1V slope - South dune is setback ~5' landward compared to the north dune - The dune is comprised of sparse grasses with a denser sea grape and naupaka vegetation growing in the back dune	Yes; visible at waterline and in 2-3' of shallow water in swash zone; no effect.	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
4111 S Ocean Blvd		- Berm scarp leveled off - Historical wrack line at the toe of the dune extending to waterline - More Highland brown sands and shell hash visible	- Not much of a pioneer dune present; deflated - Dune crest elevation is ~2.5-3' above berm elevation with ~2-2.5' scarp/runup over the deflated dune to the base of the dense vegetation - Fallen front dune comprised of sea oats - Tall dense back dune, comprised of sea grape and naupaka, is exposed and scarped at the base	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
4115 S Ocean Blvd		- Berm scarp leveled off - Historical wrack line at the toe of the dune extending to waterline - More Highland brown sands and shell hash visible	- Dune elevation is ~2' above the berm elevation with ~1-2' scarp, primarily at the north end of the property - Dune has a 3H:1V front slope and transitions to a 2H:1V back slope - Dune comprised of sea oats, sea grape, misc. vegetation; and snake plant and palms (only in south dune)	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation. Consider reducing seagrape and planting pioneer zone vegetation.
4117 S Ocean Blvd		- Berm scarp leveled off - Historical wrack line at the toe of the dune extending to waterline - More Highland brown sands and shell hash visible	- Not much of a front dune present - Dune elevation is ~2' above the berm elevation with ~1-2' scarp at the base of vegetation Dune has a 1H:1V front slope and transitions to a 2H:1V back slope - Dune comprised of sea oats, sea grape, misc. vegetation; and snake plant and palms (only in south dune)	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.

Highland Beach - Beachfront Property Evaluation [North-to-South]

Property	Photo	Observation	Dune Condition	Is there rock?	Any visible seawalls?	**Recommendations**
4121 S Ocean Blvd		- Berm scarp leveled off - Historical wrack line at the toe of the dune extending to waterline - More Highland brown sands and shell hash visible - Visible, partially buried rocks mid-berm (at the wrack line) - Narrow beach is only ~80' from waterline to dune toe	- Not much of a pioneer dune present - Dune elevation is ~1.5-2' above the berm elevation with ~1-2' scarp at the base of vegetation - Dune has a 1H:1V slope - Dune comprised of sea oats, sea grape, snake plants, and misc. vegetation - Dune is <50' wide	Yes; rocks buried on the upland beach, mid-berm to near the dune toe	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
4201 S Ocean Blvd		- Berm elevation is ~1' higher than adjacent properties - Historical wrack line at the toe of the dune extending to mid-berm - More Highland brown sands and shell hash visible - Visible, partially buried rocks dune toe (Armoring boulders?) - Rock outcrop mid-berm to the waterline	- Not much of a pioneer dune present, rocks partially buried at dune toe - Dune crest elevation is ~2.5-3' above berm elevation and there is ~2-2.5' scarp base of the vegetation - Dune has a 1H:2V slope - Dune comprised of sea grape and misc. vegetation	Yes; some rocks buried at the dune toe. Most of the rock outcrop is up on the beach down, mid-berm to the waterline. Acts as a breakwater. Scour is occurring at the base of the seaward edge.	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation. Consider reducing sea grape and planting pioneer dune vegetation.
4205 S Ocean Blvd		- Berm elevation is ~0.5' higher than southern adjacent property - Historical wrack line at the toe of the dune extending to mid-berm - More Highland brown sands and shell hash visible - Visible, partially buried rocks dune toe (Armoring boulders?)	- Not much of a pioneer dune present due to severe erosion, especially at mid-property near the steps - Dune has a 1H:5V slope, with 2' of scarp at the base of the vegetation - Dune comprised sea grape, naupaka, and misc. vegetation - Northern dune vegetation extends seaward ~10' compared to the rest of the dune	Yes; some rocks buried at the dune toe. Some of the rock outcrop along the north edges of the property act as breakwater for this property. No exposed rocks in the berm fronting property, but another outcrop is exposed along the south property edge.	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
Ocean Place Villas 4211 S Ocean Blvd		- Very narrow beach, <40' from waterline to dune toe -Berm scarp is ~6" at waterline Historical wrack line at the toe of the dune extending to mid-berm - More Highland brown sands and shell hash visible - Northern steps are the most seaward and tapers landward at each location. -Rock outcrop only present at north end of property	- Not much of a pioneer dune present; appears flattened with some grasses only ~2' above berm elevation - The dune appears to be severely eroded, with 4-6' of wave run-up and 2' to 5' scarp in areas - Dune position tapers landward between each walkover staircase; 20' from north-to-mid steps; 10' from mid-to-south steps; 10' from south steps to property line - North dune has a 1H:2V slope, Mid dune has a 1H:3V slope, and South dune has a 1H:5V slope - Dune comprised of sea oats, grasses, sunflowers, and misc. vegetation	Yes; rock outcrop at north end of property acts as a groin. Visible into 2' deep water	Yes; visible at south property edge. ~10' tall, concrete cap	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.

Highland Beach - Beachfront Property Evaluation [North-to-South]

Property	Photo	Observation	Dune Condition	Is there rock?	Any visible seawalls?	**Recommendations**
4217 S Ocean Blvd		- Berm scarp leveled off - Narrow beach - Historical wrack line at the toe of the dune extending to mid-berm - More Highland brown sands and shell hash visible	- Small dune present fronting the seawall - Dune elevation ~3' above berm elevation with a 3H:1V slope - Wave run-up visible to dune crest, with 1.5' scarp in areas - Dune comprised sea oats, naupaka, and misc. vegetation	No	Yes; 9' tall SSP wall (with 2' conc cap)	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
4221 S Ocean Blvd		- Berm scarp leveled off - Narrow beach - Historical wrack line at the toe of the dune extending to mid-berm - More Highland brown sands and shell hash visible	- Small dune present fronting the seawall - The north dune extends 3-8' from base of seawall, with an elevation of ~2-2.5' above the berm elevation and ~2' scarp - The south dune extends 10-15'' from base of seawall, with an elevation of ~3-3.5' above the berm elevation and ~3' scarp - Wave run-up visible to dune crest with dying vegetation on seaward edge and at base of exposed roots - Dune comprised sea oats, naupaka, and misc. vegetation	No	Yes; 7' tall SSP wall (with 1.5' conc cap)	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
4301 S Ocean Blvd		- Berm scarp leveled off - Narrow beach - Historical wrack line at the toe of the dune extending to mid-berm - More Highland brown sands and shell hash visible	- Pioneer dune has a fallen slope, sits at an elevation ~3' above berm elevation with 2.5' scarp/runup - Severe erosion of back dune face, with ~5-6' scarp - Dune has 1H:4.5V slope - Dune comprised sea oats, naupaka, and misc. vegetation	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
Coco-de-Mar 4307 S Ocean Blvd		- Berm scarp leveled off - Narrow beach; only ~55' from waterline to dune toe - Historical wrack line at the toe of the dune extending to mid-berm - More Highland brown sands and shell hash visible - Armoring boulders located near base of steps	- Dune has been newly planted with 2H:1V front slope and a 3H:1V back slope - Dune comprised sea oats - Dune toe is only ~0.5' above the berm elevation - Dune crest is ~10' above berm elevation	No	No	No action.

Highland Beach - Beachfront Property Evaluation [North-to-South]

Property	Photo	Observation	Dune Condition	Is there rock?	Any visible seawalls?	**Recommendations**
1 Ocean Place		- Berm scarp leveled off - Narrow beach - Historical wrack line at the toe of the dune extending to waterline - More Highland brown sands and shell hash visible	- Severe dune erosion present, with scarp of ~10' up to top of dune face - Fallen slope/front dune has elevation of ~1' above berm elevation - Dune is setback 10-15' landward compared to neighbors - Dune comprised sea oat, sea grape and misc. vegetation - Dune slope has 1H:8V slope at it's most extreme sheared face - The seaward face of the home/structure is <10-15' from the scarped dune face	No	Yes; buried SSP	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
2 Ocean Place		- Berm scarp leveled off - Narrow beach - Historical wrack line at the toe of the dune extending to waterline - More Highland brown sands and shell hash visible	- Dune has been newly planted with 1H:1V slope and 6' swale at toe of the dune - Toe of the dune is ~3' above the berm elevation - Dune comprised sea oats; sea grapes are planted along south property line - Patio structure along south end of property cuts into the top 1.5' of dune. - The seaward face of the home/structure is <15' from the dune crest	No	Yes; buried SSP	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
3 Ocean Place		- Berm scarp leveled off - Narrow beach - Historical wrack line at the toe of the dune extending to waterline - More Highland brown sands and shell hash visible	- Severe dune erosion present, with scarp of ~8-9' up the dune face - Fallen slope/front dune has elevation of ~1-1.5' above berm elevation - Dune is setback 10' landward compared to neighbors - Dune comprised sea oat, sea grape and misc. vegetation - Dune slope has 1H:4V slope - Scarp/wave run-up at the steps is ~10' above the berm - The seaward face of the home/structure is <15' from the scarped dune face	No	Yes; buried SSP	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
4 Ocean Place		- Berm scarp leveled off - Narrow beach - Historical wrack line at the toe of the dune extending to waterline - More Highland brown sands and shell hash visible	- Dune has dense shrub extending from dune toe up to ~8-9' above berm elevation - Dune has 1H:1.5V slope under the shrub - Front dune has a 1H:1V slope - Dune comprised dense shrub and misc. vegetation; sea grapes planted along both property edges - Erosion/wave run-up of ~8' under the stairs	No	Yes; buried SSP	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation. Consider removing some of the seagrape and replanting pioneer dune species.

Highland Beach - Beachfront Property Evaluation [North-to-South]

Property	Photo	Observation	Dune Condition	Is there rock?	Any visible seawalls?	**Recommendations**
5 Ocean Place		- Berm scarp leveled off - Narrow beach - Historical wrack line at the toe of the dune extending to waterline - More Highland brown sands and shell hash visible	- Dune has dense shrub extending from dune toe up to ~8-9' above berm elevation - Dune has a fallen 1H:5V slope with 8' scarp in some areas - Front dune that has not been eroded has a 1H:1V slope - Dune comprised dense shrub, sea grape, naupaka, and misc. vegetation - Erosion/wave run-up of ~4-5' in areas without vegetation - Erosion/wave run-up of ~5' under the stairs	No	Yes; buried SSP	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation. Consider removing some of the seagrape and replanting pioneer dune species.
6 Ocean Place		- Berm scarp leveled off - Narrow beach - Historical wrack line at the toe of the dune extending to waterline - More Highland brown sands and shell hash visible	- Dune has dense shrub extending from dune toe up to ~8-9' above berm elevation - Dune has fallen 1H:2V slope with 5' scarp in some areas - Dune comprised grasses, sea grape and misc. vegetation -Dune toe has erosion/wave run-up of ~4-5' to south of stairs - Erosion/wave run-up of ~5' under the stairs	No	Yes; buried SSP	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation. Consider removing some of the seagrape and replanting pioneer dune species.
7 Ocean Place		- Berm scarp leveled off - Narrow beach - Historical wrack line at the toe of the dune extending to waterline - More Highland brown sands and shell hash visible	- Dune toe elevation is ~2-3' above berm elevation - Dune has ~1.5' scarp at the base of the vegetation with a 2H:1V slope - Top of dune is ~7-8' above the berm elevation, which is ~1' shorter compared to neighboring properties - Dune comprised sea oats, naupaka, and misc. vegetation - Front dune has erosion/wave run-up of ~3' to north of stairs	No	Yes; buried SSP	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation. Consider removing some of the seagrape and replanting pioneer dune species.
8 Ocean Place		- Berm scarp leveled off - Narrow beach - Historical wrack line at the toe of the dune extending to waterline - More Highland brown sands and shell hash visible	- Dune Toe elevation is ~2-3' above berm elevation - Dune has a 2H:1V slope - Top of dune is ~8-9' above the berm elevation - Front of dune comprised sea oats; back dune comprised of sea grape and misc. shrub vegetation - Front of dune has erosion/wave run-up of ~3.5' to south of stairs	No	Yes; buried SSP	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation. Consider removing some of the seagrape and replanting pioneer dune species.

Highland Beach - Beachfront Property Evaluation [North-to-South]

Property	Photo	Observation	Dune Condition	Is there rock?	Any visible seawalls?	**Recommendations**
9 Ocean Place		- Berm scarp leveled off - Beach is less narrow at this property - Historical wrack line at the toe of the dune extending to waterline - More Highland brown sands and shell hash visible	- Dune toe elevation is ~2-3' above berm elevation with ~1' scarp at the base of the vegetation - The south dune toe is ~10' landward compared to the toe located north of stairs - Front dune slope has 4H:1V slope - Back dune has 1H:1V slope - Top of dune is ~9' above the berm elevation - Front dune comprised sea oats; back dune comprised of sea grape, naupaka, and misc. shrub vegetation	No	Yes; buried SSP	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation. Consider removing some of the seagrape and replanting pioneer dune species.
10 Ocean Place		- Berm scarp leveled off - Beach is less narrow at this property - Historical wrack line at the toe of the dune extending to waterline - More Highland brown sands and shell hash visible	- The north-to-mid dune crest elevation is ~1' above berm - The mid-to-south front dune has been eroded and is set back ~10' landward compared to north dune - Top of dune elevation ~8' above the berm elevation with ~6' scarp in some areas - Front dune (north end) slope has 4H:1V slope - Back dune has 1H:3V slope - Front dune comprised of sparse sea oats; back dune comprised of sea grape, naupaka, and misc. shrub vegetation	No	Yes; buried SSP	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation. Consider removing some of the seagrape and replanting pioneer dune species.
11 Ocean Place		- Berm scarp leveled off - Beach is less narrow at this property - Historical wrack line at the toe of the dune extending to waterline - More Highland brown sands and shell hash visible	- The fallen slope of the dune toe is ~2' above berm elevation - Top of dune elevation ~8' above the berm elevation with ~4' wave run-up in some areas - North front dune slope is 1H:1V slope, with 1' scarp at the base of the vegetation - South dune has 2H:1V slope with ~1.5 scarp at the base of the vegetation - Dune comprised of sparse sea oats, sea grape, naupaka, and misc. shrub vegetation	No	Yes; buried SSP	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation. Consider removing some of the seagrape and replanting pioneer dune species.
45 Ocean Condominium 4511 S Ocean Blvd		- 6" berm scarp, smoothed by run-up - Beach is less narrow at this property - Historical wrack line at the base of the wall extending to waterline - More Highland brown sands and shell hash visible	- No dune present in front of seawall - North end of the wall appears to have ~1-1.5' more sand than the south end of the wall - Minor erosion (0.5-1') at the base of the seawall - Mainly weeds and railroad vines present at the base of wall	No	Yes; ~7' above berm, concrete wall	Evaluate feasibility of reestablishing a dune on this property. Likely more feasible on the south side of the property.

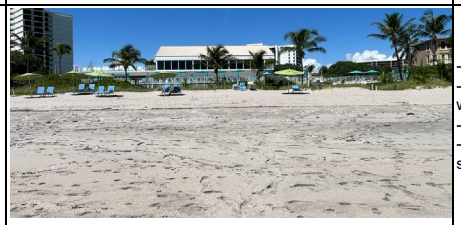
Highland Beach - Beachfront Property Evaluation [North-to-South]

Property	Photo	Observation	Dune Condition	Is there rock?	Any visible seawalls?	**Recommendations**
4513 S Ocean Blvd		- Berm scarp leveled off - Beach is less narrow at this property - Historical wrack line at the toe of the dune extending to waterline - Highland brown sands with shell hash more prominent	- Back dune has a 1H:1V slope - Dune has ~3-4' scarp at the toe of the dune with 1H:3V slope - Wave run-up/scarp under the steps is ~7' above the berm - Dune comprised mostly of sea oats, grasses, and railroad vines	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
4515 4517 4519 S Ocean Blvd		- ~6" berm scarp, smoothed by run-up - Beach is less narrow at this property - Historical wrack line at the toe of the dune extending to waterline - Highland brown sands with shell hash more prominent	- Front of dune has a 3H:1V slope and back dune has a 1H:1V slope - Dune has ~2-3' scarp at the toe of the dune - Wave run-up/scarp under the steps is ~5-7' above the berm - Dune comprised mostly of sea oats, grasses, and railroad vines; and sea grapes, along the south property edge - Scarp at base of sea grape vegetation is ~2.5'	Yes; visible in 1-2' deep water at mid property, going south; no effect.	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
4521 4523 S Ocean Blvd (Former Sea Frolic Condo)		- Berm scarp leveled off - Beach is less narrow at this property - Historical wrack line at the toe of the dune extending to waterline - Highland brown sands with shell hash more prominent - Nearshore bar is ~40-50' from shoreline	- Dune toe has elevation of ~3' above the berm elevation with ~2-2.5' scarp at the toe of the dune - Back dune has a 1H:1V slope - Wave run-up/scarp is visible up to 5' above berm elevation - Dune comprised mostly of sea oats, misc. vegetation, and railroad vines	Yes; flat rocks visible in 1-2' deep water; no effect.	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.
Park Highland E Condo 4605 S Ocean Blvd		- ~4-6" berm scarp, smoothed by run-up - Beach is less narrow at this property - Historical wrack line at the toe of the dune extending to waterline - Highland brown sands with shell hash more prominent	- Dune toe has elevation of ~3' above the berm elevation with ~1.5-2' scarp at the toe of the dune - Back dune has a 1H:2V slope under the vegetation and extends 15-20' above the berm elevation - Wave run-up/scarp is visible up to 2-3' above berm elevation at the base of the vegetation - Dune tapers landward about 10' from the north end to the south end of the property - Dune comprised of sea oats, sea grape, railroad vines, and misc. vegetation	Yes; flat rocks/ridge is visible in 1-2' deep water; no effect.	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation.

Highland Beach - Beachfront Property Evaluation [North-to-South]

Property	Photo	Observation	Dune Condition	Is there rock?	Any visible seawalls?	**Recommendations**
4611 S Ocean Blvd		- ~4-6" berm scarp, smoothed by run-up - Beach is less narrow at this property - Historical wrack line at the toe of the dune extending to waterline - Highland brown sands with shell hash more prominent	- Base of the vegetation is ~3' above the berm elevation - There is ~2.5-3' of scarp, exposing the base of the vegetation - Back dune has a 1H:2V slope under the vegetation and extends ~30-40' above the berm elevation - Dune comprised of dense sea grape and misc. grasses	Yes; flat rock/ridge is visible in 2-3' deep water; no effect.	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation. Consider reducing the seagrape and planting pioneer dune species.
4612 S Ocean Blvd		- Berm scarp leveled off - Beach is less narrow at this property - Historical wrack line at the toe of the dune extending to waterline - Highland brown sands with shell hash more prominent - Nearshore bar is ~20-30' from shoreline	- Base of the vegetation is ~3' above the berm elevation (1H:3V slope) - There is ~2.5-3' of scarp, exposing the base of the vegetation - Back dune has a 1H:2V slope under the vegetation and extends ~30-40' above the berm elevation - Dune comprised of dense sea grape and misc. grasses	Yes; visible in 2-3' deep water; no effect.	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation. Consider reducing the seagrape and planting pioneer dune species.
4621 S Ocean Blvd		- Berm scarp leveled off - Beach is less narrow at this property - Historical wrack line at the toe of the dune extending to waterline - Highland brown sands with shell hash more prominent - Nearshore bar is ~20' from shoreline	- Base of the vegetation is ~4' above the berm elevation (1H:2V slope) - There is ~6-7' of scarp, exposing the base of the vegetation; also under the steps - Back dune has a 1H:2V slope under the vegetation and extends ~30-40' above the berm elevation - Dune comprised of dense sea grape and misc. grasses	Yes; visible in 2-3' deep water; no effect.	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation. Consider reducing the seagrape and planting pioneer dune species.
4705 S Ocean Blvd PARK		- Beach is relatively wide at the north side of the property and becomes narrow south of Yamato Rock - Historical wrack line at the toe of the dune extending to mid-berm - Highland brown sands with shell hash more prominent	- Base of the vegetation is ~3' above the berm elevation (1H:2V slope) - There is ~6-7' of wave run-up around the end wall, with ~4-5' of scarp exposing the base of the vegetation to the north of the end wall - Back dune has a 1H:2V slope under the vegetation and extends ~30-40' above the berm elevation - South of end wall, the property tapers landward 20-25' compared to north end of property - Dune comprised of dense sea grape, naupaka, and misc. grasses	Yes; Yamato Rock North end acts as a breakwater, south end acts like a groin	Yes; a short wall, 2.5-3' above berm. SSP with 1.5' concrete cap at base of the dune	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation. Consider reducing the seagrape and planting pioneer dune species.

Highland Beach - Beachfront Property Evaluation [North-to-South]

Property	Photo	Observation	Dune Condition	Is there rock?	Any visible seawalls?	**Recommendations**
4713 S Ocean Blvd		- Beach is slightly narrow at this property - Historical wrack line at the toe of the dune extending to waterline - Highland brown sands with shell hash more prominent - Nearshore bar extends from Yamato Rock, ~20' from shoreline	- Dune elevation is 2-2.5' above berm elevation with ~2' scarp - Front of dune has 10-15' width, comprised of sea oats and grasses before a denser sea grape back dune - Back dune elevation extends ~8-10' above the berm elevation - Dune has a 2H:1V slope - The dune located at mid-property, has thinned out/sparse vegetation	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation. Consider raising dune crest elevation for increased storm protection.
4715 S Ocean Blvd		- Beach is slightly narrow at this property - Historical wrack line at the toe of the dune extending to waterline - Highland brown sands with shell hash more prominent - Nearshore bar extends from Yamato Rock, ~20' from shoreline	- Dune elevation is 2-2.5' above berm elevation with ~2' scarp - Front of dune has 25-30' width with sea oats and grasses before a denser sea grape back dune - Back dune elevation extends ~8-10' above the berm elevation - Dune has a 2H:1V front slope and a 10H:1V back slope - Wave run-up is visible ~5' into the front dune at base of the sea oats	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation. Consider raising dune crest elevation for increased storm protection.
4801 S Ocean Blvd		- Beach is relatively wide at this property - Historical wrack line at the toe of the dune extending to waterline - Highland brown sands with shell hash more prominent - Nearshore bar extends from Yamato Rock, ~20' from shoreline	- Dune elevation is 1.5-2' above berm elevation with ~1' scarp/wave run-up over the front of dune - Dune is ~30-40' wide from the beach to the seaward edge of the structures - The back dune is a lower elevation than the front dune (appears to be the same elevation as the berm) - Front dune is comprised of sea oats and grasses before a denser sea grape and naupaka back dune	No	Unknown	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation. Consider raising dune crest elevation for increased storm protection.
Admirals Walk Condominium (beach access)		- Beach is relatively wide at this property - Historical wrack line at the toe of the dune extending to waterline - Highland brown sands with shell hash more prominent - Nearshore bar extends from Yamato Rock, ~20' from shoreline	- Dune elevation is 2.5-3' above berm elevation with ~2-2.5' scarp - Front of dune has sea oats and grasses - Mid and back dunes comprised of denser sea grape, palms, and misc. vegetation	No	No	Restore dune toe with 2cy/ft of sand along east dune toe. Revegetate dune toe with pioneer zone dune vegetation. Consider raising dune crest elevation for increased storm protection.

Matchline Figure 2

Notes:

1. Background is ERSI's Imagery basemap.

Legend:

Parcel

E
N
S
W

0 100 200

US Feet

Title:

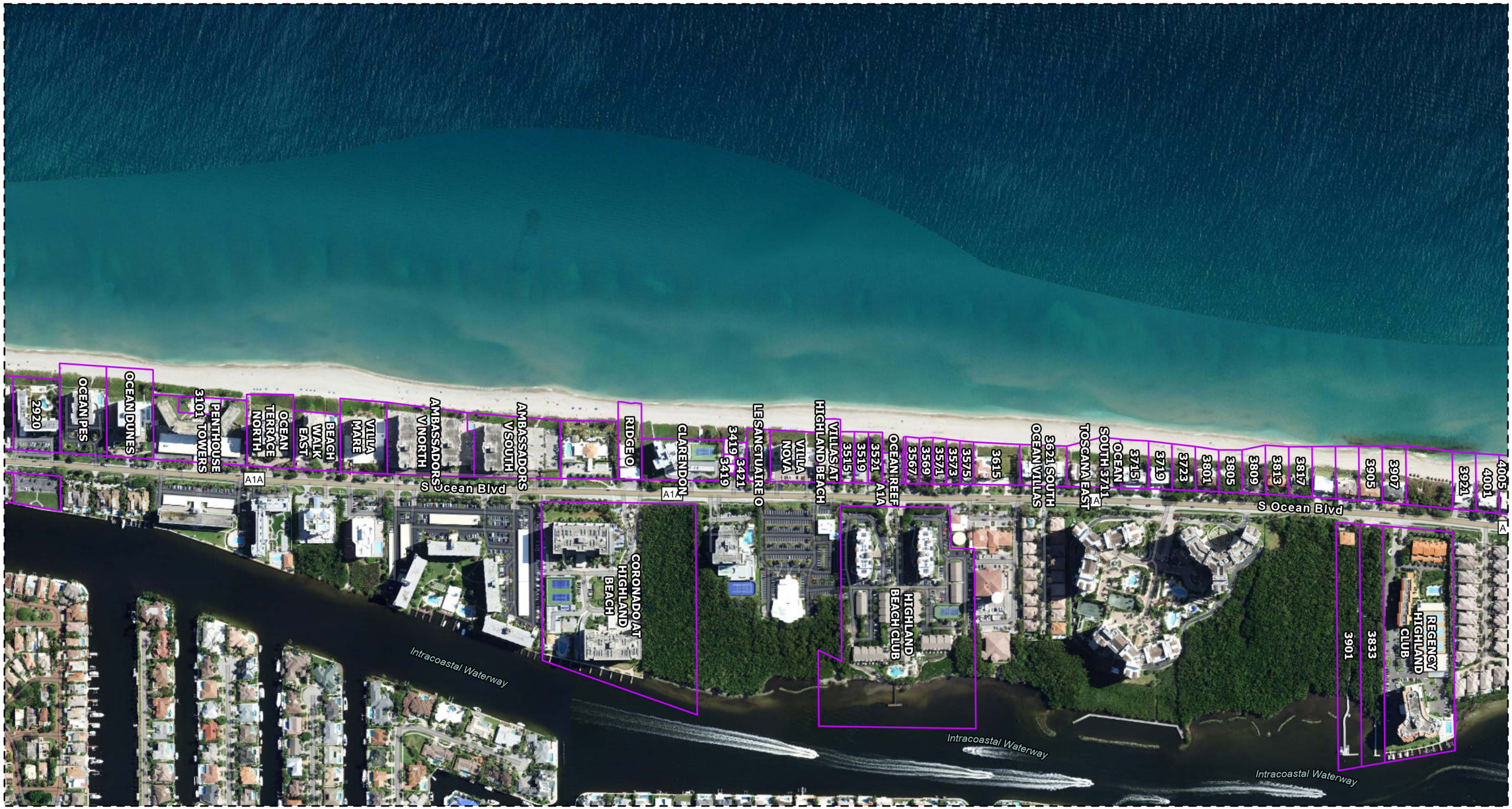
Highland Beach
Ocean Front Parcels

APTIM

6401 Congress Avenue, Suite 140
Boca Raton, FL 33487
APTIM.com

Date: 08/16/2023	Drawn By: HMV	Commission No.: 631030509	**Figure 1**

Matchline Figure 1



Matchline Figure 3

Notes:

1. Background is ERSI's Imagery basemap.

Legend:

Parcel

N E S W

0 100 200

US Feet

Title:

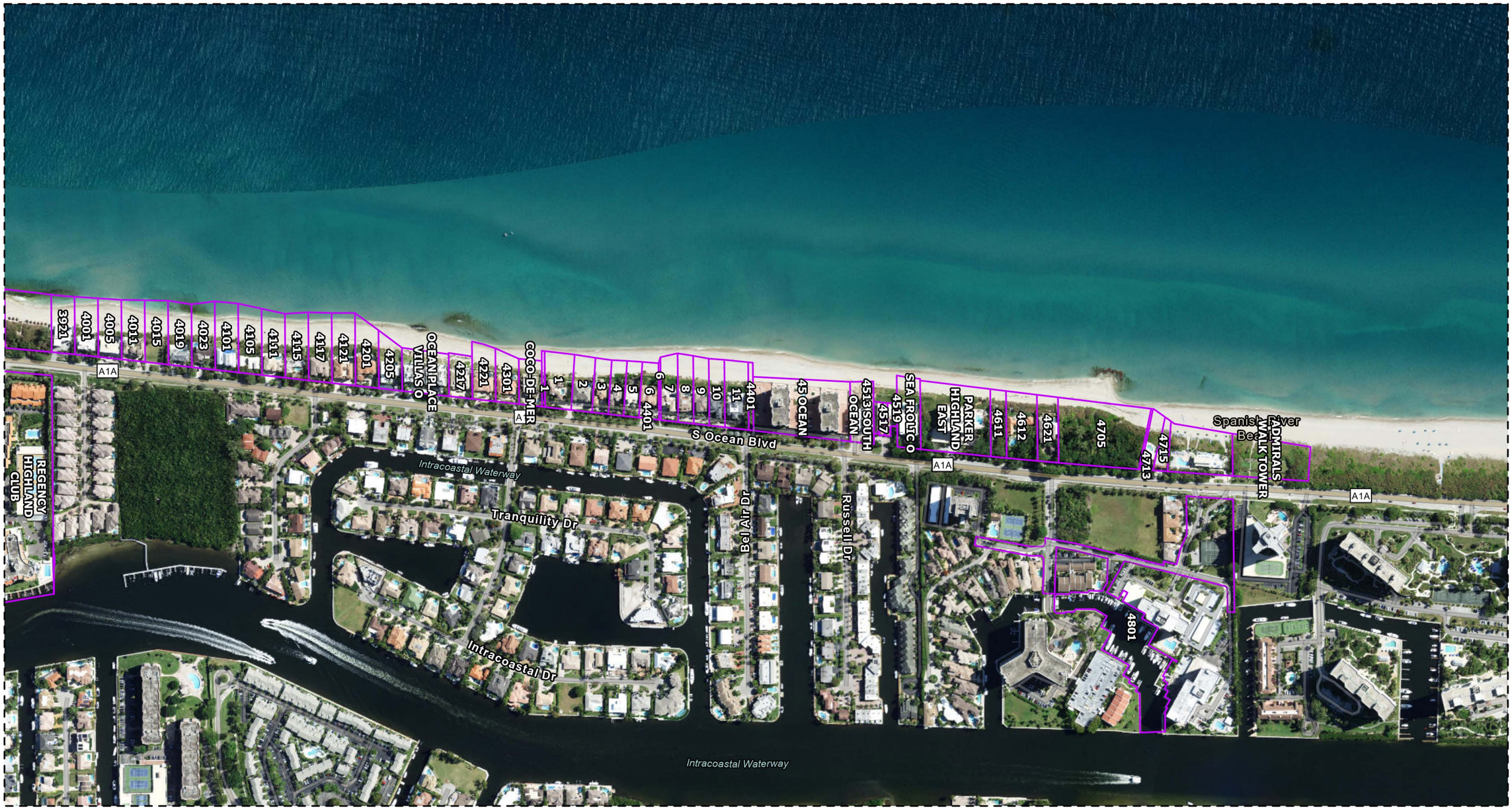
Highland Beach
Ocean Front Parcels

APTIM

6401 Congress Avenue, Suite 140
Boca Raton, FL 33487
APTIM.com

Date: 08/16/2023	Drawn By: HMV	Commission No.: 631030509	**Figure 2**

Matchline Figure 2



Notes:

1. Background is ERSI's Imagery basemap.

Legend:

Parcel

N E S W

0 100 200

US Feet

Title:

Highland Beach
Ocean Front Parcels

APTIM

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Boca Raton, FL 33487
APTIM.com

Date: 08/16/2023	Drawn By: HMV	Commission No.: 631030509	**Figure 3**

APPENDIX C

SELECT DUNE VEGETATION ISSUES IN HIGHLAND BEACH

Seagrapes

Seagrapes are a common native dune species observed within Highland Beach and elsewhere in Palm Beach County (Photo C-1). They are a shallow rooted species which are best suited on the back dune face. While a native species, it can be invasive over years to decades timeframes as the plant will crowd out other native dune species.

The current growing conditions (annual weather) in Palm Beach County are optimal. If left unmanaged, seagrapes can grow to tree height. Historically freezing weather and lightning induced fires limited the growth of seagrapes (Barron, personal communication). Heavy salt spray will turn the leaves brown and potentially kill the plant. Therefore, seagrapes are best managed and grown landward of the dune crest. The shallow root system does not assist in sand retention on the dune face. The seagrapes tend to fall down the dune face when undermined (Photo C-1).

In Appendix B, there are multiple properties, where there are recommendations for consideration of removal of some of the seagrapes. Individual owners need to consider how the existing seagrapes contribute to the existing and future dune ecosystems. Resiliency considerations may warrant larger scale dune revegetation efforts.

Beach Naupka (Naupaka)

Beach Naupka is an exotic invasive plant that grows well on the dune face in Palm Beach County (Photo C-1). It is characterized by oval (or club shaped) shiny green leaves. It should be removed from all dune ecosystems as it crowds out and shades native dune species. Any FDEP permit issued will require its removal.

Photo C-1. Seagrapes at the left center of the photograph and Beach Naupka on the right side of the photograph.

Douglas Mann, P.E., D.CE.
Lead Coastal Engineer
Coastal Restoration Team

APTIM
6401 Congress Avenue, Suite 140
Boca Raton FL 33487
Tel: +1 561 361 3148
Fax: +1 561 391 9116
Douglas.Mann@aptim.com

631030509

February 17, 2023

Marshall Labadie, Town Manager
Ingrid Allen, Town Planner
Town of Highland Beach
3614 S. Ocean Blvd.
Highland Beach, FL 33487

Re: Beach Feasibility Study Update

Dear Mr. Labadie and Ms. Allen:

This letter is Aptim Environmental & Infrastructure, LLC's (APTIM) response to the Town of Highland Beach's request for a proposal to update the Town of Highland Beach's 2013 beach feasibility study. A scope of work is included in Exhibit 1

Compensation

The cost of these services is a lump sum of $29,245. A cost breakdown is attached in Exhibit 2.

Contractual Basis

All services will be provided in accordance with the terms and conditions outlined in Exhibit 3.

Please authorize APTIM to proceed by signing and returning the Professional Services Agreement (PSA) in Exhibit 3 and issuing a purchase order in the name of Aptim Environmental & Infrastructure, LLC. A signed copy of the PSA will be sent to you.

If you have any questions, please call me.

Very truly yours,

Douglas W. Mann, P.E., D.CE.
Lead Coastal Engineer
Aptim Environmental & Infrastructure, LLC

Exhibit 1
Scope of Services

Introduction

In 2013, the Town of Highland Beach (Town) undertook a feasibility study[1] to develop a beach management plan to inform the Town regarding the condition of their beach and dune system, specific improvements that could be made, and how to fund those improvements. Since that time, the Town has participated in a joint climate change resiliency study and the beach and dune system has been subject to episodic erosional stresses by waves, tides, and storm surges. This plan update will review the existing conditions of the beach and dune system, review erosional conditions within the Town, and present updated improvements. Funding of these improvements will be reviewed and presented. Aptim Environmental & Infrastructure, LLC (APTIM) proposes the following services:

A. Beach and Dune Profile Survey

APTIM surveyors will survey the twelve (12) profiles established by the Florida Department of Environmental Protection (FDEP), which are located at approximate 1,000-foot intervals within the Town. These profiles have not been surveyed in many years. Current beach profiles will provide a basis for the beach management plan update. All surveys will be measured from the dune to the -30 feet NAVD depth contour or 3,000 feet offshore, whichever is greater.

B. Beach and Dune Condition Observation

APTIM coastal engineers will observe the conditions of the beach and dune for each property within the Town. Specific reference will be made to the presence of nearshore rock in the beach profile and its effects on beach and dune stability. The presence or absence of dune scarps and condition of dune vegetation will be noted.

C. Beach and Dune Changes

Beach and dune changes will be quantified at the mean high water line and at the toe of the dune. The beach profiles will be assessed through volumetric comparison from the top of the dune to the depth of closure. The changes will be assessed over the last decade. A discussion of erosion hot spots will be provided as appropriate.

D. Coastal Force Evaluation

APTIM engineers will evaluate the historic wind, wave, tide, storm surge, and recent storm history that have impacted the Town. An evaluation of the effects of sea level rise on the beach and dune system will be presented. The sea level rise evaluation will reference recent regional investigations by the Coastal Resiliency Partnership, and the findings of the South Florida Climate Change Compact.

E. Alternatives Evaluation

APTIM engineers will assess the need for immediate or future beach improvements. These improvements include dry beach nourishment, full beach profile nourishment, coastal structures, and

[1] The 2013 feasibility study was completed by Coastal Planning & Engineering, LLC, a Shaw Group Company. This is a legacy company of Aptim Environmental & Infrastructure, LLC. All records of the 2013 study reside in our Boca Raton, FL office.

dune restoration. Considerations of Town wide projects versus localized projects will be discussed. Conceptual level designs will be provided. An engineering opinion of probable construction costs will be provided. The regulatory requirements will be discussed. We will also discuss currently available beach access points for construction of a truck haul project.

F. Funding Alternatives

The report will discuss potential funding mechanisms available to the Town. These include Federal, State, County and Town funding opportunities. A discussion of various taxing options within the Town will be presented.

Deliverables

APTIM will provide a draft feasibility report in PDF format. APTIM will respond to one round of comments. APTIM will then submit two (2) hardcopies of the final report along with an electronic copy in PDF format. The draft copy of the report will be submitted within 12 weeks of the Notice to Proceed. The final report will be submitted within two (2) weeks of receipt of your final comments.

APTIM will prepare for, and attend, one (1) commission meeting to present the general findings of the report.

Exhibit 2

Cost Estimate

APTIM

SPM REVISION: 2021 - REV 21.3
Release Date: 5/18/21

PROJECT NUMBER: 631030509
PROPOSAL NUMBER: 631030509
Date Pricing Model was Prepared: 2/13/23

Project Estimate
Summary By Task
Highland Beach Feasility Study Update
02/13/23

Task Number	Task Name	Labor	Sub-contractors	Equipment	Materials	Other ODC's	Travel	Total	Adjustments	Total Project
Tsk-001	Beach Profile Survey	$ 8,500.00	$ -	$ 1,945.00	$ -	$ -	$ -	$ 10,445.00	-	**$ 10,445.00**
Tsk-002	Beach Observation	$ 3,350.00	$ -	$ -	$ -	$ -	$ -	$ 3,350.00	-	**$ 3,350.00**
Tsk-003	Beach and Dune Changes	$ 2,090.00	$ -	$ -	$ -	$ -	$ -	$ 2,090.00	-	**$ 2,090.00**
Tsk-004	Coastal Forces Evaluation	$ 2,510.00	$ -	$ -	$ -	$ -	$ -	$ 2,510.00	-	**$ 2,510.00**
Tsk-005	Alternatives Evaluation	$ 4,600.00	$ -	$ -	$ -	$ -	$ -	$ 4,600.00	-	**$ 4,600.00**
Tsk-006	Funding Alternatives	$ 1,230.00	$ -	$ -	$ -	$ -	$ -	$ 1,230.00	-	**$ 1,230.00**
Tsk-007	Report and Meeting	$ 5,020.00	$ -	$ -	$ -	$ -	$ -	$ 5,020.00	-	**$ 5,020.00**
Tsk-008	Task Name 8	$ -	$ -	$ -	$ -	$ -	$ -	$ -	-	**$ -**
Tsk-009	Task Name 9	$ -	$ -	$ -	$ -	$ -	$ -	$ -	-	**$ -**
Tsk-010	Task Name 10	$ -	$ -	$ -	$ -	$ -	$ -	$ -	-	**$ -**
Totals =		**$ 27,300.00**	**$ -**	**$ 1,945.00**	**$ -**	**$ -**	**$ -**	**$ 29,245.00**	**$ -**	**$ 29,245.00**

Submitted By: Douglas Mann
Submitted To: Highland Beach Feasility Study Update
Submission Date: 02/13/23

Exhibit 3

Professional Services Agreement

PROFESSIONAL SERVICES AGREEMENT
FIXED PRICE BASIS

This Agreement by and between Aptim Environmental & Infrastructure, LLC. ("APTIM"), and the undersigned client ("CLIENT") sets forth the terms and conditions pursuant to which APTIM will provide services (the "Services") to CLIENT.

1. Services

The Services to be performed are as described in the Proposal **for Coastal Engineering Services for the update of the 2013 Beach Feasibility Study,** which is attached as Exhibit A. The parties may modify, supplement or change the Services to be performed only by written amendment to Exhibit A.

2. Compensation

The services will be performed on a fixed price basis for **Twenty-Nine Thousand Two Hundred Forty-Five and 00/100 dollars ($29,245).**

3. Payment

Unless otherwise agreed to in writing, invoices will be submitted no more frequently than every two weeks. Invoices shall be paid in U.S. Dollars in the manner requested by APTIM and are due upon receipt. Invoices not paid within thirty (30) days after the date thereof shall bear interest from the date thereof at the rate of one and one-half (1-1/2) percent per month or the maximum rate permissible by law, whichever is less.

4. Termination

Either Party may terminate this Agreement at any time, with or without cause, by written notice; provided, however, that CLIENT shall compensate APTIM for all Services performed prior to APTIM's actual receipt of notice and all of APTIM's costs and expenses incurred prior to and/or as a result of the termination.

5. Independent Contractor

APTIM shall be fully independent in performing the Services and shall not act as an agent or employee of CLIENT.

6. Taxes, Fees, and Other Charges

In connection with the Services, CLIENT shall pay all sales, conveyance, transfer and recording fees and taxes, if any. In the event APTIM is requested or authorized by CLIENT, or is required by government regulation, subpoena, or other legal process, to produce documents or personnel as witnesses regarding the Services performed under this Agreement, CLIENT agrees, so long as APTIM is not a party to the proceeding in which the information is sought, to reimburse APTIM for its professional time and expenses, as well as the fees and expenses of counsel, incurred in responding to such requests.

7. Documentation, Records, Audit

All documents, records, data, laboratory or field equipment computerized data files, computer models or other information supplied to APTIM by CLIENT and/or CLIENT's agents, employees, directors, officers, shareholders, or representatives shall remain the property of CLIENT and shall be returned to CLIENT upon completion of any work or service provided hereunder. APTIM shall be permitted to retain a copy of such information for archival purposes.

CLIENT shall have the right, at its expense, to inspect and audit APTIM's records and accounts covering charges hereunder at all reasonable times during the course of the Services for a period of one (1) year after the substantial completion thereof; provided, however, that the purpose of such audit shall be only for verification of such charges. APTIM is not required to keep records, or provide access to records it may have, relating to costs of goods or services charged to CLIENT on the basis of a fixed price, fixed unit rates, or which are expressed in terms of percentages of other costs.

Upon completion of any such audit, the results shall be presented to APTIM. To the extent that the audit indicates that APTIM has not been adequately compensated by CLIENT, CLIENT shall pay APTIM any compensation due as shown by the audit. Alternatively, to the extent that any audit indicates that the total amount of compensation paid by CLIENT to APTIM exceeded the actual amount due, APTIM shall return such excess compensation to CLIENT.

8. APTIM's Responsibilities

a. APTIM shall perform its services consistent with the professional skill and care ordinarily provided by members of the same profession practicing at the same time in the same or similar locality under the same or similar circumstances. APTIM makes no warranties, express or implied, under this Agreement or otherwise, in connection with the Services, and nothing stated in this Agreement shall be interpreted to require APTIM to exercise professional skill and care greater than that required in this Section 8a.

b. APTIM will complete the Services within a reasonable time. If a specific schedule is required by CLIENT, it must be set forth on Exhibit A. Except to the extent resulting from the fault of APTIM, if the provision of the Services is delayed or impaired, the time for completion of the Services shall be extended appropriately, and the rates and amounts of APTIM's compensation shall be adjusted equitably.

c. If the Services require APTIM to estimate the cost of work to be performed by others, such estimate shall be made on the basis of APTIM's experience and qualifications and shall represent APTIM's best judgment as an experienced and qualified professional. However, since APTIM has no control over the cost of labor, materials, equipment, or services furnished by others, or over contractors' methods of determining prices, or over

APTIM _____ CLIENT_____

competitive bidding or market conditions, APTIM cannot and does not guarantee that proposals, bids, or actual costs of such other work will not vary from APTIM's estimate. If CLIENT wishes greater assurance as to probable cost, CLIENT may employ an independent cost estimator.

9. Client Cooperation

CLIENT will: (a) provide APTIM with all relevant information available to it concerning the project or activity in connection with which the Services are requested; (b) consult with APTIM when requested; (c) provide APTIM with reasonable access to relevant sites; (d) make decisions and carry out its other responsibilities in a timely manner so as not to delay the performance of the Services; and (e) notify and report to regulatory agencies or governmental officials as required. CLIENT shall be responsible for, and APTIM may rely upon, the accuracy and completeness of all requirements, programs, instructions, reports, data, and other information furnished by CLIENT to APTIM relating to the Services. APTIM may use such requirements, programs, instructions, reports, data, and information in performing the Services.

10. Indemnity

a. BY APTIM. WITH REGARD TO CLAIMS ASSERTED BY THIRD PARTIES AGAINST CLIENT ARISING FROM OR RELATED TO THIS AGREEMENT OR THE SERVICES, AND SUBJECT TO THE LIMITATIONS SET FORTH IN SECTIONS 12 AND 13, APTIM SHALL DEFEND, INDEMNIFY AND HOLD HARMLESS CLIENT (INCLUDING ITS OFFICERS, DIRECTORS, AND EMPLOYEES) FROM AND AGAINST ANY AND ALL LIABILITIES, CLAIMS, DEMANDS, DAMAGES, FINES, PENALTIES, AND RELATED EXPENSES, PROVIDED THAT ANY SUCH, LIABILITY, CLAIM, DEMAND, DAMAGE, FINE, PENALTY, OR RELATED EXPENSE IS ATTRIBUTABLE TO BODILY INJURY, SICKNESS, DISEASE, OR DEATH, OR TO INJURY TO OR DESTRUCTION OF TANGIBLE PROPERTY, BUT ONLY TO THE EXTENT SUCH LIABILITY, CLAIM, DEMAND, DAMAGE, FINE, PENALTY, OR RELATED EXPENSE IS CAUSED BY APTIM'S NEGLIGENCE OR WILLFUL MISCONDUCT .

b. BY CLIENT. WITH REGARD TO CLAIMS ASSERTED BY THIRD PARTIES AGAINST APTIM ARISING FROM OR RELATED TO THIS AGREEMENT OR THE SERVICES, AND SUBJECT TO THE LIMITATIONS SET FORTH IN SECTION 13, CLIENT SHALL DEFEND, INDEMNIFY AND HOLD HARMLESS APTIM (INCLUDING ITS OFFICERS, DIRECTORS, AND EMPLOYEES) FROM AND AGAINST ANY AND ALL LIABILITIES, CLAIMS, DEMANDS, DAMAGES, FINES, PENALTIES, AND RELATED EXPENSES, , BUT ONLYTO THE EXTENT SUCH LIABILITY, CLAIM, DEMAND, DAMAGE, FINE, PENALTY, OR RELATED EXPENSE ARISES FROM (i) CLIENT'S NEGLIGENCE OR WILLFUL MISCONDUCT, PROVIDED THAT ANY SUCH LIABILITY, CLAIM, DEMAND, DAMAGE, FINE, PENALTY, OR RELATED EXPENSE IS ATTRIBUTABLE TO BODILY INJURY, SICKNESS, DISEASE, OR DEATH, OR TO INJURY TO OR DESTRUCTION OF TANGIBLE PROPERTY; (ii) ANY ALLEGATIONS THAT APTIM IS THE OWNER, OPERATOR, MANAGER, OR PERSON IN CHARGE OF ALL OR ANY PORTION OF A SITE ADDRESSED BY THE SERVICES, OR ARRANGED FOR THE TREATMENT, TRANSPORTATION, OR DISPOSAL OF, OR OWNED OR POSSESSED, OR CHOSE THE TREATMENT, TRANSPORTATION OR DISPOSAL SITE FOR, ANY MATERIAL WITH RESPECT TO WHICH SERVICES ARE PROVIDED; OR (III) ANY POLLUTION, CONTAMINATION OR RELEASE OF HAZARDOUS OR RADIOACTIVE MATERIALS, INCLUDING ALL ADVERSE HEALTH EFFECTS THEREOF, EXCEPT FOR ANY PORTION THEREOF WHICH RESULTS FROM APTIM'S GROSS NEGLIGENCE OR WILLFUL MISCONDUCT.

c. NOTICE. IN THE EVENT THAT EITHER PARTY:

> **(1) SUFFERS RECEIVES A LIABILITY, CLAIM, DEMAND, DAMAGE, FINE, PENALTY, OR RELATED EXPENSE THAT THE PARTY BELIEVES TO BE COVERED BY THE FOREGOING SUBPARAGRAPHS 10(A) OR 10(B); OR**
>
> **(2) LEARNS OF FACTS (OTHER THAN THE KNOWLEDGE APTIM GAINS THROUGH PERFORMING THE SERVICES) THAT MAY GIVE RISE TO A DUTY BY INDEMNITOR TO DEFEND, TO INDEMNIFY, OR HOLD HARMLESS,**

THE INDEMNITEE SHALL PROMPTLY PROVIDE WRITTEN NOTICE TO THE INDEMNITOR. FAILURE TO PROVIDE PROMPT NOTICE WILL CONSTITUTE A WAIVER OF ANY INDEMNITY RIGHTS TO THE EXTENT THAT SUCH FAILURE UNDERMINES INDEMNITOR'S ABILITY TO MITIGATE ITS EXPOSURE

11. Defects in the Services

a. CLIENT shall not be responsible for discovering deficiencies in the technical accuracy of APTIM's services; however, should CLIENT become aware of such a deficiency, CLIENT shall promptly notify APTIM in writing. APTIM shall correct any such deficiencies in technical accuracy without additional compensation except to the extent such corrective action is attributable to deficiencies in CLIENT-furnished information.

b. In the event of any defect in any Service that does not cause damage to persons or property, APTIM's sole responsibility shall be to either (a) re-perform any defective Service according to the scope of work for that Service, or (b) to commence and diligently pursue the cure of the defect. Such re-performance or cure shall be CLIENT's sole and exclusive remedy for a defect covered by this paragraph.

12. Limitation of Liability

APTIM _____ CLIENT_____

CLIENT hereby acknowledges, understands and agrees that: (1) there are risks inherent in the Services, many of which cannot be ascertained or anticipated prior to or during the course of the Services; (2) due to the inherently limited nature and amount of the data resulting from investigation methods, complete analysis of conditions is not always possible, and, therefore, conditions frequently vary from those anticipated earlier; for example, borings in one location may not reveal contaminants only a few feet away; and (3) technology, methods, accepted professional standards as well as law and policy, are constantly changing and evolving. In light of all of the foregoing and APTIM's lack of responsibility for creating the conditions requiring the Services, as a material inducement to and consideration for APTIM's agreement to perform the Services on the terms and at the price herein provided for,

TO THE MAXIMUM EXTENT PERMITTED BY LAW, CLIENT SPECIFICALLY AGREES THAT, NOTWITHSTANDING ANY OTHER PROVISION CONTAINED IN THIS AGREEMENT, FOR ALL LOSSES, DAMAGES, LIABILITIES OR EXPENSES (INCLUDING ATTORNEYS' FEES AND COSTS) ARISING OUT OF OR RELATED TO THIS AGREEMENT OR THE SERVICES, WHETHER BASED IN CONTRACT, TORT, INDEMNITY, OR ANY OTHER CAUSE OF ACTION OR THEORY ("CLAIM"), APTIM'S LIABILITY (INCLUDING THE LIABILITY OF ITS INSURERS, EMPLOYEES, AGENTS, DIRECTORS, AND OFFICERS AND ALL OTHER PERSONS FOR WHOM APTIM IS LEGALLY RESPONSIBLE) SHALL NOT EXCEED IN THE CUMULATIVE AGGREGATE WITH RESPECT TO ALL CLAIMS THE LESSER OF THE TOTAL AMOUNT OF COMPENSATION PAID TO APTIM HEREUNDER OR $100,000.

13. Waiver of Consequential Damages

IN NO EVENT SHALL APTIM OR CLIENT BE RESPONSIBLE FOR ANY INCIDENTAL, INDIRECT, SPECIAL, OR CONSEQUENTIAL DAMAGES (INCLUDING BUT NOT LIMITED TO LOSS OF PROFITS, LOSS OF REVENUE, LOSS OF USE, LOSS OF OPERATION TIME, LOSS OF PRODUCT OR BUSINESS INTERRUPTION, HOWSOEVER CAUSED), WHETHER KNOWN OR UNKNOWN, FORESEEABLE OR UNFORESEEABLE, ARISING FROM OR RELATED TO THIS AGREEMENT OR THE SERVICES, REGARDLESS OF WHETHER SUCH DAMAGES ARE PREMISED ON A THEORY OF TORT, STRICT LIABILITY, INDEMNITY, WARRANTY, PROFESSIONAL LIABILITY, CONTRIBUTION, EQUITY, OR OTHERWISE.

14. Insurance

APTIM is presently protected by Worker's Compensation Insurance as required by applicable law and by General Liability and Automobile Liability Insurance (in the amount of $1,000,000 combined single limit) for bodily injury and property damage. Insurance certificates will be furnished on request. If CLIENT requires additional insurance coverage, APTIM will endeavor to obtain said coverage, and CLIENT shall be charged therefor.

15. Intellectual Property, Patents and Inventions

CLIENT may use any final reports of findings, feasibility studies, industrial hygiene and safety, engineering work or other work performed or prepared by APTIM under this Agreement for its internal purposes in connection with the project and/or location for which such work was prepared, but APTIM reserves all other rights with respect to these and all other documents produced in performing the Services. All reports will be delivered subject to APTIM's then current limitations. CLIENT shall obtain prior written consent from APTIM for any other use, distribution, or publication of such reports or work results.

APTIM shall retain all right and title to all patentable and unpatentable inventions, including confidential know-how, developed by APTIM hereunder in APTIM's field of expertise. APTIM shall grant to CLIENT a royalty-free, nonexclusive and nontransferable license under any such developed inventions and know-how to use the same in any of CLIENT'S facilities.

APTIM shall endeavor to provide Services in a manner that does not infringe on any valid patent, copyright, trademark or involve the use of any confidential information that is the property of others unless APTIM is licensed or otherwise has the right to use and dispose thereof. APTIM shall also inform CLIENT of any infringement that it has actual knowledge of a reason to expect will result from the use of the Services. However, APTIM shall not be required to conduct and/or prepare a patent or other search and/or opinion. Information submitted by APTIM to CLIENT hereunder is not intended nor shall such submission constitute inducement and/or contribution to infringe on any patent(s) owned by a third party, and APTIM specifically disclaims any liability therefor.

16. Confidentiality

In the course of performing Services, to the extent that CLIENT discloses to APTIM, or APTIM otherwise acquires, business or technical information that CLIENT clearly marks as confidential or proprietary, APTIM will exercise reasonable efforts to avoid the disclosure of such information to others. APTIM will not use such information for any purpose other than the performance of Services to CLIENT.

CLIENT shall treat as confidential all information and data furnished to it by APTIM in connection with this Agreement including, but not limited to, APTIM's technology, formulas, procedures, processes, methods, trade secrets, ideas, inventions, and/or computer programs; and CLIENT shall not disclose such information to any third party, except to a related company that has first agreed in writing with APTIM to an obligation of confidentiality identical to the obligations of CLIENT as set forth herein.

However, nothing herein is meant to prevent nor shall it be interpreted as preventing either APTIM or CLIENT from disclosing and/or using said information or data (i) when the information or data is actually known to the receiving party

APTIM _____ CLIENT_____

before being obtained or derived from the transmitting party; or (ii) when, at any time, the information or data is generally available to the public without the receiving party's fault; or (iii) when the information or data is obtained or acquired in good faith at any time by the receiving party from a third party; or (iv) when a written release is obtained by the receiving party from the transmitting party; or (v) three (3) years from the date of receipt of such information; (v) or when permitted by this Agreement; or (vi) when required by process of law; provided, however, upon service of such process and to the extent practical and permitted by law, the recipient thereof shall promptly notify the other party so that they may object to the disclosure and/or waive compliance with the terms of this Agreement.

CLIENT shall obtain APTIM's prior consent and cooperation with the formulation and release of any public disclosure in connection with this Agreement or work performed hereunder, before issuing a news release, public announcement, advertisement, or other form of publicity.

17. Assignment

Neither party shall assign any right or delegate any duty under this Agreement without the prior written consent of the other. Notwithstanding the foregoing, any parent, subsidiary or affiliate of APTIM may perform some or all of the Services, and APTIM may upon notice to the CLIENT assign, pledge or otherwise hypothecate the cash proceeds and accounts receivable resulting from the performance of any Services or sale of any goods pursuant to this Agreement. Subject to the foregoing, this Agreement shall inure to the benefit of, and be binding upon, the parties' respective successors and assigns.

18. No Third Party Beneficiaries

This Agreement is strictly for the benefit of APTIM and CLIENT. There are no third-party beneficiaries to this Agreement, and no one other than APTIM and CLIENT may seek to enforce it. This Agreement is not intended to create any obligations owed to third parties.

19. Disputes and Arbitration

a. APTIM and CLIENT shall negotiate for a period of 30 days from notice of any dispute relating to this Agreement or the Services.

b. If the parties fail to resolve a dispute by direct negotiation, the dispute shall be resolved by binding arbitration in Baton Rouge, Louisiana. The arbitration shall be administered by the American Arbitration Association in accordance with its Commercial Arbitration Rules then in effect. A demand for arbitration shall be made in writing, delivered to the other party to this Agreement, and filed with the American Arbitration Association. The party filing a demand for arbitration must assert all disputes and claims then known to that party relating to this Agreement or the Services. The responding party must include in its response all disputes and claims then known to that party relating to this Agreement or the Services. The arbitrator shall limit discovery to the exchange of documents relevant to this Agreement and the Services and to a limited number of depositions based on the size and complexity of the dispute. Interrogatories and requests for admissions are not permitted. The award rendered by the arbitrator shall be final, and judgment may be entered thereon by any court having jurisdiction.

c. The prevailing party, if any, shall be entitled to recover as damages its reasonable legal fees and expenses incurred in the course of the arbitration. A prevailing party is a party whose outcome is better for that party than that stated in the most recent written settlement offer made by that party at least 30 days prior to the beginning of the arbitration hearing.

20. Governing Law

This Agreement shall be governed by and interpreted pursuant to the rules of the state where the Services are performed. In the case of Services consisting mostly of engineering and consulting performed at APTIM's offices, this shall be the state in which the APTIM office principally responsible for the Services is located.

21. Entire Agreement

The terms and conditions set forth herein, and the exhibits hereto, constitute the entire understanding of the parties relating to the provision of Services by APTIM to CLIENT. This Agreement may be amended only by a written instrument signed by both parties.

22. Compliance with Codes and Law

CLIENT shall comply with all applicable codes and with all applicable federal, state, and local laws, statutes, rules, and regulations, and shall indemnify and hold APTIM harmless from any claims or damages resulting from CLIENT's failure to comply.

23. Waiver of Terms and Conditions

The failure of APTIM or CLIENT in any one or more instances to enforce one or more of the terms or conditions of this Agreement or to exercise any right or privilege in this Agreement or the waiver of any breach of the terms or conditions of this Agreement shall not be construed as thereafter waiving any such terms, conditions, rights, or privileges, and the same shall continue and remain in force and effect as if no such failure to enforce had occurred.

24. Severability and Survival

Each provision of this Agreement is severable from the others. Should any provision of this Agreement be found invalid or unenforceable, such provision shall be ineffective only to the extent required by law, without invalidating the remainder of such provision or the remainder of this Agreement. Further, to the extent permitted by law, any provision found invalid or unenforceable shall be deemed automatically redrawn to the extent necessary to render it valid and enforceable consistent with the parties' intent. The terms and conditions hereof shall survive the termination of this Agreement.

25. Notice

APTIM _____ CLIENT_____

Where required by this Agreement, notice shall be made in writing by delivery to the address set forth below. Email notification is acceptable.

IN WITNESS WHEREOF, CLIENT and APTIM agree to the foregoing **(INCLUDING THE LIMITATIONS ON LIABILITY IN SECTION 12)** and have caused this Agreement to be executed by their respective duly authorized representatives as of the date set forth below.

Executed this ___day of _____, 2023.

CLIENT NAME: _____

By: _____

Name: _____

Title: _____

Address: _____

Phone: _____

Email: _____

APTIM ENVIRONMENTAL & INFRASTRUCTURE, LLC

By: _____

Name: _____

Title: _____

Address: _____

Phone: _____

Email: _____

ATTACHMENTS:
Exhibit A – Services

APTIM _____ CLIENT_____

MOTION: David/Stern - Moved to approve the Memorandum of Understanding Between the Town of Highland Beach and the Palm Beach County Police Benevolent Association, Inc. Upon roll call: Commissioner David (Yes); Vice Mayor Stern (Yes); Commissioner Goldberg (Yes); Commissioner Peters (Yes); and Mayor Moore (Yes). The motion carried 5 to 0.

C. Discussion on Update to the 2013 Beach Restoration Feasibility Study.

Town Manager Labadie explained that this is a critical strategic priority item, and that will show the areas that need to be focused on.

Town Planner Allen explained that on November 21, 2022, the Chairperson of the Natural Resources Preservation Board came before the Town Commission to give an update on their educational outreach. After that Town Planner Allen reached out to the firm that would conduct the study. There was discussion about what the study would entail.

Mr. Douglas W. Mann, P.E., D.CE., Lead Coastal Engineer with Aptim Environmental & Infrastructure, LLC joined the meeting via Zoom and gave comments on the proposal cost.

Town Manager Labadie will contact Palm Beach County Environmental Department for a future presentation and other resources.

MOTION: David/Peters - Moved to approve the Proposal for the Beach Restoration Feasibility Study to include the Town's Standard Addendum. Upon roll call: Commissioner David (Yes); Commissioner Peters (Yes); Commissioner Goldberg (Yes); Vice Mayor Stern (Yes); and Mayor Moore (Yes). The motion carried 5 to 0.

D. Sea Turtle Presentation by Joanne Ryan

Joanne Ryan, Florida Fish and Wildlife Sea Turtle Permit Holder, presented a video of the Sea Turtle Monitoring Program. She announced that the program is called the Highland Beach Sea Turtle Team Inc., which is a 501(c)3 non-profit organization.

1. Consideration of $2,500 donation to Highland Beach Sea Turtle Team, Inc.

The Town Commission was in support of donating $2,500 to the Highland Beach Sea Turtle Team, Inc. They thanked Ms. Ryan, the organization, and volunteers for their hard work with the sea turtle program.

Ms. Ryan explained that going forward the organization would like to participate in future projects with the Town.

2013 STUDY

TOWN OF HIGHLAND BEACH
BEACH RESTORATION FEASIBILITY STUDY

Submitted to:
The Town of Highland Beach

Submitted by:
Coastal Planning & Engineering, Inc.
A CB&I Company

Authors:
Gordon G. Thomson, P.E., D.CE.
David Swigler, P.E.

April 2013

EXECUTIVE SUMMARY

The Town of Highland Beach requested that Coastal Planning & Engineering, Inc. (CPE) develop a feasibility report that evaluates options for protecting and restoring the beach within the Town. The beach is one of the Town's most valuable assets and the Town requested that CPE evaluate options that would protect the beach's natural resources, coastal property, and public health and safety.

CPE evaluated the Town's 2.84-mile beach. A site visit was conducted in January 2013 and shoreline data from 1975 to 2008 was reviewed. In summary, the beach along the southernmost mile of the Town is narrow and the berm is low. Scarping following the passage of Hurricane Sandy was evident. The shoreline in the southern section appears to be controlled by three rock outcrops, of which Yamato Rock at the southern extremity is the most prominent. The average shoreline retreat rate at the southern end of Town is 0.4 feet/year though the average shoreline change for the entire section of beach is an advance of 1.2 feet/year. The beach in the northern 1.85 miles of the Town has benefitted from repeated beach nourishments in Delray Beach. The beach in this area is wider, higher and has an established, vegetated dune system.

While the historic shoreline changes are a basis for optimism, there are two issues with the current state of the beach. The first is that while the shoreline is advancing within much of the Town and the shoreline retreat at the south end of Town is mild, the beach is susceptible to large fluctuations due to storm events. Large storm events can damage upland property, as experienced during Hurricane Sandy. While the shoreline will recover, the dunes that provide much of the protection are slower to recover and typically require the upland property owner to rebuild them by trucking in sand. The second issue is that the beach is too narrow in some areas to support the required recreational demand of the condominiums.

CPE evaluated several alternatives including a no action alternative, upland sand placement via truck haul, a larger scale beach nourishment project, and installation of coastal structures. It is recommended that a larger scale beach nourishment project be pursued. While there is no imminent need for this project, except for non-critical recreational purposes, these projects take several years to design and permit. Ideally, permits should be in place to reconstruct the beaches should a large storm or series of storms impact the Town.

A large scale beach nourishment project encompasses dredging sand from offshore and placing it along the southern 2 miles of the Town's beach. The cost of construction is estimated at $9.5M, including inflation, assuming a project is constructed in 2015. The cost of dredge projects has been increasing faster than general inflation and we estimate that delaying project construction by an additional 5 years (to 2020) could inflate the cost to $14M.

Limited public beach access will limit availability of County, State or Federal funding. It is recommended that other options be considered to fund a beach nourishment program, such as an Ad Valorem Tax, Erosion Prevention District, or Municipal Service Benefit Unit.

TOWN OF HIGHLAND BEACH
BEACH RESTORATION FEASIBILITY STUDY

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1 INTRODUCTION

The Town of Highland Beach requested that Coastal Planning & Engineering, Inc. (CPE) develop a feasibility report that evaluates options for protecting and restoring the Town's beach. The beach is one of the Town's most valuable assets and the Town requested that CPE evaluate options that would:

1. Maximize protection of the beach's natural resources, coastal property and development, and public health and safety;
2. Maximize the quality of the beach for both human activities and environmental needs;
3. Minimize economic losses that may result from a beach erosion event by being prepared;
4. To efficiently, economically, and responsibly respond to and restore the beach as soon as possible after sustaining any significant beach loss;
5. Minimize the potential negative impacts (visual, audio, environmental, and beach sand loss) of the proposed sand;
6. Maximize the potential benefits of any future renourishment activities.

This report will first present the coastal setting within the Town of Highland Beach, discussing the tides, storm events, history of shoreline and volumetric changes, and offshore resources. This will be followed by a general discussion of the current condition of the Town's beach. The next section, Problem Identification and Alternatives, will evaluate various alternatives available to address the beach condition. These include a No Action Alternative, upland placement of sand, strategic use of coastal structures, and a larger beach nourishment project. The costs of these various alternatives will be discussed along with an expected level of permitting effort. This discussion will be followed by an outline of the potential funding mechanisms. The last section will be CPE's recommendations.

2 COASTAL SETTING

2.1 Winds

Winds indirectly cause the littoral transport of sand by generating waves. Northeast winds events typically produce the largest waves due to a long, uninterrupted fetch and the duration of the winds. Winds from the east and southeast typically do not create large waves in the project area because of the limited fetch between southeast Florida and the Bahamas, and the limited duration of weather patterns from these directions.

Winds associated with tropical storms may also affect the shoreline. Due to the cyclonic nature of the winds associated with tropical storms and hurricanes, the winds can come from any direction. If the winds are in an onshore direction, a storm surge will be created and in conjunction with the higher waves will cause accelerated erosion of the beach.

2.2 Waves

One of the principal causes of beach erosion is waves breaking on the beach and washing sand into the ocean. Waves also cause littoral movement in the longshore direction, and the onshore-offshore direction. Due to the general north-south orientation of the project shoreline, waves from the east cause little longshore movement of sand. In contrast, waves from the north and northeast cause a net movement of sand to the south, whereas, waves from the south and southeast cause a net movement of sand to the north.

The distribution of wave heights and directions for the project area are provided in Figure 1. This data is based on wave data from the USACE (2004) Wave Information Study station 464 located at 26.33°N, 79.92°W. This is approximately 10 miles east-southeast of the Town of Highland Beach. The wave hindcast data covers a 20-year hindcast period from 1980 to 1999. In the Town of Highland Beach, the average onshore (005° to 185°) wave height is 3.1 feet, with a period of 4.8 seconds. These waves typically come from the east-northeast (068°). The highest wave hindcasted near the project area was approximately 24 feet.

One important factor that contributes to the wave climate observed within the Town of Highland Beach project area is the presence of the Bahama Banks. This geological formation limits the fetch for eastern, southeastern and some northeastern waves. Interpreting Figure 1 shows the effect the Bahama Banks has on the average wave height distribution patterns by the limited time (only July) that the average wave approaches from the south (>090°). Since most waves affecting the project area are from the northeast, the annual net movement of sand is to the south.

Extreme wave statistics for the project area are based on data of tropical storm events prior to 1980 (Dean, 1992), and the 1980-1999 wave hindcast for WIS Station 464 (USACE, 2004), which includes the effects of tropical and extratropical storms. Table 1 shows the expected return period frequency of the wave period and wave height. A Weibull distribution was used to estimate the return frequencies.

Table 1. Extreme Wave Analysis for WIS Station 464

Return Period	Wave Height H_{mo} (feet)		Wave Period T_p (seconds)	
(years)	Mean	+/- σ	Mean	+/- σ
2	10.6	1.1	8.3	0.3
5	19.9	1.4	10.1	0.4
10	25.2	2.0	11.4	0.6
20	29.8	2.6	12.7	0.9
25	31.1	2.8	13.2	1.0
50	35.0	3.3	14.5	1.3
100	38.6	3.8	15.8	1.6
200	41.9	4.3	17.2	1.9
500	46.0	4.8	19.0	2.3

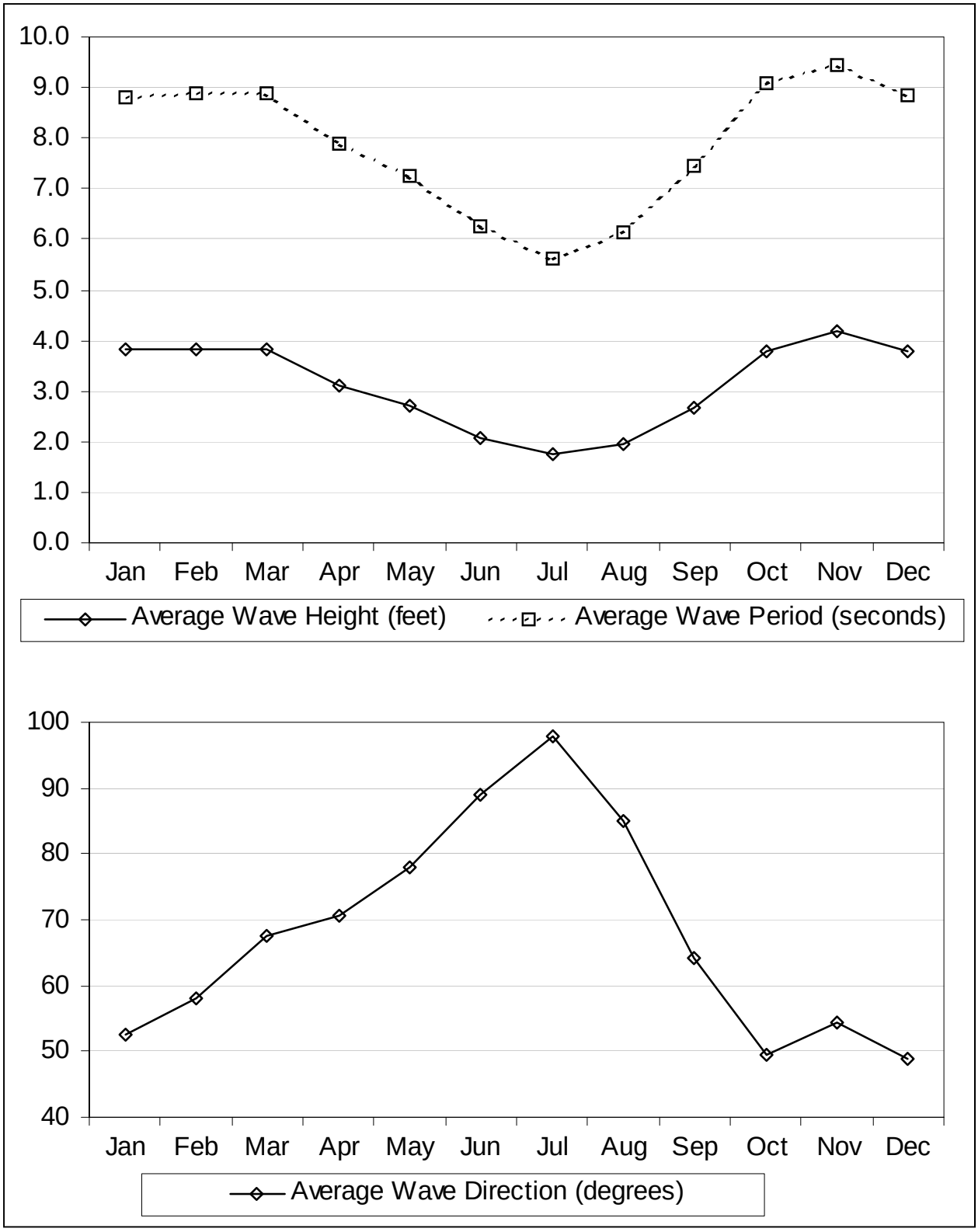


Figure 1. Offshore Wave Data for WIS Station 464.

2.3 Storms

Surges and waves caused by extratropical and tropical storms (including hurricanes) are major threats to the shoreline of Highland Beach. The hurricane season extends from June 1 through November 30. Palm Beach County has averaged 1.0 land-falling tropical storms per 10 nautical miles of shoreline from 1871 to 1973 (USACE, 1987). Extratropical storms that generate waves out of the northeast also have a significant effect on the Town's shoreline. These storms are characterized by strong winds of long duration (several days) that generate swell waves. Northeaster storms typically cause more beach erosion along the coast of Highland Beach than any other event. One example of this was the northeast storm of November 1996. This storm resulted in shoreline recession of up to 22 feet (CPE, 1998).

Table 2 gives a summary of historical tropical storms affecting Highland Beach after 1975. Storm events prior to 1980 are based on data from Dean (1992). Storm events between 1980 and 1999 are based on WIS data (USACE, 2004). Storm events after 1999 were calculated from pressure, forward velocity, radius to maximum winds, and distance to the center of the Town.

Table 2. Summary of Tropical Storms Impacting the Town of Highland Beach

Date	Name	Deep Water Wave Height (feet)	Wave Period (sec)	Storm Surge (feet)	Wind Speed (mph)
9/3/1979	David	22.3	10.1	3.9	92
09/27/84	Isidore	24.3	12.5	4.4	43
11/19/85	Kate	17.1	11.1	3.5	35
08/24/92	Andrew	18.0	10.0	3.5	39
11/14/94	Gordon	23.3	12.5	4.2	41
08/02/95	Erin	15.1	10.0	3.2	34
11/05/98	Mitch	15.4	10.0	3.2	41
09/15/99	Floyd	24.3	12.5	4.4	42
10/15/99	Irene	21.7	10.0	3.8	56
09/05/04	Frances	33.9	9.9	4.7	104
09/26/04	Jeanne	32.0	10.9	4.3	115
8/26/2005	Katrina	12.0	8.2	1.8	59
9/20/2005	Rita	11.2	7.6	1.4	34
10/24/2005	Wilma	20.9	8.5	3.7	72
5/8/2007	Andrea	13.7	12.5	1.0	18
10/31/2007	Noel	14.5	9.7	1.1	25
8/27/2012	Isaac	13.4	8.5	0.8	43
10/27/2012	Sandy	13.8	10.2	2.0	43

2.4 Tides

The closest tide gauge to the project area is located at the Lake Worth Pier. The tides are semi-diurnal with a mean tidal range of 2.9 feet. Tidal datums appear in Table 3.

Table 3. Tidal Datums at the Lake Worth Pier

	Elevation (feet, NAVD)
Mean Higher High Water (MHHW)	0.58
Mean High Water (MHW)	0.44
Mean Sea Level (MSL)	-0.92
Mean Low Water (MLW)	-2.29
Mean Lower Low Water (MLLW)	-2.42

Source: NOAA (2013), http://www.co-ops.nos.noaa.gov/benchmarks/8722670.html

2.5 Storm Surge

Storm surge is defined as the rise of the sea surface above its astronomical tide level due to storm forces. The elevation that the storm surge reaches is known as its storm stage. The increased elevation is attributable to a variety of factors including waves, wind shear stress, and atmospheric pressure. Dean et al (1992) estimated the storm stage along Palm Beach County for varying return periods. Table 4 summarizes these estimates.

Table 4. Estimated Storm Stage

Return Period (years)	Storm Stage Level (feet, NAVD)
50	8.2
20	6.1
10	4.2
5	1.9

2.6 Sea Level Rise

The global sea level has both risen and fallen throughout geological history. Recent trends in local sea level changes can be used as indicators of what will occur in the near future. Experience indicates that as the relative sea level rises, the shoreline will be subjected to increased flooding, shoreline recession, and profile erosion. The National Ocean Service (NOS) has published sea level trends for regions along the United States coasts based on measured yearly mean sea level records. Based on tide gage records from a gage at Miami Beach, NOAA has estimated that sea level is rising along the southeast Florida coast at 2.39mm/year (http://tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?stnid=8723170). This is equivalent to 0.78 feet/century.

Bruun (1962) proposed a formula for estimating the rate of shoreline recession based on the local rate of relative sea level rise. This methodology also includes consideration of local topography and bathymetry. Bruun's approach assumes that with a rise in sea level, the beach profile will attempt to reestablish the same bottom depths relative to the previous sea level. As a result, the beach profile shape relative to the mean water level will re-establish itself. If the longshore littoral transport in and out of a given shoreline area is equal, the quantity of material required to

re-establish the nearshore slope must be derived from shoreline recession. The effects of sea level rise on the shoreline recession can be approximated using Bruun's (1962) relationship:

$$R = LS / (h+b) \qquad \text{[Equation 1]}$$

where R = shoreline recession,
S = sea level rise,
b = berm height,
h = depth of the limit of the active profile,
L = horizontal distance from the beach to the limit of the active profile.

The annual limit of the depth of the active profile, h, has been estimated using cross-shore beach profiles collected by the State (Appendix C). The profiles closed at an average depth of –28 feet, NAVD. Review of the post-hurricane surveys (Frances and Jeanne) also suggested that -28 feet, NAVD is a fair estimate of the depth of the active profile.

The estimate of shoreline recession due to relative sea level rise used –28 feet, NAVD as the depth of closure. The distance, L, from the mean high water line (+0.44 feet, NAVD) to the depth of closure is estimated to be 1,500 feet (an average value was calculated from surveys collected along FDEP survey monuments R-191 through R-204). Using a berm height, B, of 8 feet and a sea level rise rate of 0.0078 feet/year, the shoreline recession due to sea level rise is calculated to be 0.33 feet/year using Bruun's rule.

The National Research Council (1987) has estimated that sea level rise may accelerate in the future to a rate of approximately 0.04 feet/year. For this extreme rate of sea level rise, Equation 1 yields a recession rate of 1.67 feet/year. However, until a higher rate of sea level rise is documented, it is recommended that any plans use the observed sea level rise rate.

3 HISTORIC CONDITIONS

This section discusses the historic shoreline and volumetric changes within the Town of Highland Beach. This data and analysis, along with observations documented in Section 4, will be used to evaluate the need and extent of coastal protection alternatives.

3.1 Data

This analysis was performed using the latest available beach profile data. No field data collection was performed as part of this work beyond a site visit conducted in January 2013 to document the existing conditions, which will be discussed in Section 4.

The Florida Department of Environmental Protection (FDEP) and Palm Beach County have collected beach surveys over the last several decades. These have been collected at FDEP monuments, which are shown on Figure 2 through Figure 6. The northern limit of the Town of Highland Beach is located approximately 950 north of R-191 and 200 feet south of R-190. The southern limit of the Town of Highland Beach is located approximately 175 feet south of R-204.

The earliest available beach profile data set was collected in January 1975 (FDEP, 2013). Other available data sets that included the entire beach profile from the dune crest out to the depth of closure include October 1990 and October 2008 surveys. Profiles were also collected before and after Hurricane Jeanne (April 2004 and November 2004).

No pre or post-Hurricane Sandy data was available during the drafting of this report. No rectified aerial photographs were collected in 2012 either, which could have been used to determine shoreline location. Thus, no quantifiable impacts to the coastal system (shoreline and/or volume changes) from Hurricane Sandy could be included in this report.

Annual surveys of exposed hard bottom (rock outcrops) have been collected from 1993 through 2009 by Palm Beach County Environmental Resource Management.

3.2 Shoreline Change Analysis

A shoreline change analysis was performed using the available data. The shoreline change data is summarized in Table 5 while the annualized shoreline change is shown in Table 6. The shoreline locations from the 1975, 1990 and 2008 surveys have been plotted on Figure 2 through Figure 6.

These figures and tables highlight that the beach throughout most of the Town of Highland Beach is advancing and actually moving seaward. The average shoreline advance is 1.2 feet/year between January 1975 and October 2008. The tables and figures also show that the beach to the north is advancing more relative to the beach at the center of the Town while the beach at the southern end of the Town is receding.

This trend can be directly related to the beach nourishment program in Delray Beach. There have been six beach nourishment projects in Delray Beach since 1973 (1973, 1978, 1984, 1992, 2002, and 2005). A seventh project is currently under construction (March 2013). The sand placed during these projects is working its way south along the coast through natural coastal processes causing an average shoreline advance within the Town of Highland Beach. This trend is expected to continue into the future assuming that Delray Beach continues to conduct through periodic beach renourishment projects.

Comparing the 1975 to 1990 and the 1990 to 2004 could suggest that the trend of shoreline retreat at the southern end of the Town could be switching from one of retreat to one of shoreline advance. This trend was drastically reversed by Hurricanes Frances and Jeanne, which both impacted the project area in September 2004 and caused substantial shoreline retreat. The higher rate of shoreline advance observed between November 2004 and October 2008 is attributed to recovery of the shoreline following these events. A similar type of shoreline recovery was observed following Hurricane Sandy.

The analysis of shoreline impacts from Hurricanes Frances and Jeanne reveals the susceptibility of the shoreline location to large storm events. The average shoreline retreat between April 2004 and November 2004 was approximately 34 feet throughout the Town though it was as high as 79 feet (at R-194). In some areas, the distance from the mean high water line to the base of the dune is only 30 to 40 feet.

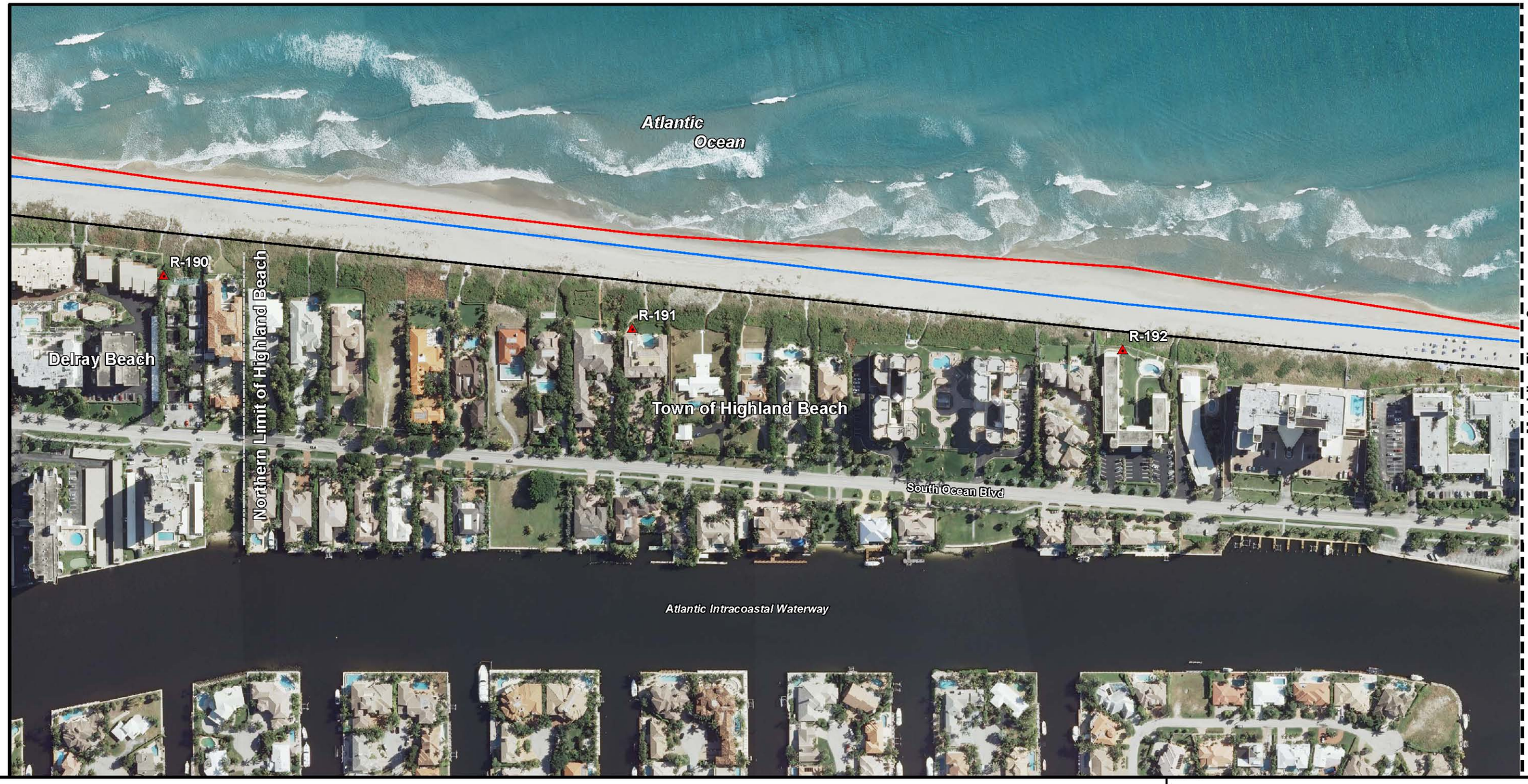
Table 5. Shoreline Change Summary

Profile	Shoreline Change (feet)				
	Jan 1975 to Oct 1990	Oct 1990 to Apr 2004	Apr 2004 to Nov 2004	Nov 2004 to Oct 2008	Jan 1975 to Oct 2008
R-191	83.1	5.3	-24.7	53.2	116.9
R-192	68.1	34.7	-26.6	82.1	158.3
R-193	68.0	55.4	-55.2	14.4	82.6
R-194	49.3	62.5	-79.3	33.4	65.9
R-195	10.8	49.1	-29.8	22.2	52.3
R-196	50.5	-10.0	-15.8	19.0	43.7
R-197	28.2	13.2	-18.9	5.0	27.5
R-198	8.4	19.4	-45.8	35.3	17.3
R-199	-14.9	3.5	2.6	-1.6	-10.4
R-200	-33.7	12.7	-38.6	31.1	-28.5
R-201	5.9	0.3	-15.3	28.4	19.3
R-202	-18.7	1.3	-27.7	24.3	-20.8
T-203	-27.0	24.3	-56.2	26.8	-32.1
R-204	43.0	20.2	-42.2	32.0	53.0
Average	**22.9**	**20.9**	**-33.8**	**29.0**	**38.9**

Table 6. Annualized Shoreline Change Summary

Profile	Annualized Shoreline Change (feet/year)				
	Jan 1975 to Oct 1990	Oct 1990 to Apr 2004	Apr 2004 to Nov 2004	Nov 2004 to Oct 2008	Jan 1975 to Oct 2008
R-191	5.3	0.4	-41.2	13.6	3.5
R-192	4.3	2.6	-44.3	21.1	4.7
R-193	4.3	4.1	-92.0	3.7	2.5
R-194	3.1	4.6	-132.2	8.6	2.0
R-195	0.7	3.6	-49.7	5.7	1.6
R-196	3.2	-0.7	-26.3	4.9	1.3
R-197	1.8	1.0	-31.5	1.3	0.8
R-198	0.5	1.4	-76.3	9.1	0.5
R-199	-0.9	0.3	4.3	-0.4	-0.3
R-200	-2.1	0.9	-64.3	8.0	-0.8
R-201	0.4	0.0	-25.5	7.3	0.6
R-202	-1.2	0.1	-46.2	6.2	-0.6
T-203	-1.7	1.8	-93.7	6.9	-1.0
R-204	2.7	1.5	-70.3	8.2	1.6
Average	**1.5**	**1.5**	**-56.4**	**7.4**	**1.2**

2013 STUDY



Notes:

1. Coordinates are in feet based on the Florida State Plane Coordinate System, East Zone, North American Datum of 1983 (NAD 83).
2. November 2010 aerial photography was downloaded from the U.S. Geological Survey.

Legend:

- FDEP Monuments
- MHW - January 1975
- MHW - October 1990
- MHW - October 2008

N

Feet
0 125 250

1 inch = 250 feet

Figure 2. Shoreline and Hardbottom Map, R-190 to R-192

COASTAL PLANNING & ENGINEERING, INC.
A CB&I COMPANY
2481 N. W. BOCA RATON BOULEVARD
BOCA RATON, FL 33431
PH. (561) 391-8102
FAX (561) 391 9116

Date: 02/27/13	By: HMV	Comm No. : 148901	Figure No. 2

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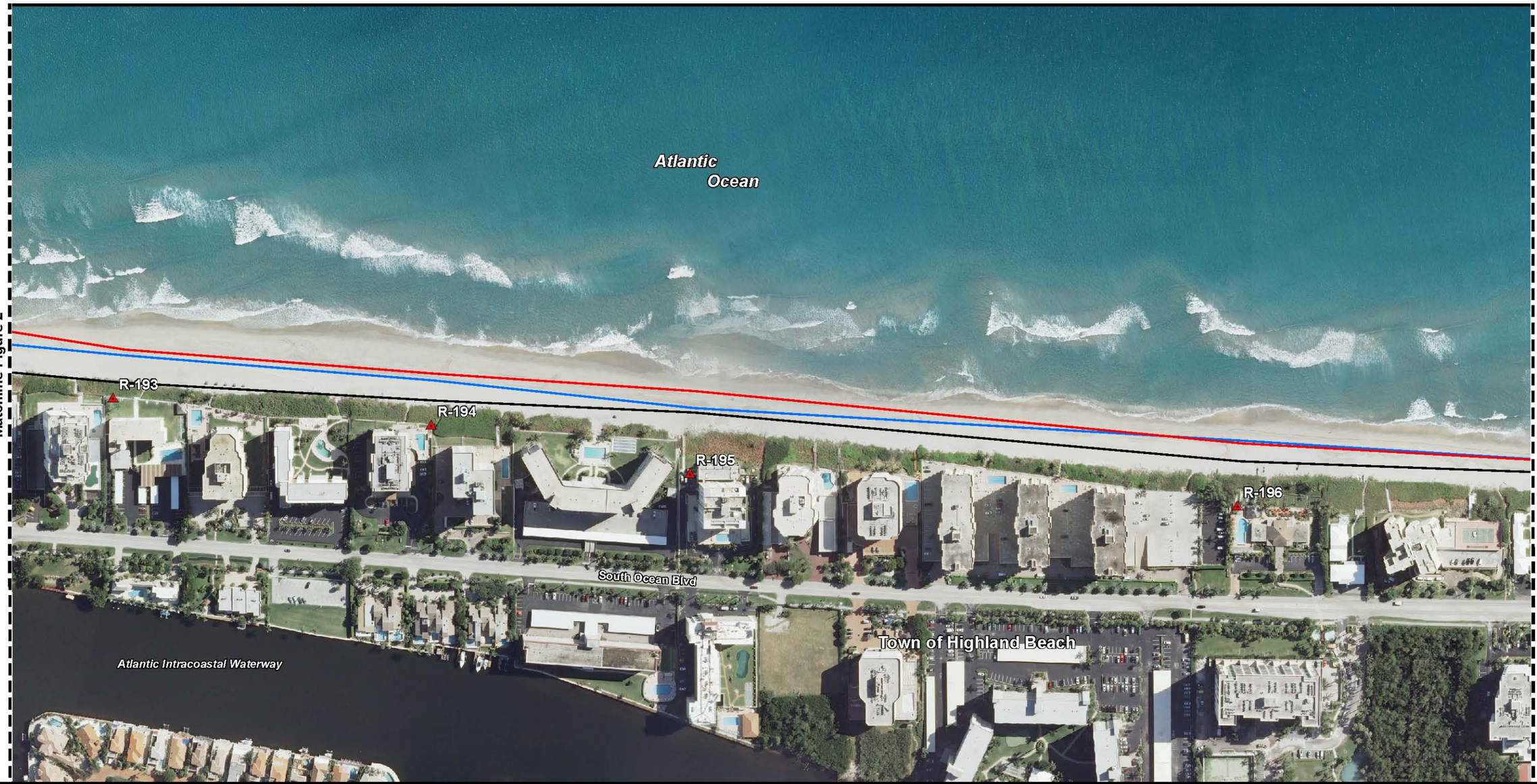
2013 STUDY



Notes:

1. Coordinates are in feet based on the Florida State Plane Coordinate System, East Zone, North American Datum of 1983 (NAD 83).
2. November 2010 aerial photography was downloaded from the U.S. Geological Survey.

Legend:

- FDEP Monuments
- MHW - January 1975
- MHW - October 1990
- MHW - October 2008

Feet
0 125 250

1 inch = 250 feet

Figure 3. Shoreline and Hardbottom Map, R-193 to R-196

COASTAL PLANNING & ENGINEERING, INC.
A CB&I COMPANY
2481 N. W. BOCA RATON BOULEVARD
BOCA RATON, FL 33431
PH. (561) 391-8102
FAX (561) 391 9116

Date: 02/27/13	By: HMV	Comm No. : 148901	Figure No. 3

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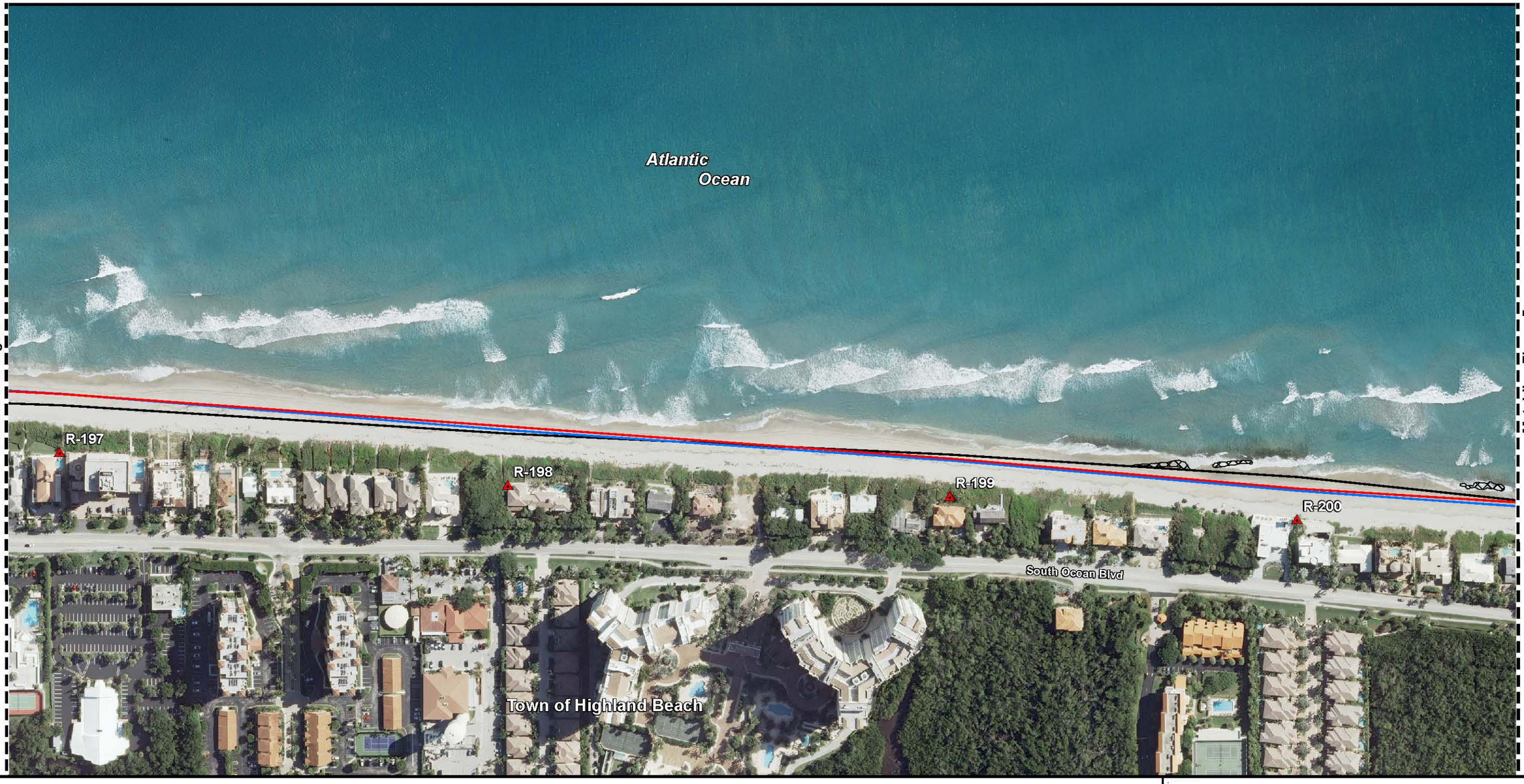
2013 STUDY



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Notes:

1. Coordinates are in feet based on the Florida State Plane Coordinate System, East Zone, North American Datum of 1983 (NAD 83).
2. November 2010 aerial photography was downloaded from the U.S. Geological Survey.
3. The 2009 hardbottom was delineated by Palm Beach County Environmental Resource Management.

Legend:

- FDEP Monuments
- MHW - January 1975
- MHW - October 1990
- MHW - October 2008
- Hardbottom (2009)

N

0 125 250 Feet

1 inch = 250 feet

Figure 4. Shoreline and Hardbottom Map, R-197 to R-200

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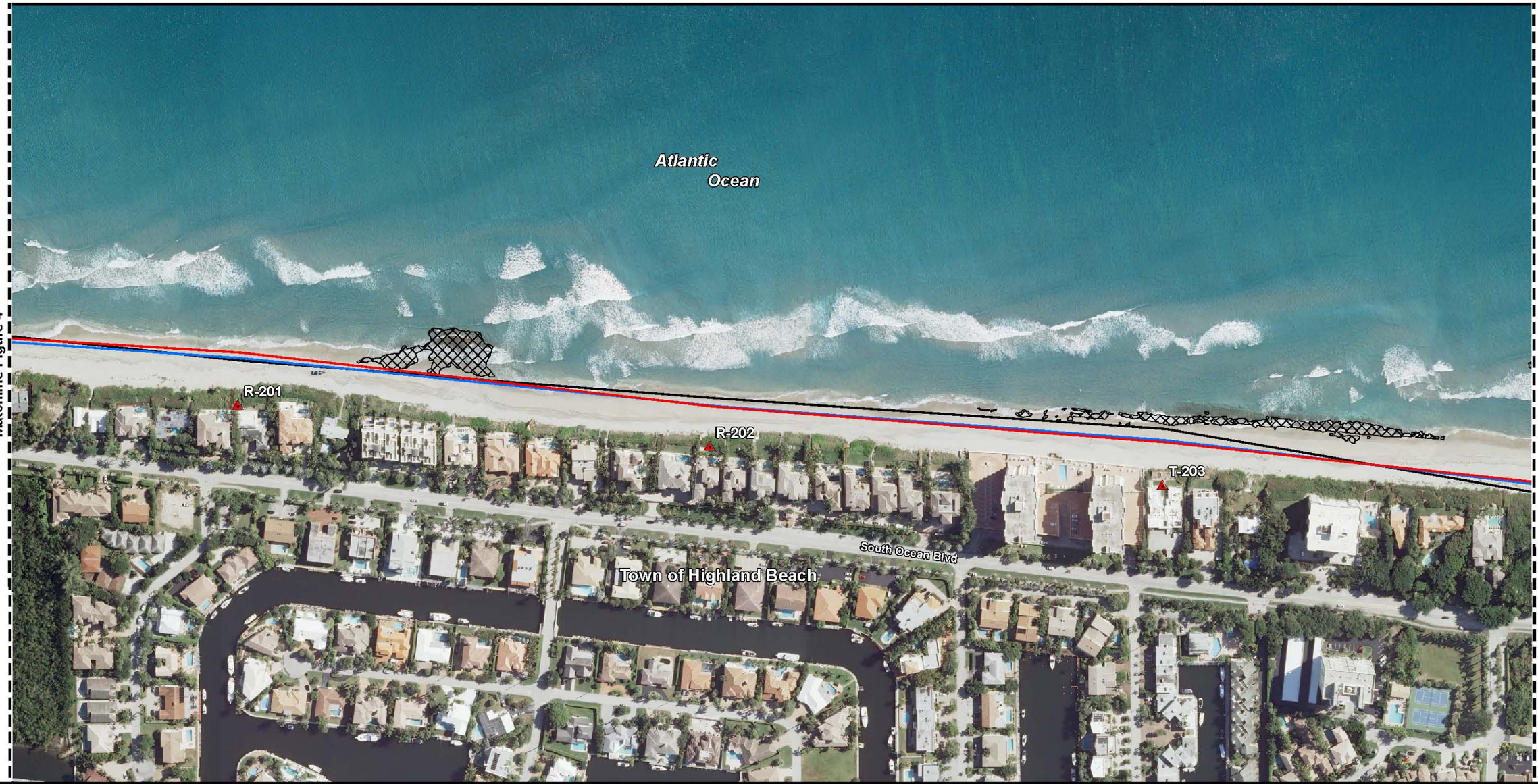
A CB&I COMPANY
2481 N. W. BOCA RATON BOULEVARD
BOCA RATON, FL 33431
PH. (561) 391-8102
FAX (561) 391 9116

Date: 02/27/13	By: HMV	Comm No. : 148901	Figure No. 4

2013 STUDY



Notes:

1. Coordinates are in feet based on the Florida State Plane Coordinate System, East Zone, North American Datum of 1983 (NAD 83).
2. November 2010 aerial photography was downloaded from the U.S. Geological Survey.
3. The 2009 hardbottom was delineated by Palm Beach County Environmental Resource Management.

Legend:

- FDEP Monuments
- MHW - January 1975
- MHW - October 1990
- MHW - October 2008
- Hardbottom (2009)

N

0 125 250 Feet

1 inch = 250 feet

Figure 5. Shoreline and Hardbottom Map, R-201 to R-203

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2481 N. W. BOCA RATON BOULEVARD
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PH. (561) 391-8102
FAX (561) 391 9116

Date: 02/27/13 | By: HMV | Comm No. : 148901 | **Figure No. 5**

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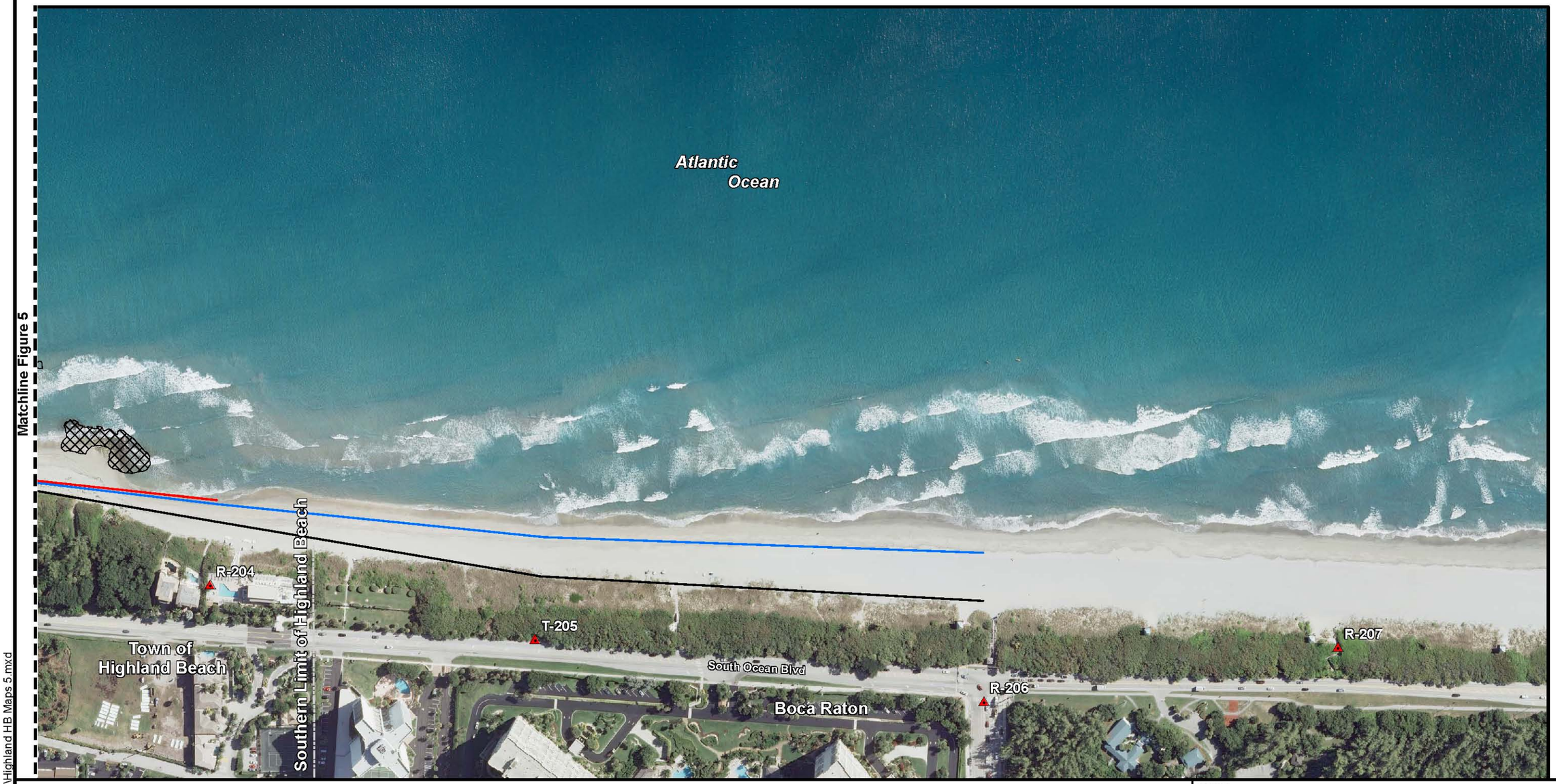
2013 STUDY



G:\Enterprise\Palm Beach\148901\Mxd\Highland HB Maps 5.mxd

Notes:

1. Coordinates are in feet based on the Florida State Plane Coordinate System, East Zone, North American Datum of 1983 (NAD 83).
2. November 2010 aerial photography was downloaded from the U.S. Geological Survey.
3. The 2009 hardbottom was delineated by Palm Beach County Environmental Resource Management.

Legend:

- FDEP Monuments
- MHW - January 1975
- MHW - October 1990
- MHW - October 2008
- Hardbottom (2009)

N

0 125 250 Feet

1 inch = 250 feet

Figure 6. Shoreline and Hardbottom Map, R-204 to R-207

COASTAL PLANNING & ENGINEERING, INC.
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BOCA RATON, FL 33431
PH. (561) 391-8102
FAX (561) 391 9116

Date: 02/27/13	By: HMV	Comm No. : 148901	Figure No. 6

3.3 Volumetric Change Analysis

The shoreline can be indicative of the condition of the entire beach profile but a better representation of the beach condition is the volume within the beach profile. Natural onshore and offshore movement of sand will occur throughout the year causing the shoreline to move though the beach is still in a healthy condition. A volumetric change analysis from the dune out to -28.0 feet, NAVD shows how the entire beach profile is performing. Unfortunately, not all of the January 1975 profiles extended seaward to -28.0 feet, NAVD so this analysis was performed using only the profiles that extended this far (approximately every third 1975 profile line).

Table 7 shows that all of the profiles within the Town of Highland Beach (THB) accreted sand between 1975 and 2008. As with the shoreline change, there is a general trend of greater accretion at the north end of the Town and less accretion at the south end of Town. This again suggests that the volumetric increase is a function of sand migrating south into the Town from Delray Beach. Delray Beach has placed in excess of 6.25M cubic yards of sand on their beach since 1973 so approximately 1/3 of this volume has moved into the Town of Highland Beach.

Table 7. Volumetric Change Summary above -28.0 feet, NAVD

Profile		Distance between Profiles (feet)	Volumetric Change above -28.0 feet, NAVD (cubic yards)		
From	To		Jan 1975 to Oct 1990	Oct 1990 to Oct 2008	Jan 1975 to Oct 2008
Limit of THB	R-191	955	80,000	88,400	168,400
R-191	R-192	1,209	101,200	111,900	213,100
R-192	R-195	2,662	254,900	224,300	479,200
R-195	R-198	3,300	294,400	242,500	536,900
R-198	R-201	3,052	228,700	170,800	399,500
R-201	R-204	3,627	233,100	127,200	360,300
R-204	Limit of THB	175	8,700	5,100	13,800
Total		**14,980**	**1,201,000**	**970,200**	**2,171,200**

Examining the beach profiles in Appendix A suggests that the majority of this sediment has stayed in the offshore portion of the profile. This would be expected as finer sediments can be transported more easily from the Delray Beach project and will tend to accumulate in the deeper portion of the beach profile. While sand in the offshore profile still provides storm protection to the Town, the greatest value this profile provides is in stabilizing any fill placed above mean high water by upland property owners.

Although the Town's beach has benefited from this accumulation of sediment, the natural offshore transport has not resulted in year-over-year shoreline advance to facilitate natural dune build-up. A volumetric analysis was performed that showed the volumetric gain above mean high water (0.44 feet, NAVD) was only 122,700 cubic yards between 1975 and 2008 (Table 8), which is less than 6% of the total volumetric gain. A further analysis of volume change above +

5 feet, NAVD showed a gain of only 16,300 cubic yards, some or all of which may be attributed to sand placement by upland property owners.

Table 8. Volumetric Change Summary above Mean High Water (+0.44 feet, NAVD)

Profile		Distance between Profiles (feet)	Volumetric Change above +0.44 feet, NAVD (cubic yards)		
From	To		Jan 1975 to Oct 1990	Oct 1990 to Oct 2008	Jan 1975 to Oct 2008
Limit of HB	R-191	955	19,900	15,600	35,500
R-191	R-192	1,209	17,800	24,100	41,900
R-192	R-193	1,238	1,600	18,100	19,700
R-193	R-194	781	2,100	7,600	9,700
R-194	R-195	643	8,000	11,100	19,100
R-195	R-196	1,341	13,800	17,800	31,600
R-196	R-197	851	5,600	2,700	8,300
R-197	R-198	1,108	3,900	5,500	9,400
R-198	R-199	1,090	-9,800	6,600	-3,200
R-199	R-200	858	-11,600	3,500	-8,100
R-200	R-201	1,105	-5,000	4,600	-400
R-201	R-202	1,157	-25,300	3,800	-21,500
R-202	T-203	1,111	-23,200	-2,400	-25,600
T-203	R-204	1,358	-200	4,200	4,000
R-204	Limit of HB	175	200	2,100	2,300
Total		**14,980**	**-2,200**	**124,900**	**122,700**

3.4 Environmental Resources

There are numerous rock out crops (hardbottom) throughout the Town of Highland Beach. The nearshore hardbottom resources within Highland Beach are part of the Nearshore Ridge Complex (NRC), a combination of shallow colonized pavement and ridges of relatively flat, low-relief carbonate rock (Walker, 2012). Most of the exposed rock is located at the south end of the Town, the most prominent being Yamato Rock.

The NRC potentially serves a variety of ecosystem functions, including settlement and nursery areas, spawning sites, feeding areas, and shelter for hundreds of species of macroalgae, fish and invertebrates such as stony corals and octocorals (Lindeman *et al.*, 2009; Lindeman and Snyder, 1999). The hardbottom resources adjacent to Highland Beach are located in the intertidal and subtidal zones and are subject to high wave energy and constant sand movement. The benthic community is generally dominated by turf algae and macroalgae, with invertebrates including tunicates and sponges. It is characterized by a low-density coral community, predominantly of small colonies of *Siderastrea* spp. (less than 2 cm), a species that dominates the nearshore habitat of south Florida and is considered relatively sediment-tolerant (Lirman *et al.*, 2002).

Much of this hardbottom is ephemeral in nature but is important for the environmental system and must be considered when evaluating beach restoration alternatives within the Town. The latest available data outlining the extent of the hardbottom is a survey conducted by Palm Beach County Environmental Resource Management in 2009. These hardbottom extents are shown in Figures 2 through 7 and total approximately 1.2 acres.

4 EXISTING CONDITIONS

A site visit was conducted in January 2013 to document the condition of the visible portion of the beach.

The beach in the northernmost quarter mile of the Town is backed by single family homes (2355 to 2545 S Ocean Blvd). There is a well-developed, vegetated dune system with the crest elevation of the dune approaching 20 feet, NAVD. The beach was wide with a berm and a mild foreshore slope (Photo 1). No impacts following Hurricane Sandy were apparent. Profile R-191 is representative of this stretch of beach. Profiles comparing the beach condition in January 1975, October 1990, and October 2008 can be found in Appendix A.

Photo 1. View Looking north from the Carlton House Condominium. Note the wide beach, vegetated dune and overall setback of property from the shoreline.

The next mile of beach (2565 to 3407 S Ocean Blvd, Townhouses of Highland Beach Condominium to the Clarendon Condominium) is composed primarily of condominiums with

the Holiday Inn being the one exception. Again, there is a vegetated dune throughout this area though it varied from 75 to 100 feet wide in the northern section to as narrow as 40 feet wide in front of the Ambassadors Condominium. The beach in front of the vegetated dune varied from 60 to 90 feet though this will vary depending on the time of year (Photo 2). The beach had a berm and relatively flat foreshore slope indicative of a healthy beach profile. Profiles R-192 through R-196 show the historic beach cross-sections in this section of the beach.

Photo 2. View looking north along the beach in front of the Holiday Inn. Note the berm and mild foreshore slope.

A study by the Florida Department of Natural Resources (2002) determined that 200 square feet of dry beach is required for normal beach activity by the average person. Given a daily turnover rate of 2, this corresponds to 100 square feet per person per day. Thus, the beach in front of the Holiday Inn's property (400 feet long with a 100-foot wide beach on average) will support 400 visitors per day. With 115 rooms, the existing beach should provide sufficient recreational area to support hotel guest needs. While a similar analysis of all the condominiums in this section of beach was not performed, it can be assumed that beach usage at a hotel will be higher than adjacent condominiums and similar building densities apply. Thus the beach in this area should support the recreational demand.

All of the observed properties had a seawall protecting the main structure though the seawall was typically buried or level with the top of dune. The seawall at the Holiday Inn (Photo 3) appeared to be at an elevation typical of other seawalls through this section. The condition of the seawalls was not reviewed during the development of this report and it is assumed that they were constructed per Florida building codes and statutes. As such, they should protect the upland

structure from up to a 50-year return period storm event, if be designed, constructed and maintained per the code.

Photo 3. View looking north at the Holiday Inn. Note the seawall at the left side of the photo and vegetated dune in front of the seawall.

The next section of beach from 3419 to 3907 S Ocean Blvd is approximately 0.55 miles long and is mostly composed of single family homes except for a few condos at the north end (Villanova, Villas at Highland Beach and Ocean Reef Condo). This section also contains the beach club for Toscana and the beach access of the Highland Beach Club. Thus, while it's mostly single family homes along the beach side, there is still a high recreational value for the beach in this section.

Mr. Berman, Toscana Homeowner's Association Community Association Manager, indicated that there were approximately 850 residents of the Toscana properties (personal communication, 2012) during peak season. He estimated that 130 to 140 residents visit the beach per day during the peak season. The beach should have a dry width of 90 feet to provide optimal recreational benefit for this usage, assuming 100 square feet of beach needed per visit/day, and the Toscana property length of 160 feet. The beach width observed in January 2013 was only half this width (50 feet).

Along this section of the Town's shoreline, impacts from Hurricane Sandy started to become evident. Sections of dune vegetation had been damaged and undermined (Photo 4) and scarping was visible along the shoreline. The elevation of the dune seemed sufficient and a review of Profiles R-197 and R-198 suggest that the dune has sufficient elevation at +18 feet, NAVD to +20 feet, NAVD. Profile R-199 had a lower dune elevation at +12 feet, NAVD, which provides

limited protection. For example, a typical lower grade beam elevation would be +14 feet, NAVD in this section of Palm Beach County.

Photo 4. View looking north from the Toscana Beach Club. Note the narrow beach width and steep face at the toe of vegetation indicative of storm damage.

The next 0.6-mile section of beach (3912 S Ocean Blvd to 11 Ocean Place, Regency Highland Club to Ocean Place Estates) was grouped because it consisted primarily of single family homes and low density condominiums (Ocean Place Villas and Coco-de-Mer Condominium). The Regency Highland Club also has a beach access in this reach, which is almost 200 feet long. The beach is sufficiently wide to provide recreational benefits to the club's 210 units.

Only two homes do not have a vegetated dune in front of their property (3921 and 4001 S Ocean Blvd). All the other properties have a vegetated dune though the width and height vary. The beach is too narrow to support a sustainable dune, and impacts to the dune during a major storm event should be expected. It was apparent that residents had truck hauled sand to rebuild the dune following the passage of Hurricane Sandy (Photo 5). However, the beach in this section will provide storm damage protection benefits to the homes under higher frequency, low intensity storms.

Photo 5. View Looking north from the Ambassadors Condominium. Note the rock outcrop and newly rebuilt dune in front of Ocean Place Estates.

All of the homes appear to have a seawall buried within the dune and it is our understanding that the Ocean Place Estates have one continuous seawall. Therefore, the beach in this section is adequate to serve the current needs of the residents though rebuilding of the dune may periodically be necessary following a large storm event.

Persistent hard bottom first appears in this reach (Figures 3 and 4). This environmental resource appears to pin the shoreline as there is a small bulge in the shoreline in the immediate vicinity of exposed hard bottom (Photo 5). The shoreline is set further back between the rock outcrops.

The 0.3 miles at the south end of the Town extending from the Ambassadors Condominium (4505 S Ocean Blvd) to Yamato Rock are the most critical sections of beach within the Town limits. The beach is narrow (less than 25 feet) and the berm is scarped and low (Photo 6). Scarping of the dune due to the passage of Hurricane Sandy was evident as was damage to property (Photo 7). It appeared that the Ambassador's Condominium had rebuilt the staircase from the pool deck to the beach following Hurricane Sandy. Other properties also needed to bring sand to prevent further undermining of their property (Photo 8). Examining the profile R-203 suggests that the dune is substantial in this area (+20 feet, NAVD) though the history suggests retreat of the dune feature.

Photo 6. View looking north from Yamato Rock. Note the narrow beach width, steep profile and scarping of the berm and dune.

Photo 7. View of a scarped dune and beach erosion. Note that there is an approximate paint line on the staircase, which generally indicates a previous beach elevation and shows erosion of the beach. The missing handrail suggests recent damage from Hurricane Sandy.

Photo 8. Deflation of the dune underneath the deck at 4513 S Ocean Blvd, likely as a result of Hurricane Sandy.

South of Yamato Rock, the beach is stable and healthy and the three properties (4713, 4715 and 4801 S Ocean Blvd) have a 50-foot wide vegetated dune and 100-foot beach in front of the structures (Photo 9). The dune crests at approximately +20 feet, NAVD (FDEP profile R-204). This section of beach has benefited from the North Boca Raton Beach nourishment projects constructed in 1988, 1998, and 2011.

Photo 9. View looking south from Yamato Rock.

5 PROBLEM IDENTIFICATION AND ALTERNATIVES

The review of historic and existing conditions suggests that the Town's beaches are performing very well overall. They have benefited from the beach nourishment projects constructed in Delray Beach and the natural north to south transport of sand. This natural movement of sand has widened the beaches at the north end of Town and resulted in a relatively stable beach in the center of Town. The beaches at the southern end of the Town are narrow and stable to erosional. Some condominiums at the south end of Town could benefit from a wider beach for recreational purposes while other properties will continue to experience damage during lower frequency storm events.

The primary issue along the Town's beaches is shoreline recession and dune impacts during a large storm event. The analysis shows that significant shoreline recession and dune erosion occur and the recovery can be slow. Many residents reconstruct their dunes using upland sand, which requires permitting unless a State of Emergency is declared.

The following options are available:

5.1 No Action by the Town of Highland Beach

The Town's beaches are performing relatively well and no infrastructure is under imminent threat. Upland property owners have reconstructed their dunes following storm events and this practice should be encouraged.

Reconstruction of the dunes using sand from upland borrow sources requires an FDEP field permit. For quantities less than 200 cubic yards, the property owner can apply for and be issued a permit by the FDEP's field representative. Permits for volumes in excess of 200 cubic yards are issued by FDEP staff in Tallahassee. The basic permit requirements are for the sand to be beach compatible. Given that this action is typically performed on a small scale (up to a dozen truck loads per owner), there is limited impact on the Town's infrastructure or traffic patterns.

Following significant storm events, such as Hurricane Sandy, the FDEP may issue an Emergency Order. A typical Emergency Order allows the Town to issue permits to individual property owners in lieu of an FDEP permit and allows:

- Activities to secure structures for safety purposes.
- Temporary armoring that must be removed within 60 days of installation
- Repair or replacement of minor ancillary structures (such as stairs, landings and HVAC platforms) and service utilities necessary for occupancy of a habitable structure.
- Repair of foundations for buildings that have not been substantially damaged.
- Replacement or repair of caps and anchoring systems for seawalls or bulkheads.
- Restoration of a damaged dune system using beach compatible sand.

A copy of the Emergency Order issued after Hurricane Sandy is included in Appendix B for your reference and better details work the Town may approve.

The Town's Comprehensive Plan was reviewed and is sufficient to ensure that any new building follows Florida's building statutes.

The No Action alternative will leave residents and the Town having to respond to any future large hurricane events in a manner similar to the response following Hurricane Sandy. The No Action alternative does not address recreational and storm damage reduction issues identified within the Town, though these are mostly located in the southern end. It is recommended that the Town residents consider a more pro-active position with respect to their beach program.

5.2 Dune Restoration and Enhancement

A Town wide dune restoration and enhancement project could be developed. A template would be developed for various sections of the Town that would meet the needs of the upland property owners from a recreation and storm damage reduction perspective.

It is possible that a proposed dune section would be completely encompassed by the current beach profile such that the project would not need to be constructed at a given location at this time. However, in the case of a storm event, the Town would hold a permit to reconstruct the dunes in the impacted area regardless of whether an Emergency Order was issued.

There are several advantages to this approach:

- Once engineered and constructed, the Town could apply for FEMA reimbursement to rebuild the dunes if the project was impacted by a large storm event and the County was included in a Federal Emergency Declaration.
- This project would be constructed via truck haul allowing small quantities to be placed in discrete locations.
- The Town could budget and address small sections of the Town each year rather than having a large capital outlay.
- The upland property owner could construct the dune using private funds avoiding construction costs for the Town. The upland property owner would benefit from the Town having performed the legwork to obtain a standing permit.
- A truck haul project has relatively low mobilization costs allowing most of the cost to be spent on sand.
- By limiting sand placement above mean high water, the effort to obtain a permit is reduced.
- There are no impacts to the riparian rights of the upland property owners. Upland property owners currently own the land to the mean high water and they would retain this right.

The disadvantages to this approach include:

- Sand would only be placed above mean high water limiting the volume of sand that could be placed and hence the storm damage reduction benefit.
- There would be no seaward shift of the shoreline and thus no increase in recreational space along the beach.
- The cost of upland sand placement has a high per cubic yard cost.
- The Town has limited beach access points to construct this type of project.
- This could take a significant level of coordination on the part of the Town to develop, administer and maintain the permit.

The City of Delray Beach just constructed a similar project for areas outside of their main beach restoration area. The mobilization cost was $75,000 while the unit cost was $54.50/cubic yard.

The minimum dune size that would be recommended for the Town of Highland Beach would be 6 cubic yards/foot. This would maximize the Town's eligibility for FEMA reimbursement. This equates to a fill volume of approximately 90,000 cubic yards. The approximate cost of this project would be $4.6M.

5.3 Beach Nourishment Project

A beach nourishment project would likely involve advancing the shoreline seaward by approximately 50 feet as this is the design profile applied for the Delray Beach and North Boca Raton projects. This would provide greater storm damage reduction and recreational benefits.

Delray Beach and North Boca Raton have wider beaches than this to account for background erosion rates but the Town of Highland Beach has a relatively stable beach and would not require this additional fill. The design berm elevation of the Delray Beach and North Boca Raton beach nourishment projects is at +7.5 feet, NAVD and a similar berm crest elevation is proposed for the Town of Highland Beach (Figure 7). The approximate fill volume required to construct this template throughout the entire 2.84 miles of the Town is approximately 1.0M cubic yards.

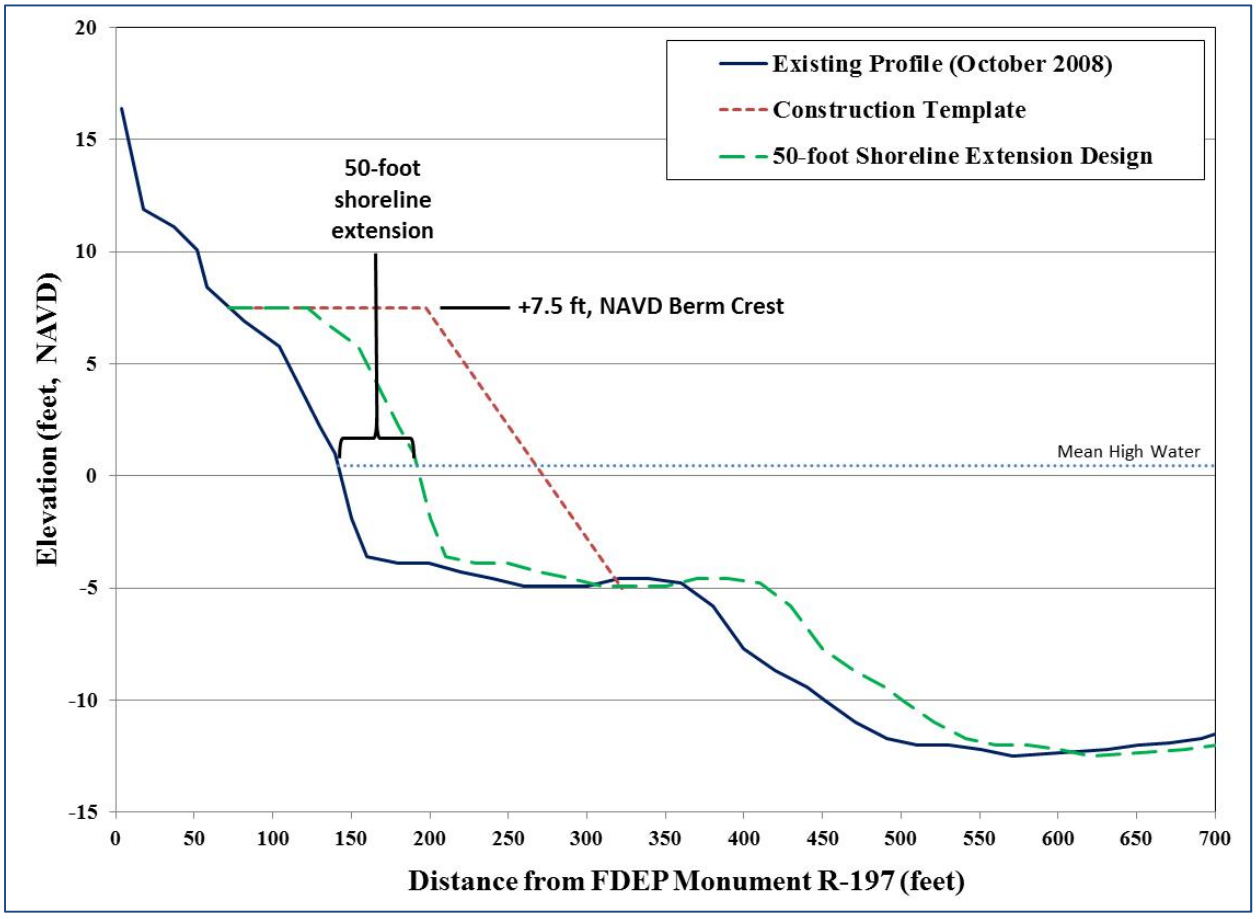

Figure 7. Typical Cross-Section of the Proposed Beach Nourishment Project

The beach would be built wider than the 50-foot design width for constructability purposes. The construction template might shift the shoreline up to 150 feet offshore, but the profile would then reshape to a more natural condition and the shoreline would stabilize approximately 50 feet seaward of the pre-construction shoreline. This might take up to a year though a large storm would speed the "equilibration" process.

The cost to construct this project in 2014 would be approximately $9.5M. This includes a mobilization cost of $4.0M and a unit cost of $5.50 per cubic yard. It would be possible to reduce this cost by sharing in the mobilization cost with either Boca Raton or Delray Beach when they construct their next project. Given that Delray Beach is about to construct their next project and Boca Raton just finished North Boca Raton, it could be several years until the timing is conducive for this partnering. A 5 year delay in the project could increase costs to $14M given the rate of dredge cost inflation over the last 10 years. Splitting the mobilization cost with Boca Raton or Delray Beach could reduce the project cost to $12M. The permit for initial construction of such a project is good for 5 years, providing time to coordinate with your neighbors.

Some of the advantages of a full beach nourishment project include:

- The project would provide significant storm damage reduction benefits.
- The project would provide additional recreational benefits.
- The Town could apply for FEMA reimbursement to rebuild a portion of the project (up to 6 cubic yards/foot) if the project was impacted by a large storm event and Palm Beach County was included in a Federal Emergency Declaration.
- The unit cost for this type of fill is much lower than a truck haul project.

The disadvantages of a beach nourishment project:

- A nourished beach becomes State land seaward of the pre-construction mean high water line. An Erosion Control Line (ECL) is established as part of the permitting process, which is the mean high water line prior to construction of the project. This becomes the seaward property line of the upland property owner. While there are restrictions on construction and use of the beach on the new portion of the beach, some upland property owners may object to the “loss” of riparian rights all the way to the mean high water line.
- There is a high capital outlay for initial construction of the project.

The persistent hard bottom at the south end of Town may present some permitting challenges. While the acreage impacted is low (approximately 1.2 acres) the permitting agencies may require avoidance of some of this rock (specifically Yamato Rock) or mitigation in the form of an offshore artificial reef.

CPE has performed considerable offshore sand search investigations for the cities of Boca Raton and Delray Beach and is confident that sufficient sand resources are available directly offshore of the Town of Highland Beach. The USACE (2012) has collected data further north and directly offshore of the Town of Highland Beach. The data confirmed that the same sand feature dredged to construct the North Boca Raton Project extends further into the Town of Highland Beach though a detailed investigation of this potential source still needs to be performed. Potential sand resources and their proximity to the Town are shown in Figure 8.

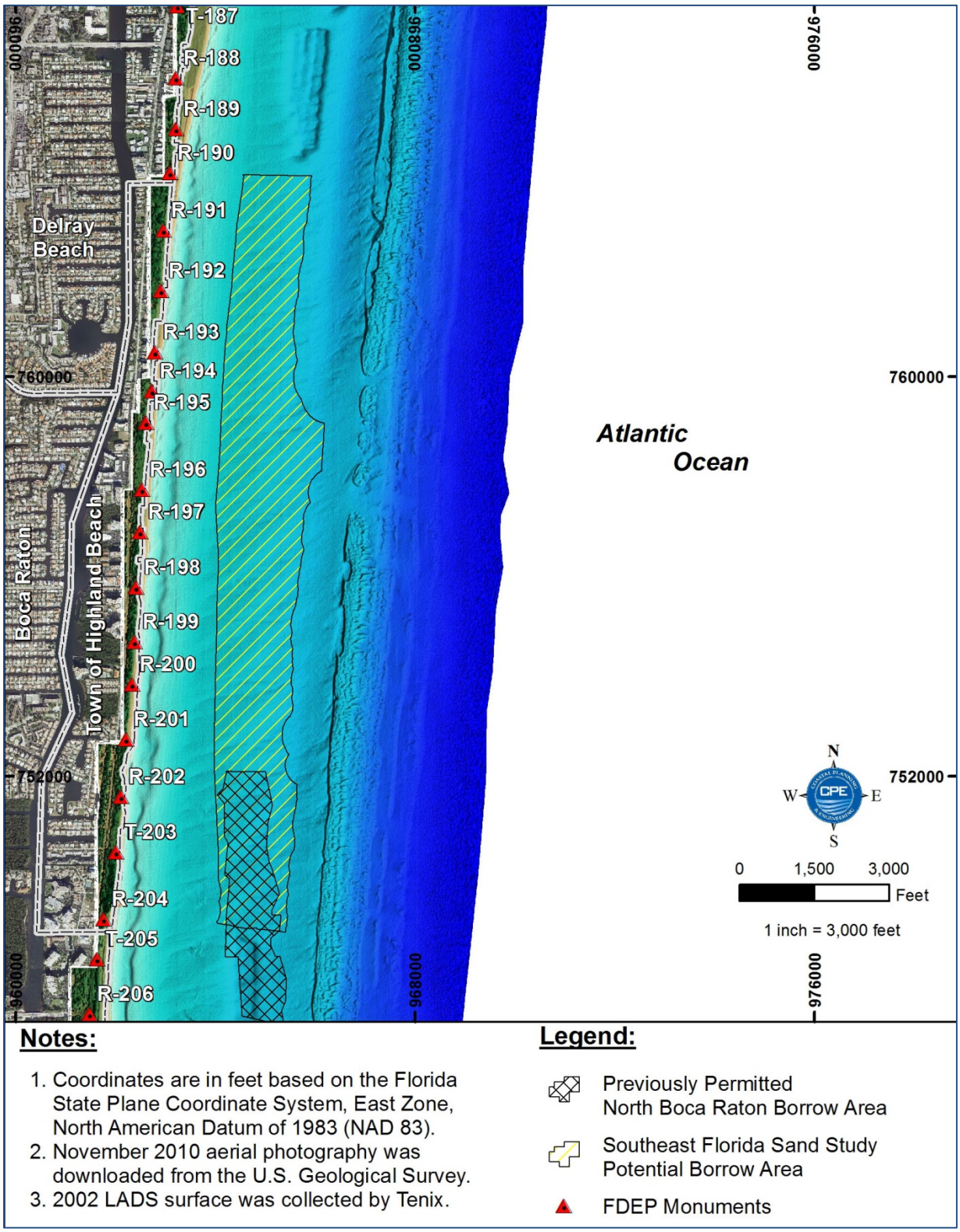

Figure 8. Offshore Borrow Areas and Potential Sand Resources

This is the recommended alternative. It ensures that sufficient storm damage protection and recreational areas are available throughout the Town.

5.4 Coastal Structures

Coastal structures are appealing because it is assumed that they prevent sand from washing away. In reality, coastal structures simply redistribute sand within a littoral cell. For example, building a groin will hold additional sand on the north side of the groin but that sand will be deprived from the south side of the groin causing an erosional area. There is no additional sand introduced to the system as is the case with a beach nourishment project. Strategic use of coastal structures is possible in areas that have alternating areas of erosion and accretion. The concept is to reduce the erosion in one area by reducing accretion in another. Various coastal structures were evaluated within the Town of Highland Beach based on this concept.

5.4.1 Groins

Groins are shore perpendicular structures that work by intercepting sand flowing along the shoreline. They generally result in a saw-toothed pattern in the shoreline with sand building up on the north side of the groin (in the case of Town of Highland Beach) and a corresponding recession in the shoreline on the south side of the groin (Photo 10). The groins are designed such that the downdrift shoreline location meets the design goals. They are often constructed in conjunction with a beach nourishment project to avoid initial erosion and shoreline retreat (ie pre-fill the groin field).

Photo 10. Permeable adjustable groin in Longboat Key. Note the shoreline offset on the left (south) side of the groin compared to the right (north) side of the groin.

In Highland Beach, the shoreline is uniform and there are no areas that are well suited to construction of a single groin or a groin field (multiple groins). The cost of groins can be quite high. The cost of a single groin constructed in Boca Raton in 2005 was $815,360.

5.4.2 Emergent Offshore Breakwaters

Breakwaters are shore perpendicular structures. They provide protection to the shoreline by waves breaking directly against the structure and providing shelter to the shoreline in its lee. Wave energy is dissipated in the gap due to diffraction of the wave energy. Again, the breakwaters will hold sand behind them at the expense of the sand adjacent to the breakwater. The shoreline then has a cuspate shape as shown in Photo 11.

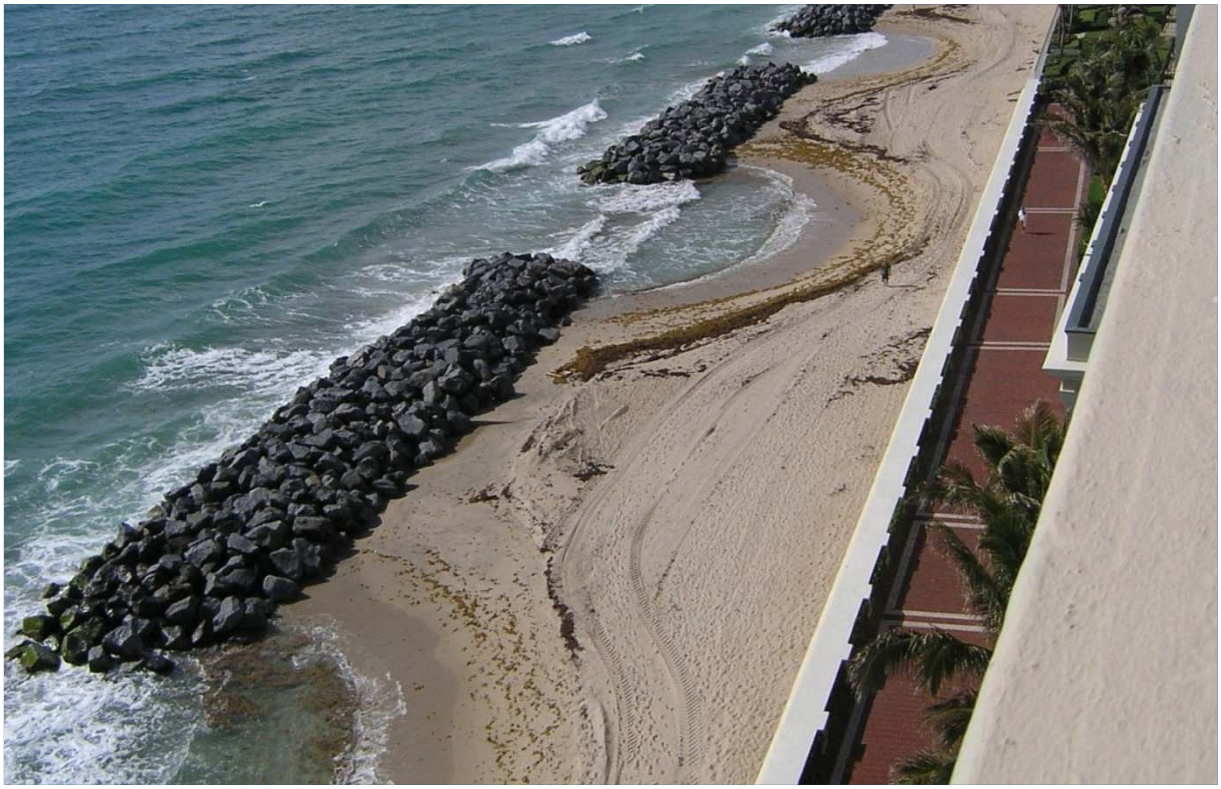

Photo 11. Breakwaters at the Breakers Hotel, Town of Palm Beach. Note the crenulate shape of the shoreline.

CPE recently permitted and oversaw rehabilitation of the breakwater field at the Breakers Hotel, in the Town of Palm Beach. The permitting effort was quite intensive even though this was a rehabilitation project. A breakwater field permit application at Singer Island was recently withdrawn because of environmental objections. Given that shoreline along the Town of Highland Beach is relatively stable, a breakwater field is not a recommended option due to aesthetics and permitting difficulties.

The cost of a single 150-foot long breakwater is estimated at $500,000, excluding mobilization.

5.4.3 Submerged Offshore Breakwater

A submerged breakwater has a crest below mean low water while an emergent breakwater typically has a breakwater crest a few feet above mean high water.

The benefit of a submerged structure is that there are fewer concerns with negative impacts to sea turtle nesting. Also, because the structure is submerged it does not have the same aesthetic concerns as an emergent structure. It is not clear whether a submerged breakwater would be viewed as compensatory mitigation for hard bottom coverage by the permitting agencies.

The drawback of a submerged structure is that it is not nearly as effective as an emergent structure. They have to be much wider than an emergent breakwater to be effective and are similar in cost, if not more expensive. They can be hazardous to boats and will have to be marked with navigation warning signs. Lastly, they have the potential to initiate rip currents between submerged structures because waves break over the structure but the return flow is restricted by the structure. This flow will then be funneled towards a gap between the structures resulting in a recurrent rip current. For longer, continuous submerged structures, an alongshore current can be created due to wave setup across the structure resulting in an erosional stress on the shoreline.

5.4.4 Patented Technologies

There are several "patented technologies" that claim to prevent shoreline erosion and build beaches. These are often marketed as having no downdrift impacts or negative environmental benefits. We caution considering the installation these "technologies". The FDEP regularly reviews these claims, requiring a permitting process and peer review of any field tests. We recommend asking for the FDEP's opinion if approached.

5.4.5 Coastal Structures Summary

Coastal structures are not recommended for implementation by the Town given the stable to accretional nature of the shoreline, uniform longshore transport rate, and no definable erosion hot spots. The cost of the structures will exceed the benefit.

Individual property owners may want to consider structures in front of their property in order to expand the dry beach width. We recommend that the Town advise the property owner to investigate this possibility at the property owner's cost. The Town will be required to provide a finding of consistency with the Town's Coastal Management Plan as part of the owner's application process. The individual property owner should submit the engineering design basis to the Town for review prior to the Town providing such a letter. This (CPE's) report should not be viewed as a definitive negative response for such applications. As stated previously, strategic use of structures can be beneficial but must be carefully designed and monitored. There is no Town benefit for the installation of coastal structures at this time.

6 FUNDING MECHANISMS

Obviously the cost of a beach nourishment project is significant. Such a large cost may not be viable within the Town's Capital Improvement budget. This section discusses other possible funding sources and mechanisms.

6.1 Federal Funding

Some of the beach nourishment projects around the State of Florida are cost shared by the Federal Government through the U.S. Army Corps of Engineers (USACE). North Boca Raton and Delray Beach are two examples of projects with Federal funding programs. This is a complicated process and requires several years to develop documents to support this funding. There are numerous projects in line for this funding and an application by the Town would be at the bottom of the list. It is highly unlikely that the Town would successfully obtain Federal funding given the current economic conditions. Furthermore, several towns have not been reimbursed for approved and constructed projects. Reimbursement of the costs used to be obtained through Congressional budget line items ("earmarks") but with the ban on these, reimbursement is based on USACE "Construction General" funds and how the USACE disburses these funds. The USACE does not have sufficient funds to reimburse all eligible projects and thus some towns do not receive the reimbursement funds.

Even if the Town was successful in applying for Federal funding, the funding is capped at a maximum of 65% of project costs. This is then decreased based on the percentage of the beach that is more than ¼ mile from a public beach access. Given that there is currently no public beach access within the Town, Federal funding would not be available. If the County were to construct the park at the south end of Town and have sufficient parking on the west side of A-1-A, Federal funding would still be limited to less than 10% of construction cost because of the limited distance that this access would cover.

6.2 State Funding

The State of Florida recognizes the benefit of beaches for storm damage protection and supporting the tourism industry. The Beach Management Funding Assistance Program (FS, 62B-36 and included in Appendix C) is funded based on Ad Valorem taxes and administered through the FDEP. The funding for the program is used to support the Department and provide construction funds to eligible projects. The State will cost share up to 50% of the non-Federal cost but there are thresh holds for funding that may be difficult for the Town to meet.

First, the State will only fund beaches that are deemed to be "critically eroded". The Town of Highland Beach is not currently deemed to be a critically eroded shoreline. Given the Town's history of shoreline advance since 1975, as documented in Section 3.2 of this report, convincing the FDEP that the shoreline is critically eroded will be an intensive effort.

Second, the State has a beach access requirement for receiving State funds. A "primary beach access", defined as a beach access with at least 100 public parking places and public restrooms, will allow for funding of a beach project up to ½ mile from the access. A "secondary beach access", defined as an access that may have public amenities but does not qualify as primary

access, will provide for funding based on the number of available public parking places. Given that there are currently no public beach access points within the Town, State funding is not a potential funding source at this time. Construction of the County Park would open the potential for State funding but depending on the type and size of the park, funding would still be limited to the portion of the project within ½ mile of the park.

Third, the State typically only has sufficient funds for 10% of the projects for which funds are requested each year. A cursory evaluation suggests that the Town of Highland Beach would rank low on the list based on the funding eligibility requirements compared to other applicants. A full description of the ranking criteria is included in Appendix C but in summary, the criteria are:

- Severity of erosion (based on average erosion rate).
- Threat to upland structures (percent of developed properties seaward of the projected 25-year interval return storm)
- Recreational and economic benefits (percent property zoned as commercial or recreational).
- Availability of federal funds.
- Local sponsor financial and administrative commitment.
- Previous state commitment.
- Project performance (expected life of the project).
- Mitigation of inlet effects.
- Innovative technologies.
- Enhance nesting sea turtle refuges.
- Regionalization (projects where two or more local government entities couple their projects to reduce costs).
- Significance (length of project).

In summary, it is unlikely that the Town will be successful in securing State funding.

6.3 County Funding

Palm Beach County funds their beach program using a portion of the funds collected through the Tourist Development Tax (or "Bed Tax"). This is a 5% tax on any short term rental. The County follows the same criteria that the State uses to allocate funds between projects. Again, the lack of current public beach access will thwart any Town request for County funding assistance. If the County Park were to be constructed, funding might still be limited as they use the State's ranking criteria.

6.4 Local Funding Mechanisms

Given the low probability of receiving Federal, State or County funding, the Town will likely to have to fund any beach initiatives by Town residents. There are two primary factors to be considered. First, a mechanism is necessary to assess and disburse funds collected from the property owners. Second, a cost apportionment plan is necessary to prorate the total cost among individual property owners. Table 9 shows several alternatives that the Town could use to raise

funds locally for a beach program. Mechanisms employed by other municipalities are discussed briefly in the following section.

6.4.1 Ad Valorem Tax

The Town could petition the Board of County Commissioners to levy a separate Ad Valorem tax or increase the millage rate on existing general revenues to pay for the project. A separate tax on individual properties is proportional to the benefits, which is determined from an economic analysis. The general revenue approach would have all property owners pay for the project in proportion to the assessed value of their property. The County would collect the tax and then turn this over to the Town to administer.

Voter approval would be needed at a referendum for the Town to issue a bond to pay the costs of the project. Ad Valorem taxes would be pledged as security for the bond.

6.4.2 Erosion Prevention District

The State Legislature may create a separate beach and shore preservation district. The District would be self-governed by a Board of Directors who are resident in the District. In Longboat Key, taxing is setup such that those properties located west (seaward) of Gulf of Mexico Drive pay 80% of the required funding while those on the east side pay 20%. A similar mechanism could be considered by the Town with those located east of S Ocean Blvd paying a larger percentage because they have greater benefit due to having ocean front property.

6.4.3 Special Assessments

Florida municipalities can levy special assessments under FS 166, unless there is a restriction in the Town charter. The Town attorney would need to review this option. A special assessment can be apportioned among property owners in relation to the benefit, similar to the discussion within the Erosion Prevention District.

6.4.4 Municipal Services Benefit Unit (MSBU)

MSBU's are authorized by FS 125. A petition by the majority of property owners to the Board of County Commissioners is required in order to pass an ordinance establishing the MSBU. Public hearings are held to levy the assessment. MSBU's do not require a vote by referendum and involve only property owners. This is beneficial because property owners may visit seasonally and have their voter registration in another State. An MSBU will allow them to be included in the process. Once established, the MSBU has taxing and assessing authority, and bonding and borrowing capability, using assessed property values as security.

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Table 9. Alternative Local Funding Mechanisms (from Stevens & Assoc, 1986)

	ALTERNATIVE	DESCRIPTION	HOW ESTABLISHED	PROS	CONS
1.	Ad Valorem Tax	Uniform Property Tax	Budgetary Process	Existing authority	No continuous source; competition w/others; Poor Management
2.	Bonding	Selling bonds to create revenue - bond retired by Ad Valorem Tax	Referendum	New revenue covers large initial costs	Non- continuous source; time delays; confined to specific projects; poor tool for management and planning
3.	Independent Special Taxing Districts	Independent Gov't established by Legislature to collect property tax for special purpose	By act of Legislature	Continuous source of funds	New government added -not favored by Legislature; voter dependent
4.	Dependent Special Taxing District	Ad Valorem tax collected and administered by the County for a special purpose	By act of Legislature	Ability to fund projects	Limited by total County capital of 10 mils subject to political climate
5.	Municipal Service Taxing Unit (MSTU)	Property tax of a specific area for service	By petition of property owners; local authority under FS 125	Existing authorization; not project limited	Taxes only in improved area, adjacent property owners
6.	Municipal Service Benefit Unit (MSBU)	Special assessments of benefitted properties	Petitions of majority of property owners	Existing authority; no competition with others	Project limited; difficult to establish
7.	Erosion Prevention Districts (FS 161)	A dependent taxing district collecting property taxes	Established by ordinance of the County under FS161	Existing authorization; benefit zones can be taxed differently	Included in total County millage cap; politically affected
8.	Private Funding	Donations	By mutual agreement	Addresses needs of private property	Not practical for countywide funding
9.	Parking Meters and Park Feed	User Fees	Locally initiated	User benefits = pay	Private benefit is not assessed; limited funding
10.	Beach Management Districts (Regional)	Larger government spanning a number of Counties with property taxing authority	State Legislature	Stable funding source; larger tax base; not politically motivated	Funds may be disproportionately used

7 SUMMARY AND RECOMMENDATIONS

The beach in the Town of Highland Beach has benefited from the beach nourishment projects in Delray Beach and to a lesser extent Boca Raton. The shoreline has advanced an average of over 1 foot/year since 1975. The beach at the north end of the Town has advanced the most while the beach at the south end of Town has receded. Overall the beach is in good condition and does not have an immediate need for a renourishment project.

However, many of the upland properties sustained damage during Hurricane Sandy and an analysis of the beach response in the 2004 hurricane season shows that the Town is susceptible to damage during a large storm event or an active hurricane season. While the shoreline will recover from these events, upland property owners will have to independently address damage to the dune system because the dunes will not recover naturally in a short period of time.

It is recommended that the residents prepare for a nourishment project so that a pro-active response is available if there is an active hurricane season. Beach nourishment projects can take several years to design and permit so this process should be initiated as soon as practical.

An initial estimate of the construction cost of a beach nourishment project is $9M, assuming construction in the winter of 2015. The cost of delaying construction until 2020 could increase the cost to $14M. Cost savings could be realized by coordinating construction with either Delray Beach or Boca Raton, which could save some of the dredge mobilization costs. There should be sufficient sand resources directly offshore to support multiple beach nourishment projects.

A beach nourishment project requires a significant cost outlay. The Town and/or residents would need to determine whether the local government or a separate entity would undertake the permitting and construction effort. Should the local government be involved in the funding, the Town may not be able to cover the cost within their regular Capital Improvement budget. If so, the Town may wish to consider several funding mechanisms for the project including Ad Valorem taxes, creating an Erosion Prevention District or creating a Municipal Services Benefit Unit.

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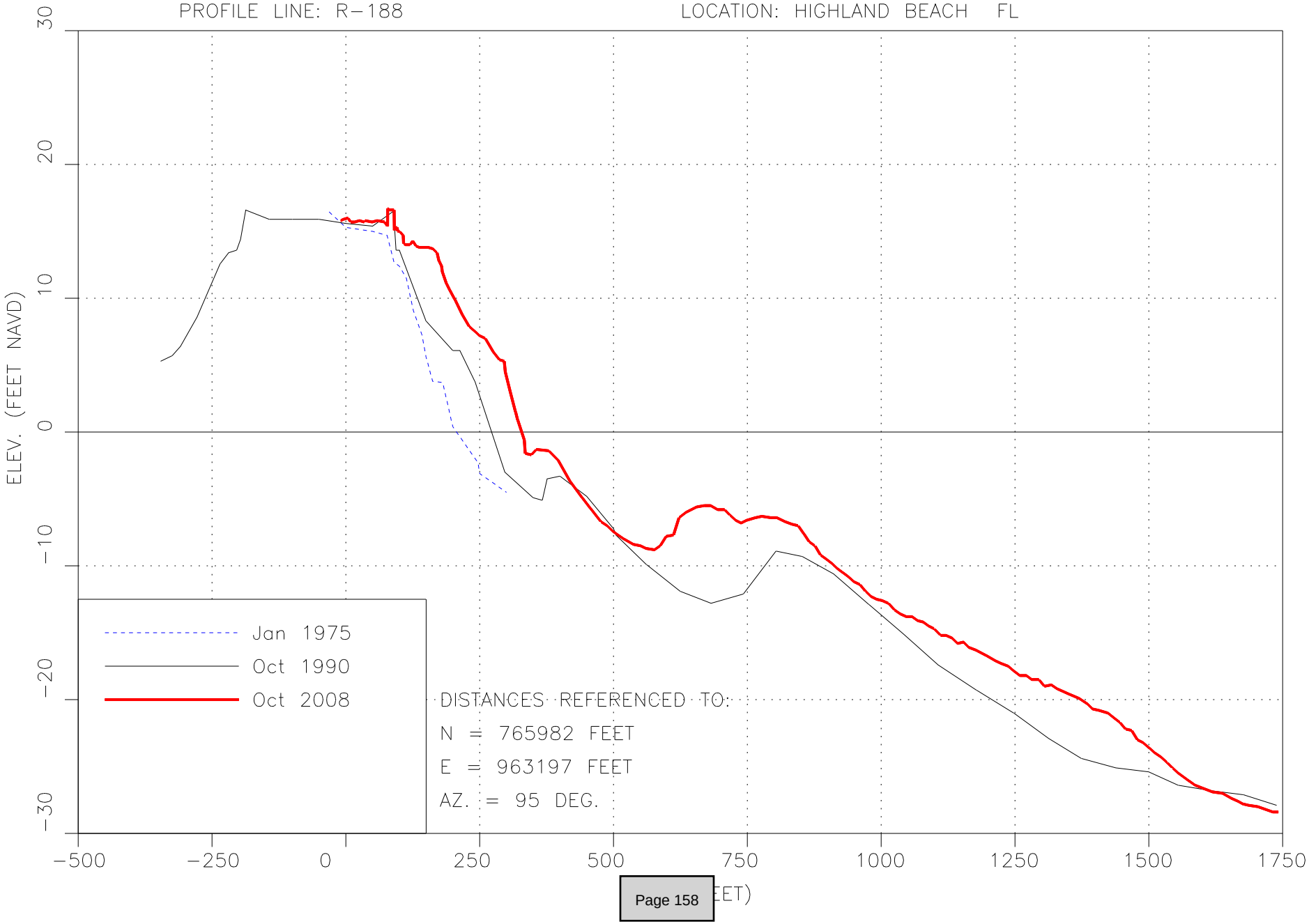
APPENDIX A
BEACH PROFILE CROSS-SECTIONS

2013 STUDY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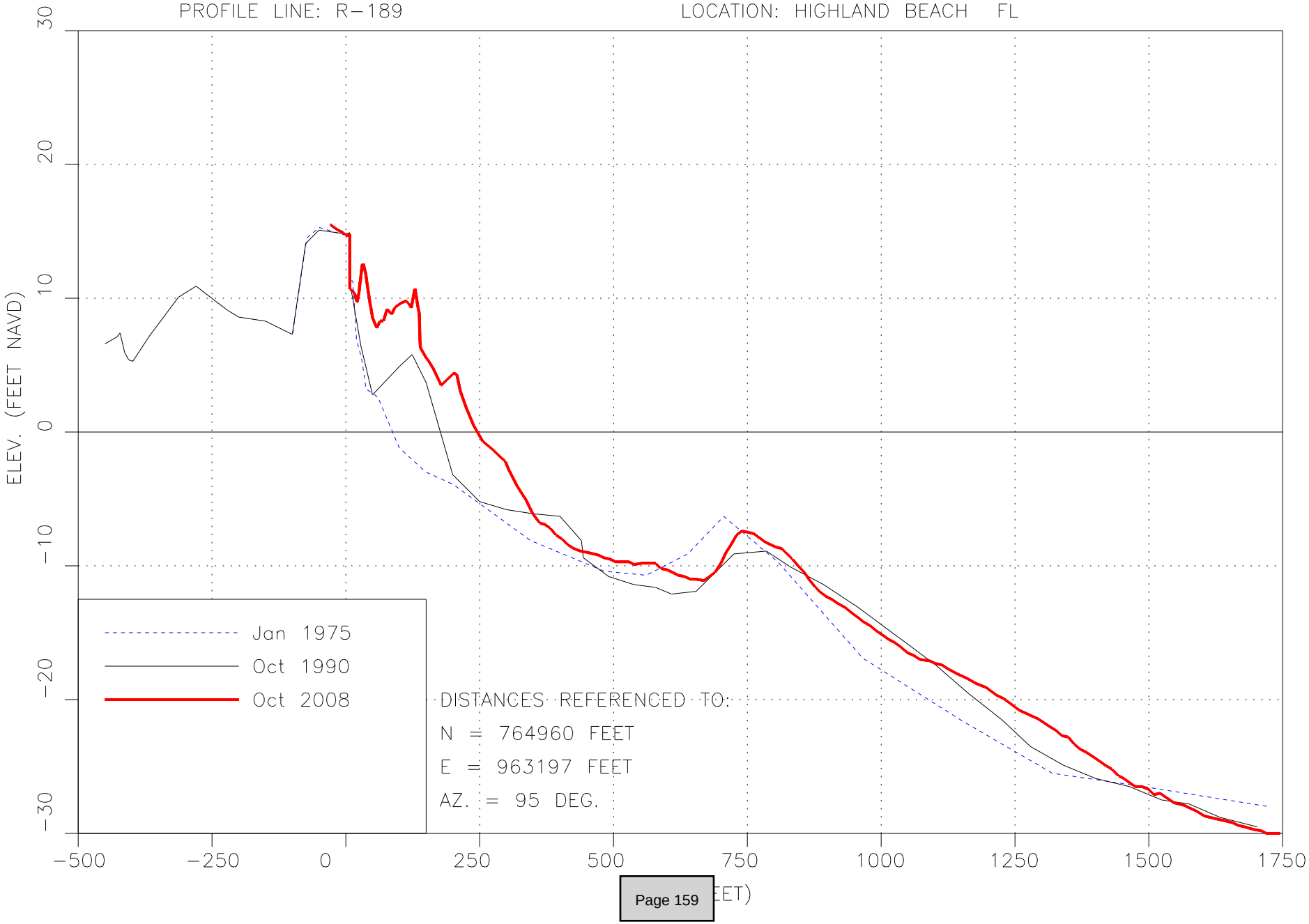
10
0
-10
-20
-30
-500
-250
0
250
500
750
1000
1250
1500
1750
Jan 1975
Oct 1990
Oct 2008
DISTANCES REFERENCED TO:
N = 765982 FEET
E = 963197 FEET
AZ. = 95 DEG.

2013 STUDY


PROFILE LINE: R-189
LOCATION: HIGHLAND BEACH FL
ELEV. (FEET NAVD)
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0
-10
-20
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250
500
750
1000
1250
1500
1750
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Oct 1990
Oct 2008
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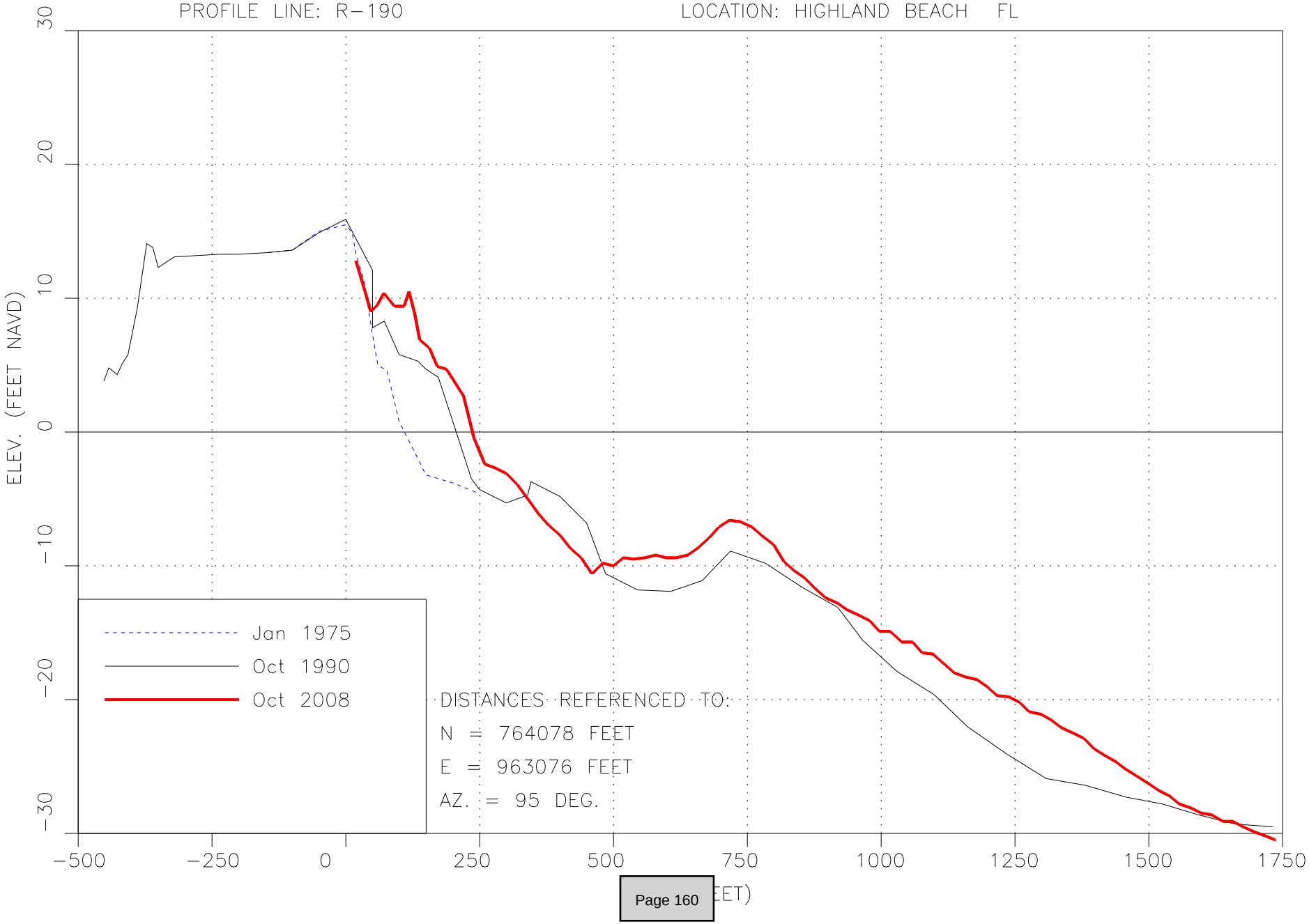
AZ. = 95 DEG.

2013 STUDY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0
-10
-20
-30
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-250
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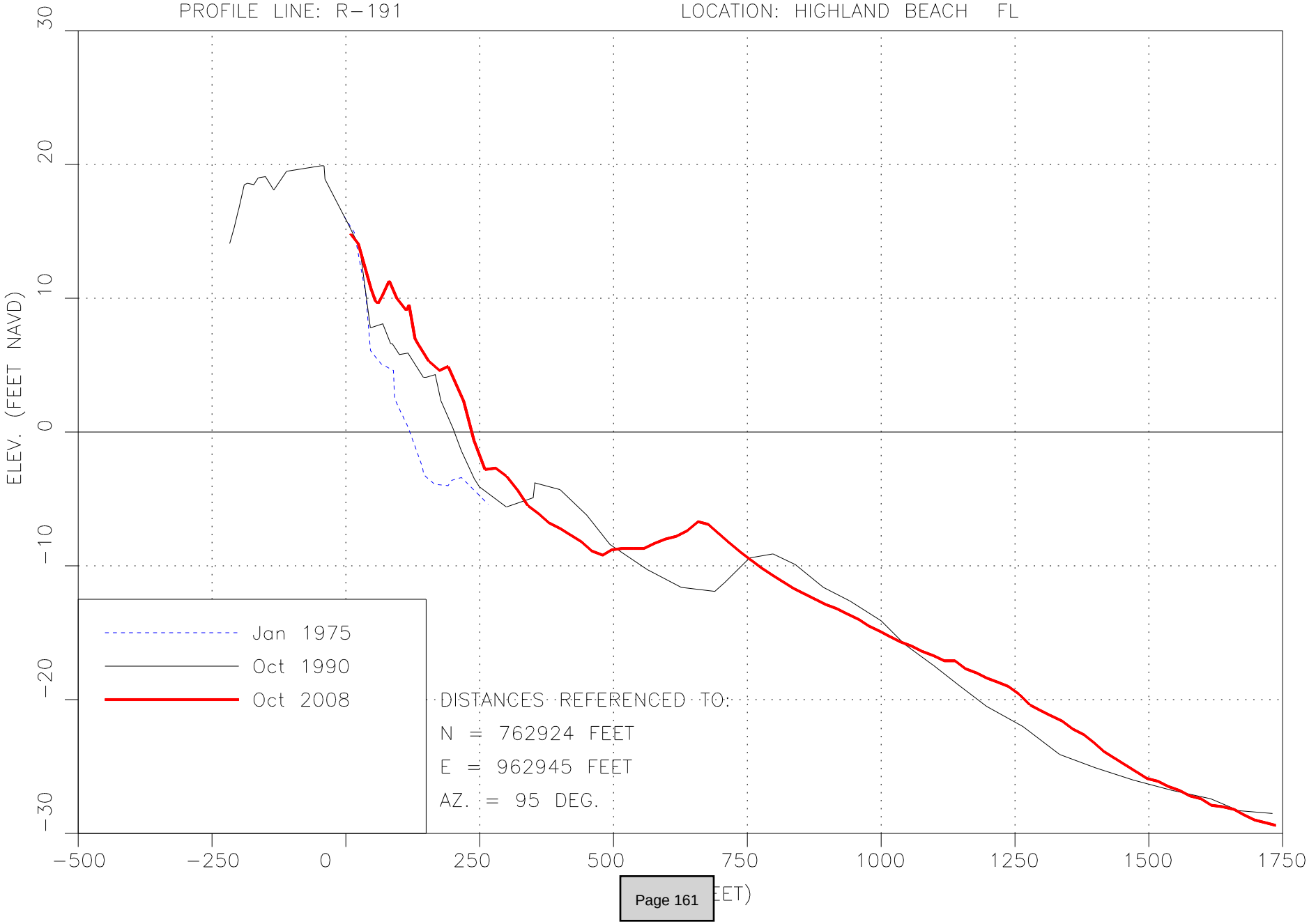
250
500
750
1000
1250
1500
1750
Jan 1975
Oct 1990
Oct 2008
DISTANCES REFERENCED TO:
N = 764078 FEET
E = 963076 FEET
AZ. = 95 DEG.

2013 STUDY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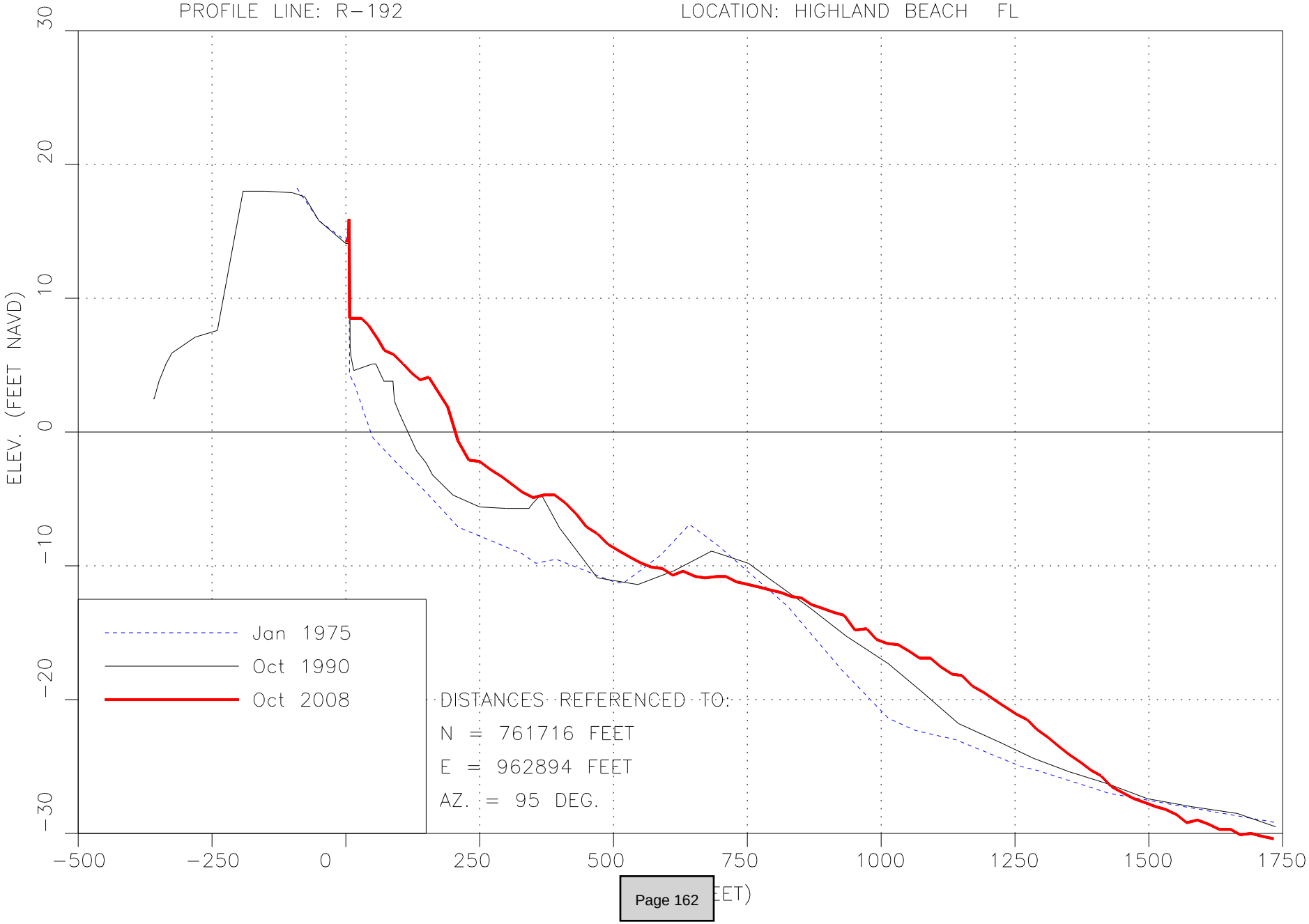
2013 STUDY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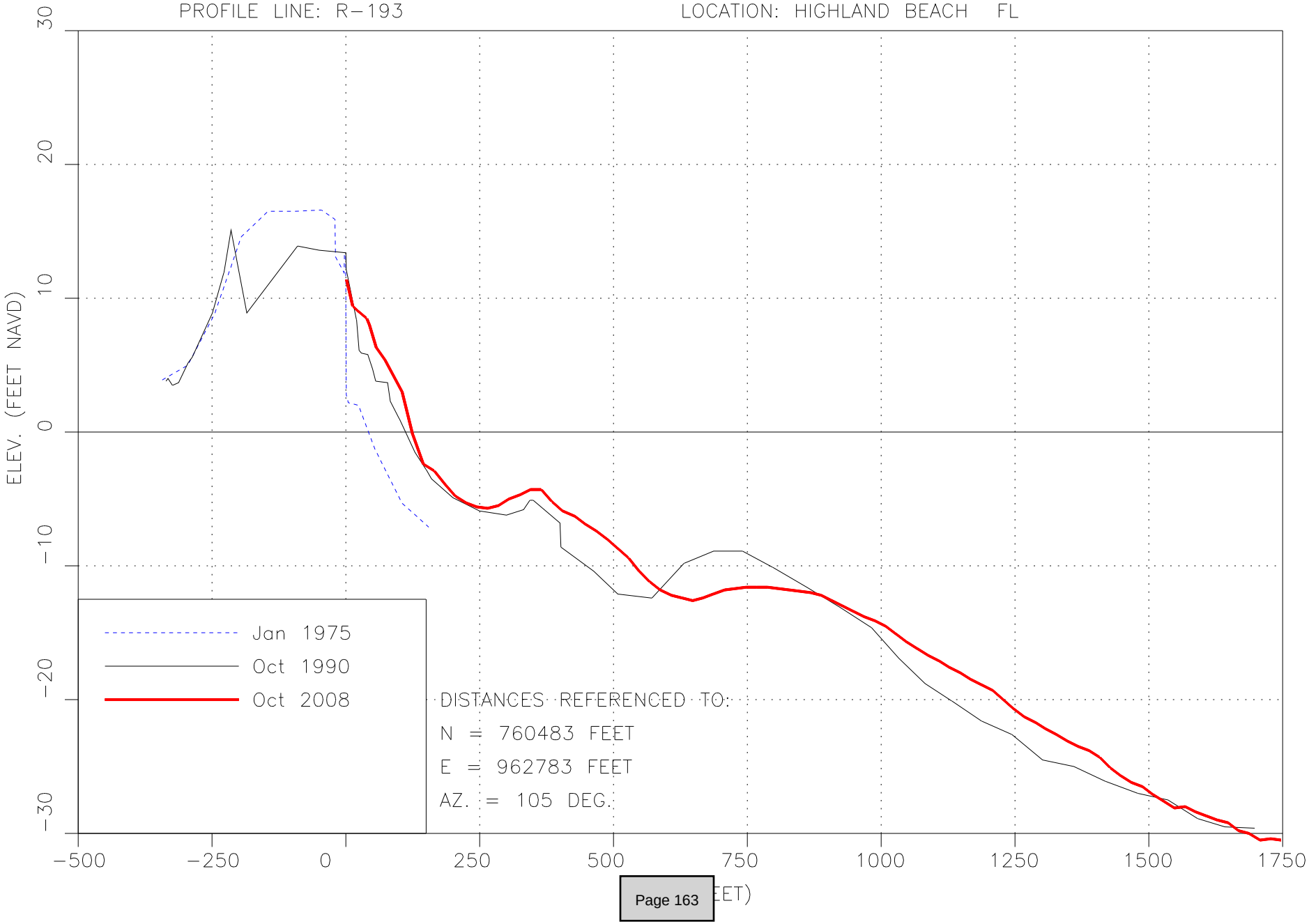
2013 STUDY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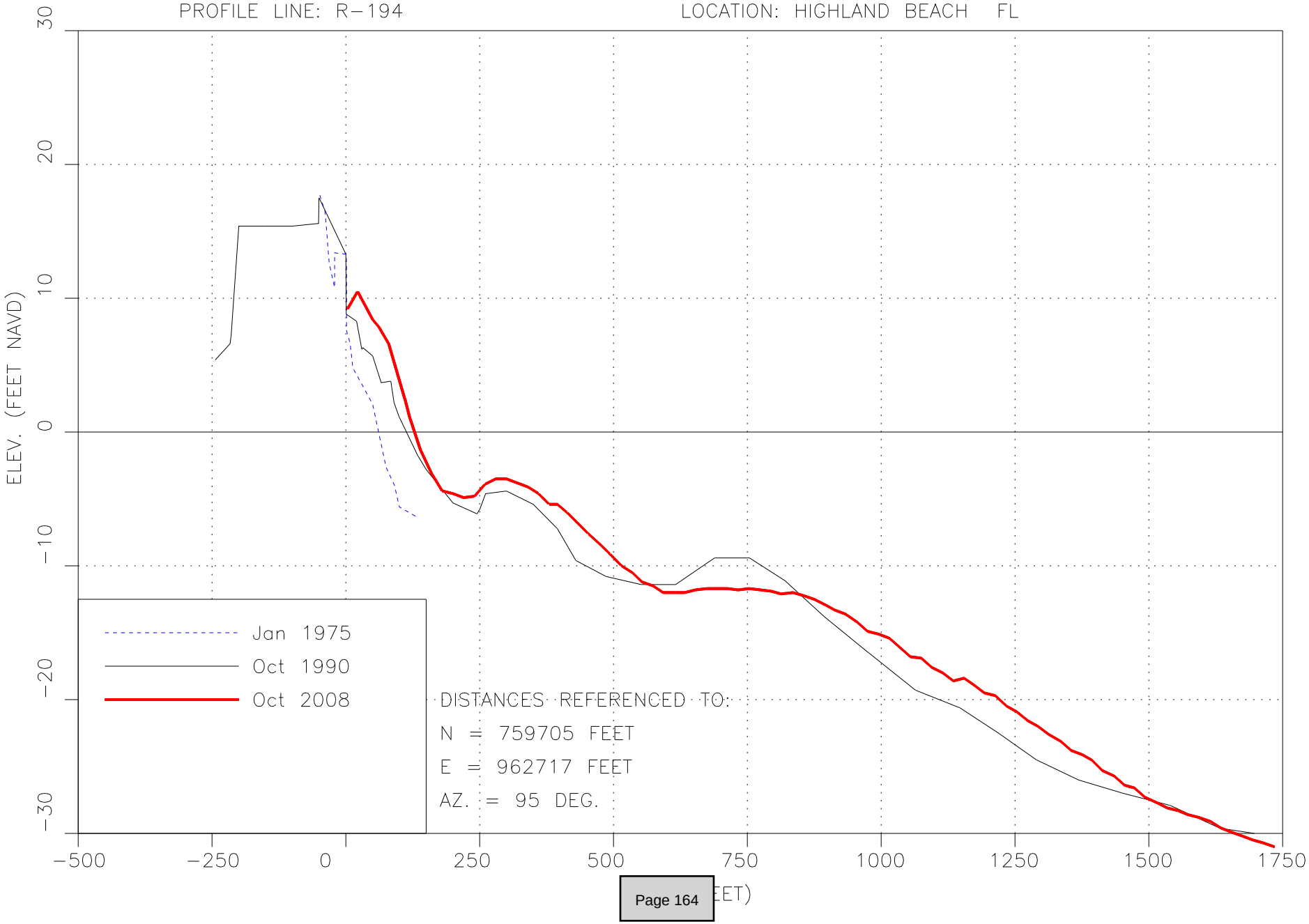
2013 STUDY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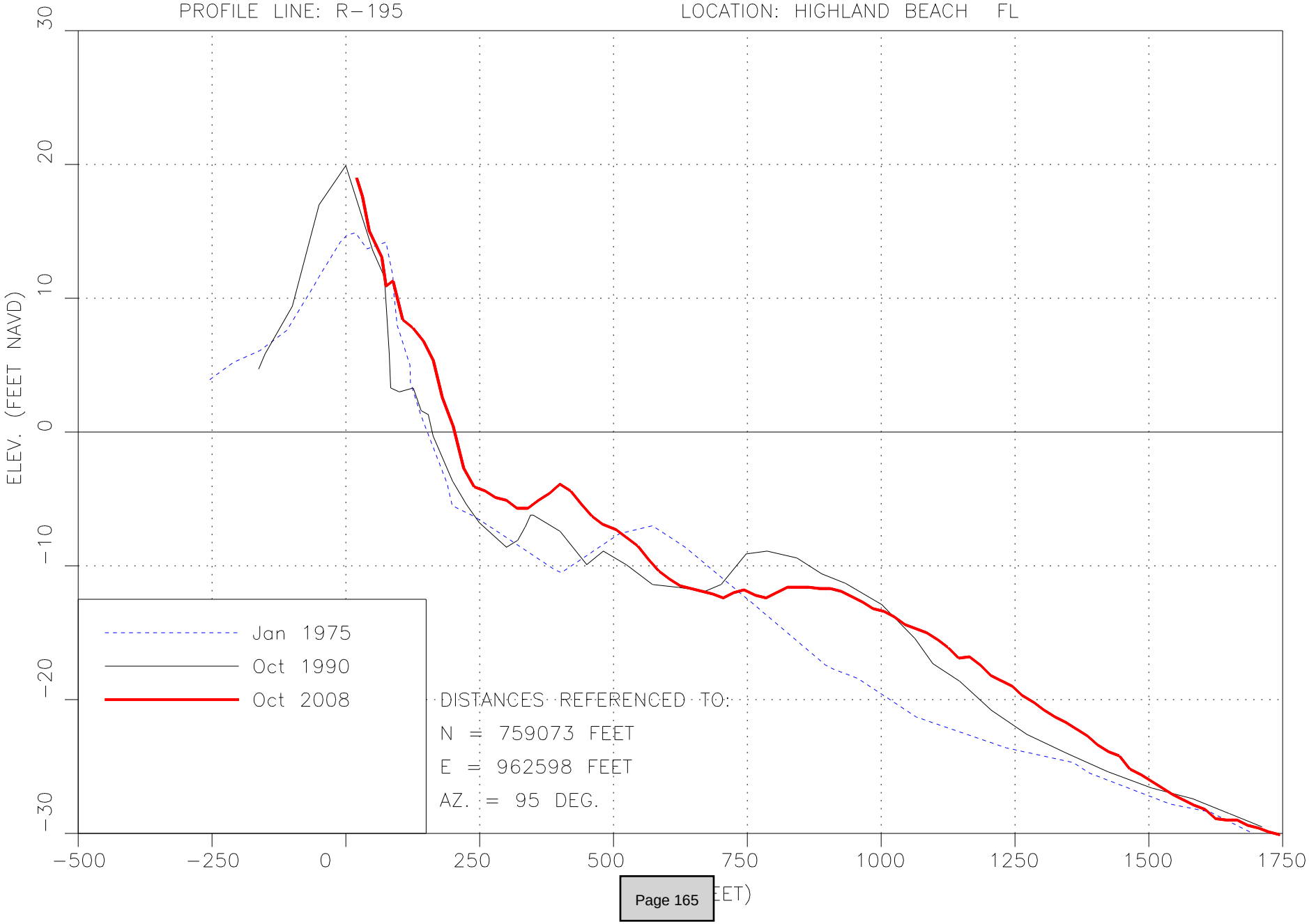
2013 STUDY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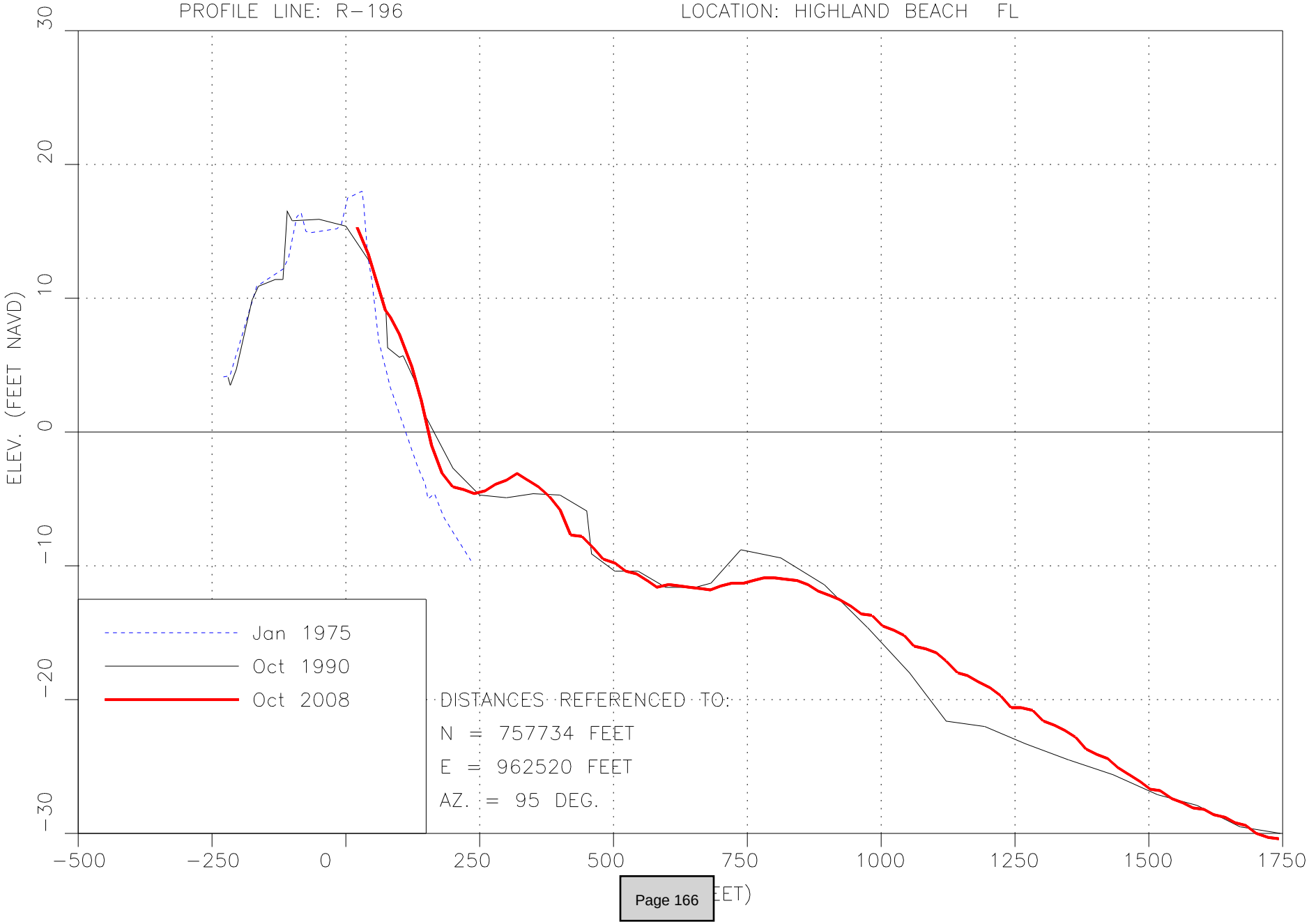
2013 STUDY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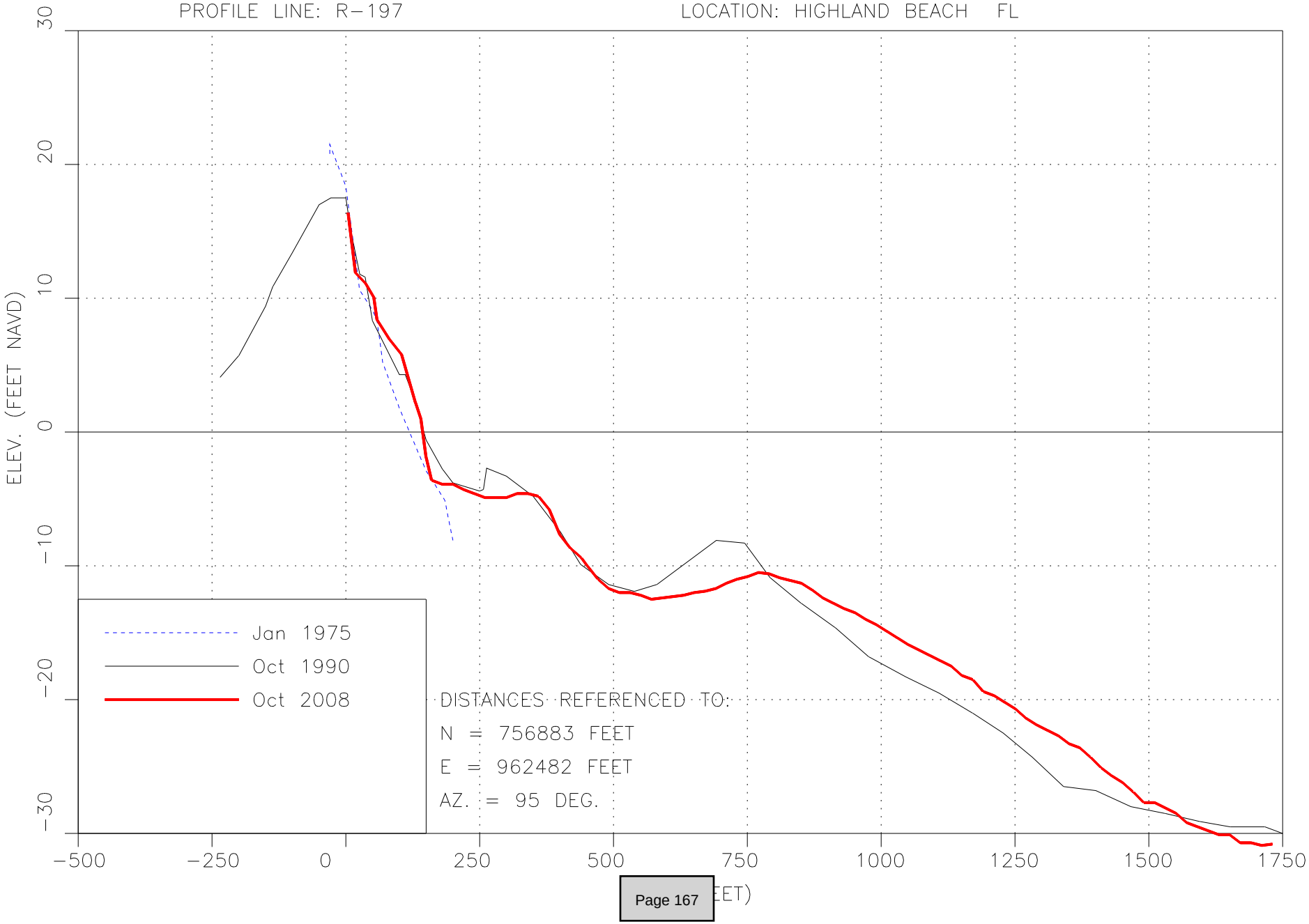
2013 STUDY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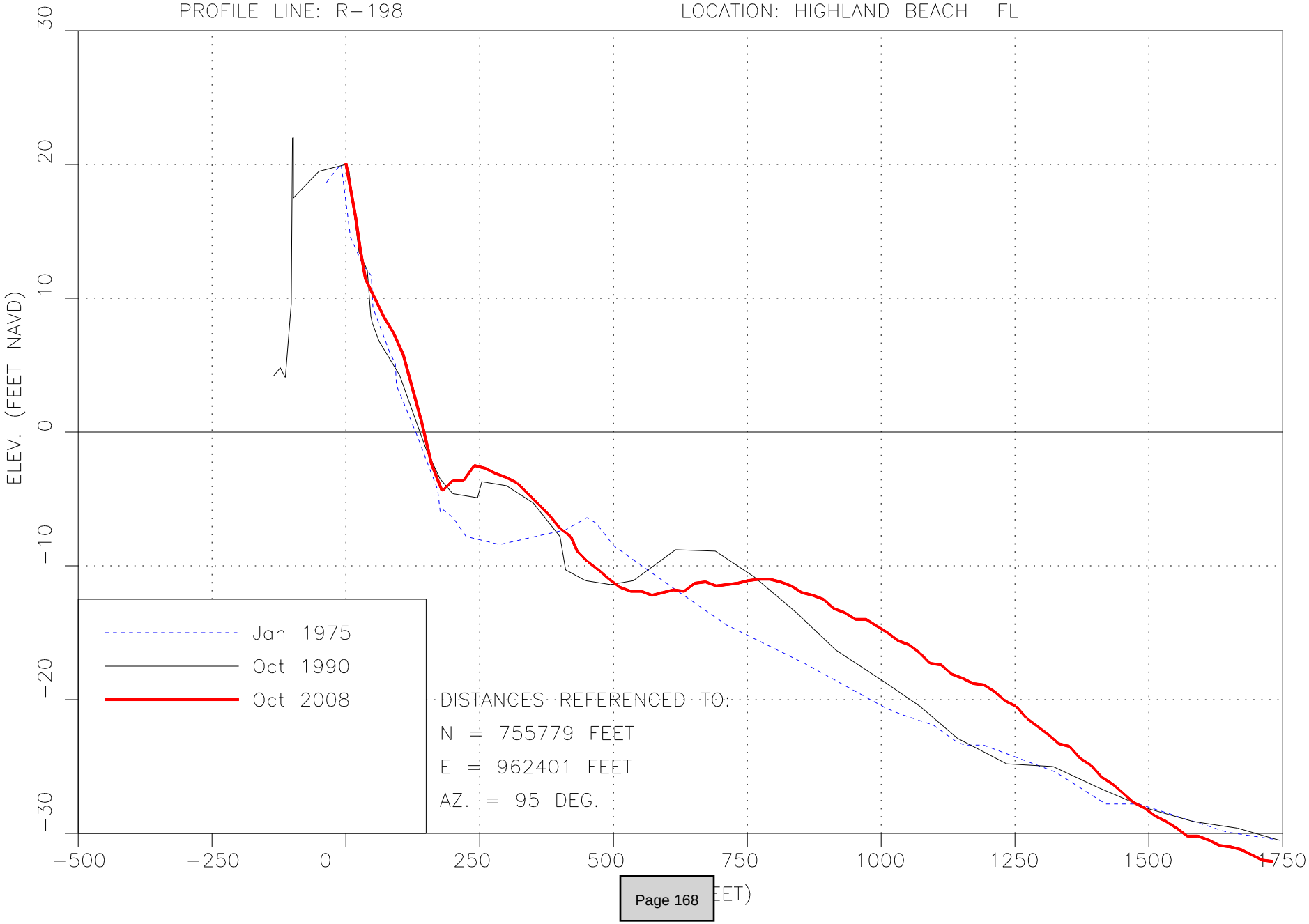
2013 STUDY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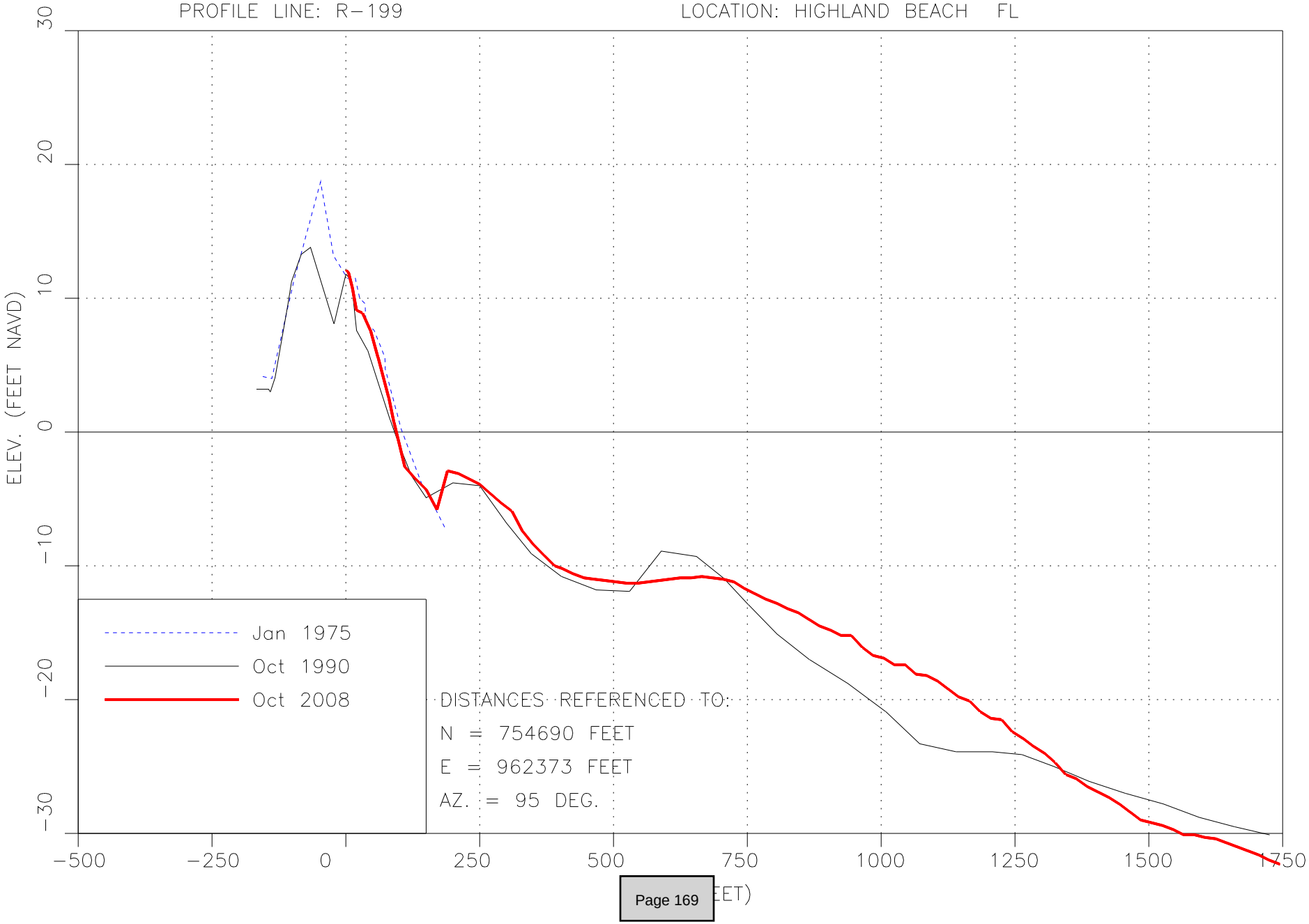
2013 STUDY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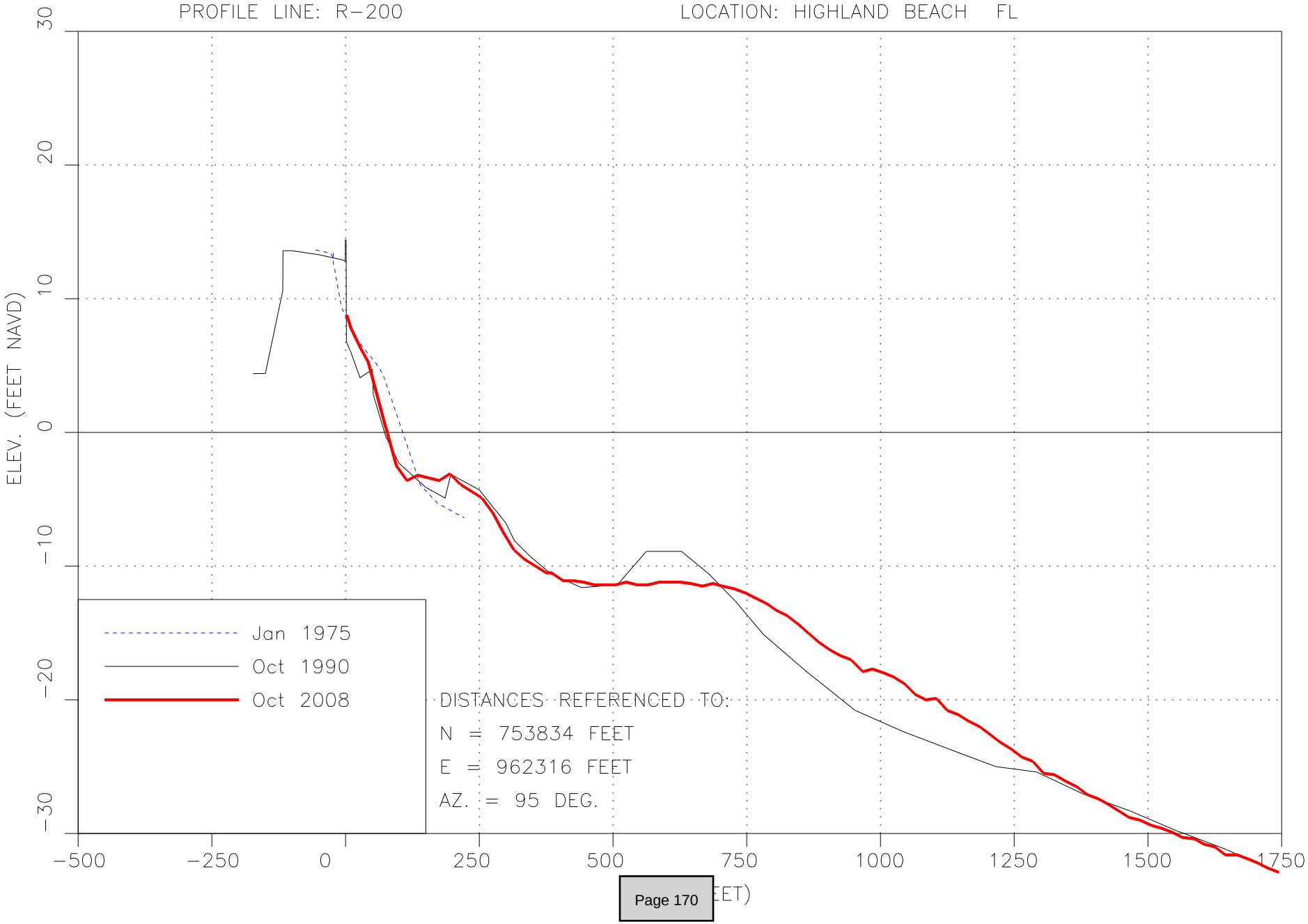
2013 STUDY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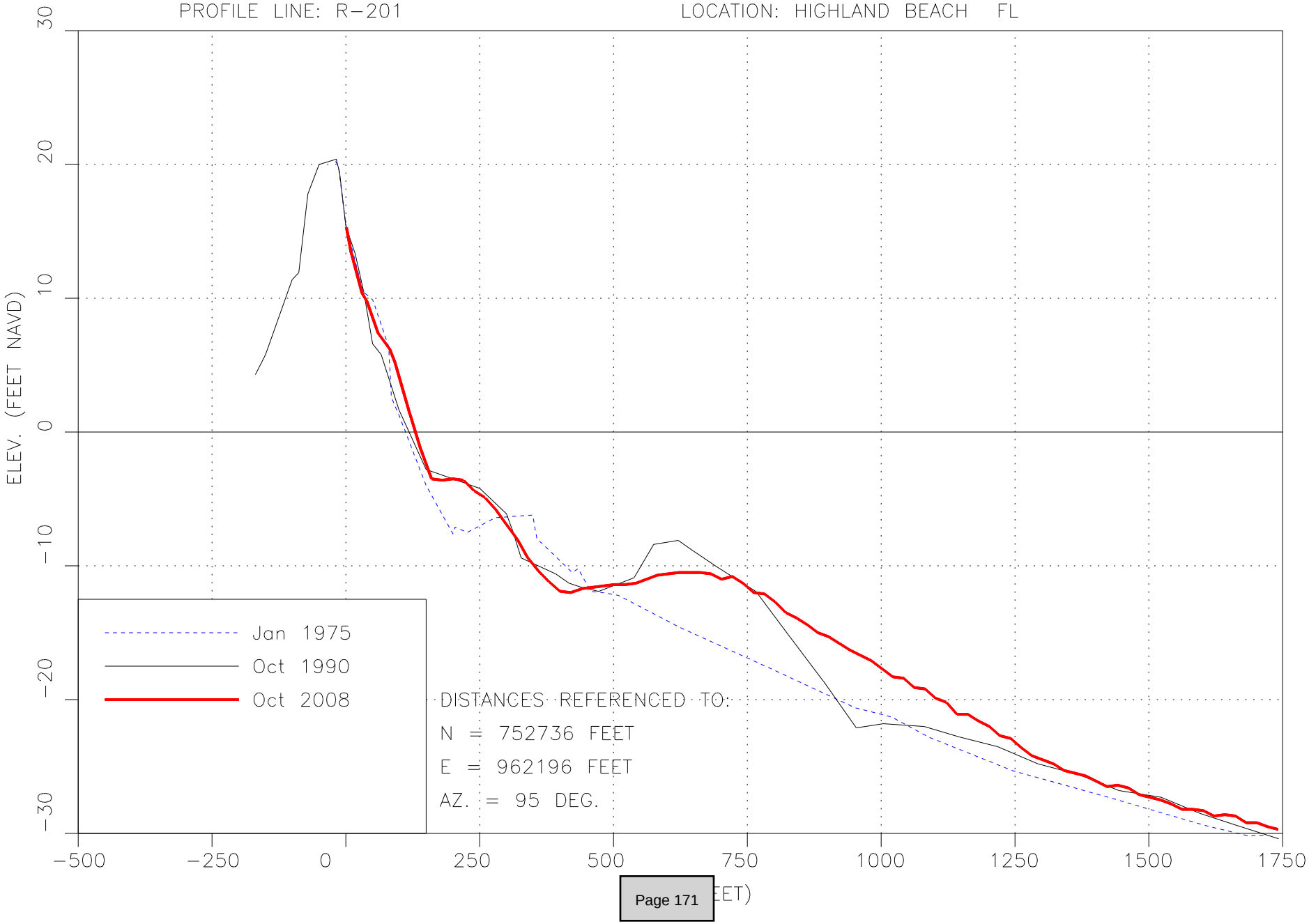
2013 STUDY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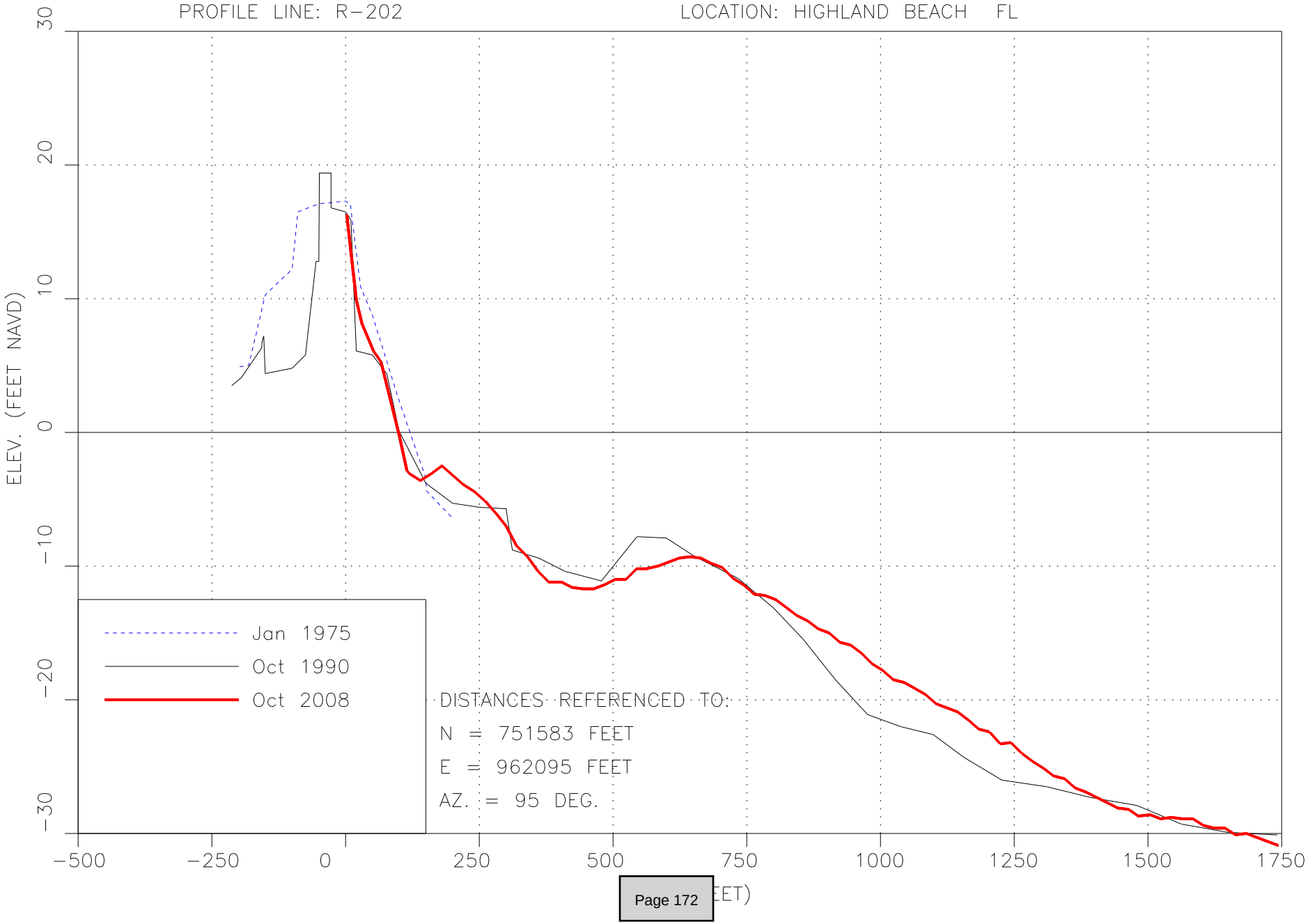
2013 STUDY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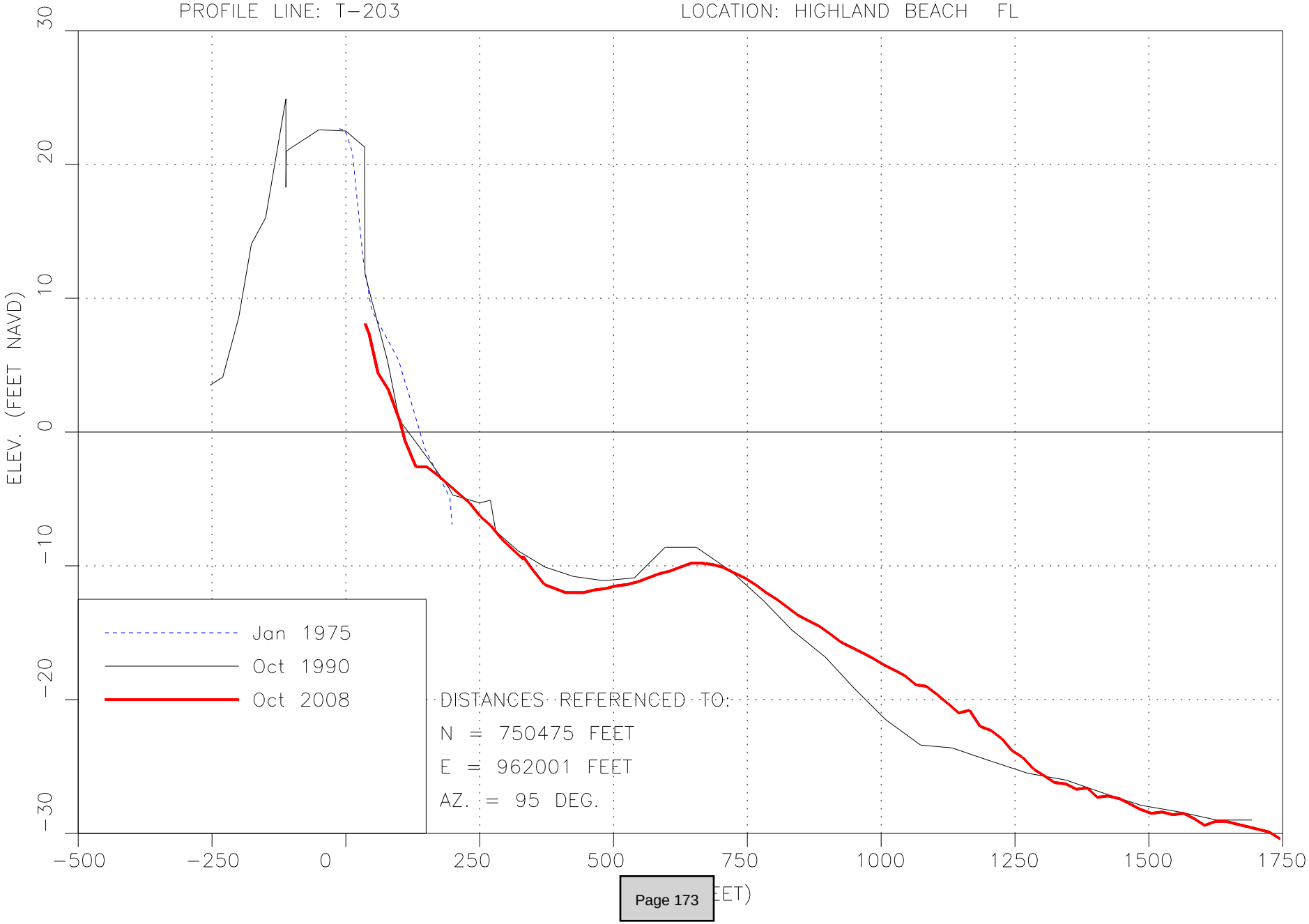
2013 STUDY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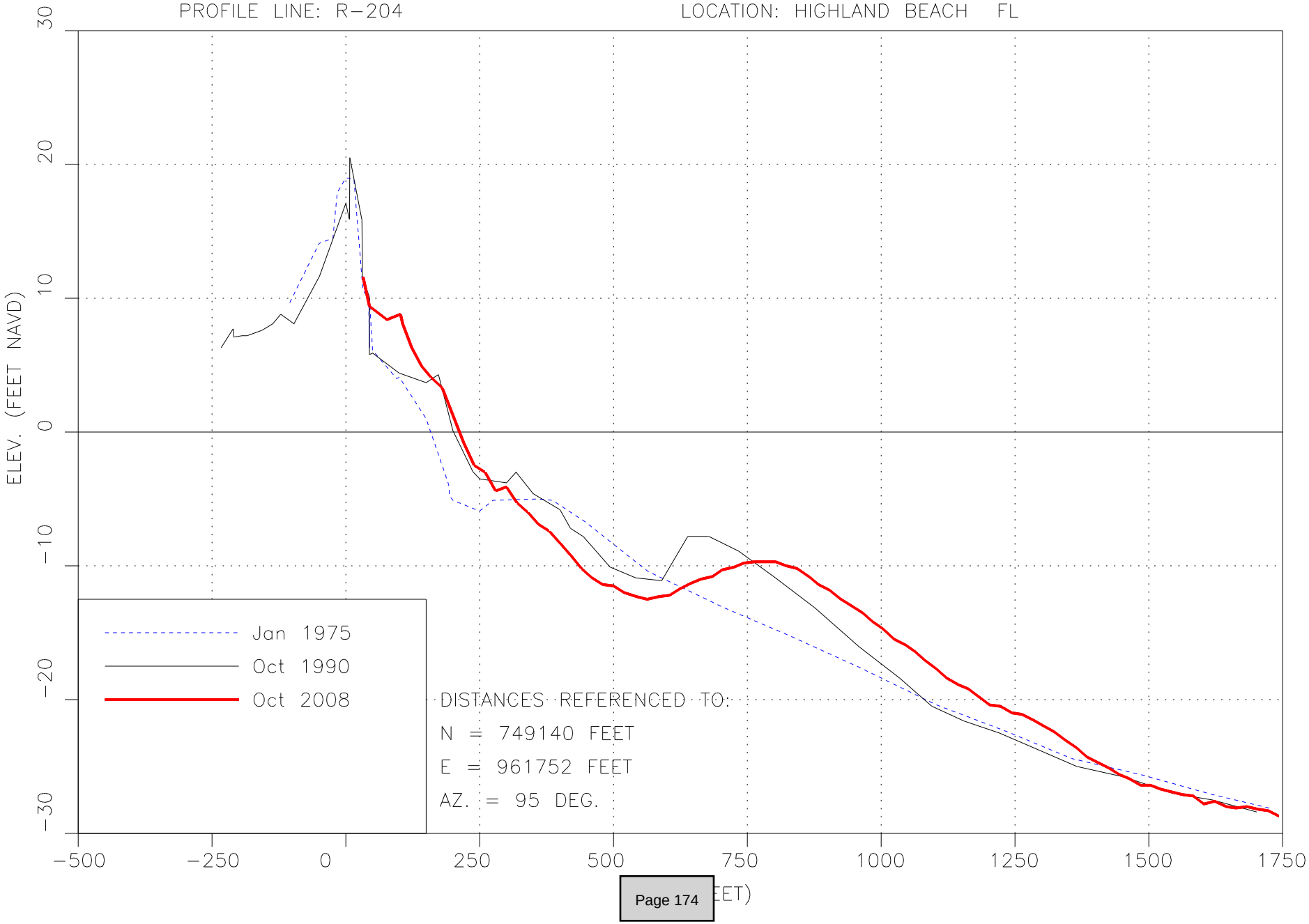
2013 STUDY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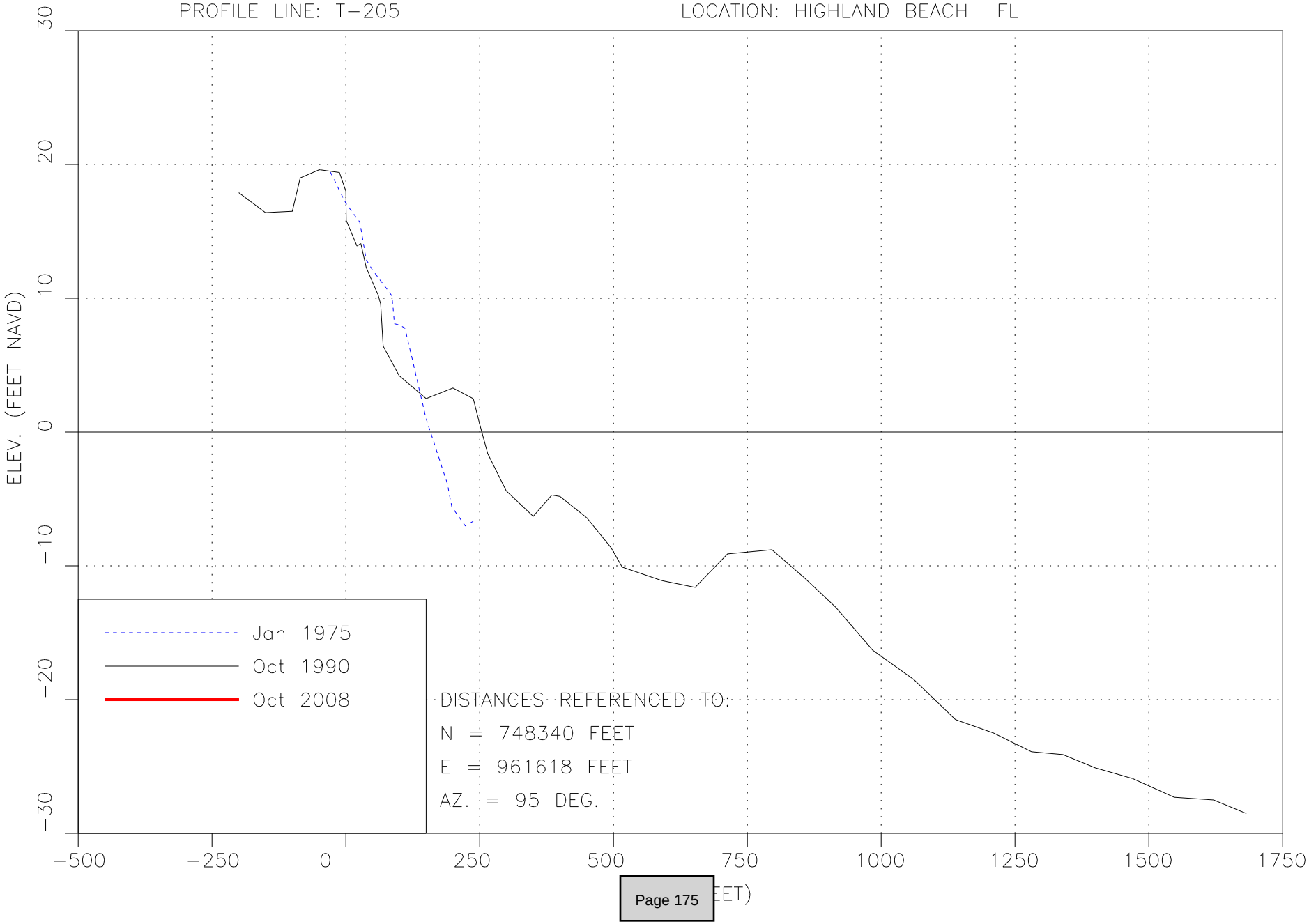
2013 STUDY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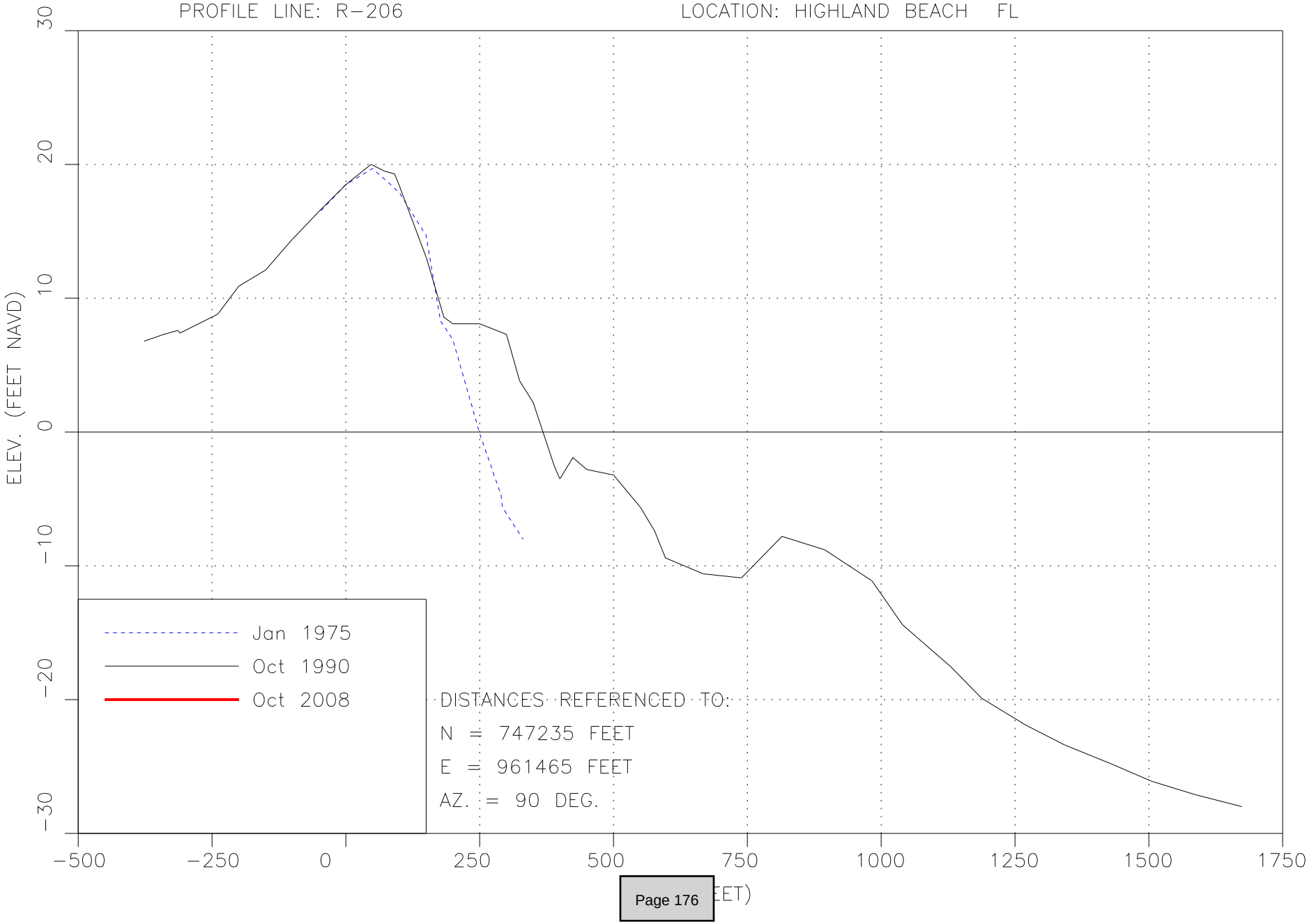
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Oct 1990
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APPENDIX B
STATE OF FLORIDA FINAL EMERGENCY ORDER FOR HURRICANE SANDY REPAIRS

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

In re:

EMERGENCY AUTHORIZATION FOR REPAIRS, REPLACEMENT, RESTORATION AND CERTAIN OTHER MEASURES MADE NECESSARY BY HURRICANE SANDY

OGC NO. 12-1641

EMERGENCY FINAL ORDER

Under Section 120.569(2)(n), Florida Statutes, and upon consideration of the following findings of fact, the State of Florida Department of Environmental Protection (Department) enters this Emergency Final Order (Order), including Findings of Fact and Conclusions of Law, in response to the imminent or immediate danger to the public health, safety, and welfare of the citizens of the State of Florida resulting from the damage wrought by Hurricane Sandy (hereinafter "the Hurricane").

FINDINGS OF FACT

1. On the 26th day of October, 2012, the Hurricane affected Florida with reported maximum sustained winds of 49 miles per hour, tides 6 feet above normal and high surf conditions. The Hurricane caused coastal damage within the following counties: Brevard, Broward, Flagler, Indian River, Martin, Miami-Dade, Palm Beach, St. Johns, St. Lucie and Volusia which shall constitute the specific area covered by this Order. This area shall herein be referred to as the "Emergency Area."

2. The Department finds that the Hurricane has created a state of emergency threatening the public health, safety, welfare, and property throughout the coast line of the Emergency Area. As a result of the emergency, immediate action by Florida's citizens and government is necessary to repair, replace, and restore structures damaged by the Hurricane.

3. The Department finds that an emergency authorization is required to address the need for immediate action because the normal procedures for obtaining the necessary authorizations would not result in sufficiently timely action to address the emergency.

4. The Department finds that immediate, strict compliance with the provisions of the rules or orders noted within this Order would prevent, hinder, or delay necessary action in coping with the emergency, and that the actions authorized under this order are narrowly tailored to address the immediate need for action and are procedurally fair under the circumstances.

CONCLUSIONS OF LAW

1. Based on the findings recited above, it is hereby concluded that the emergency caused by the Hurricane continues to pose an immediate danger to the public health, safety, or welfare and requires an immediate order of the Department.

2. Under Section 120.569(2)(n), Florida Statutes, the Secretary of the Department is authorized to issue this Order.

3. Suspension of rules as noted within this Order is required so as not to prevent, hinder, or delay necessary action in coping with the emergency.

THEREFORE, IT IS ORDERED:

1. <u>Coastal Construction Control Line Activities</u>

This section applies to activities conducted within the Emergency Area seaward of the Coastal Construction Control Lines (CCCLs) as established by Chapter 62B-26, Florida Administrative Code. Emergency Permits may be issued by the Department pursuant to Rule 62B-33.014, Florida Administrative Code. A list of activities seaward of the CCCL that are exempt from CCCL permitting requirements is contained in Rule 62B-33.004, Florida Administrative Code, and Section 161.053(11), Florida Statutes. The Department has developed

a Public Information Handout to provide property owners with a concise explanation of activities that are authorized seaward of the CCCL in this Order. To obtain a copy please visit the "hot topics" section of the Department's website at www.dep.state.fl.us/beaches. You may also contact the Department directly by mail at 3900 Commonwealth Boulevard, Mail Station #300, Tallahassee, Florida 32399-3000 or by phone at 850/488-7708 or 850/922-7881.

This Order does not authorize the construction of permanent structures that did not exist prior to the emergency, nor does it authorize beach scraping performed by itself or in association with any other activities. In addition, activities that extend onto state owned lands of Florida seaward of the mean high-water line that would typically require a permit pursuant to Sections 161.041 and/or 161.055, Florida Statutes, (i.e., regulated under a Joint Coastal Permit (JCP) are not authorized under this Subsection. JCP activities are addressed separately in Section 2. of this Order.

a. Activities Undertaken by Local Governments, the Department's Division of Recreation and Parks, and Utility Companies

The following activities may be undertaken by local governments, the Department's Division of Recreation and Parks, and utility companies to protect, repair, or replace structures and property without notice to the Department or a water management district, subject to the limitations below. Work performed under subsection 1.a. must be complete by December 28, 2013.

(1) Removal of Hurricane-generated debris. Prior to removing the debris and to the greatest extent possible, beach compatible sand should be separated from the debris and kept on site. To prevent debris from becoming buried, all Hurricane-generated debris shall be removed prior to conducting any fill activities.

(2) The repair of the following public facilities: utilities, roads and beach access ramps.

(3) Return of sand to the beach and dune system that has been deposited upland by the Hurricane, and restoration of a damaged dune system using beach compatible sand from an upland source. The fill material shall not cover any Hurricane-generated debris or construction debris. All fill material shall be sand that is similar to the pre-Hurricane beach sand in both coloration and grain size and be free of debris, rocks, clay or other foreign matter. No sand may be obtained from the beach or below the mean high water line seaward of the CCCL without specific written authorization from the Department.

b. Activities Requiring Local Authorization

Local governments are authorized to issue permits in lieu of Department permits to private and public property owners for the activities listed below. Local governments shall notify the Department in writing within three (3) working days of permits issued under this section. Work authorized by the local government must be complete within 90 days of the expiration of this Order.

(1) Temporary or remedial activities that are necessary to secure structures in order to remove safety hazards and prevent further damage or collapse of foundations.

(2) Temporary wooden retaining walls, cantilever sheetpile walls (without concrete caps, tiebacks, or other reinforcement), sandbags less than 100 lbs./filled bag, or similar structures. Temporary armoring must be removed within 60 days of installation or the individual must seek authorization from the Department to keep the temporary armoring in place.

Pursuant to Section 161.085(3), Florida Statutes, this Order does not authorize local governments to permit geotextile containers as the core of a reconstructed dune for the purposes of temporary armoring.

(3) Repair or replacement of minor ancillary structures (such as stairs, landings, and HVAC platforms) and services utilities that are associated with the existing habitable structure and are necessary for occupancy of the habitable structure.

The repair of minor ancillary structures or service utilities shall not exceed the size of the original structure or service utility damaged or destroyed by the Hurricane. Repair of surviving beach/dune walkovers is authorized provided the structure is substantially intact and the repair allows for adjustments to be made to the seaward terminus of the walkover if necessary to accommodate changes in the shoreline topography and native salt-resistant vegetation patterns resulting from the post-Hurricane recovery of the beach and dune system.

(4) Permanent repair of foundations for buildings that have not been substantially damaged.

(5) The replacement or repair of caps and anchoring systems (or tiebacks), for seawalls or bulkheads.

(6) Restoration of a damaged dune system using beach compatible sand from an upland source.

All fill material shall be sand that is similar to the pre-Hurricane beach sand in both coloration and grain size and be free of debris, rocks, clay or other foreign matter. No sand may be obtained from the beach or below mean high water seaward of the CCCL without specific written authorization from the Department.

(7) Return of sand to the beach dune system which has been deposited upland by the Hurricane.

The recovered fill material shall be free of debris and not cover any Hurricane-generated debris or construction debris.

2. Joint Coastal Permit (JCP) Activities

This Subsection applies to certain activities along the natural sandy beaches of the Atlantic Ocean that extend onto sovereignty lands of Florida, seaward of the mean high-water line (MHWL) and are likely to have a material physical effect on the coastal system or natural beach and inlet processes, i.e., activities that are regulated under a JCP, pursuant to Section 161.041 and/or 161.055, Florida Statutes.

a. In lieu of a normal JCP for activities summarized above, federal, state or local governments may apply to the Department for emergency authorizations to alleviate hazardous conditions resulting from the Hurricane that pose an immediate danger to life or limb, including sudden and unpredictable hazards to navigation. Applications for emergency authorizations shall meet the following criteria:

(1) The application must be received by the Department within the effective date of issuance of the Department's Order.

(2) The hazardous conditions are a result of the Hurricane identified in the Department's Order and did not exist prior to the Hurricane.

(3) The proposed measures are limited to the minimum amount necessary to alleviate the hazardous conditions by temporarily stabilizing the structure or clearing the channel, until a JCP can be processed to address the long-term repair;

(4) Fill material shall not extend seaward of the MHWL that existed immediately before the Hurricane;

(5) Navigational dredging shall not exceed channel depths that existed immediately before the Hurricane;

(6) Reconstruction of non-water-dependent structures on sovereign submerged lands unless authorized by Subsection 18-21.00405(6), Florida Administrative Code, is prohibited;

(7) Fill may only be placed seaward of the MHWL to temporarily stabilize an upland structure, if that structure is in danger of imminent collapse and that structure was located behind the primary dune line prior to the Hurricane;

(8) The placement of fill may only extend the MHWL seaward of the current (post-Hurricane) location if the applicant provides proof that the riparian owner(s) has obtained a disclaimer under Rule 18-21.019, Florida Administrative Code (from the Department's Division of State Lands) for the proposed project site or documentation from the Department that a valid erosion control line has been established at the fill site.

(9) Any fill material placed on the beach shall meet the criteria for beach-quality sand in Paragraph 62B-41.007(2)(j), Florida Administrative Code;

(10) The proposed measures shall not cause water quality violations outside of the mixing zone, established pursuant to Rule 62-4.244, Florida Administrative Code; and

(11) The proposed measures shall not adversely affect hardbottom communities, seagrass communities or functional marine turtle nesting habitat, and shall not contribute to erosion of adjacent properties.

b. Emergency authorizations shall expire 90 days after issuance.

c. Application fees and noticing requirements shall be waived for projects that are eligible for an emergency JCP authorization.

d. Activities not covered by section 2. of this Order may require a permit from the Department under Section 161.041 or 161.055, Florida Statutes and Chapter 62B-49, Florida Administrative Code. For more information, please contact the Department by mail at 3900 Commonwealth Boulevard, Mail Station #300, Tallahassee, Florida 32399-3000 or by phone at 850/487-4475. If the activities are associated with the repair of damage from the Hurricane identified in the Department's Order, and the applicant can demonstrate that expeditious processing of the JCP application is necessary to meet State or federal recovery efforts, including funding deadlines, the Department may deviate from the standard procedures as follows:

(1) Processing fees may be waived; and

(2) The requirement to publish a Notice of Receipt of Application and a Notice of Intended Agency Action pursuant to Rule 62B-49.005(8), Florida Administrative Code, may be waived, along with the associated 14-day waiting period.

3. General Conditions

a. All activities conducted under sections 1. and 2. of this Order shall be performed using appropriate best management practices in accordance with the guidelines and specifications in Chapter 6 of the Florida Land Development Manual: A Guide to Sound Land and Water Management (Florida Department of Environmental Regulation 1988). For activities conducted in or discharging to wetlands or other surface waters, best management practices include properly installed and maintained erosion and turbidity control devices to prevent erosion and shoaling, to control turbidity, and to prevent violations of state water quality standards and to protect the functions provided by wetlands and other surface waters to fish, wildlife, and listed species.

b. The authorizations in sections 1. and 2. of this Order shall not apply to structures and associated activities that were not legally existing or otherwise properly authorized by all applicable agencies before the passage of the Hurricane.

c. Applicable environmental resource, surface water management, dredge and fill, coastal construction control line, or joint coastal permits shall be required following provisions of statute and rule for other activities not authorized in this Order that do not otherwise qualify as an exempt activity under statute or rule.

d. The nature, timing, and sequence of construction authorized under this Order shall be conducted in such a manner as to provide protection to, and so as to not disturb, native salt-resistant vegetation and listed species and their habitat, including threatened or endangered sea turtles, endangered manatees, endangered beach mice, endangered plant communities, and migratory shorebirds. If activities conducted under sections 1. or 2. of this Order occur during the marine turtle nesting season (March 1 through October 31 in Brevard, Indian River, St. Lucie, Martin, Palm Beach and Broward County, May 1 through October 31 in all other coastal counties within the state), such activities must be coordinated with the Florida Fish and Wildlife Conservation Commission's Imperiled Species Management Section to ensure that all activities comply with state and federal requirements for the protection of sea turtles, their nests, hatchlings, and nesting habitat.

e. Nothing in this order authorizes the taking, attempted taking, pursuing, harassing, capturing or killing of any species (or the nests or eggs of any species) listed under Rule 68A-27, Florida Administrative Code or under the Federal Endangered Species Act.

f. Persons are advised that all structures that are rebuilt should be rebuilt in accordance with all applicable local, state, and federal building standards and requirements of the Federal Emergency Management Act.

g. It is recommended that, where possible, owners of property should maintain documentation (such as photos) of the condition of the structures or lands as they existed prior to initiating any activities authorized under this Order, and should provide such documentation to the Department if requested to do so.

4. Authorization to Use State Owned Submerged Lands

The Department has been delegated by the Board of Trustees of the Internal Improvement Trust Fund the authority to grant the following authorizations to use state owned submerged lands, that is, lands lying waterward of the line of mean high water, erosion control line or ordinary high water line, in association with the structure or activity subject to repair, restoration, removal, or replacement authorized in this section.

a. Except as provided in paragraphs 4.b., c., and d. of this Order, activities authorized under this Order involving the repair, replacement, or restoration of the activities and structures, and the removal of debris located on submerged lands owned by the state that do not qualify for consent by rule under Rule 18-21.005(1)(b), Florida Administrative Code are hereby granted a Letter of Consent under Rule 18-21.005(1)(c), Florida Administrative Code, provided:

(1) Such repair, restoration, or replacement or removal is conducted in accordance with the terms, conditions, and limitations of this Order;

(2) The structure or activity subject to repair, restoration, or replacement was authorized by the Board of Trustees of the Internal Improvement Trust Fund prior to the Hurricane, or was otherwise legally existing immediately prior to the Hurricane;

(3) The activities are conducted solely to repair, restore, or replace structures or land that was damaged by the Hurricane, or to remove debris resulting solely from the Hurricane; and

(4) The structures and activities are repaired, restored, or replaced in the same location and configuration as was authorized by the Board of Trustees of the Internal Improvement Trust Fund or which otherwise legally existed immediately prior to the Hurricane.

(5) All the terms and conditions of Rule 18-21.005(1)(b) or 18-21.005(1)(c), Florida Administrative Code, as applicable, are met (including certain restrictions for activities performed within aquatic preserves), and provided that activities that require an easement under Rule 18-21.005(1)(e), Florida Administrative Code must obtain the applicable state owned submerged lands easement under Chapter 18-21, Florida Administrative Code within one year of expiration of this Order. This Order does not limit the provisions of those statutory and rule provisions.

b. Non-water dependent structures, grandfathered pursuant to Rule 18-21.00405, Florida Administrative Code, are not authorized to be repaired, restored, or replaced when more than 50% of the structure or activity is lost (based on the cost to repair, restore, or replace the structure or activity);

c. Water-dependent structures that were legally existing immediately before the Hurricane but not in conformance with the current criteria of Chapters 18-18, 18-20 or 18-21, Florida Administrative Code, as applicable, may be repaired, restored, or replaced to the footprint that existed immediately before the Hurricane, but shall, to the greatest extent practicable, be repaired, restored, or replaced to meet the current criteria of Chapters 18-18, 18-20 and 18-21, Florida Administrative Code, as applicable, with respect to design features such as the elevation of decking surfaces and the spacing of deck planking.

d. This Order does not authorize the reconstruction or repair of unauthorized structures that failed to qualify for the grandfather provisions of former Rule 18-21.0405, Florida Administrative Code.

5. GENERAL PROVISIONS

A. General Limitations

The Department issues this Order solely to address the emergency created by the Hurricane. This Order shall not be construed to authorize any activity within the jurisdiction of the Department except in accordance with the express terms of this Order. Under no circumstances shall anything contained in this Order be construed to authorize the repair, replacement, or reconstruction of any type of unauthorized or illegal structure, habitable or otherwise. This Order does not convey any property rights or any rights or privileges other than those specified in this Order.

B. Suspension of Rules

Within the Emergency Area, the requirements and effects of rules which conflict with the provisions of this Order are suspended to the extent necessary to implement this Order.

To the extent that any requirement to obtain a permit, lease, consent of use, or other authorization is waived by this Order, it should also be construed that the procedural requirements for obtaining such permit, lease, consent of use or other authorization, including requirements for fees and publication of notices, are suspended for the duration of this order.

C. Other Authorizations Required

This Order only provides relief from the specific regulatory and proprietary requirements addressed herein for the duration of the Order, and does not provide relief from the requirements of other federal, state, water management districts, and local agencies. This Order therefore does not negate the need for the property owner to obtain any other required permits or authorizations, nor

from the need to comply with all the requirements of those agencies. This Order does not provide relief from any of the requirements of Chapter 471, Florida Statutes, regarding professional engineering.

Activities subject to Federal consistency review that are emergency actions necessary for the repair of immediate, demonstrable threats to public health or safety are consistent with the Florida Coastal Management Program if conducted in strict conformance with this Order.

D. Expiration Date

This Order shall take effect immediately upon execution by the Secretary of the Department, and shall expire on December 28, 2012, unless modified or extended by further order.

E. Violation of Conditions of Emergency Final Order

Failure to comply with any condition set forth in this Order shall constitute a violation of a Department Final Order under Chapters 161, 253, 258, 373, and 403, Florida Statutes, and enforcement proceedings may be brought in any appropriate administrative or judicial forum.

NOTICE OF RIGHTS

Pursuant to Section 120.569(2)(n), Florida Statutes, any party adversely affected by this Order has the right to seek an injunction of this Order in circuit court or judicial review of it under Section 120.68, Florida Statutes. Judicial review must be sought by filing a notice of appeal under Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, Mail Station 35, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice of appeal must be filed within thirty days after this Order is filed with the Clerk of the Department.

DONE AND ORDERED on this 31st day of October, 2012, in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Herschel T. Vinyard Jr.
Secretary

3900 Commonwealth Blvd
Tallahassee, FL 32399-3000

FILED on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

CLERK

DATE : 10/31/12

APPENDIX C
STATE OF FLORIDA BEACH MANAGEMENT FUNDING ASSISTANCE PROGRAM

2013 STUDY

Florida Department of Environmental Protection, Bureau of Beaches and Coastal Systems

Beach Erosion Control Program

Local Government Funding Assistance Program: - Ranking Criteria for - Beach and Inlet Management Projects -

7/17/2012

A discussion of statutory and rule authority for ranking criteria and practical methods used by Bureau staff for the award of ranking points to beach and inlet management projects for determining priority listing in the annual Local Government Funding Request submitted to the Governor and Legislature.

Beach Erosion Control Program Mission

Recognizing the importance of the state's beaches, the Florida Legislature in 1986 adopted a posture of protecting and restoring the state's beaches through a comprehensive beach management planning program. Under the program, the Department of Environmental Protection's Bureau of Beaches and Coastal Systems (Bureau) evaluates beach erosion problems statewide seeking viable solutions for the preservation of valuable infrastructure, upland development and critical habitat. The primary vehicle for implementing the beach management planning recommendations is the Florida Beach Erosion Control Program (Program), which was established for the purpose of working in concert with local, state and federal governmental entities to achieve the protection, preservation and restoration of the coastal sandy beach resources of the state. Under the program, financial assistance in an amount up to 75 percent of project costs is available to Florida's county and municipal governments, community development districts, or special taxing districts for shore protection and preservation activities located on the Gulf of Mexico, Atlantic Ocean, or Straits of Florida.

Eligible activities include beach restoration and nourishment activities, project design and engineering studies, environmental studies and monitoring, inlet management planning, inlet management activities to reduce adjacent beach erosion, dune restoration and protection activities, and other beach erosion prevention related activities consistent with the adopted Strategic Beach Management Plan. The program is authorized by Section 161.101, Florida Statutes. Since its inception in 1964, the Program has been a primary source of funding to local governments for beach erosion control and preservation activities.

This document is designed to be used by local sponsors when preparing annual funding requests. The document describes each ranking criteria used to establish annual priority order for beach erosion control projects. Statutory authority, rule administration, and the methodology used for assigning points are listed for each criterion as they appear in the rule. Where appropriate, techniques for improving the award of points are discussed or listed.

Statutory authority is provided in Chapter 161, Florida Statutes. Administrative policy is provided in Chapter 62B-36, Florida Administrative Code.

Funding Assistance Program Eligibility

In order to be eligible for the Funding Assistance Program, projects must be sponsored by a local government and comply with the following criteria:

- Project areas must be on a sandy shoreline in Florida fronting the Atlantic Ocean, Gulf of Mexico, or the Straits of Florida.
- Projects must address shoreline designated as 'critically eroded" in the Department's most recent Critical Erosion Report.
- Beach management projects shall be accessible to the general public and access shall be maintained for the life of the project. Inlet management projects generally do not have to provide public access.
- Projects must be consistent with the Strategic Beach Management Plan and be included in the Statewide Long Range Budget Plan.
- Projects shall be conducted in a manner that encourages cost-savings, fosters regional coordination of projects, optimizes management of sediments and project performance, protects the environment, mitigates impacts caused by modified inlets and provides long-term solutions.
- Appropriate feasibility studies or analysis shall be required before design or construction of new projects. Analysis must determine that the project avoids or minimizes adverse impacts and is cost effective.
- Beach management projects authorized by Congress for federal financial participation are eligible. Local governmental entities shall pursue federal appropriations to the maximum extent possible in order to proportionally reduce state and local project costs.
- Local sponsors must submit an Annual Funding Request and Local Long Range Budget Plan for projects expected to be initiated or continued in the fiscal year upon notification by the Department.

Policy

Rule- 62B-36.003

Overview of Ranking Criteria

Total Points:
103 Points

Intent

Statute- 161.101(14): The intent of the Legislature in preserving and protecting Florida's sandy beaches pursuant to this act is to direct beach erosion control appropriations to the state's most severely eroded beaches, and to prevent further adverse impact caused by improved, modified, or altered inlets, coastal armoring, or existing upland development. In establishing annual project funding priorities, the department shall seek formal input from local coastal governments, beach and general government interest groups, and university experts. Criteria to be considered by the department in determining annual funding priorities shall include: …

Rule

Rule- 62B-36.006(1): Eligible projects requesting funding for the upcoming fiscal year will be ranked in priority for the Department's legislative budget request. Projects previously ranked for a construction phase will retain their project score through the monitoring phase. Eligible projects will be assigned a total point score by the Department based on the following criteria: …

Specific Authority

161.101, 161.161 FS. Law Implemented 161.088, 161.091, 161.101, 161.161 FS. History–New 6-10-83, Formerly 16B-36.06, 16B-36.006, Amended 12-25-03.

Severity of Erosion

Maximum Credit:
10 Points

Intent

Statute- 161.101(14) (a) The severity of erosion conditions, the threat to existing upland development, and recreational and/or economic benefits.

Rule

Rule- 62B-36.006(1) (a) Severity of erosion. The severity of erosion score is determined by the average rate of erosion for the project area over 30 years based upon the Department's long term data base for the project length at 2 points per foot of erosion, rounded to the nearest whole foot, for a maximum total of 10 points.

Method of Calculation

The historical Mean High Water (MHW) data files contained in the Bureau's Historic Shoreline Database shall be used to calculate the average rate of erosion for a 30-year period after 1972 and prior to any beach fill placement in the project area. Linear least square fit to the data is used to determine the erosion/accretion trend.

Historical data is available at:

ftp://ftp.dep.state.fl.us/pub/water/beaches/HSSD/MHWfiles

Threat to Upland Structures

Maximum Credit:
10 Points

Intent

Statute- 161.101(14) (a) The severity of erosion conditions, the threat to existing upland development, and recreational and/or economic benefits.

Rule

Rule- 62B-36.006(1) (b) Threat to upland structures. The percent of developed property containing structures within the project boundaries at or seaward of the projected 25-year return interval storm event erosion limit times ten, rounded to the nearest whole number, for a maximum total of 10 points.

Method of Calculation

The threat to upland structures is determined by the application of the Dean CCCLr or the SBEACH Storm Erosion Model using a 25-year return interval storm tide hydrograph on the most recent beach-offshore profile data at each R-monument in the project area The Department may use the results of an erosion model submitted in the feasibility study if the study recommends strategies for beach erosion control activities that are accepted by the Department for adoption into the Strategic Beach Management Plan. It should be noted that properties that have existing armoring will be deemed non-threatened.

Points are only awarded to new projects for shorelines that have not been restored. Once the restoration is completed, the upland structures should no longer be threatened.

Recreational and Economic Benefits

Maximum Credit:
10 Points

Intent

Statute- 161.101(14) (a) The severity of erosion conditions, the threat to existing upland development, and recreational and/or economic benefits.

Rule

Rule- 62B-36.006(1) (c) Recreational and economic benefits. The percentage of linear footage of property within the project boundaries zoned commercial or recreational, or the equivalent, in the current local government land use map times ten, rounded to the nearest whole number, for a maximum total of 10 points.

Method of Calculation

Shoreline length within the project boundaries zoned “commercial” or “recreational” is calculated using GIS-based mapping tools. The commercial/recreational shoreline is then calculated as a percentage of the total project length. Designation must be derived from local zoning maps. Undesignated parcels are typically assigned the designation of the adjacent parcels. Resort condominiums are typically designated high-density residential, and are not included in the commercial/recreational calculation in this category.

Potential Technologies and Strategies

Rezoning of properties within the project boundaries to commercial or recreational zoning will increase points in this category.

Congressional Authorization of Project

Maximum Credit:
5 Points

Intent

Statute- 161.101(14) (b) The availability of federal matching dollars.

Rule

Rule- 62B-36.006(1) (d) Availability of federal funds. Projects with Congressional authorization for the project phase shall receive 5 points.

Method of Calculation

Projects that have been authorized by U.S. Congress for a U.S. Army Corps of Engineers project for the project phase receive 5 points. Award of points in this category recognizes projects that have made an effort to acquire federal support for the project by initiating or completing a federal feasibility study. This feasibility study indicates the efforts of the local sponsor to acquire future federal funding.

Projects pursuing funding for subsequent phases of the project will require federal authorization for each specific phase, prior to being awarded points for those subsequent phases.

Potential Technologies and Strategies

Projects which have not previously sought federal authorization can acquire points in this category by pursuing authorization with the U.S. Army Corps of Engineers to conduct a federal feasibility study.

Availability of Federal Matching Funds

Maximum Credit:
5 Points

Intent

Statute- 161.101(14) (b) The availability of federal matching dollars.

Rule

Rule- 62B-36.006(1) (d) Availability of federal funds. … Projects with a current Project Cooperation Agreement executed for the project phase or with available federal funds shall receive 5 points.

Method of Calculation

Points are awarded in this category when federal matching dollars are secured through a current Project Cooperation Agreement (PCA) or Project Partnership Agreement (PPA) for the proposed phase. If the PPA/PCA indicates that scheduled activities have been approved but funds have not yet been appropriated, no points are awarded since the statutory intent was to leverage matching federal dollars.

Potential Technologies and Strategies

Projects can maximize points in this category if federal funds from the U.S. Army Corps of Engineers are secured prior to requesting state funds.

Dedicated Long Term Funding Source

Maximum Credit:
3 Points

Intent

Statute- 161.101(14) (c) The extent of local government sponsor financial and administrative commitment to the project, including a long-term financial plan with a designated funding source or sources for initial construction and periodic maintenance.

Rule

Rule- 62B-36.006(1) (e) Local sponsor financial and administrative commitment. Local governments who have a long term funding source dedicated to the restoration and management of the beach project shall receive 3 points;

Method of Calculation

Long term designated funding sources that are established by referendum or a specific taxing district receives 3 points. Examples of these include Municipal Service Benefit Units, Municipal Service Taxing Unit, Tourist Development Council taxes (bed taxes), dedicated portion of local sales tax, inlet district taxes, etc. Voter referendum indicates community-wide support for the project and long term funding source to maintain the project. Line items in annual capital improvements budgets do not qualify due to the susceptibility to change based on annually fluctuating priorities.

Potential Technologies and Strategies

Development of a local designated long term funding source is eligible for cost-sharing under the Feasibility funding category. A scope of work to develop options, determine a chosen alternative, and implement the funding source is recommended. Bureau staff can assist with all phases of development.

Dedicated Administrative Staff

Maximum Credit:
1 Points

Intent

Statute- 161.101(14) (c) The extent of local government sponsor financial and administrative commitment to the project, including a long-term financial plan with a designated funding source or sources for initial construction and periodic maintenance.

Rule

(e) Local sponsor financial and administrative commitment……those with staff dedicated for administrative support shall receive 1 point;

Method of Calculation

The point is awarded to a local sponsor with at least one full-time staff member dedicated to the beach erosion control program.

Potential Technologies and Strategies

The acquisition of a full-time coastal coordinator within the local sponsor's staff will achieve the award of one point in this category.

Quarterly Reporting Requirements

Maximum Credit:
1 Points

Intent

Statute- 161.101(14) (c) The extent of local government sponsor financial and administrative commitment to the project, including a long-term financial plan with a designated funding source or sources for initial construction and periodic maintenance.

Rule

(e) Local sponsor financial and administrative commitment.....those with 75% or better compliance record for submitting quarterly reports and billings correctly and on time over the previous year shall receive 1 point.

Method of Calculation

Quarterly reports are due 30 days following the end of the fiscal quarter, even if no work has been completed and no billings are submitted. This is a contract requirement.

Potential Technologies and Strategies

Timely submission of quarterly reports will not only provide a ranking point in this category, but it will also provide the Department with current project status updates and help to maintain contract compliance. Local sponsors without a current contract may voluntarily submit quarterly reports and receive award of this point.

Previous State Financial Commitment

Maximum Credit:
1 Points

Intent

Statute- 161.101(14) (d) Previous state commitment and involvement in the project.

Rule

Rule- 62B-36.006(1) (f) Previous state commitment. Projects where the Department has previously cost shared feasibility or design phase shall receive 1 point;

Method of Calculation

One point is awarded if the Department has previously executed a cost sharing agreement using program funds for a feasibility or design study.

Potential Technologies and Strategies

The point is awarded to local sponsors to acknowledge ongoing efforts to maintain previously-established projects. A project is eligible to receive this ranking point once the local sponsor enters into a cost-sharing agreement with the Department for a particular project.

Enhanced Longevity of an Existing Project

Maximum Credit:
4 Points

Intent

Statute- 161.101(14) (d) Previous state commitment and involvement in the project.

Rule

Rule- 62B-36.006(1) (f) Previous state commitment ……projects to enhance, or increase the longevity of a previously constructed project shall receive 4 points;

Method of Calculation

Points can be awarded in this category for projects that propose an alternative design to increase the nourishment interval through a structural alternative, alternative beach fill design or geotechnical improvement to the project.

Potential Technologies and Strategies

For beach projects, points have been awarded in the past for the construction of an erosion control structure designed to extend the life of a beach nourishment project, redesign of an existing structure, or berm design alternatives that improve project performance.

For inlet projects, points have been awarded in the past for projects that increase inlet sediment bypassing, such as construction or expansion of sediment impoundment basins, improvements to jetty design, or the acquisition and operation of a floating or fixed sediment transfer plant.

Nourish a Previously Restored Shoreline

Maximum Credit:
5 Points

Intent

Statute- 161.101(14) (d) Previous state commitment and involvement in the project.

Rule

Rule- 62B-36.006(1) (f) Previous state commitment ……..and projects that will nourish a previously restored shoreline shall receive 5 points,

Method of Calculation

Points are rewarded for nourishment projects in an effort to provide continued state support for established projects.

Potential Technologies and Strategies

Any previously constructed project will qualify for these points. For new projects, points can be awarded once the project has been constructed.

Project Performance

Maximum Credit:
10 Points

Intent

Statute- 161.101(14) (e) The anticipated physical performance of the proposed project, including the frequency of periodic planned nourishment.

Rule

Rule- 62B-36.006(1) (g) Project performance. Performance points shall be based upon the expected life of a project, as documented in a feasibility study or on the actual nourishment interval. Projects shall receive 1 point for every year of the expected life or actual life with a maximum total of 10 points.

Method of Calculation

Project performance is most often judged by the length of the nourishment interval, which would initially be established by the feasibility study. Once a project has been restored and subsequently nourished, an actual performance interval can be established. An interim beach nourishment event to restore a project eroded by a major storm event will not be used in calculating the nourishment interval.

Mitigating Inlet Effects

Maximum Credit:
10 Points

Intent

Statute- 161.101(14) (f) The extent to which the proposed project mitigates the adverse impact of improved, modified, or altered inlets on adjacent beaches.

Rule

Rule- 62B-36.006(1) (h) Mitigation of inlet effects. Projects that implement strategies in the Strategic Beach Management Plan for sediment bypassing or supplemental nourishment to adjacent beaches shall receive points based upon the percentage of the target bypass volume to be achieved times 10 for a maximum total of 10 points.

Method of Calculation

For inlet projects, points are awarded based on the percentage of the bypass target achieved on an annually averaged basis. Calculations are made using the annual average of bypass material placed on the adjacent eroding shorelines divided by the annual bypass objective indicated in the Department-adopted Inlet Management Plan (IMP) or the Strategic Beach Management Plan (SBMP).

For beach projects, this criterion has not been used since the legislative changes to Chapter 161.143 were passed in 2008. The decision was anticipated to be an interim measure used until new inlet ranking criteria could be adopted by rule. However, points will be awarded to beach projects for the FY2013/14 funding cycle. Beach projects eligible for these points must be located within the area of inlet influence.

Potential Technologies and Strategies

Inlet bypassing efficiency can be improved by establishing a regular bypassing program for the inlet and constructing inlet management features, such as sediment impoundment basins, to increase the availability of sand within the system. Regular updates of the Inlet Management Plan can help the local sponsor and the Department to develop new strategies for mitigating an inlet's erosive effects.

Innovative Technologies

Maximum Credit:
3 Points

Intent

Statute- 161.101(14) (g) Innovative, cost-effective, and environmentally sensitive applications to reduce erosion.

Rule

Rule- 62B-36.006(1) (i) Innovative technologies. Projects to address erosion that are economically competitive and environmentally sensitive and designed to demonstrate an innovative application of existing technologies shall receive 3 points;

Method of Calculation

Projects involving innovative erosion control structures, construction techniques or environmental protection elements based on current technologies receive 3 points. Review of this criterion is conducted jointly by the Bureau's permitting, engineering and project management staff.

Potential Technologies and Strategies

Potential technologies include designs that potentially:

- Improve project performance by increasing nourishment interval
- Reduce costs over conventional beach erosion control activities
- Minimize adverse impacts to environmental resources, especially endangered or threatened species.
- Increase the ability to filter or screen sediments during the dredging process to produce larger quantities of beach compatible material
- Implement new methods for mitigating localized areas of accelerated erosion (hot spots).

Technologies New to Florida

Maximum Credit:
5 Points

Intent

Statute- 161.101(14) (g) Innovative, cost-effective, and environmentally sensitive applications to reduce erosion.

Rule

Rule- 62B-36.006(1) (i) Innovative technologies ……projects that demonstrate technologies previously untried in the state shall receive 5 points for a maximum total of 5 points.

Method of Calculation

Projects that would use dredging techniques, separation technologies, methods of protection of environmental resources or quality control, etc. not previously tried in Florida would receive 5 points. Review of this criterion is conducted jointly by the Bureau's permitting, engineering and project management staff.

Potential Technologies and Strategies

Projects that could potentially qualify for points include those employing techniques previously not permitted in Florida, including:

- More efficient dredging vessels
- Deep water systems
- Separation technology, such as the hydrocyclone to utilize marginal material.

Enhancing Nesting Sea Turtle Nesting Refuges

Maximum Credit:
5 Points

Intent

Statute- 161.101(14) (h) Projects that provide enhanced habitat within or adjacent to designated refuges of nesting sea turtles.

Rule

Rule- 62B-36.006(1) (j) Enhance nesting sea turtle refuges. Projects that are adjacent or within designated nesting sea turtle refuges shall receive 5 points.

Method of Calculation

Archie Carr National Wildlife Refuge is the only designated sea turtle refuge in the state and therefore only projects within or immediately adjacent to that particular refuge receive points.

Regionalization

Maximum Credit:
5 Points

Intent

Statute- 161.101(14) (i) The extent to which local or regional sponsors of beach erosion control projects agree to coordinate the planning, design, and construction of their projects to take advantage of identifiable cost savings.

Rule

Rule- 62B-36.006(1) (k) Regionalization. Projects where two or more local governmental entities couple their projects for contracting to reduce costs shall receive 5 points.

Method of Calculation

Points can be awarded in this category for two or more projects proposed by two or more local sponsors that are entering the same phase and can demonstrate significant anticipated cost savings through joint contracting. Projects must be able to demonstrate cost savings by bidding the projects separately and jointly. Points cannot be awarded until the Department is provided with an executed interlocal agreement between the local sponsors.

Potential Technologies and Strategies

Local sponsors can work with regional neighbors to coordinate construction schedules to reduce mobilization/demobilization costs, volume production costs, and observation/monitoring costs.

Project Significance

Maximum Credit:
10 Points

Intent

Statute- 161.101(14) (j) The degree to which the project addresses the state's most significant beach erosion problems.

Rule

Rule- 62B-36.006(1) (l) Significance. Projects shall receive points based upon the project length at one point a mile, rounded to the nearest whole number, for a total maximum of 10 points.

Method of Calculation

Points are awarded based on project length with the assumption that a longer contiguous project will protect more upland structures and habitat and will have a longer project performance, i.e. longer nourishment interval.

Potential Technologies and Strategies

Local sponsors with multiple project segments can combine those segments to produce a longer length, if the construction phase for all segments is scheduled concurrently. Concurrent scheduling of projects can also decrease overall projects costs by reducing mobilization/demobilization costs.

Readiness to Proceed

Intent

Statute- 161(14) following (j) In the event that more than one project qualifies equally under the provisions of this subsection, the department shall assign funding priority to those projects that are ready to proceed.

Rule

Rule- 62B-36.006(1) (m) In the event that more than one project receives the same number of points, the Department shall assign funding priority to that project most ready to initiate construction.

Method of Calculation

Points are awarded in this category when all other ranking assessments have been completed in order to rectify any project ties in the ranking list. Readiness to Proceed is determined by Bureau staff based on the status of the permit, local funding source, federal funding if applicable, construction easements, and construction schedule for each project.

Potential Technologies and Strategies

In order to improve standing in this category, local sponsors can attempt to have permits, easements, funding and schedules completed prior to requesting funding.

CHAPTER 62B-36
BEACH MANAGEMENT FUNDING ASSISTANCE PROGRAM

62B-36.001 Purpose.

The Beach Management Program works in concert with eligible governmental entities to achieve protection, preservation and restoration of the sandy beaches fronting the Atlantic Ocean, the Gulf of Mexico and the Straits of Florida. The Department may enter into a cost sharing agreement with eligible governmental entities for the implementation of beach management projects. This rule establishes funding request procedures, project ranking, cost sharing procedures and project agreement requirements pursuant to Sections 161.088, 161.091, 161.101 and 161.161, F.S.

Specific Authority 161.101, 161.161 FS. Law Implemented 161.088, 161.091, 161.101, 161.161 FS. History–New 6-10-83, Formerly 16B-36.01, 16B-36.001, Amended 12-25-03.

62B-36.002 Definitions.

(1) “Annual Funding Request and Local Long Range Budget Plan” is the document submitted by the eligible governmental entity which includes a detailed description for the next fiscal year’s funding request and a schedule for the disbursement of funds to be requested for beach management projects or related activities over a given period of time.

(2) “Beach Management” is protecting, maintaining, preserving, or enhancing Florida’s beaches including but not limited to, restoring or nourishing beach and dune systems, dune protection and restoration activities, restoration of natural shoreline processes, inlet management activities to facilitate sand bypassing, construction of erosion control structures, supporting engineering and environmental studies, project monitoring, mitigation, and removal of derelict structures and obstacles to natural shoreline processes.

(3) “Contractual Services” are the provision of engineering, professional, or scientific services for eligible activities as otherwise described in this chapter. Such activities may be performed by a private company or individual, or, if approved by the Department, pursuant to subsection 62B-36.007(4), F.A.C., an eligible governmental entity.

(4) “Critically Eroded Shoreline” is a segment of shoreline where natural processes or human activities have caused, or contributed to, erosion and recession of the beach and dune system to such a degree that upland development, recreational interests, wildlife habitat or important cultural resources are threatened or lost. Critically eroded shoreline may also include adjacent segments or gaps between identified critical erosion areas which, although they may be stable or slightly erosional now, their inclusion is necessary for continuity of management of the coastal system or for the design integrity of adjacent beach management projects.

(5) “Department” is the Department of Environmental Protection.

(6) “Eligible Governmental Entity” is any state, county, municipality, township, special district, or any other public agency having authority and responsibility for preserving and protecting the beach and dune system.

(7) “Inlet” is a short narrow waterway including all related flood and ebb tidal shoals and the inlet shorelines, connecting a bay, lagoon, or similar body of water with the Gulf of Mexico, the Straits of Florida, or the Atlantic Ocean. Improved, altered or modified inlets are those where stabilizing rigid coastal structures have been constructed, or where inlet related structures or features such as channels have been constructed or are actively maintained and the channel depth is greater than the inlet system would support in a natural state.

(8) “Project Agreement” is a contract executed between the Department and the eligible governmental entity that explicitly defines the terms and conditions under which the project shall be conducted.

(9) “Project Boundary” means the shoreline of the beach management project and the first row of development immediately landward of the beach vegetation line or beach erosion control line, whichever is further landward.

(10) “Project Phase” is a logical step required in developing and implementing a project. A typical project will normally include

the following phases:

(a) “Feasibility” – is the characterization of the erosion problem and constraints on remediation alternatives, development and analysis of alternatives to address the problem, and selection of the cost-effective, environmentally sound alternative that avoids or minimizes adverse impacts.

(b) “Design and Permitting” – is the development of plans, specifications, permit applications and final costs for the project.

(c) “Construction” – is the execution of the selected project.

(d) “Monitoring” – is the collection of project performance, biological and environmental data.

(11) “Public Beach Access” is an entry zone adjacent to a sandy beach under public ownership or control which is specifically used for providing access to the beach for the general public. The access must be signed, maintained and clearly visible from the adjacent roadway. The types of public beach access sites are:

(a) “Primary Beach Access” is a site with at least 100 public parking spaces and public restrooms.

(b) “Secondary Beach Access” is a site that may have parking and amenities, but does not qualify as a primary beach access.

(12) “Public Lodging Establishment” is any public lodging establishment currently licensed by the Department of Business and Professional Regulation in the classification of “hotel”, “motel” and “resort condominium” with six or more units and fronting directly on the sandy beach.

(13) “Statewide Long Range Budget Plan” is the planning document used by the Department to schedule the disbursement of funds over a given period of time. It is developed in coordination with eligible governmental entities based on the Strategic Beach Management Plan and Local Long Range Budget Plans.

(14) “Strategic Beach Management Plan” is the Department’s adopted plan for management of the critically eroded shoreline of the state and the related coastal system.

Specific Authority 161.101, 161.161 FS. Law Implemented 161.088, 161.091, 161.101, 161.161 FS. History–New 6-10-83, Formerly 16B-36.02, 16B-36.002, Amended 12-25-03.

62B-36.003 Policy.

(1) The Beach Management Program is established to develop and execute a comprehensive, long range, statewide beach management plan for erosion control, beach preservation, restoration, nourishment and storm protection for the critically eroded shoreline of the State of Florida. This comprehensive program includes the Strategic Beach Management Plan, the Critical Erosion Report, shoreline change reports, inlet management studies, state and federal feasibility and design studies, the Statewide Long Range Budget Plan, and other reports as the Department may find necessary for a multiyear maintenance and repair strategy. The comprehensive program is implemented through projects consistent with the Strategic Beach Management Plan and included in the Statewide Long Range Budget Plan.

(2) The Department shall annually review available information and revise the designations of critically eroded shoreline in the Critical Erosion Report. Eligible governmental entities shall be notified of any proposed changes and be given an opportunity to submit additional information to justify or refute proposed revisions.

(3) Beach management projects funded by the Department shall be conducted in a manner that encourages cost-savings, fosters regional coordination of projects, optimizes management of sediments and project performance, protects the environment, and provides long-term solutions. Appropriate feasibility studies or analysis shall be required before design or construction of new projects.

(4) Beach and dune restoration and nourishment projects funded by the Department shall be accessible to the general public and access shall be maintained for the life of the project. Inlet sediment bypassing and the initial restoration of adjacent shorelines impacted by improved, modified or altered inlets, do not have to provide for public access, except for when an Erosion Control Line has been established. Shoreline segments shall be evaluated for public access as set forth in subsection 62B-36.007(1), F.A.C.

(5) Beach management projects will be evaluated on a case by case basis and may be cost shared, pursuant to Rules 62B-36.006 and 62B-36.007, F.A.C., when determined to avoid or minimize adverse impacts and be cost effective as demonstrated by feasibility and design studies.

(6) Activities primarily related to navigation or other infrastructure improvements at inlets are, generally, not eligible for cost sharing. However, components of projects which mitigate critically eroded shoreline caused by alterations, modifications or improvements to inlets, implement components of the Strategic Beach Management Plan, and which do not increase impacts, are

eligible for cost sharing of up to 50% of the non-federal share for those components which:

(a) Are designed to minimize the erosive effects to the downdrift shoreline caused by the inlet by improving or facilitating the efficiency of sand bypassing, such as the construction of sand bypassing facilities, sand traps and jetty alterations; or

(b) Cost effectively place beach quality sand on the adjacent eroded beaches, such as the incremental cost of placing sand on the beach rather than in an offshore disposal area. The Department will cost share only in the incremental cost of placement of the material, not mobilization and demobilization of equipment, design studies, or any other activity normal to the operation and maintenance of the inlet.

(7) Eligible governmental entities are encouraged to consider existing inlet navigation maintenance activities as potential sources of sand when developing beach restoration or nourishment projects.

(8) Beach management projects authorized by Congress for federal financial participation shall be cost shared up to 50% of the non-federal share. Eligible governmental entities shall pursue federal appropriations to the maximum extent possible in order to proportionally reduce state and local project costs. The Department will not cost share on the federal portion of an authorized project unless an immediate threat to upland properties and financial loss is demonstrated.

(9) Upon notification from the Department of the 60-day submittal period, eligible governmental entities shall submit an updated Annual Funding Request and Local Long Range Budget Plan. Annual funding shall only be requested for projects expected to be initiated or continued in that fiscal year.

(10) The Department shall annually review and rank all projects requested by eligible governmental entities for the next fiscal year, and maintain a current project listing in priority order. As part of the review, the Department shall seek formal input from local coastal governments, beach and general government interest groups, and university experts. The project listing shall also identify unranked projects and funds needed for statewide and regional management activities, state sponsored or co-sponsored demonstration projects, new feasibility and design studies, and a consolidated category for project monitoring required by permit. In determining the final project ranking, the Department shall consider likely available funding and include a primary and alternate list of all projects. The primary list shall include those projects where legislatively appropriated funding is anticipated to be adequate to fund the projects. The alternate list includes those projects where funding is not anticipated to be available. Funding that may become available due to savings or scheduling changes shall be made available in the fourth quarter of the fiscal year to projects in the following order:

(a) Projects on the primary list that require additional funds to complete the project phase.

(b) Previously funded projects that require additional funds to complete the project phase.

(c) Projects on the alternate list in priority order.

(d) Emergency situations as determined by the Department.

(11) The Department, in consultation with the eligible governmental entity, has the discretion, pursuant to Section 161.101(20), F.S., to revise funding for projects identified on the primary or alternate list if it is determined by the Department that the project is not ready to be initiated during the fiscal year. If the Department revises funding for a primary list project, at the request of the eligible governmental entity, the project shall be included on the subsequent year's primary list, regardless of prioritization pursuant to Rule 62B-36.006, F.A.C.

(12) Eligible governmental entities may design and construct beach management projects prior to the receipt of funding from the state and may subsequently apply for reimbursement from the Department pursuant to the procedure in subsection 62B-36.009(3), F.A.C.

Specific Authority 161.101, 161.161 FS. Law Implemented 161.088, 161.091, 161.101, 161.161 FS. History–New 6-10-83, Formerly 16B-36.03, Amended 4-27-86, Formerly 16B-36.003, Amended 12-25-03.

62B-36.005 Annual Funding Requests.

(1) Annual funding requests for cost sharing of projects shall be submitted by the eligible governmental entity to the Department. Projects previously submitted, but not funded, and projects with cost overruns should be included. Eligible governmental entities who have received funding for projects in past fiscal years and who anticipate requesting funding in subsequent years shall update the Local Long Range Budget Plan as to costs and scheduling. The Local Long Range Budget Plan shall be consistent with the Strategic Beach Management Plan and have a 10-year minimum time frame. The submittal shall be in electronic format and include:

(a) A detailed project description, including project boundaries by Department range monuments, methods used in conducting the project, and data or analysis to apply the ranking criteria required by Rule 62B-36.006, F.A.C.

(b) A map of the project area depicting the public beach access, the public parking within one quarter mile of each beach access, public restroom facilities, the public lodging establishments, and comprehensive plan designations of commercial and recreational facilities within the project boundary.

(c) Current license documentation on public lodging establishments within the project boundaries, including the number of units available, if used to document public access.

(d) A current or updated resolution from the eligible governmental entity which includes statements of their support of the project, willingness to serve as the local sponsor, and a statement of the extent of their ability and willingness to provide the necessary local funding share to implement the project.

(e) A schedule of activities by project phase.

(f) The annual project cost estimates that indicate cost sharing by the eligible governmental entity, with sufficient supporting detail depicting costs of project phases.

(2) The Department shall evaluate projects submitted to determine eligibility, project ranking and priority, and the extent of cost sharing. Upon completion of the evaluation process, all eligible projects will be incorporated into the Department's Statewide Long Range Budget Plan, which will be submitted to the Legislature along with the Department's legislative budget request prioritizing projects according to the criteria in Rule 62B-36.006, F.A.C.

(3) Funding requests shall be evaluated and ranked on the basis of information provided by the eligible governmental entity, except where such data is superseded by better quality information obtained by the Department. Failure to provide all required information and documentation relating to eligibility and ranking criteria will result in the request being declared ineligible or receiving reduced ranking points. Failure to provide accurate information will lead to termination of the project's eligibility for the requested fiscal year.

Specific Authority 161.101, 161.161 FS. Law Implemented 161.088, 161.091, 161.101, 161.161 FS. History–New 6-10-83, Formerly 16B-36.05, Amended 4-27-86, Formerly 16B-36.005, Amended 12-25-03.

62B-36.006 Project Ranking Procedure.

(1) Eligible projects requesting funding for the upcoming fiscal year will be ranked in priority for the Department's legislative budget request. Projects previously ranked for a construction phase will retain their project score through the monitoring phase. Eligible projects will be assigned a total point score by the Department based on the following criteria:

(a) Severity of erosion. The severity of erosion score is determined by the average rate of erosion for the project area over 30 years based upon the Department's long term data base for the project length at 2 points per foot of erosion, rounded to the nearest whole foot, for a maximum total of 10 points.

(b) Threat to upland structures. The percent of developed property containing structures within the project boundaries at or seaward of the projected 25-year return interval storm event erosion limit times ten, rounded to the nearest whole number, for a maximum total of 10 points.

(c) Recreational and economic benefits. The percentage of linear footage of property within the project boundaries zoned commercial or recreational, or the equivalent, in the current local government land use map times ten, rounded to the nearest whole number, for a maximum total of 10 points.

(d) Availability of federal funds. Projects with Congressional authorization for the project phase shall receive 5 points. Projects with a current Project Cooperation Agreement executed for the project phase or with available federal funds shall receive 5 points. Maximum total for availability of federal funds is 10 points.

(e) Local sponsor financial and administrative commitment. Local governments who have a long term funding source dedicated to the restoration and management of the beach project shall receive 3 points; those with staff dedicated for administrative support shall receive 1 point; those with 75% or better compliance record for submitting quarterly reports and billings correctly and on time over the previous year shall receive 1 point for a maximum total of 5 points.

(f) Previous state commitment. Projects where the Department has previously cost shared a feasibility or design phase shall receive 1 point; projects to enhance, or increase the longevity of a previously constructed project shall receive 4 points; and projects that will nourish a previously restored shoreline shall receive 5 points, for a maximum total of 10 points.

(g) Project performance. Performance points shall be based upon the expected life of a project, as documented in a feasibility study or on the actual nourishment interval. Projects shall receive 1 point for every year of the expected life or actual life with a maximum total of 10 points.

(h) Mitigation of inlet effects. Projects that implement strategies in the Strategic Beach Management Plan for sediment bypassing or supplemental nourishment to adjacent beaches shall receive points based upon the percentage of the target bypass volume to be achieved times 10 for a maximum total of 10 points.

(i) Innovative technologies. Projects to address erosion that are economically competitive and environmentally sensitive and designed to demonstrate an innovative application of existing technologies shall receive 3 points; projects that demonstrate technologies previously untried in the state shall receive 5 points for a maximum total of 5 points.

(j) Enhance nesting sea turtle refuges. Projects that are adjacent or within designated nesting sea turtle refuges shall receive 5 points.

(k) Regionalization. Projects where two or more local governmental entities couple their projects for contracting to reduce costs shall receive 5 points.

(l) Significance. Projects shall receive points based upon the project length at one point a mile, rounded to the nearest whole number, for a total maximum of 10 points.

(m) In the event that more than one project receives the same number of points, the Department shall assign funding priority to that project most ready to initiate construction.

Specific Authority 161.101, 161.161 FS. Law Implemented 161.088, 161.091, 161.101, 161.161 FS. History–New 6-10-83, Formerly 16B-36.06, 16B-36.006, Amended 12-25-03.

62B-36.007 Project Cost Sharing.

(1) Until the unmet demand for repairing Florida's beaches is satisfied, the Department intends to cost share equally the costs with local governmental entities, except where actual cost savings from regional coordination can be demonstrated pursuant to subsection 62B-36.007(2), F.A.C. The Department will cost share up to 50% of the non-federal share of projects subject to adjustment for the level of public accessibility calculated using the following criteria:

(a) Primary beach access sites shall be granted eligibility for one-half mile in each shore-parallel direction from the access site plus the shoreline length of the access site.

(b) Public lodging establishments shall be granted eligibility based upon the percentage of units available to the public, rounded to the nearest 10%, times the property's beachfront footage.

(c) Secondary beach access sites shall be granted eligibility for the shoreline length of the access site. Additional eligibility shall be granted for up to one-quarter mile in each shore parallel direction at a rate of 52.8 linear feet per parking space, provided:

1. Parking is located within one-quarter mile of the secondary beach access site; and

2. Parking is clearly signed or otherwise clearly designated as parking for the general public on an equal basis.

(d) Eligible shoreline lengths cannot overlap.

(e) The sum of the eligible shoreline lengths, as defined above, is divided by the total project length to determine the percentage of the total project that is eligible for cost sharing.

(2) Cost savings, which occur due to the planned geographic coordination or sequencing of two or more projects between eligible governmental entities, may qualify for additional reimbursement. Geographic sequencing means combining two projects together for the purpose of construction contracting. In order to determine the increase in the state's cost share the projects shall be bid jointly and separately to demonstrate the cost savings of combining the projects. The cost share shall be adjusted not to exceed the state's maximum cost share amount of 75 percent of the eligible costs.

(3) All costs of environmental and performance monitoring required by the Department's permit with the governmental entity or a permit issued to the US Army Corps of Engineers, are eligible for cost sharing.

(4) The Department will cost share for private contractual services necessary to conduct the project. Services may be contracted to a governmental entity if the Department is shown evidence that the entity's proposal is cost effective, of sufficient professional quality, and otherwise in the general public interest. In determining whether contractual services are cost effective, the Department shall consider cost estimates provided by the governmental entity from fully qualified private companies or individuals. Specific contractual services performed by or for local governments shall be subject to specific accountability measures and audit requirements and be consistent with the principles of Chapter 287, F.S., for competitive bidding and opportunity.

Specific Authority 161.101, 161.161 FS. Law Implemented 161.088, 161.091, 161.101, 161.161 FS. History–New 6-10-83, Formerly 16B-36.07, Amended 4-27-86, Formerly 16B-36.007, Amended 12-25-03.

62B-36.009 Project Agreements.

(1) The Department and the eligible governmental entity will execute a project agreement when funds are available and the project is ready to proceed. The project agreement shall include the following:

(a) The estimated costs for each eligible project item, including the amount of the local sponsor's share, the Department's share, and when applicable, the federal share;

(b) A scope of work and estimated date of completion for each eligible project item; and

(c) A periodic reporting and billing schedule.

(2) The Department's annual financial obligation under the agreement shall be contingent upon a legislative appropriation and continued availability of funds. Funds not expended in a timely manner are subject to reversion to the General Revenue Fund.

(3) Eligible governmental entities may design and construct beach management projects which are consistent with this rule and Chapter 161, F.S., prior to the receipt of funding from the state pursuant to Sections 161.101 and 161.161, F.S., and may subsequently apply for reimbursement from the state within three years pursuant to Section 161.101, F.S., provided that:

(a) The eligible governmental entity and the Department have entered into a project agreement, which approves the project and establishes the basis for reimbursement before the project phase commences. No reimbursement shall be granted for work accomplished prior to the date of the agreement unless specifically set forth in the agreement;

(b) The project has been subject to review by the Department in the design and construction phases and the project has been found to be consistent with the intent of Chapter 161, F.S., for project eligibility and cost effectiveness;

(c) Reimbursement shall be limited to eligible project costs as specified in the written agreement referenced in paragraph (a) above and this rule;

(d) The project has been prioritized as required in Section 161.101(9), F.S., and is subject to legislative appropriation; and

(e) Complete documentation of all costs are provided to the Department, pursuant to the requirements of the State's Auditor General.

Specific Authority 161.101, 161.161 FS. Law Implemented 161.088, 161.091, 161.101, 161.161 FS. History–New 6-10-83, Formerly 16B-36.09, 16B-36.009, Amended 12-25-03.

File Attachments for Item:

A. Approval of Meeting Minutes

February 20, 2024 Town Commission Meeting Minutes

March 05, 2024 Town Commission Meeting Minutes

DRAFT

TOWN OF HIGHLAND BEACH
TOWN COMMISSION MEETING MINUTES

LIBRARY COMMUNITY ROOM, 3618 S. OCEAN BLVD., HIGHLAND BEACH, FL

Date: February 20, 2024
Time: 1:30 PM

1. CALL TO ORDER

Mayor Moore called the meeting to order 1:30 P.M.

2. ROLL CALL

Commissioner Judith Goldberg
Commissioner Donald Peters
Commissioner Evalyn David
Vice Mayor David Stern
Mayor Natasha Moore
Town Manager Marshall Labadie
Town Attorney Glen Torcivia
Town Clerk Lanelda Gaskins

3. PLEDGE OF ALLEGIANCE

The Town Commission led the Pledge of Allegiance to the United States of America.

4. APPROVAL OF THE AGENDA

Town Staff requested Item 10.A. be moved after Item 6., Public Comments.

MOTION: David/Stern - Moved to approve the agenda as amended, which passed unanimously 5 to 0.

5. PRESENTATIONS / PROCLAMATIONS

None.

6. PUBLIC COMMENTS ON NON-AGENDA ITEMS

Mayor Moore opened Public Comments.

Ms. Janixx Parisi, provided comments about clean beaches and bottle caps.

Mr. Timothy Ruotolo provided comments.

Item 10.A. Application No. 23-2790 / Frank and Laura Troiano (Public Hearing)

Consideration of Application No. 23-2790 by Frank and Laura Troiano for a variance for Section 30-103(D) and Section 30-64 of the Town Code of Ordinances to create a lot with a minimum lot width of 68.06 feet in lieu of the required 80-foot minimum lot width for a single-family dwelling in the Residential Multiple Family Low Density (RML) Zoning District for the property located at 4611 South Ocean Boulevard (west side of State Road A1A).

Mayor Moore read the title of Item 10.A.

Town Clerk Gaskins performed the swearing-in of the witnesses. Mayor Moore inquired about any Ex Parte communications, to which Commissioner Goldberg, Commissioner Peters, Commissioner David, and Vice Mayor Stern confirmed they had none. Mayor Moore disclosed that she had spoken with and emailed Ms. Troiano in April 2023.

Mayor Moore opened the Public Hearing.

Town Planner Allen presented Application No. 23-2790 for a variance along with a PowerPoint presentation depicting images of the property located at 4611 South Boulevard. At the January 31, 2024 Board of Adjustment and Appeals Regular meeting, the Board recommended approval of the variance (Application No. 23-2790), which passed unanimously 5 to 0.

Applicant and property owner Laura Troiano provided comments about Application No. 23-2790.

Mr. Timothy Ruotola provided comments.

Mayor Moore closed the Public Hearing.

MOTION: David/Goldberg - Moved to approve Application No. 23-2790. Upon Roll Call: Commissioner David (Yes), Commissioner Goldberg (Yes), Commissioner Peters (Yes), Vice Mayor Stern (Yes), and Mayor Moore (Yes). The motion passed unanimously on a 5 to 0 vote.

7. ORDINANCES (Public Comments will be limited to three (3) minutes per speaker per item after Commission initial discussion.)

A. None.

8. CONSENT AGENDA (These are items that the Commission typically does not need to discuss individually, and which are voted on as a group.) Public Comments will be limited to three (3) minutes per speaker per item after Commission initial discussion.

A. Approval of Meeting Minutes

January 16, 2024 Town Commission Meeting Minutes

B. Approve and authorize the Town Staff to purchase Tools and Equipment for $91,140.95 from NAFECO of Florida according to the Lake County Contract (Contract No. 22-730I) for the Fire Rescue Department.

MOTION: David/Goldberg - Moved to approve the Consent Agenda as presented, which passed unanimously 5 to 0.

9. UNFINISHED BUSINESS (Public Comments will be limited to three (3) minutes per speaker per item after Town Commission initial discussion.)

A. Florida Department of Transportation (FDOT) RRR Project Update

Town Manager Labadie announced that the Florida Department of Transportation (FDOT) will be hosting public meetings on March 07, 2024, to discuss the upcoming RRR project. The meetings will include a Virtual Public Meeting from 5:00 p.m. to 6:00 p.m., for which residents can register to participate online. Following this, an in-person Construction Open House meeting will take place from 6:00 p.m. to 7:00 p.m. at the Highland Beach Library Community Room, located at 3618 S. Ocean Boulevard, Highland Beach, Florida 33487. FDOT plans to commence construction in April 2024 and expects to complete the project in the summer of 2025.

B. Fire Rescue Implementation Update

Fire Chief Glen Joseph provided updates regarding the interior construction of the Fire Rescue building, the parking lot area, three open firefighter positions, purchase of equipment and the fire rescue vehicles. Lastly, he confirmed that the fire rescue personnel will participate in the soft opening ceremony scheduled for April 19.

C. Building Department Recertification Program Update

Building Official Jeff Remas provided updates regarding the Building Recertification Program as follows: three buildings have successfully received their certification, 42 buildings are in progress, and the paperwork of four buildings was reviewed. Also, four buildings have not submitted their report, which was originally due last year.

D. Continued discussion of Milani Park.

Town Manager Labadie will contact each Town Commissioner to schedule one-on-one meetings this week. Beginning this week Mayor Moore will be meeting with the Palm Beach Board of County Commissioners to communicate the Town Commission views about the future use of the Milani Park property.

Mayor Moore will be meeting with County Commissioner Woodward tomorrow and are scheduled to meet with some of the other County Commissioners next week to communicate the Town Commission’s position on this subject. She

talked about the February 6 Board of County Commission public meeting as it relates to the public turnout at the February 1st meeting and the number of residents who were in opposition of the Milani Park project. There was conversation about the 43 conditions outlined in the 2010 settlement agreement.

Town Manager Labadie explained the history behind the extensive 42 conditions outlined in the 2010 settlement agreement which was under mitigating circumstances that lead to a forced settlement agreement between the two parties. During that time, the town commission and the residents were not in favor of a park.

Mayor Moore opened the item for public comments.

Mr. Jack Halpern provided comments.

Mr. Timothy Ruotolo provided comments.

Mr. David Newman provided comments.

The Town Commission had a comprehensive discussion about the County's option to sell the property instead of developing the park. Town staff will inform the Town Commission and the residents when Palm Beach County Commission places this matter on their public meeting agenda.

Mr. Ron Reame provided comments.

E. 2023-2024 Strategic Priorities Plan Update and Review

Town Manager Labadie provided updates to the Strategic Priorities Plan highlighting the ranked projects and initiatives discussed at the February 06, 2024 Town Commission meeting. The New Projects and Initiatives category includes the Old Fire Station project, evaluate Ordinance Development Process and the Code Enforcement Board/Special Magistrate. The next steps are to list the projects in the appropriate sections/categories and rank them accordingly as they will become the 2024 Strategic Priorities List of Projects.

The Town Commission discussed the projects and initiatives. Their recommendations are as follows: eliminate Labor Negotiations; rank Fire Rescue Department Implementation as Strategic Priority (SP) 1; rank Milani Park as SP 2; update the Charter Review/Amendments; eliminate Solid Wast and Recycling Collection Contract; consolidate Marine Accessory Structures Ordinance Amendment and Seawall Ordinance Review projects; place Zoning District - SP 13 on hold as a low priority; Intracoastal Waterway - SP 20 add annual reporting; and eliminate Water Tower Lease. In addition, there were discussions about town staff preparing a resolution related to bottle caps for a future agenda item, painting the buildings such as the old fire station and town hall, and future plans to renovation town hall to include parking.

Town Manger Labadie will revise the Strategic Priorities Plan as suggested and will include a systematic process related to purge/enhance electronic records stored on the town drives. This will be incorporated under SP 13, Public Records Digitization/Management Project. Town Manager Labadie will present the updated 2024 Strategic Priorities Plan at a future Town Commission meeting.

Mayor Moore opened the item for public comments.

Mr. Timothy Ruotolo provided comments.

10. NEW BUSINESS (Public Comments will be limited to three (3) minutes per speaker per item after Town Commission initial discussion.)

A. This item was moved immediately after Item 6, Public Comments.

B. **Approve the recommendation of the Selection Committee and authorize Town Staff to initiate negotiations with the top five (5) ranked firms in accordance with RFQ No. 24-001 for Continuing Professional Consulting Services (CCNA).**

Mayor Moore read the title of Item 10.B.

Skender Comma, Management Analyst presented this item.

Mayor Moore opened the item for public comments. Hearing none, Mayor Moore closed the public comments.

MOTION: David/Goldberg - Moved to authorize negotiations with the top five (5) ranked firms for RFQ No. 24-001. Upon Roll Call: Commissioner David (Yes), Commissioner Goldberg (Yes), Commissioner Peters (Yes), Vice Mayor Stern (Yes), and Mayor Moore (Yes). The motion passed unanimously on a 5 to 0 vote.

C. Authorization to make a Best Interest Acquisition for Fire Station #116 Furnishings.

Mayor Moore read the title of Item 10.C. followed by Town Manager Labadie presented the item.

MOTION: David/Goldberg – Moved to authorize the best interest acquisition for Fire Station No. 116, which passed unanimously 5 to 0.

D. Review FY 2025 Budget Calendar

There were discussions about the 2025 fiscal year budget calendar of events followed by a motion.

MOTION: David/Moore – Moved to accept Fiscal Year 2024-2025 Budget Calendar with the amendment to move the regularly scheduled July 16, 2024 meeting to July 23, 2024. The motion passed unanimously 5 to 0.

11. TOWN COMMISSION COMMENTS

Commissioner Judith M. Goldberg commented on continuing the pressure and discussions regarding Milani Park.

Commissioner Donald Peters wished Mayor Moore good luck and he is looking forward to the April 19 ribbon cutting event at the new Fire Rescue Station.

Commissioner Evalyn David is looking forward to hearing the comments from Palm Beach County Commissioners regarding the Milani Park project.

Vice Mayor David Stern spoke about a BCA meeting that he attended today as it relates to Milani Park.

Mayor Natasha Moore had no comments.

12. TOWN ATTORNEY'S REPORT

Town Attorney Rubin had nothing to report.

13. TOWN MANAGER'S REPORT

Town Manager Labadie briefly spoke about the things the town is doing concerning Milani Park.

14. ANNOUNCEMENTS

Mayor Moore read the announcements as follows:

Board Vacancies

Board of Adjustment and Appeals Board	One (1) vacancy for an unexpired term ending September 21, 2024

Mayor Moore read the announcements as follows:

Meetings and Events

March 05, 2024 1:30 P.M. Town Commission Meeting

Board Action Report

None.

15. ADJOURNMENT

The meeting adjourned at 3:28 P.M.

APPROVED: April 02, 2024, Town Commission Meeting.

ATTEST: Natasha Moore, Mayor

Transcribed by
Lanelda Gaskins

04/02/2024

Lanelda Gaskins, MMC
Town Clerk

Date

Disclaimer: Effective May 19, 2020, per Resolution No. 20-008, all meeting minutes are transcribed as a brief summary reflecting the events of this meeting. Verbatim audio/video recordings are permanent records and are available on the Town's Media Archives & Minutes webpage: https://highlandbeach-fl.municodemeetings.com/.

DRAFT

TOWN OF HIGHLAND BEACH
TOWN COMMISSION MEETING MINUTES

LIBRARY COMMUNITY ROOM, 3618 S. OCEAN BLVD., HIGHLAND BEACH, FL

Date: March 05, 2024
Time: 1:30 PM

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1. CALL TO ORDER

Mayor Moore called the meeting to order at 1:30 P.M.

2. ROLL CALL

Commissioner Judith Goldberg
Commissioner Donald Peters
Commissioner Evalyn David
Vice Mayor David Stern
Mayor Natasha Moore
Town Manager Marshall Labadie
Town Attorney Glen Torcivia
Town Clerk Lanelda Gaskins

3. PLEDGE OF ALLEGIANCE

The Town Commission lead the Pledge of Allegiance to the United States of America.

4. APPROVAL OF THE AGENDA

MOTION: David/Goldberg – Moved to approve the agenda as presented, which passed unanimously 5 to 0.

5. PRESENTATIONS / PROCLAMATIONS

A. None.

6. PUBLIC COMMENTS (NON-AGENDA ITEMS)

There were no public comments.

7. ORDINANCES (Public Comments will be limited to three (3) minutes per speaker per item after Commission initial discussion.)

A. None.

8. CONSENT AGENDA (These are items that the Commission typically does not need to discuss individually, and which are voted on as a group.) Public Comments will be limited to three (3) minutes per speaker per item after Commission initial discussion.

A. Approval of Meeting Minutes

February 06, 2024 Town Commission Meeting Minutes

B. Approve and authorize Town Staff to engage Pantropic Power, an authorized Caterpillar distributor, for the replacement of the muffler on the town complex generator in an amount not to exceed $93,200.00.

C. Approve and authorize Town Staff to engage Baxter & Woodman, Inc. to prepare bid documents outlining the repairs based on the recommendations of that assessment, provide a cost estimate, review the FDEP permitting requirements, provide bidding, construction management and inspections services in an amount not to exceed $67,750.00.

MOTION: David/Goldberg – Moved to approve the Consent Agenda as presented, which passed unanimously 5 to 0.

9. UNFINISHED BUSINESS (Public Comments will be limited to three (3) minutes per speaker per item after Town Commission initial discussion.)

A. Fire Rescue Implementation Update

Fire Chief Glen Joseph provided updates on the Fire Rescue Department's progress, including painting the building, changing the station number to 120, plans for obtaining a temporary certificate of occupancy (TCO) and the contractor's mid-April departure. He introduced Captain Alexander Fernandez, Captain Michael Benoit, Captain Robert Kruse, Captain Christopher Zidar, and Firefighter Driver Theodor DiGangi.

Town Manager Labadie announced a soft grand opening of the new Fire Rescue building scheduled for April 19th. He plans to contact the City of Delray Beach City Manager concerning closure as well as obtain the certificate of title for the fire rescue vehicles. Lastly, Fire Chief Joseph also noted an upcoming leadership meeting with the Delray Beach Fire Department on March 15, 2024.

B. Florida Department of Transportation (FDOT) RRR Project Update

Town Manager Labadie announced two upcoming meetings by FDOT: a Virtual Public Meeting and an In-Person Construction Open House Meeting on Thursday, March 7, 2024. The Virtual Meeting will run from 5:00 P.M. to 6:00 P.M., followed by the In-Person Construction Open House from 6:00 P.M. to 7:00 P.M. at the Highland Beach Library Community Room.

C. Continued discussion of Milani Park.

Mayor Moore provided an update on a recent meeting between herself, the Town's consultant, and Palm Beach County officials, including Commissioner Marci Woodward and County Administrator Verdina Baker. The County Attorney expressed that selling the Milani property was a legally feasible option for the County. Mayor Moore has engaged with other County Commissioners and has further meetings scheduled throughout the week. Lastly, it was noted that the Palm Beach County administration strongly desires a park to be established on the property. Also, Mayor Moore intends to share additional details with the Town Commission following her discussions with all County Commissioners.

D. Continued discussion of 2023-2024 Strategic Priorities Plan Update and Review

Town Manager Labadie presented updates on the Strategic Priorities Plan and the Ranked Projects and Initiatives List. He will include the Capital Improvement Plan (CIP) as a ranked item.

10. NEW BUSINESS (Public Comments will be limited to three (3) minutes per speaker per item after Town Commission initial discussion.)

A. None.

11. TOWN COMMISSION COMMENTS

Commissioner Judith M. Goldberg expressed her admiration for the professional background of the new fire captains.

Commissioner Donald Peters also expressed his admiration for the professional background of the new fire captains.

Commissioner Evalyn David echoed their sentiments, highlighting the diversity in the backgrounds of the new fire captains and expressed gratitude to Fire Chief Joseph for his leadership.

Vice Mayor David Stern also supported their views.

Mayor Moore then opened the floor for public comments, during which Mr. Ron Reame suggested naming the new Fire Department building after the late Honorable Mayor Douglas Hillman.

Mayor Natasha Moore

12. TOWN ATTORNEY'S REPORT

Town Attorney Torcivia had nothing to report.

13. TOWN MANAGER'S REPORT

Town Manager Labadie reported the following:

The Town has 92 to 95 employees.

The Board of County Commissioners of Palm Beach have decided to withdraw their support for the one percent Infrastructure Sales Tax, as reported in the Palm Beach Post. This decision means the tax will expire on December 31, 2025, potentially impacting future infrastructure projects in the county.

The Legislative Session is set to conclude on Friday, March 8. Notably, two appropriation items have been included in the budget: $1.2 million for a sewer lining project and a lift station project.

14. ANNOUNCEMENTS

Mayor Moore read announcement as follows:

Board Vacancies

Board of Adjustment and Appeals Board — One (1) vacancy for an unexpired term ending September 21, 2024

Meetings and Events

March 07, 2024 5:00 P.M. FDOT RRR Project Virtual Meeting

March 07, 2024 6:00 P.M. FDOT RRR Project In-Person Meeting

March 12, 2024 1:00 P.M. Code Enforcement Board Regular Meeting

March 14, 2024 9:30 A.M. Planning Board Regular Meeting

March 19, 2024 2024 Presidential Preference Primary (PPP) & Uniform Municipal Elections (Town Hall Closed)

March 26, 2024 1:30 P.M. Town Commission Special Meeting / Swearing In Ceremony (Tentative)

Board Action Report

None.

15. ADJOURNMENT

The meeting adjourned at 2:36 P.M.

APPROVED: April 16, 2024, Town Commission Meeting.

ATTEST: Natasha Moore, Mayor

Transcribed by
Lanelda Gaskins

04/02/2024

Lanelda Gaskins, MMC
Town Clerk

Date

Disclaimer: Effective May 19, 2020, per Resolution No. 20-008, all meeting minutes are transcribed as a brief summary reflecting the events of this meeting. Verbatim audio/video recordings are permanent records and are available on the Town's Media Archives & Minutes webpage: https://highlandbeach-fl.municodemeetings.com/.

File Attachments for Item:

A. Resolution No. 2024-008

A Resolution of the Town Commission of the Town of Highland Beach, Florida, dedicating the Highland Beach Fire Rescue Department, Station No. 120 in honor of Former Mayor Douglas Hillman.

RESOLUTION NO. 2024-008

A RESOLUTION OF THE TOWN COMMISSION OF THE TOWN OF HIGHLAND BEACH, FLORIDA, DEDICATING THE HIGHLAND BEACH FIRE RESCUE DEPARTMENT, STATION NO. 120 IN HONOR OF FORMER MAYOR DOUGLAS HILLMAN; AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, Douglas "Doug" Hillman, the former Mayor, has made significant contributions to our community; and

WHEREAS, in May of 2019, the Town Commission appointed Douglas Hillman to the Financial Advisory Board; and

WHEREAS, in March of 2020, Douglas Hillman was elected to the Office of Mayor-Commissioner, and

WHEREAS, in March of 2023, Douglas Hillman was reelected to the Office of Mayor-Commissioner and served in the capacity of Mayor until March 15, 2024; and

WHEREAS, Douglas Hillman also served as the President of both Dalton Place Condominium and Boca Highland Beach Club and Marina; and

WHEREAS, Mayor Hillman's legacy of service and significant contributions to establishing and funding the first Town of Highland Beach Fire Rescue Department are deserving of the highest honor and recognition from the community.

WHEREAS, Fire Station 120, as a cornerstone of our community's safety and progress, shall forever stand as a tribute to Mayor Hillman's legacy and a symbol of safety, unity, and progress.

NOW, THEREFORE, BE IT RESOLVED BY THE TOWN COMMISSION OF HIGHLAND BEACH THAT:

Section 1. The dedication of Highland Beach Fire Rescue, Station 120 in honor of former Mayor Hillman for his service from March of 2020 through March of 2023 will be permanently memorialized within the station.

Section 2. A permanent bronze memorial plaque shall be prominently displayed within the Highland Beach Fire Rescue, Station 120, serving as a lasting tribute to the former Mayor Douglas "Doug" Hillman's legacy and as a reminder of his enduring impact on the safety and welfare of the Highland Beach community.

Section 3. This Resolution shall be effective immediately upon adoption.

DONE AND ADOPTED by the Town Commission of the Town of Highland Beach, Florida, this **16th** day of **April** 2024.

ATTEST:

Natasha Moore, Mayor

REVIEWED FOR LEGAL SUFFICIENCY

Lanelda Gaskins, MMC
Town Clerk

Leonard G. Rubin, Town Attorney
Town of Highland Beach

VOTES:	**YES**	**NO**
Mayor Natasha Moore		
Vice Mayor David Stern		
Commissioner Evalyn David		
Commissioner Donald Peters		
Commissioner Judith M. Goldberg		

File Attachments for Item:

A. Resolution No. 2024-009

A Resolution of the Town Commission of the Town of Highland Beach, Florida, ratifying the selection, appointments, and term of office of members of the Planning Board; and providing for an effective date.

TOWN OF HIGHLAND BEACH
AGENDA MEMORANDUM

MEETING TYPE: Commission Meeting

MEETING DATE April 16, 2024

SUBMITTED BY: Jaclyn DeHart, Deputy Town Clerk

THROUGH Lanelda Gaskins, Town Clerk

SUBJECT: Resolution No. 2024-009

A Resolution of the Town Commission of the Town of Highland Beach, Florida, ratifying the selection, appointments, and term of office of members of the Planning Board; and providing for an effective date.

SUMMARY:

Consideration of Resolution No. 2024-009 ratifying the selection, appointments, and term of office of a member of the Planning Board Appeals; and providing for an effective date.

In December of 2023 the Town Commission appointed Ms. Rosen to the Planning Board to serve an unexpired term that ends May 04, 2024, and is seeking to serve a full three-year term ending April 16, 2027.

To conclude, Ms. Rosen has met the qualifications for reappointment that a person shall be a resident of the Town domiciled within the corporate limits and has been a registered voter of Highland Beach for a year at least one year prior to reappointment. These results were corroborated by records from the Palm Beach County Property Appraiser and the Palm Beach County Supervisor of Elections Offices websites.

FISCAL IMPACT:

N/A

ATTACHMENTS:
Eve Rosen Application
Resolution No. 2024-009

RECOMMENDATION:

With the Commission's consideration, Staff recommends the adoption of Resolution No. 2024-009 for the applicants to serve a term as outlined in the resolution.

RESOLUTION NO. 2024-009

A RESOLUTION OF THE TOWN COMMISSION OF THE TOWN OF HIGHLAND BEACH, FLORIDA, RATIFYING THE SELECTION, APPOINTMENTS AND TERMS OF OFFICE OF MEMBERS OF THE PLANNING BOARD; AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, Chapter 20, Article II, Sec. 20-26 of the Town's Code of Ordinances establishes the Planning Board and governs the membership, qualification, function, and rules of the Planning Board; and

WHEREAS, these provisions of the Code also establish the selection, appointment, and terms of office of members of the Planning Board; and

WHEREAS, on December 05, 2023, Eve Rosen was appointed by Town Commission to fill an unexpired term ending May 04, 2024, and is eligible for reappointment for a three-year term; and

WHEREAS, pursuant to Sec. 2-99(1)(a) of the Town's Code of Ordinances, the chairperson of each board shall interview applicants for the board and provide a recommendation to the Town Commission; and

WHEREAS, the chairperson of the Planning Board interviewed the applicants and recommends that the Town Commission appoint one applicant to the Board; and

WHEREAS, Town residents interested in serving on or continuing to serve on the Planning Board have submitted a board application for the Town Commission's consideration.

NOW, THEREFORE, BE IT RESOLVED BY THE TOWN COMMISSION OF THE TOWN OF HIGHLAND BEACH, FLORIDA, THAT:

Section 1. The foregoing "WHEREAS" clauses are true and correct and hereby ratified and confirmed by the Town Commission.

Section 2. Consistent with the Town's Code of Ordinances, one (1) member has been selected by the Town Commission to serve on the Planning Board for a full three-year term expiring April 16, 2027, as follows:

Board Member Eve Rosen

Section 3. This Resolution shall become effective upon adoption.

DONE AND ADOPTED by the Town Commission of the Town of Highland Beach, Florida, this **16th** day of **April** 2024.

ATTEST:

Natasha Moore, Mayor

REVIEWED FOR LEGAL SUFFICIENCY

Lanelda Gaskins, MMC
Town Clerk

Leonard G. Rubin, Town Attorney
Town of Highland Beach

VOTES:	**YES**	**NO**
Mayor Natasha Moore		
Vice Mayor David Stern		
Commissioner Evalyn David		
Commissioner Donald Peters		
Commissioner Judith M. Goldberg		

Town of Highland Beach
Town Clerk's Office
3614 S. Ocean Boulevard
Highland Beach, Florida 33487
Phone: (561) 278-4548 Fax: (561) 265-3582

BOARDS AND COMMITTEES APPLICATION

This information is for consideration of appointment to a Town Board. Please complete and return this form to the Town Clerk, along with your *resume and proof of residency such as a government issued identification or voter registration card.*

PLEASE NOTE: Florida Public Records Law is very broad. Documents relevant to town business is public records and is subject to public disclosure upon request. Your information provided within this application may therefore be subject to public disclosure.

NAME: EVE ROSEN PHONE: 5136048442

HOME ADDRESS: 4740 S Ocean Blvd APT. NO. 908

SUBDIVISION: Braemar 5/6/Beach Highland EMAIL ADDRESS: erosenlaw@gmail.com

PLEASE SELECT THE BOARD(S) / COMMITTEE(S) ON WHICH YOU ARE INTERESTED IN SERVING IN NUMERICAL ORDER FROM 1 THROUGH 7, WITH 1 BEING YOUR FIRST CHOICE AND 7 THE LEAST CHOICE. (A description of the responsibilities of each Board is on the back of this application.)

____ Board of Adjustment & Appeals	____ Code Enforcement Board
____ Financial Advisory Board	____ Natural Resources Preservation Board
X Planning Board	____ Town Commission ***(**If vacancy**)
	____ Other Board /Committee

PLEASE MARK YES OR NO FOR EACH OF THE FOLLOWING QUESTIONS:

Are you a resident of Highland Beach?	Yes ☒	No ☐
Are you a registered voter in Highland Beach/Palm Beach County, FL?	Yes ☒	No ☐
Are you currently serving on a Town Board?	Yes ☐	No ☒
Have you ever served on a Town Board/Committee?	Yes ☒	No ☐

If Yes, please indicate the Board(s)/Committee(s) and dates of service:

Bd of Adjustment + Appeals/2021/2023(?) Charter Comm. 2021

Are you willing to attend monthly board meetings? In (Person / Teleconference)	Yes ☒	No ☐
Per Town Code of Ordinance, I understand any member absence from three (3) consecutive meetings will be considered as resignation from the board/committee.	Yes ☒	No ☐

REV. 10-2022 CLERK-LG

Please list any special talent, qualification, education, or professional experience that would contribute to your service on the Board/Committee you have selected?

I'm a lawyer with experience on boards (for profit & Condo assn) and various corporate functions

Please summarize your volunteer experience(s):

Planning + Appeals / Charter Commission - Highland Beach
Condo Assn Bd President +
Religious Education Committee

Florida Law requires appointed members on the Planning and Board of Adjustment and Appeals Boards to file a Form 1 - Statement of Financial Interests Disclosure form on an annual basis.

Vetting by the Board Chairperson. The Chairperson of each Board shall interview the applicant and submit a memorandum of recommendation to the Town Clerk's Office 14 days prior to the Town Commission Workshop Meeting for final appointment.

Palm Beach County Commission on Ethics requires appointed members to take the Code of Ethics Training every two (2) years.

I hereby certify that the statements and answers provided are true and accurate to the best if my knowledge.

Signature of Applicant

9/26/23
Date

☐ Resume Attached

File Attachments for Item:

B. Resolution No. 2024-010

A Resolution of the Town Commission of the Town of Highland Beach, Florida, ratifying the selection, appointments, and term of office of members of the Natural Resources Preservation Advisory Board; and providing for an effective date.

TOWN OF HIGHLAND BEACH
AGENDA MEMORANDUM

MEETING TYPE: Commission Meeting

MEETING DATE April 16, 2024

SUBMITTED BY: Jaclyn DeHart, Deputy Town Clerk

THROUGH Lanelda Gaskins, Town Clerk

SUBJECT: Resolution No. 2024-010

A Resolution of the Town Commission of the Town of Highland Beach, Florida, ratifying the selection, appointments, and term of office of members of the Natural Resources Preservation Advisory Board; and providing for an effective date.

SUMMARY:

Consideration of Resolution No. 2024-010 ratifying the selection, appointments, and term of office of members of the Natural Resources Preservation Advisory Board; and providing for an effective date.

The Town Commission appointed Ms. Viegas in May of 2023, Ms. Nestle in August of 2022, Mr. Blumberg in August of 2023, and Mr. Shriberg in August of 2023 to the Planning Board to serve unexpired terms that end April 30, 2024, and they are seeking to serve full three-year terms ending April 30, 2027.

To conclude, Ms. Viegas, Ms. Nestle, Mr. Blumberg, and Mr. Shriberg have met the qualifications for reappointment that a person shall be a resident of the Town domiciled within the corporate limits and has been a registered voter of Highland Beach for a year at least one year prior to reappointment. These results were corroborated by records from the Palm Beach County Property Appraiser and the Palm Beach County Supervisor of Elections Offices websites.

FISCAL IMPACT:

N/A

ATTACHMENTS:
Barbara Nestle Application
Christine Viegas Application
Alan Blumberg Application
Kenneth Shriberg Application
Resolution No. 2024-010

RECOMMENDATION:

With the Commission’s consideration, Staff recommends the adoption of Resolution No. 2024-010 for the applicants to serve a term as outlined in the resolution.

RESOLUTION NO. 2024-010

A RESOLUTION OF THE TOWN COMMISSION OF THE TOWN OF HIGHLAND BEACH, FLORIDA, RATIFYING THE SELECTION, APPOINTMENTS AND TERMS OF OFFICE OF MEMBERS OF THE NATURAL RESOURCES PRESERVATION ADVISORY BOARD; AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, Chapter 2, Article V, Division 3, Sec. 2-135 of the Town's Code of Ordinances establishes the Natural Resources Preservation Advisory Board and governs the membership, qualification, function, and rules of the Natural Resources Preservation Advisory Board; and

WHEREAS, these provisions of the Code also establish the selection, appointment, and terms of office of members of the Natural Resources Preservation Advisory Board; and

WHEREAS, on August 02, 2022, board member Barbara Nestle was appointed by Town Commission to fill an unexpired term ending April 30, 2024, and is eligible for reappointment for a three-year term; and

WHEREAS, on May 16, 2023, board member Christine Viegas was appointed by Town Commission to fill an unexpired term ending April 30, 2024, and is eligible for reappointment for a three-year term; and

WHEREAS, on August 01, 2023, board member Alan Blumberg was appointed by Town Commission to fill an unexpired term ending April 30, 2024, and is eligible for reappointment for a three-year term; and

WHEREAS, on August 01, 2023, board member Kenneth Shriberg was appointed by Town Commission to fill an unexpired term ending April 30, 2024, and is eligible for reappointment for a three-year term; and

WHEREAS, pursuant to Sec. 2-99(1)(a) of the Town's Code of Ordinances, the chairperson of each board shall interview applicants for the board and provide a recommendation to the Town Commission; and

WHEREAS, the Chairperson of the Natural Resources Preservation Advisory Board interviewed the applicants and recommends that the Town Commission reappoints four (4) applicants to the Board; and

WHEREAS, Town residents interested in serving on or continuing to serve on the Natural Resources Preservation Advisory Board have submitted board applications for the Town Commission's consideration.

NOW, THEREFORE, BE IT RESOLVED BY THE TOWN COMMISSION OF THE TOWN OF HIGHLAND BEACH, FLORIDA, THAT:

Section 1. The foregoing "WHEREAS" clauses are true and correct and hereby ratified and confirmed by the Town Commission.

Section 2. Consistent with the Town's Code of Ordinances, four (4) members have been selected by the Town Commission to serve on the Natural Resources Preservation Advisory Board for a three-year ending April 30, 2027, as follows:

Board Member Barbara Nestle Term ends April 30, 2027

Board Member Christine Viegas Term ends April 30, 2027

Board Member Alan Blumberg Term ends April 30, 2027

Board Member Kenneth Shriberg Term ends April 30, 2027

Section 3. This Resolution shall become effective upon adoption.

DONE AND ADOPTED by the Town Commission of the Town of Highland Beach, Florida, this **16th** day of **April** 2024.

ATTEST:

Natasha Moore, Mayor

REVIEWED FOR LEGAL SUFFICIENCY

Lanelda Gaskins, MMC
Town Clerk

Leonard G. Rubin, Town Attorney
Town of Highland Beach

VOTES:	**YES**	**NO**
Mayor Natasha Moore		
Vice Mayor David Stern		
Commissioner Evalyn David		
Commissioner Donald Peters		
Commissioner Judith Goldberg		

Town of Highland Beach

Town Clerk's Office
3614 S. Ocean Boulevard
Highland Beach, Florida 33487
Phone: (561) 278-4548 Fax: (561) 265-3582

BOARDS AND COMMITTEES APPLICATION

This information is for consideration of appointment to a Town Board. Please complete and return this form to the Town Clerk, along with your *resume and proof of residency such as a government issued identification or voter registration card.*

PLEASE NOTE: Florida Public Records Law is very broad. Documents relevant to town business is public records and is subject to public disclosure upon request. Your information provided within this application may therefore be subject to public disclosure.

NAME: Barbara Nestle PHONE: 617 870 1719

HOME ADDRESS: 4605 S Ocean Blv APT. NO. 7C

SUBDIVISION: _____ EMAIL ADDRESS: nesbarb@gmail.com

PLEASE SELECT THE BOARD(S) / COMMITTEE(S) ON WHICH YOU ARE INTERESTED IN SERVING IN NUMERICAL ORDER FROM 1 THROUGH 5, WITH 1 BEING YOUR FIRST CHOICE AND 5 THE LEAST CHOICE. (A description of the responsibilities of each Board is on the back of this application.)

____ Board of Adjustment & Appeals	____ Code Enforcement Board
____ Financial Advisory Board	x ____ Natural Resources Preservation Board
____ Planning Board	____ Other Board /Committee

PLEASE MARK YES OR NO FOR EACH OF THE FOLLOWING QUESTIONS:

Are you a resident of Highland Beach? Yes x No _____

Are you a registered voter in Highland Beach/Palm Beach County, FL? Yes _____ No x(not in Florida)

Are you currently serving on a Town Board? Yes _____ No x

Have you ever served on a Town Board/Committee? Yes _____ No x

If so, please indicate the Board(s)/Committee(s)? _____ Date of Service: _____

Are you willing to attend monthly board meetings? In Person / Telecom Yes x No _____

Per Town Code of Ordinance, I understand any member absence from three (3) consecutive meetings will be considered as resignation from the board/committee. Yes x No _____

Please list any special talent, qualification, education or professional experience that would contribute to your service on the Board/Committee you have selected?

I am a Swiss lawyer and nature lover, speaking 4 languages fluently. I have lived and worked in various countries and we moved to the USA from London, UK in 2016. We moved to Florida in August 2021 (from Boston, MA). While I do not have any professional experience related to nature and the environment, I am passionate about environmental issues and land preservation. I have helped Bike Newton in Newton MA (active committee member) and was active in Green Newton (MA charity). I also was the responsible person for Safe Routes to School in Newton MA (for our school) and the co-leader of our schools Green Team (in Newton, MA). Our local Green team won MA state prices under my guidance.

In Highland Beach, I watch the turtles nest (just this morning we observed one from our window) and I clean up the beach regularly. We observed a shark biting a smaller fish yesterday and spend hours analysis our ocean birds fishing and gathering. Coming from a nature oriented country, I grew up with environmental conciouseness. My hobbies are long walks along the beach, swimming, hiking in our nature parks, so all is related to being in our wonderful preservation areas. Highland Beach is all about its natural beauty, and I would feel very privileged to be able to contribute to its preservation.

Please summarize your volunteer experience(s):

Relevant volunteering experience:

USA:
Bike Newton, MA - committee member (safer biking, bike trails, biking promotion etc)
Safe Routes to School MA (SRTS) - leader for our local school in Newton, MA (safe walking and biking to school)
Green Team Newton, MA - co leader for our Green Team (MA state wide initiative for students' education and activities)
Green Newton - active member (gas leaks, tree preservation, leaf blowers, park preservation etc)

London, UK:
Norland Conservation Society, West London, UK, active member (tree protection, sidewalks, cross walks etc)

Florida Law requires appointed members on the Planning and Board of Adjustment and Appeals Boards to file a Form 1 - Statement of Financial Interests Disclosure form on an annual basis.

Vetting by the Board Chairperson. The Chairperson of each Board shall interview the applicant and submit a memorandum of recommendation to the Town Clerk's Office 14 days prior to the Town Commission Workshop Meeting for final appointment.

Palm Beach County Commission on Ethics requires appointed members to take the Code of Ethics Training every two (2) years.

I hereby certify that the statements and answers provided are true and accurate to the best if my knowledge.

Signature of Applicant

May 17, 2022
Date

☑ Resume Attached.

RECEIVED

MAR 2 3 2023

Town of Highland Beach, FL
Town Clerk's Office

Town of Highland Beach
Town Clerk's Office
3614 S. Ocean Boulevard
Highland Beach, Florida 33487
Phone: (561) 278-4548 Fax: (561) 265-3582

BOARDS AND COMMITTEES APPLICATION

This information is for consideration of appointment to a Town Board. Please complete and return this form to the Town Clerk, along with your *resume and proof of residency such as a government issued identification or voter registration card.*

PLEASE NOTE: Florida Public Records Law is very broad. Documents relevant to town business is public records and is subject to public disclosure upon request. Your information provided within this application may therefore be subject to public disclosure.

NAME: Christine Viegas PHONE: 248-953-9522

HOME ADDRESS: 3407 South Ocean Blvd APT. NO. 3A

SUBDIVISION: Clarendon EMAIL ADDRESS: viegaschris@outlook.com

PLEASE SELECT THE BOARD(S) / COMMITTEE(S) ON WHICH YOU ARE INTERESTED IN SERVING IN NUMERICAL ORDER FROM 1 THROUGH 7, WITH 1 BEING YOUR FIRST CHOICE AND 7 THE LEAST CHOICE. (A description of the responsibilities of each Board is on the back of this application.)

____ Board of Adjustment & Appeals	____ Code Enforcement Board
____ Financial Advisory Board	2 Natural Resources Preservation Board
____ Planning Board	1 Town Commission ***(If vacancy)**
	____ Other Board /Committee

PLEASE MARK YES OR NO FOR EACH OF THE FOLLOWING QUESTIONS:

Are you a resident of Highland Beach?	Yes ☑	No ☐
Are you a registered voter in Highland Beach/Palm Beach County, FL?	Yes ☑	No ☐
Are you currently serving on a Town Board?	Yes ☐	No ☑
Have you ever served on a Town Board/Committee?	Yes ☑	No ☐

If Yes, please indicate the Board(s)/Committee(s) and dates of service:

City of Birmingham, MI City Commissioner 1986-89; Birmingham Board of Zoning Appeals '89-1991

Are you willing to attend monthly board meetings? In (Person / Teleconference) Yes ☑ No ☐

Per Town Code of Ordinance, I understand any member absence from three (3) consecutive meetings will be considered as resignation from the board/committee. Yes ☑ No ☐

REV. 10-2022 CLERK-LG

Please list any special talent, qualification, education, or professional experience that would contribute to your service on the Board/Committee you have selected?

Practicing Michigan Corporate Attorney - 32 years culminating in 26 years @ The Auto Club Group

~~Office of General Counsel retiring as Vice President in 2012~~
~~City Commissioner Birmingham, Michigan 1986-1989 (Down-zoned Business District height)~~
Mayor Pro Tem/City of Birmingham 1988-1989 (Worked on Revision of Master Zoning Plan)

Please summarize your volunteer experience(s):

Board of Zoning Appeals/City of Birmingham MI 3 year Term

~~President of PLPOA - 2003-2022 https://www.pinelakemi.com/ - developed a lake board, maintained water quality for Pine Lake, Oakland County, Michigan for its 166 residents, 7 Association~~ and 2 businesses.

Florida Law requires appointed members on the Planning and Board of Adjustment and Appeals Boards to file a Form 1 - Statement of Financial Interests Disclosure form on an annual basis.

Vetting by the Board Chairperson. The Chairperson of each Board shall interview the applicant and submit a memorandum of recommendation to the Town Clerk's Office 14 days prior to the Town Commission Workshop Meeting for final appointment.

Palm Beach County Commission on Ethics requires appointed members to take the Code of Ethics Training every two (2) years.

I hereby certify that the statements and answers provided are true and accurate to the best if my knowledge.

Signature of Applicant

March 23, 2023
Date

☑ Resume Attached

Town of Highland Beach
Town Clerk's Office
3614 S. Ocean Boulevard
Highland Beach, Florida 33487
Phone: (561) 278-4548 Fax: (561) 265-3582

BOARDS AND COMMITTEES APPLICATION

This information is for consideration of appointment to a Town Board. Please complete and return this form to the Town Clerk, along with your *resume and proof of residency such as a government issued identification or voter registration card.*

PLEASE NOTE: Florida Public Records Law is very broad. Documents relevant to town business is public records and is subject to public disclosure upon request. Your information provided within this application may therefore be subject to public disclosure.

NAME: Alan F. Blumberg PHONE: 201-835-6347

HOME ADDRESS: 3912 South Ocean Blvd, Highland Beach APT. NO. 806

SUBDIVISION: _____ EMAIL ADDRESS: alanfblumberg@gmail.com

PLEASE SELECT THE BOARD(S) / COMMITTEE(S) ON WHICH YOU ARE INTERESTED IN SERVING IN NUMERICAL ORDER FROM 1 THROUGH 7, WITH 1 BEING YOUR FIRST CHOICE AND 7 THE LEAST CHOICE. (A description of the responsibilities of each Board is on the back of this application.)

_____ Board of Adjustment & Appeals	_____ Code Enforcement Board
_____ Financial Advisory Board	1 Natural Resources Preservation Board
_____ Planning Board	_____ Town Commission ***(**If vacancy**)
	_____ Other Board /Committee

PLEASE MARK YES OR NO FOR EACH OF THE FOLLOWING QUESTIONS:

Are you a resident of Highland Beach?	Yes ☒	No ☐
Are you a registered voter in Highland Beach/Palm Beach County, FL?	Yes ☒	No ☐
Are you currently serving on a Town Board?	Yes ☐	No ☒
Have you ever served on a Town Board/Committee?	Yes ☐	No ☒

If Yes, please indicate the Board(s)/Committee(s) and dates of service:

_____

Are you willing to attend monthly board meetings? In (Person / Teleconference) Yes ☒ No ☐

Per Town Code of Ordinance, I understand any member absence from three (3) consecutive meetings will be considered as resignation from the board/committee. Yes ☒ No ☐

REV. 10-2022 CLERK-LG

Please list any special talent, qualification, education, or professional experience that would contribute to your service on the Board/Committee you have selected?

I have recently retired and moved to Highland Beach. For most of my career I was an urban Oceanographer who studied the interaction between cities and their offshore coastal waters. I am an expert in hydroscience, weather prediction and climate.

Please summarize your volunteer experience(s):

For 15 years I was an endowed chair professor of ocean engineering. I led many major studies to predict and assess storm flooding events.
(see attached resume)

Florida Law requires appointed members on the Planning and Board of Adjustment and Appeals Boards to file a Form 1 - Statement of Financial Interests Disclosure form on an annual basis.

Vetting by the Board Chairperson. The Chairperson of each Board shall interview the applicant and submit a memorandum of recommendation to the Town Clerk's Office 14 days prior to the Town Commission Workshop Meeting for final appointment.

Palm Beach County Commission on Ethics requires appointed members to take the Code of Ethics Training every two (2) years.

I hereby certify that the statements and answers provided are true and accurate to the best if my knowledge.

Alan F Blumberg
Signature of Applicant

6/13/2013
Date

☒ Resume Attached

MEMORANDUM

TO: Lanelda Gaskins, MMC, Town Clerk

FROM: Nicole Stansfield

DATE: 7/10/23

SUBJECT: Initial Vetting of Applicant:

==========

On Thursday, 7/6/23 (date), I met with Kenneth Shriberg (applicant's name) to discuss his/her community involvement, education, professional experiences and the positive impact he/she could bring to this Board for the betterment of the Highland Beach community.

Detail Explanation:

Kenneth (Ken) has been a resident of Highland Beach for over a decade. He is knowledgeable about our town, the surrounding area and the overall governance of Palm Beach County and the state of Florida. He has a wealth of experience and participation on a diverse array of boards and committees. I feel that his business and insurance background would be a benefit to and a different lens for the NRPAB to view environmental and ecological issues through. I highly recommend Ken for a position on the NRPAB.

Based upon my review of the Resume', the Board Application and the Interview today, my recommendation is as follows:

☒ For the Appointment of this Applicant

☐ Against the Appointment of this Applicant

Nicole Stansfield

Signature of Board Chairperson

RECEIVED

APR 24 2023

Town of Highland Beach, FL
Town Clerk's Office

Town of Highland Beach
Town Clerk's Office
3614 S. Ocean Boulevard
Highland Beach, Florida 33487
Phone: (561) 278-4548 Fax: (561) 265-3582

BOARDS AND COMMITTEES APPLICATION

This information is for consideration of appointment to a Town Board. Please complete and return this form to the Town Clerk, along with your *resume and proof of residency such as a government issued identification or voter registration card.*

PLEASE NOTE: Florida Public Records Law is very broad. Documents relevant to town business is public records and is subject to public disclosure upon request. Your information provided within this application may therefore be subject to public disclosure.

NAME: Ken Shriberg PHONE: 561-350-4002

HOME ADDRESS: 3908 South Ocean Blvd. APT. NO. M344

SUBDIVISION: Regency Highland EMAIL ADDRESS: kds@kencos.com

PLEASE SELECT THE BOARD(S) / COMMITTEE(S) ON WHICH YOU ARE INTERESTED IN SERVING IN NUMERICAL ORDER FROM 1 THROUGH 7, WITH 1 BEING YOUR FIRST CHOICE AND 7 THE LEAST CHOICE. (A description of the responsibilities of each Board is on the back of this application.)

2	Board of Adjustment & Appeals	3	Code Enforcement Board
1	Financial Advisory Board	5	Natural Resources Preservation Board
4	Planning Board	6	Town Commission ***(**If vacancy**)
		7	Other Board /Committee

PLEASE MARK YES OR NO FOR EACH OF THE FOLLOWING QUESTIONS:

Are you a resident of Highland Beach?	Yes ☑	No ☐
Are you a registered voter in Highland Beach/Palm Beach County, FL?	Yes ☑	No ☐
Are you currently serving on a Town Board?	Yes ☐	No ☑
Have you ever served on a Town Board/Committee?	Yes ☐	No ☑

If Yes, please indicate the Board(s)/Committee(s) and dates of service:

Are you willing to attend monthly board meetings? In (Person / Teleconference) Yes ☑ No ☐

Per Town Code of Ordinance, I understand any member absence from three (3) consecutive meetings will be considered as resignation from the board/committee. Yes ☑ No ☐

REV. 10-2022 CLERK-LG

File Attachments for Item:

C. Resolution No. 2024-011

A Resolution of the Town Commission of the Town of Highland Beach, Florida, ratifying the selection, appointments, and term of office of members of the Financial Advisory Board; and providing for an effective date.

TOWN OF HIGHLAND BEACH
AGENDA MEMORANDUM

MEETING TYPE: Commission Meeting

MEETING DATE April 16, 2024

SUBMITTED BY: Jaclyn DeHart, Deputy Town Clerk

THROUGH Lanelda Gaskins, Town Clerk

SUBJECT: Resolution No. 2024-011

A Resolution of the Town Commission of the Town of Highland Beach, Florida, ratifying the selection, appointments, and term of office of members of the Financial Advisory Board; and providing for an effective date.

SUMMARY:

Consideration of Resolution No. 2024-011 ratifying the selection, appointments, and term of office of members of the Financial Advisory Board; and providing for an effective date.

The Town Commission appointed Mr. Greenwald in June of 2022 to serve a three-year term ending on April 30, 24024 and he is seeking to serve a full three-year term ending on April 30, 2027. The Town Commission appointed Mr. Verdile in March of 2023, and Mr. Siegel in February of 2024 to serve unexpired terms that end April 30, 2024, and they are seeking to serve full three-year terms ending April 30, 2027.

To conclude, Mr. Greenwald, Mr. Verdile, and Mr. Siegel have met the qualifications for reappointment that a person shall be a resident of the Town domiciled within the corporate limits and has been a registered voter of Highland Beach for a year at least one year prior to reappointment. These results were corroborated by records from the Palm Beach County Property Appraiser and the Palm Beach County Supervisor of Elections Offices websites.

FISCAL IMPACT:

N/A

ATTACHMENTS:
Richard Greenwald Application
John Verdile Application
Harold Siegel Application
Resolution No. 2024-011

RECOMMENDATION:

With the Commission's consideration, Staff recommends the adoption of Resolution No. 2024-011 for the applicants to serve a term as outlined in the resolution.

RESOLUTION NO. 2024-011

A RESOLUTION OF THE TOWN COMMISSION OF THE TOWN OF HIGHLAND BEACH, FLORIDA, RATIFYING THE SELECTION, APPOINTMENTS AND TERMS OF OFFICE OF MEMBERS OF THE FINANCIAL ADVISORY BOARD; AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, Chapter 2, Article V, Division 4, Sec. 2-155 of the Town's Code of Ordinances establishes the Financial Advisory Board and governs the membership, qualification, function, and rules of the Financial Advisory Board; and

WHEREAS, these provisions of the Code also establish the selection, appointment, and terms of office of members of the Financial Advisory Board; and

WHEREAS, on June 15, 2021, board member Richard Greenwald was reappointed by Town Commission to fill a three-year term ending April 30, 2024, and is eligible for reappointment for a three-year term; and

WHEREAS, on March 07, 2023, board member John Verdile was appointed by Town Commission to fill an unexpired term ending April 30, 2024, and is eligible for reappointment for a three-year term; and

WHEREAS, on February 06, 2024, board member Harold Siegel was appointed by Town Commission to fill an unexpired term ending April 30, 2024, and is eligible for reappointment for a three-year term; and

WHEREAS, pursuant to Sec. 2-99 (1)(a) of the Town's Code of Ordinances, the chairperson of each board shall interview applicants for the board and provide a recommendation to the town commission; and

WHEREAS, the chairperson of the Financial Advisory Board interviewed the applicants and recommends that the Town Commission appoint three (3) applicants to the Board, and

WHEREAS, Town residents interested in serving on or continuing to serve on the Financial Advisory Board have submitted a board application for the Town Commission's consideration.

NOW, THEREFORE, BE IT RESOLVED BY THE TOWN COMMISSION OF THE TOWN OF HIGHLAND BEACH, FLORIDA, THAT:

Section 1. The foregoing "WHEREAS" clauses are true and correct and hereby ratified and confirmed by the Town Commission.

Section 2. Consistent with the Town's Code of Ordinances, three (3) members have been selected by the Town Commission to serve on the Financial Advisory Board for a three-year term as follows:

Board Member	Richard Greenwald	Term ends April 30, 2027
Board Member	John Verdile	Term ends April 30, 2027
Board Member	Harold Siegel	Term ends April 30, 2027

Section 3. This Resolution shall become effective upon adoption.

DONE AND ADOPTED by the Town Commission of the Town of Highland Beach, Florida, this **16th** day of **April** 2024.

Natasha Moore, Mayor

ATTEST:	**REVIEWED FOR LEGAL SUFFICIENCY**
Lanelda Gaskins, MMC Town Clerk	Leonard G. Rubin, Town Attorney Town of Highland Beach

VOTES:	**YES**	**NO**
Mayor Natasha Moore		
Vice Mayor David Stern		
Commissioner Evalyn David		
Commissioner Donald Peters		
Commissioner Judith Goldberg		

Town of Highland Beach
Town Clerk's Office
3614 S. Ocean Boulevard
Highland Beach, Florida 33487
Phone: (561)278-4548 Fax: (561)265-3582

BOARDS AND COMMITTEES APPLICATION

This information is for consideration of appointment to a Town Board. Please complete and return this form to the Town Clerk, along with your *resume and proof of residency such as a government issued identification or voter registration card.*

PLEASE NOTE: Florida Public Records Law is very broad. Documents relevant to town business is public records and is subject to public disclosure upon request. Your information provided within this application may therefore be subject to public disclosure.

NAME: RICHARD A. GREENWALD PHONE: 561-271-4965

HOME ADDRESS: 4308 TRANQUILITY DRIVE APT. NO. _____

SUBDIVISION: BEL 0100 EMAIL ADDRESS: ragreenwald@bellsouth.net

PLEASE SELECT THE BOARD(S) / COMMITTEE(S) ON WHICH YOU ARE INTERESTED IN SERVING IN NUMERICAL ORDER FROM 1 THROUGH 5, WITH 1 BEING YOUR FIRST CHOICE AND 5 THE LEAST CHOICE. (A description of the responsibilities of each Board is on the back of this application.)

____	Board of Adjustment & Appeals	____	Code Enforcement Board
✓	Financial Advisory Board	____	Natural Resources Preservation Board
____	Planning Board	____	Other Board /Committee

PLEASE MARK YES OR NO FOR EACH OF THE FOLLOWING QUESTIONS:

Are you a resident of Highland Beach? Yes ✓ No _____

Are you a registered voter in Highland Beach/Palm Beach County, FL? Yes ✓ No _____

Are you currently serving on a Town Board? Yes ✓ No _____

Have you ever served on a Town Board/Committee? Yes ✓ No _____

If so, please indicate the Board(s)/Committee(s)? FAB Date of Service: 2020-present

Are you willing to attend monthly board meetings? In Person / Telecom Yes ✓ No _____

Per Town Code of Ordinance, I understand any member absence from three (3) consecutive meetings will be considered as resignation from the board/committee. Yes ✓ No _____

Please list any special talent, qualification, education or professional experience that would contribute to your service on the Board/Committee you have selected?

PLEASE SEE PRIOR APPLICATION
ADD 1 YEAR EXPERIENCE ON FAB

Please summarize your volunteer experience(s):

PLEASE SEE PRIOR APPLICATION
ADD 1 YEAR SERVICE H.B. FAB

Florida Law requires appointed members on the Planning and Board of Adjustment and Appeals Boards to file a Form 1 - Statement of Financial Interests Disclosure form on an annual basis.

Vetting by the Board Chairperson. The Chairperson of each Board shall interview the applicant and submit a memorandum of recommendation to the Town Clerk's Office 14 days prior to the Town Commission Workshop Meeting for final appointment.

Palm Beach County Commission on Ethics requires appointed members to take the Code of Ethics Training every two (2) years.

I hereby certify that the statements and answers provided are true and accurate to the best if my knowledge.

Richard R. Steward
Signature of Applicant

January 8, 2024
Date

☐ Resume Attached.

RECEIVED

FEB 10 2023

Town of Highland Beach, FL
Town Clerk's Office

Town of Highland Beach
Town Clerk's Office
3614 S. Ocean Boulevard
Highland Beach, Florida 33487
Phone: (561) 278-4548 Fax: (561) 265-3582

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PLEASE NOTE: Florida Public Records Law is very broad. Documents relevant to town business is public records and is subject to public disclosure upon request. Your information provided within this application may therefore be subject to public disclosure.

NAME: John J. Verdile PHONE: (216) 570 - 5042

HOME ADDRESS: 3224 S Ocean Blvd APT. NO. 612B

SUBDIVISION: Seagate of Highland EMAIL ADDRESS: John@XpenseSolutions.com

PLEASE SELECT THE BOARD(S) / COMMITTEE(S) ON WHICH YOU ARE INTERESTED IN SERVING IN NUMERICAL ORDER FROM 1 THROUGH 7, WITH 1 BEING YOUR FIRST CHOICE AND 7 THE LEAST CHOICE. (A description of the responsibilities of each Board is on the back of this application.)

- 4 Board of Adjustment & Appeals
- 1 Financial Advisory Board
- 2 Planning Board
- 5 Code Enforcement Board
- 3 Natural Resources Preservation Board
- 7 Town Commission ***(**If vacancy**)
- 6 Other Board /Committee

PLEASE MARK YES OR NO FOR EACH OF THE FOLLOWING QUESTIONS:

Are you a resident of Highland Beach?	Yes ☑	No ☐
Are you a registered voter in Highland Beach/Palm Beach County, FL?	Yes ☐	No ☑
Are you currently serving on a Town Board?	Yes ☐	No ☑
Have you ever served on a Town Board/Committee?	Yes ☐	No ☑

If Yes, please indicate the Board(s)/Committee(s) and dates of service:

Are you willing to attend monthly board meetings? In (Person / Teleconference) Yes ☑ No ☐

Per Town Code of Ordinance, I understand any member absence from three (3) consecutive meetings will be considered as resignation from the board/committee. Yes ☑ No ☐

REV. 10-2022 CLERK-LG

Please list any special talent, qualification, education, or professional experience that would contribute to your service on the Board/Committee you have selected?

As an International Energy Consultant, I am well versed in financial management, contract negotiations and regulatory policy. I have been running my own company since 2005 and negotiate all insurance including medical, E&O and GL.

I am a graduate of Baldwin-Wallace University with a BA Business Administration.

Please summarize your volunteer experience(s):

Board of Directors The Cleveland Engineering Society 1997 - 2007,

The Visiting Committee, Fenn College of Engineering at Cleveland State University 2003 - 2005,
Member - Greater Cleveland Partnership, American Society for Health Care Engineering
~~Member - Greater Akron Chamber, Norther Ohio Society for Healthcare Engineering~~
I have worked on numerus election campaigns over the past 40 years

Florida Law requires appointed members on the Planning and Board of Adjustment and Appeals Boards to file a Form 1 - Statement of Financial Interests Disclosure form on an annual basis.

Vetting by the Board Chairperson. The Chairperson of each Board shall interview the applicant and submit a memorandum of recommendation to the Town Clerk's Office 14 days prior to the Town Commission Workshop Meeting for final appointment.

Palm Beach County Commission on Ethics requires appointed members to take the Code of Ethics Training every two (2) years.

I hereby certify that the statements and answers provided are true and accurate to the best if my knowledge.

Signature of Applicant

2-10-2023
Date

☑ Resume Attached

Town of Highland Beach
Town Clerk's Office
3614 S. Ocean Boulevard
Highland Beach, Florida 33487
Phone: (561) 278-4548 Fax: (561) 265-3582

BOARDS AND COMMITTEES APPLICATION

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PLEASE NOTE: Florida Public Records Law is very broad. Documents relevant to town business is public records and is subject to public disclosure upon request. Your information provided within this application may therefore be subject to public disclosure.

NAME: HAROLD A. SIEGEL JR PHONE: (917) 224-7313

HOME ADDRESS: 2901 S. OCEAN BLVD, HIGHLAND BEACH FL APT. NO. 1005

SUBDIVISION: HIGHLANDS PLACE EMAIL ADDRESS: hasiegeljr1@gmail.com

PLEASE SELECT THE BOARD(S) / COMMITTEE(S) ON WHICH YOU ARE INTERESTED IN SERVING IN NUMERICAL ORDER FROM 1 THROUGH 7, WITH 1 BEING YOUR FIRST CHOICE AND 7 THE LEAST CHOICE. (A description of the responsibilities of each Board is on the back of this application.)

____	Board of Adjustment & Appeals	____	Code Enforcement Board
1 ✓	Financial Advisory Board	____	Natural Resources Preservation Board
____	Planning Board	____	Town Commission ***(**If vacancy**)
		____	Other Board /Committee

PLEASE MARK YES OR NO FOR EACH OF THE FOLLOWING QUESTIONS:

Are you a resident of Highland Beach?	Yes ☑	No ☐
Are you a registered voter in Highland Beach/Palm Beach County, FL?	Yes ☑	No ☐
Are you currently serving on a Town Board?	Yes ☐	No ☑
Have you ever served on a Town Board/Committee?	Yes ☐	No ☑

If Yes, please indicate the Board(s)/Committee(s) and dates of service:

Are you willing to attend monthly board meetings? In (Person / Teleconference) Yes ☑ No ☐

Per Town Code of Ordinance, I understand any member absence from three (3) consecutive meetings will be considered as resignation from the board/committee. Yes ☑ No ☐

REV. 10-2022 CLERK-LG

Please list any special talent, qualification, education, or professional experience that would contribute to your service on the Board/Committee you have selected?

B.S. DEGREE UNIV OF COLO DUAL MAJORS FINANCE & ACCOUNTING. MBA UNIVERSITY OF MICHIGAN. 36 YEAR FINANCE CAREER: 17 YEARS CHEMICAL BANK, 8 YEARS MERRILL LYNCH, ALL IN CORP. FINANCE; 11 YEARS W 3 NYC AREA INVESTMENT MANAGEMENT FIRMS, RAISING CAPITAL ~~FOR~~ FROM LARGE INSTITUTIONAL INVESTORS FOR INVESTMENTS IN COMPLEX LEVERAGED CREDIT PRODUCTS. ALL MY ROLES INVOLVED CREDIT ANALYSIS, FINANCIAL MODELING, AND BUDGET PREPARATION AND MGM

Please summarize your volunteer experience(s):

GREENS FARMS CONGREGATIONAL CHURCH, WESTPORT, CT, FORMER TRUSTEE.
GREENS FARMS ACADEMY, WESTPORT, CT., 6 YEAR TRUSTEE
HIGHLANDS PLACE, HIGHLAND BEACH, FL., CURRENT BOARD MEMBER & TREASURER
ADAM J. LEWIS ACADEMY, BRIDGEPORT, CT., VOLUNTEER TUTOR, MATH.

Florida Law requires appointed members on the Planning and Board of Adjustment and Appeals Boards to file a Form 1 - Statement of Financial Interests Disclosure form on an annual basis.

Vetting by the Board Chairperson. The Chairperson of each Board shall interview the applicant and submit a memorandum of recommendation to the Town Clerk's Office 14 days prior to the Town Commission Workshop Meeting for final appointment.

Palm Beach County Commission on Ethics requires appointed members to take the Code of Ethics Training every two (2) years.

I hereby certify that the statements and answers provided are true and accurate to the best if my knowledge.

Signature of Applicant

JAN 16, 2024
Date

☐ Resume Attached

REV. 10-2022 CLERK-LG

File Attachments for Item:

E. Discussion of the Highland Beach Community Post Office (CPO), a contractual service of the United States Postal Service

TOWN OF HIGHLAND BEACH
AGENDA MEMORANDUM

MEETING TYPE: Town Commission Meeting

MEETING DATE 04/16/2024

SUBMITTED BY: Lanelda Gaskins, Town Clerk

SUBJECT: Discussion of the Highland Beach Community Post Office (CPO), a contractual service of the United States Postal Service

SUMMARY:

For over two decades, the Town has maintained a contract with the United States Postal Service (USPS) to provide postal services to the community through a Contract Postal Unit (CPU)/Community Post Office (CPO). This arrangement provided the community with accessible and efficient postal services. Annually, the Town receives $25,000 from the USPS to help offset our annual budget of $160,000 for these services.

We have been notified by the USPS that, effective April 15, 2024, they will remove all credit card machines utilized at the CPUs/CPOs. This unexpected change will affect our current operational model and necessitates an immediate review of our available options.

Upon receiving the notification, I called the official contact person with the USPS, about alternative payment options. USPS identified three primary options for the Town. Each option has implications for our service delivery, financial management, and community impact. They are as follows:

1. **Acquire Our Own Credit Card Machine:**

   - **Description:** Acquire a credit card processing machine(s) for our CPO. This option allows us to continue accepting credit card payments but requires the Town to remit a daily check/money order for the day's credit card transactions.

   - **Financial Implication:** Additional cost for acquisition of the credit card machine, plus merchant fees, and staff processing time.

   - **Operational Impact:** Imposes a significant administrative challenge to process and remit a physical check to the USPS daily. It would impact the daily operations of the Town Clerk's Office, Finance Department, Town Manager's Office, and Town

Commission as it relates to processing and signing a check on a daily basis pursuant to the Town Charter and established accounting procedure.

2. **Cash Only Method (Include Checks):**

   - **Description:** Transition to a cash-only payment system (include checks.)
   - **Financial Implication:** Eliminates the costs associated with credit card transaction fees and machine maintenance. However, this may potentially reduce sales due to the inconvenience to customers who prefer or need to pay by credit card.
   - **Operational Impact:** Potentially require staff to keep a higher volume of currency on-site, increasing the demands on our cash handling processes. Also, simplifies transactions but may decrease accessibility and convenience for a portion of our customer base, potentially impacting service utilization. (Roughly 90% of all current transactions are via credit card.)

3. **Close the CPU:**

   - **Description:** Cease operations of our Community Post Office.
   - **Financial Implication:** Eliminates operational costs associated with running the CPO but also removes a service from our community.
   - **Operational Impact:** Requires the town to give the USPS 120 day notice of our intent to terminate the contract.

Given the implication of these options, Town staff is seeking direction to determine the best course of action. We must consider not only the financial implications but also the operational administrative burden associated with credit card transactions and remittance a check to the USPS daily. It is important to note that the current Lead Postal Clerk is retiring effective May 15 after 24 years of service.)

FISCAL IMPACT:

$160,000

ATTACHMENTS:

USPS Letter dated January 30, 2024

RECOMMENDATION:

Commission discretion.

UNITED STATES POSTAL SERVICE

January 30, 2024

Town of Highland Beach CPO
3614 S Ocean Blvd
Highland Beach , FL 33487-3393

Subject: **Removal of Postal Service Credit Card Machine**

Contract Postal Unit (CPU) 2DCPAC-14-B-0421

Dear (Supplier):

I hope this email finds you well. I am writing to inform you of an important update regarding the United States Postal Service (USPS) credit card machines currently utilized at your Contract Postal Unit (CPU). Effective April 15, 2024, all credit card machines will be pulled from CPU contracts.

As a valued supplier and partner of USPS, we understand that this change may impact your operations. Therefore, we kindly request that you contact the undersigned buyer immediately to discuss options for the future.

We believe it is crucial for us to begin this process as soon as possible to minimize any disruptions to your business. Our dedicated buyer will be available to assist you in exploring alternative payment options and guide you through the process.

Please reach out to Earnest Williams at earnest.williams@usps.gov. This will enable us to address your concerns, answer your questions, and work together to find the best way forward.

We value your partnership and appreciate your understanding and prompt cooperation during this transition. Thank you for your attention to this matter, and we look forward to continuing our successful business relationship.

Sincerely,

Shaun D. LaBay
Contracting Officer

Cc: Host Administrative Office