

Regular Workshop – November 12, 2014  
Agenda Item 9

- Agenda Item: Interim Sand Placement Considerations – South Shoreline
- Presenter: Town Manager
- Summary: Olsen Associates Inc. (OAI) presented the Commission with a beach project update at the October 20, 2014 Regular Workshop. At which time, the Commission asked that staff review current conditions of the south shoreline beaches, specifically Longboat Key Towers.
- The attached memorandum from the Public Works Director together with OAI's attached report present findings and recommendations
- Attachments: 11-06-14 Memo, Public Works Director to Town Manager; 10-28-14 Memo, Albert E. Browder, PhD., PE, Olsen Associates, Inc.; PowerPoint presentation.
- Recommended Action: Provide Manager with direction.

# MEMORANDUM

Date: November 06, 2014

**TO:** Dave Bullock, Town Manager

**FROM:** Juan Florensa, Public Works Director

**SUBJECT:** Interim Sand Placement Considerations – South Shoreline

As previously reported, the width of the dry beach from about Longboat Key Towers southward to L’Ambiance Condominium has narrowed in the last 18 months. The current conditions along this stretch of shoreline are such that very little recreational beach remains. The vegetated dune system is now also eroding.

Measurements, taken the third week of October, show that there is about 45 feet of vegetated sand dune, fronted by an additional 15 to 20 feet of unvegetated, sandy beach from the Longboat Key Towers seawall to the Mean High Water Line (MHW) for a total of about 65 feet of beach. (See Figure 1)



Figure 1 –  
Longboat Key  
Towers October  
20, 2014  
Shoreline  
Conditions

Longboat Key Towers has a seawall and rock revetment and, while there is no immediate threat to structures, residences or upland infrastructure, the continued erosion of the vegetated sand dune may warrant protective action. Figure 2 depicts a ground-level photo dated 1987 of the Longboat Key Towers seawall and revetment. You will notice the exposed, large rocks and seawall in this 1987 photograph taken prior to the first major renourishment project in Longboat Key.



Figure 2 – FDEP Archive image of Longboat Key Towers seawall in 1987 prior to the Town's first beach nourishment.

Of course, it is not desirable to lose the vegetated dunes fronting this seawall and the other upland structures. Additional pictures and measurements of the current (October 20, 2014) conditions at the above location can be found in the attached PowerPoint.

The Town is currently seeking a permit from state and federal regulatory agencies to dredge New Pass. The sand from New Pass is estimated at 200,000 cubic yards and will be placed in this section of the beach. The earliest issuance of a permit is anticipated on or about summer 2015; ideally construction could start January 2016.

The Town's beach consultant, Olsen Associates Inc. (OAI) has been asked to assess the current shoreline conditions in this area and to explore interim options for the Town Commission. OAI was also asked to develop preliminary estimates for construction for each option.

If there is a desire to place sand before the New Pass project, there are two options for an "interim" project:

1. Upland Sand Truck Haul – Sand is brought in from the mainland by trucks.
2. Local Beach Sand Relocation (Beach Scraping) – Sand is transported from nearby healthy, stable beaches to the north (south of the Colony) by off-road trucks.

Each option has its benefits and drawbacks as further discussed in the attached report from OAI. Central to the issue, however, is the selection of access corridors to be utilized for the selected project. The upland sand truck haul presents a formidable challenge to get the trucked sand to the beach. While properly designed and maintained roadways will withstand the impact of fully loaded street legal dump trucks, private condominium driveways, parking lots and "paver" internal roads are not designed for this anticipated volume of truck traffic.

Similarly the “beach scraping” option, although a much smaller scale operation, still requires the closing of a large stretch of the beach approximately 1-2 miles from about The Colony to Longboat Towers and southward to L’Ambiance as off-road trucks traverse the beach from the “donor” beach to the receiving beach. This work presumably could happen during the time of year when our beaches are most populated. Noise, blowing sand, vibrations and public safety are also major considerations of either alternative but more so in the beach scraping option.

Consideration should be given to the fact that sand placed with either interim option will likely only survive one winter storm event.

As reported in the OAI report, “...an interim project of the scale discussed herein is not expected to significantly increase the level of protection.”

Both options require some level of permitting effort. The truck haul option offers the less difficult path to regulatory approval, while the sand relocation option will be more closely scrutinized for its potential impacts to both the donor and recipient beach areas.

**Recommendation:** If the objective of the interim project sand placement is dune protection and to provide a recreational beach with no significant increase of protection to upland infrastructure then an upland truck haul is the most viable option using the minimum amount of sand to maintain the recreational beach.

Attachments: 10-28-14 Memo, Olsen Associates, Inc.,  
PowerPoint Presentation.

## MEMORANDUM

Date: 28 October 2014

To: D. Bullock, J. Florensa – Town of Longboat Key, FL

From: Albert E. Browder, Ph.D., P.E.  
Senior Engineer *AEB*

Re: Interim sand placement considerations for the south shoreline of Longboat Key



The current conditions of the southern Longboat Key shoreline, from roughly R-24.5 at Longboat Key Towers southward to R-27.5/R-28 at L'Ambiance, consist of a narrowed recreational beach and an irregularly scarped vegetated dune system. These conditions have prompted the Town to investigate interim measures to mitigate the erosion until a larger beach nourishment project can be constructed along this beach segment. At present the Town is seeking permits to excavate up to 200,000 cy of sand from the ebb shoal portion of the New Pass entrance channel and place that sand along this project area. Permit acquisition may be completed in the late summer or Fall of 2015 (approx.), barring any unforeseen regulatory complications. Meanwhile, an interim project would consist of the placement of anywhere from 5,000 to 15,000 cy of sand along the Gulfward face and toe of the scarped dunes, blending up into the dune scarp and creating a small elevated beach berm along the placement area.

### Objective of the work

The objective of such an interim project would be to **a) protect the existing vegetated dunes, and b) provide some level of increased recreational beach space until the larger project can be constructed.** The current shoreline and dune conditions do continue to offer a significant level of storm protection to the upland infrastructure, *and an interim project of the scale discussed herein is not expected to significantly increase that level of protection.* Such a project might last through the next winter storm event, at which time the sand placement will have served sacrificially to protect the existing vegetated dunes from erosion.

At present, the closest structure(s) to the shoreline is the seawall at Longboat Key Towers. The seawall, built in the early 1970's, protrudes well-Gulfward of the adjacent line of construction by some 100 ft or more. As of this writing, however, there remains roughly 45 ft of vegetated dune area along the seawall, fronted by an additional 15 to 20 ft or more of sandy unvegetated beach above MHW, which offers a reasonable level of storm protection to that wall. The wall in turn is believed to offer a significant level of storm protection to the upland infrastructure.

**Table 1** summarizes potential sand sources for an interim project and compares construction details and preliminary opinions of cost.

**Table 1** Summary of Interim Sand Placement Options and Considerations  
Longboat Key, FL – South End

Sand Source	Upland Sand – Truck Haul Direct Trucking to Beach*		Local Beach Sand relocation	
Approximate volume (cubic yards)	Up to 15,000 cy		5,000 to 10,000 cy	
Opinion of Cost per cubic yard for Sand	\$40 - \$45		\$8 - \$12	
Preliminary Opinion of Construction Cost (10,000 cy plus other costs**)	\$700,000		\$300,000	
	Sand Cost	Additional Costs**	Sand Cost	Additional Costs**
	\$425,000	\$275,000	\$100,000	\$200,000
Time to Construct	~ 2-3 weeks		~ 1 week	
Road-to-Beach Access Usage	Daily significant & frequent use of access		Infrequent limited daily use	
Potential Beach Closure	Dependent upon access point, ¼-mile to ¾-mile or more		Significant daily closure along 1-2 mile segments of beach	
Regulatory Position***	Allowed w/current permits, Updated NTP required, Construction monitoring required, Post-Con monitoring may be req.		Likely allowed w/current permits, Permit modification required, Updated NTP required, Additional analyses required, Construction monitoring required, Post-Con monitoring may be req.	
Impact to Littoral Processes (project-wide scale)	Net beneficial		Neutral to adverse	

\*Alternate delivery methods may exist for the truck-hauled sand. The rehandling of the trucked sand will result in an additional cost per cubic yard. As an example, transfer to barges for offshore delivery to beach by pumped sand slurry may result in a cost premium of over 100%.

\*\*Additional costs include opinions or allowances for mobilization, survey, construction access, post-con road/access repairs, post-con beach tilling, permit updates/mods, design, creation of contract documents and bidding, construction clerking and observation, permit compliance, environmental monitoring (during and after construction).

\*\*\*In order to more accurately determine regulatory requirements, a more detailed project proposal must be prepared and submitted to the agencies for review.

**Construction Timeframe**

Based only upon the environmental constraints of overwintering or nesting shorebirds and nesting sea turtles along the length of the project, the ideal construction window for such a project might be March and/or early April 2015. For reference Easter Sunday 2015 falls on 5 April 2015, thus early to mid-April may be preferable in terms of potential resident/visitor disruptions.

With project progress to date, it is anticipated that the earliest practical date of construction start might be 1 February 2015. Assuming no complications arise with regulatory issues or contract completion issues, that would allow time for the creation of contract documents, advertisement of the project, awarding of a contract, and Contractor mobilization.

**Summary**

Two potential options are described herein to provide an interim level of protection to the dunes and to increase recreational space along the beach until the larger New Pass project can be constructed. The upland-source truck haul option represents the less intrusive and less impactful project in terms of beach closure, and a larger project volume can be placed. However, it is the more expensive option and it requires more time to construct. The local sand relocation option is significantly less expensive, although the total volumes available are smaller, the length of beach that must be closed during construction is far greater, and it subjects the island's existing sand to off-island losses.

It should be recognized that for the small scale of the project being considered, the two objectives -- dune protection and increased recreational space -- are generally at odds with one another. The sand placement can provide dune protection if it is placed high along the scarped dune face and at the toe of the dunes, versus being placed in a lower, wider template. However, placement to protect the dunes will make that same sand placement less amenable for recreational use. Conversely, placement in a lower, wider template for recreational use will result in less dune protection and likely higher rates of sand loss from the project. Significant lasting increases in recreational beach space generally require substantially larger placement volumes. These competing objectives are exacerbated for the locally-sourced sand option, for which only a smaller total sand volume is available.

In order to proceed with obtaining the necessary regulatory permissions (and creating and clarifying contract documents (plans/specs), direction from the Town is required and requested as to the Town's intent for this project. This direction must also identify the access corridor(s) to be utilized for the selected project.

Please do not hesitate to contact us with any questions you may have. Thank you.



# INTERIM SAND PLACEMENT OPTIONS

**Regular Workshop Meeting**  
**November 12, 2014**



## **INTERIM SAND PLACEMENT CONSIDERATIONS – SOUTH SHORELINE**

- South near L'Ambiance, The Pierre, The Sanctuary and Longboat Key Towers
- Area of approximately 3,000 feet (+/-) has lost majority of dry beach
- Still large area of vegetated dune remaining
- Little or no recreational beach



# PROJECT LIMITS



- NOTES:
1. PARCEL AND ECL DATA FOR INFORMATIONAL PURPOSES ONLY - NOT A FORMAL SURVEY.
  2. REFER TO INDIVIDUAL PARCEL AND ECL SURVEY MAPS.
  3. PARCEL DATA FROM SARASOTA COUNTY GIS.
  4. ECL DATA FROM CPD&S AND PD&P STATE LANDS DIVISION.
  5. RELATIVE ALIGNMENT OF ECL, AERIALS, AND PARCELS IS APPROXIMATE.
  6. DATE OF PHOTOGRAPHY: 10 AUGUST 2013.
  7. DATE OF BATHYMETRIC SURVEY: 20 JULY 2013.

NOT FOR CONSTRUCTION



**DRAFT**



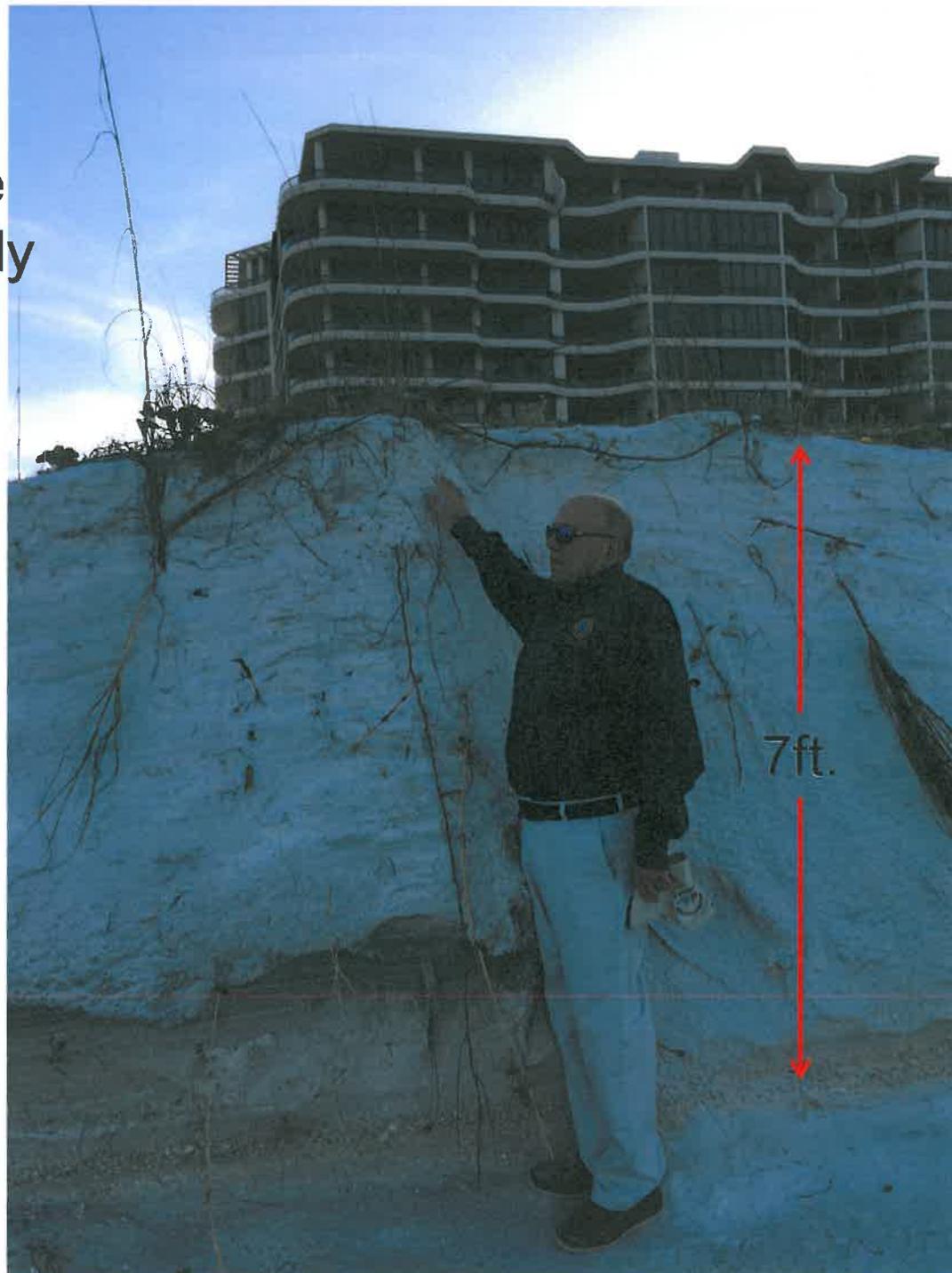
TOWN OF LONGBOAT KEY, FL	
APPROXIMATE SCARP LOCATION - JUNE 2014	
DRAWN BY: ML	DATE: 06/23/2014
CHECKED BY: AEB	DATE: 06/23/2014
REVISIONS:	DATE:

SHEET  
**1**  
of 4

Scarp at  
L'Ambiance  
looking South



Scarp at  
L'Ambiance  
approximately  
7 feet tall



October 14, 2014



October 14, 2014



**Longboat Key Towers  
North Property Steps Looking East  
10-20-14**



**Longboat Key Towers  
South Property Steps Looking East  
10-20-14**



**Longboat Key Towers  
North Property Line looking South  
10/20/14**



**Average distance from seawall to existing scarp line is 45 ft.**



Figure 2 – FDEP Archive image of Longboat Key Towers seawall in 1987 prior to the Town's first beach nourishment.



## SOUTH END INTERIM SAND PROJECT

### Background:

- Current dune conditions offer a significant level of storm protection
- Existing seawall at Longboat Key Towers also offers protection to structures
- Expect any interim placement to be sacrificed due to winter storms



## SOUTH END INTERIM SAND PROJECT

### Objectives:

- Protect existing vegetated dunes
- Provide some level of recreational beach until large project is constructed



## SOUTH END INTERIM SAND PROJECT

### Options:

- Relocate sand from Donor Area
  - Excavate existing beach from area Colony South to Beach Place
  - Deposit sand from Longboat Key Towers to L'Ambiance
- Truck haul from upland source
  - place sand along project area



- NOTES:
1. DATE OF PHOTOGRAPHY: 10 AUGUST 2013.
  2. SURVEY DATE: JUNE 2014
  3. DATUMS - HORIZ.: NAD83 SPC (FL WEST),  
VERT: NAVD88 (UNITS IN FT)
  4. FILL VOLUME VARIES ALONG PROJECT LENGTH



DRAFT

REVISIONS				
LTR	DESCRIPTION	BY	DATE	APPRVD



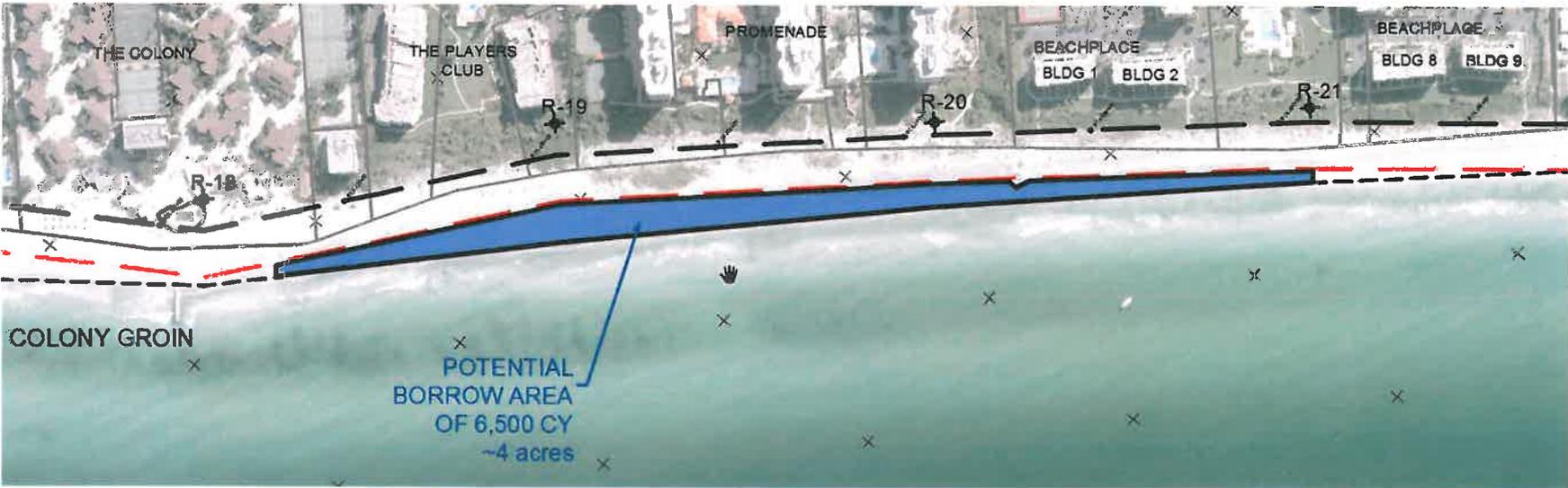
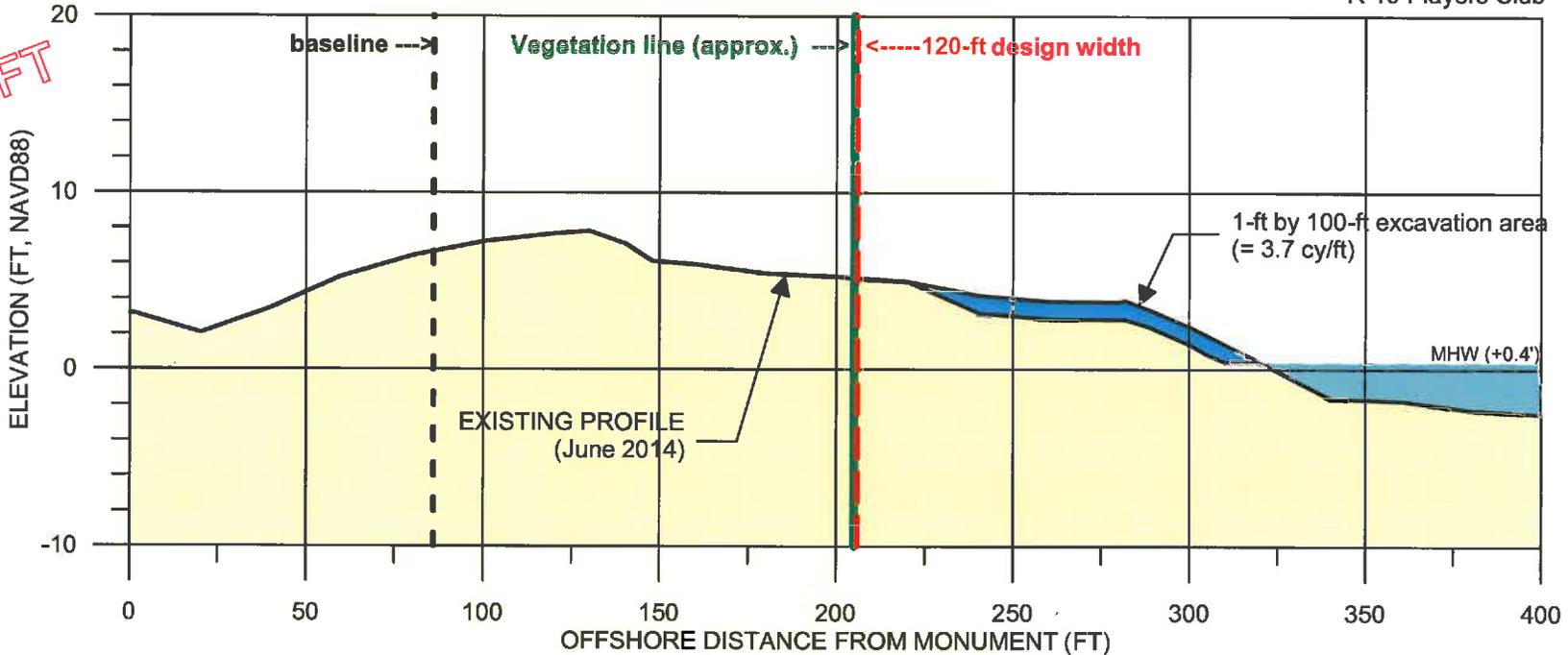
TOWN OF LONGBOAT KEY, FL  
SOUTH END INTERIM SAND PLACEMENT

BEACH FILL PLAN

DRAWN BY: ML      DATE: 11/01/2014  
 CHECKED BY: AEB      DATE: 12/01/2014  
 REVISED BY:      DATE:

SHEET  
 X  
 of Y

DRAFT





# SOUTH END INTERIM SAND PROJECT

Relocate sand from Donor Area

## Pros

Lower cost

Shorter construction period  
and beach closure period

## Cons

Less sand available  
(5,000 – 10-000 cy)

1 – 2 miles of beach closed daily for one  
week

Must “take” beach sand from in front of  
several developments to place in front of  
other developments

Sacrificial in one season



# SOUTH END INTERIM SAND PROJECT

## Truck Haul

### Pros

- More sand available as needed
- Shorter distance of beach closed depending on access
- Sand quality manageable
- New sand introduced from off island

### Cons

- More costly for same amount of sand
- More post construction restoration
- Sacrificial in one season



**SUMMARY OF INTERIM SAND PLACEMENT OPTIONS AND CONSIDERATIONS**

Sand Source	Upland Sand – Truck Haul Direct Trucking to Beach*	Local Beach Sand Relocation								
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\$425,000	\$275,000									
<u>Sand Cost</u>	<u>Additional Costs**</u>									
\$100,000	\$200,000									
Time to Construct	~2 – 3 weeks	~1 week								

\* Notes presented on Slide 20



**SUMMARY OF INTERIM SAND PLACEMENT OPTIONS AND CONSIDERATIONS, CONT.**

Sand Source	Upland Sand – Truck Haul Direct Trucking to Beach*	Local Beach Sand Relocation
Road-to-Beach Access Usage	Daily significant & frequent use of access	Infrequent limited daily use
Potential Beach Closure	Dependent upon access point, ¼ mile to ¾ mile or more	Significant daily closure along 1-2 mile segments of beach
Regulatory Position***	Allowed w/current permits, updated NTP required, construction monitoring required, post construction monitoring may be required	Likely allowed w/current permits, permit modification required, updated NTP required, additional analyses required, construction monitoring required, post construction monitoring may be required

Impact to Littoral Processes (project-wide scale)

Net beneficial

Neutral to adverse



**SUMMARY OF INTERIM SAND PLACEMENT OPTIONS AND CONSIDERATIONS, CONT.**

- \* Alternate delivery methods may exist for the truck-hauled sand. The rehandling of the trucked sand will result in an additional cost per cubic yard. As an example, transfer to barges for offshore delivery to beach by pumped sand slurry may result in a cost premium of over 100%
  
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- \*\*\* In order to more accurately determine regulatory requirements, a more detailed project proposal must be prepared and submitted to the agencies for review.



## DISCUSSION

1. Should we proceed with an interim project?
2. Which option:
  - Truck Haul?
  - Sand scraping?
3. Authorize staff to move forward with selected option and follow-up with budget adjustments as necessary



**End of Agenda Item**