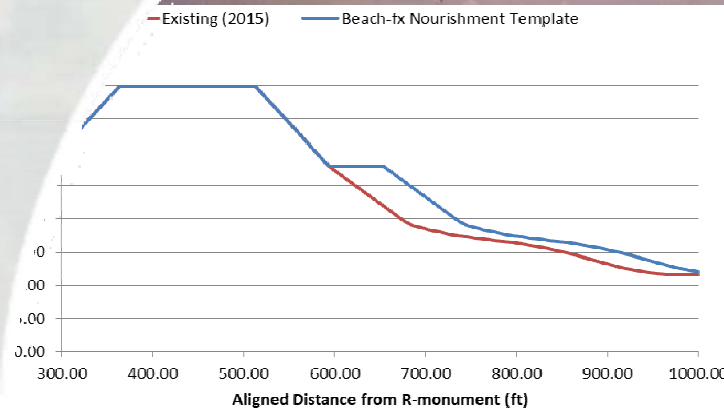


# Beach Fill Up and Over Coastal Structures in Vilano Beach, FL

FSBPA 34rd Annual National Conference on  
Beach Preservation Technology  
February 3, 2021 – St. Augustine Beach, FL

Presented by: Will Reilly, P.E., and Rosie Pinto, E.I.  
Coauthor: Geoff Klug, P.E.  
U.S. Army Corps of Engineers, Jacksonville District

*Trusted Partners Delivering Value  
Today for a Better Tomorrow*





# OUTLINE



BUILDING STRONG<sup>®</sup>

- Project Overview
- Challenges and Solutions
  - Design
  - Real Estate
  - Pre-construction
  - Construction
- Conclusion & Lessons Learned

---

*Trusted Partners Delivering Value Today for a Better Tomorrow*

# Project Vicinity



Google Earth

Image © 2021 TerraMetrics  
Data SIO, NOAA, U.S. Navy, NGA, GEBCO





# Project Overview

- Design Berm:** 60 ft seaward extension of the equilibrated berm
- Dune:** Restore 2015 dune condition
- Volume:** 1.3 million cubic yards
- Borrow Source:** St. Augustine Inlet flood shoal

Atlantic Ocean





# DESIGN



BUILDING STRONG®

How do you design a dune feature over the varying armoring conditions?



*Trusted Partners Delivering Value Today for a Better Tomorrow*



# EXPOSED STRUCTURES



BUILDING STRONG

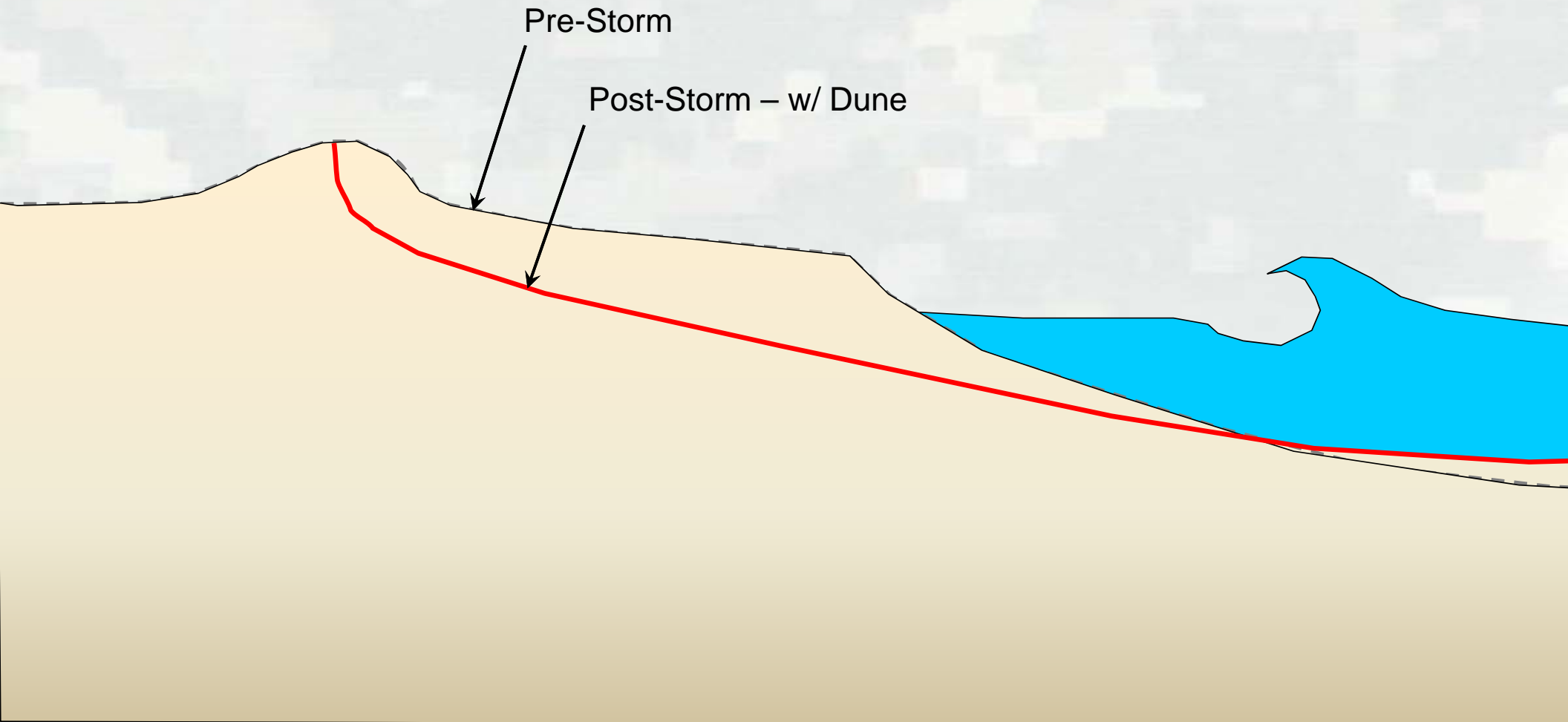
Non-Uniform armoring that varied in:

- Height
- Material
- Position
- Condition



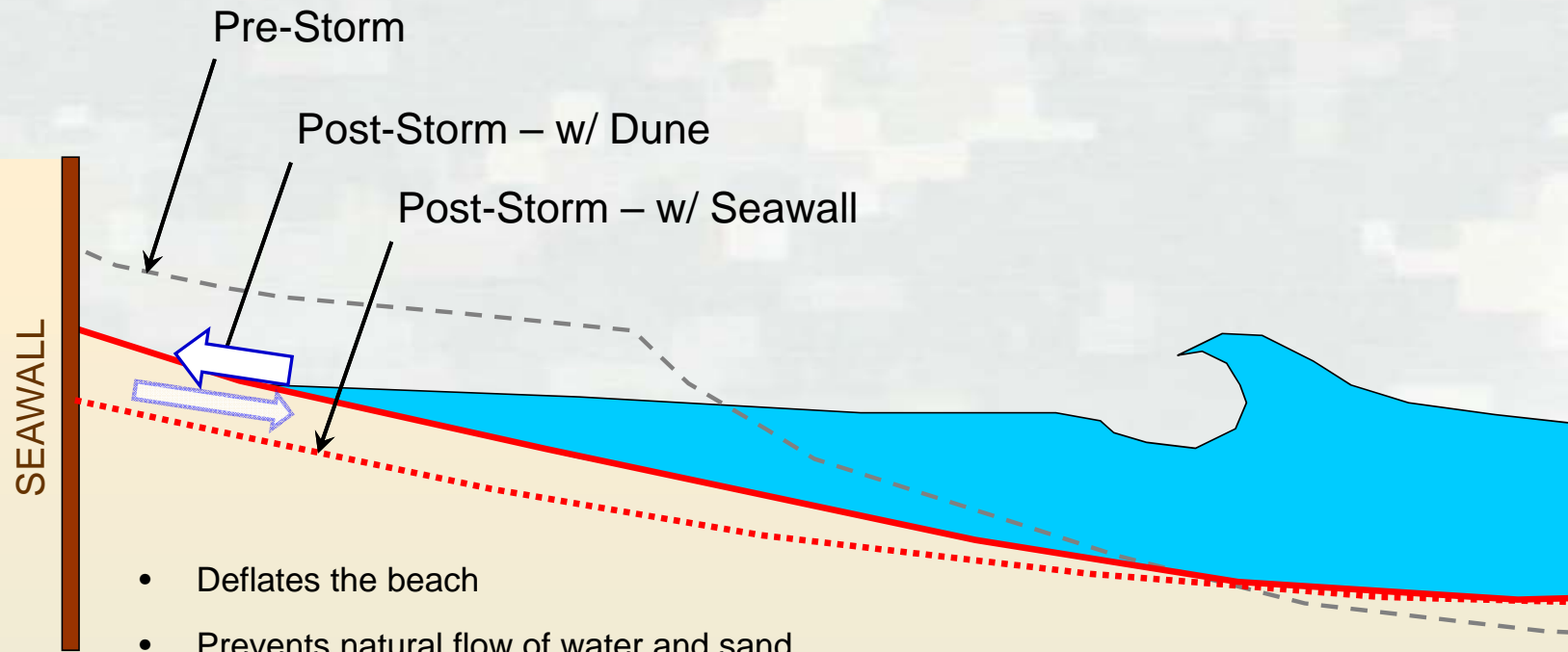
*Trusted Partners Delivering Value Today for a Better Tomorrow*

# STORM RESPONSE W/ DUNE





# STORM RESPONSE W/ SEAWALL



- Deflates the beach
- Prevents natural flow of water and sand
- Inhibits natural beach recovery



# DATA ACQUISITION



BUILDING STRONG

- Beach Profiles
- LiDAR
- Aerial Photography
- Drone Footage
- Walkthrough of entire project area with geo-referenced photography of all upland conditions





# LIDAR



BUILDING STRONG



*Trusted Partners Delivering Value Today for a Better Tomorrow*





# REAL ESTATE



BUILDING STRONG

How do you acquire perpetual easements for a severely eroded shoreline, including over existing armoring and as close as 10 feet from homes?

- The **details** matter to property owners.



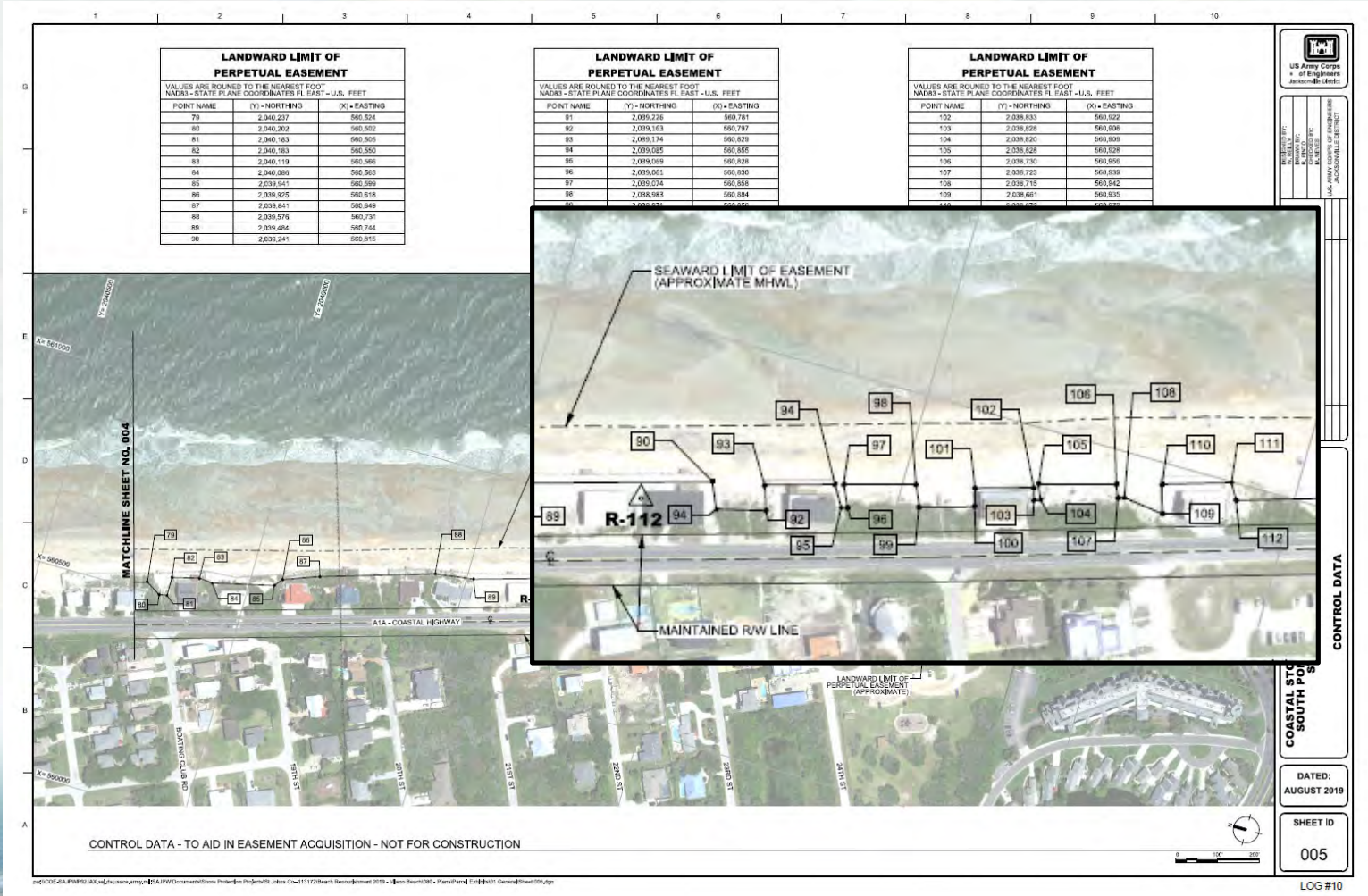
*Trusted Partners Delivering Value Today for a Better Tomorrow*



# LANDWARD LIMIT OF FILL



BUILDING STRONG



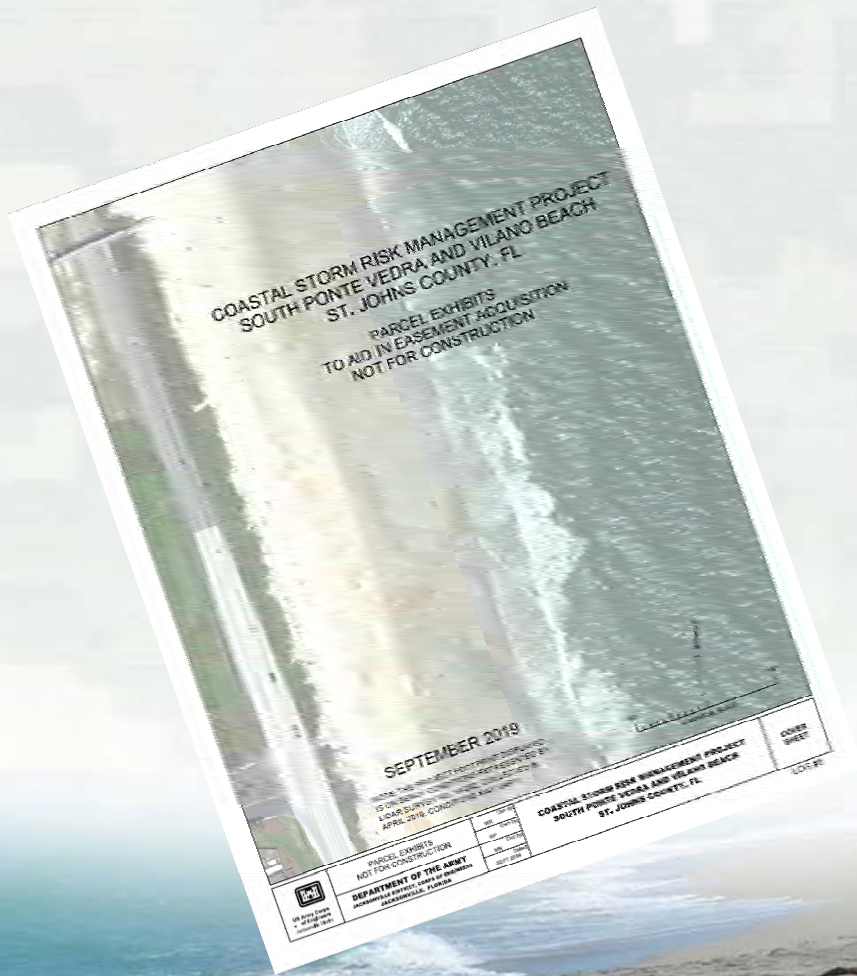




# PARCEL EXHIBIT BOOK

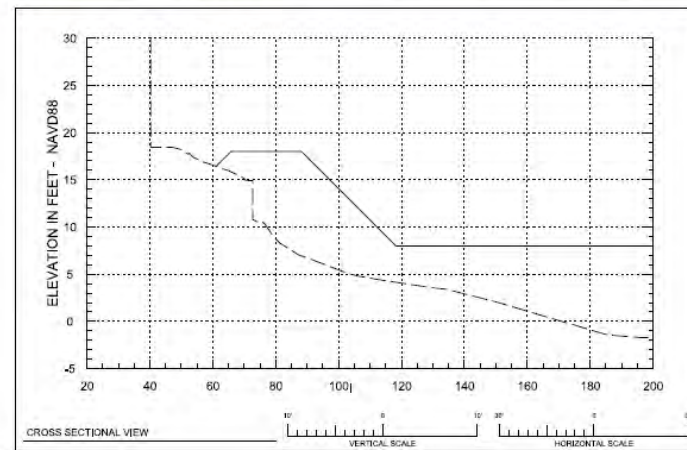
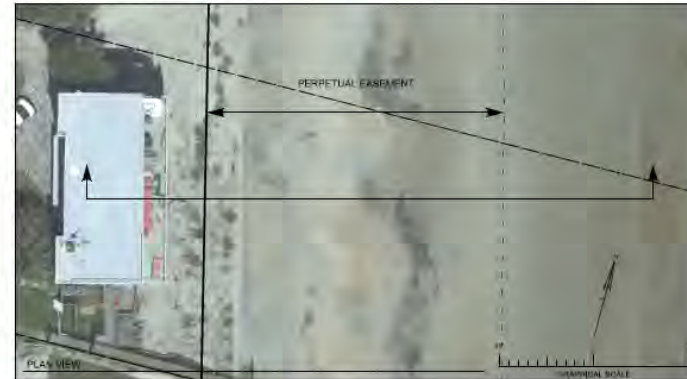


BUILDING STRONG



PARCEL ID: 1423200050

4450 COASTAL HWY



<p>US Army Corps of Engineers JACKSONVILLE DISTRICT</p>	<p>PARCEL EXHIBITS NOT FOR CONSTRUCTION</p> <p><b>DEPARTMENT OF THE ARMY</b> JACKSONVILLE DISTRICT, OFFICE OF ENGINEERS JACKSONVILLE, FLORIDA</p>	<p>DESIGNED BY: [ ]</p> <p>DRAWN BY: [ ]</p> <p>CHECKED BY: [ ]</p> <p>DATE: [ ]</p>	<p><b>COASTAL STORM RISK MANAGEMENT PROJECT SOUTH PONTE VEDRA AND VILANO BEACH ST. JOHNS COUNTY, FL</b></p>	<p><b>1423200050</b></p> <p>PARCEL ID</p> <p>LOG #31</p>
	<p>SEPTEMBER 2019</p>			



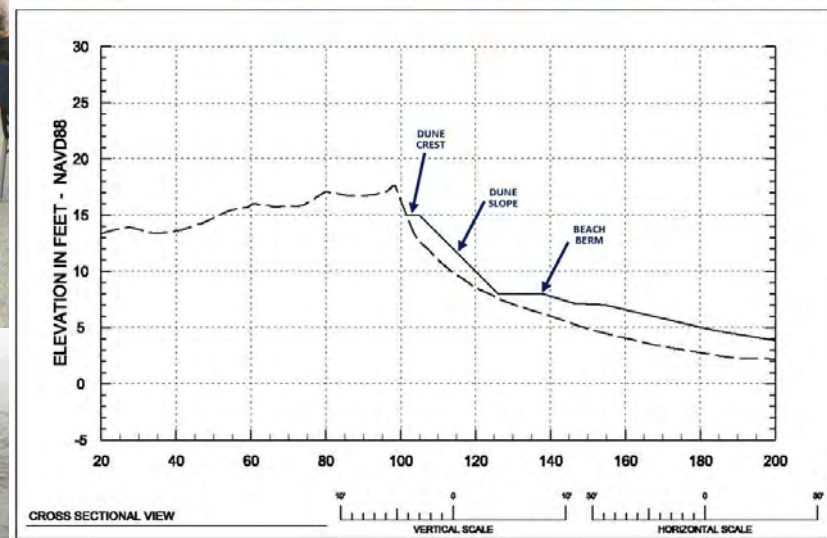
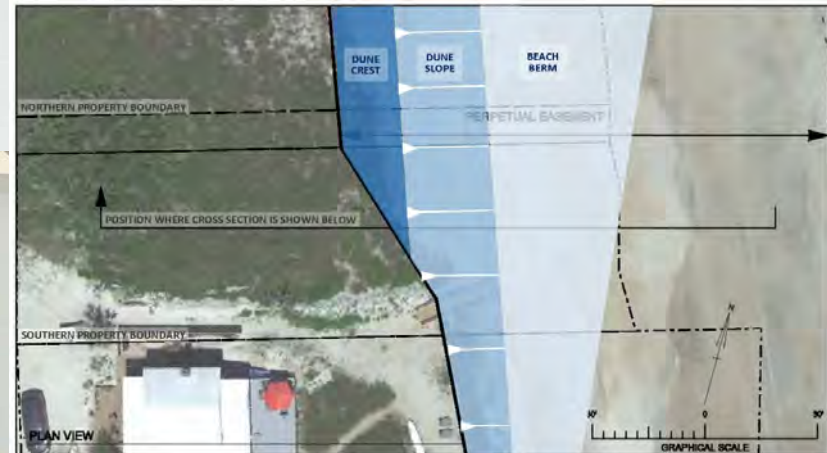


# PUBLIC ENGAGEMENT



BUILDING STRONG

- Public workshops
- Emails
- Phone calls
- Property site visits
- Figures/Renderings
- More meetings
- More emails
- More phone calls





# PRE-CONSTRUCTION



BUILDING STRONG

How do we convey the importance of properly filling up to, over, and near sensitive structures to contractors?

- Request for Information
- Industry Day
- Pre-Bid Site Visit (Virtual)
- Request for Proposal (best value trade off)

---

*Trusted Partners Delivering Value Today for a Better Tomorrow*



# TECHNICAL SPECIFICATIONS



BUILDING STRONG

- “Placement Plan for work adjacent to structures and seawalls”
  - Includes detailed placement method and type of equipment
- Vibration Monitoring
  - 24/7 monitoring
  - Vibration Control Specialist (VCS) with P.E. or P.G. licensure
  - Real-time notification directly to VCS
  - VCS to support Contractor, as needed



*Trusted Partners Delivering Value Today for a Better Tomorrow*



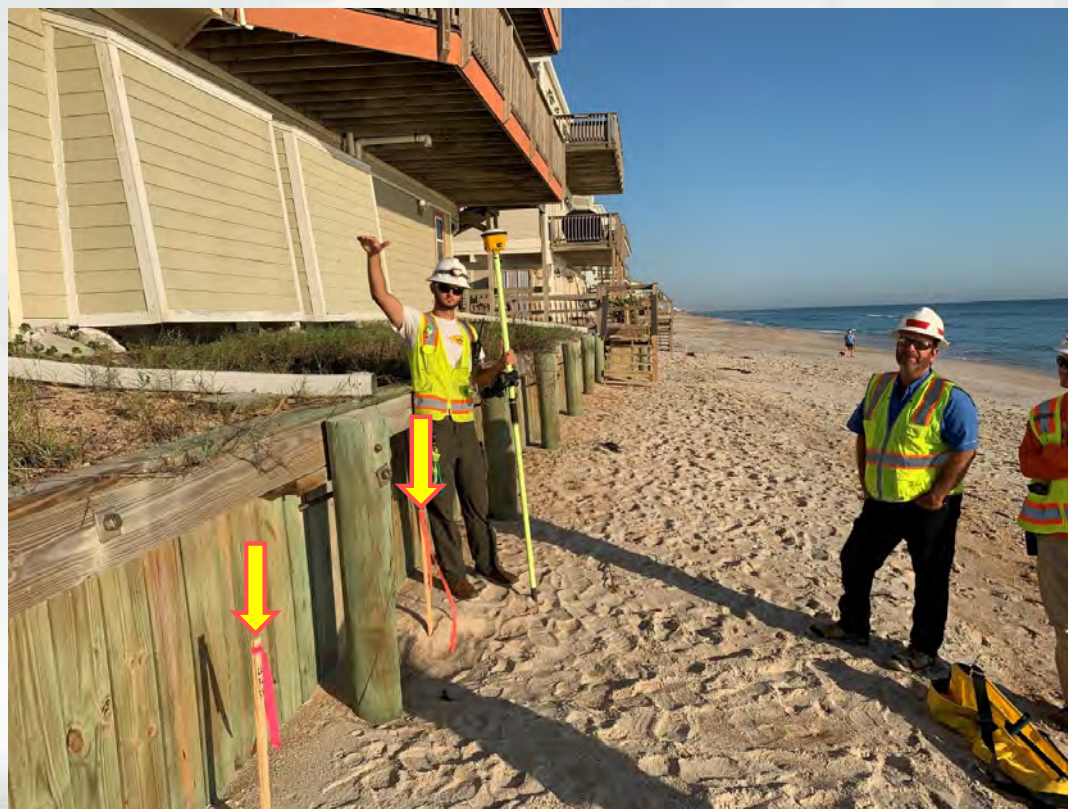


# CONSTRUCTION



BUILDING STRONG

- Landward limit of fill staked out ahead of fill operations
- Routine walk-aheads with Contractor



*Trusted Partners Delivering Value Today for a Better Tomorrow*































# BEFORE/AFTER PHOTOS



**BUILDING STRONG**

---

*Trusted Partners Delivering Value Today for a Better Tomorrow*

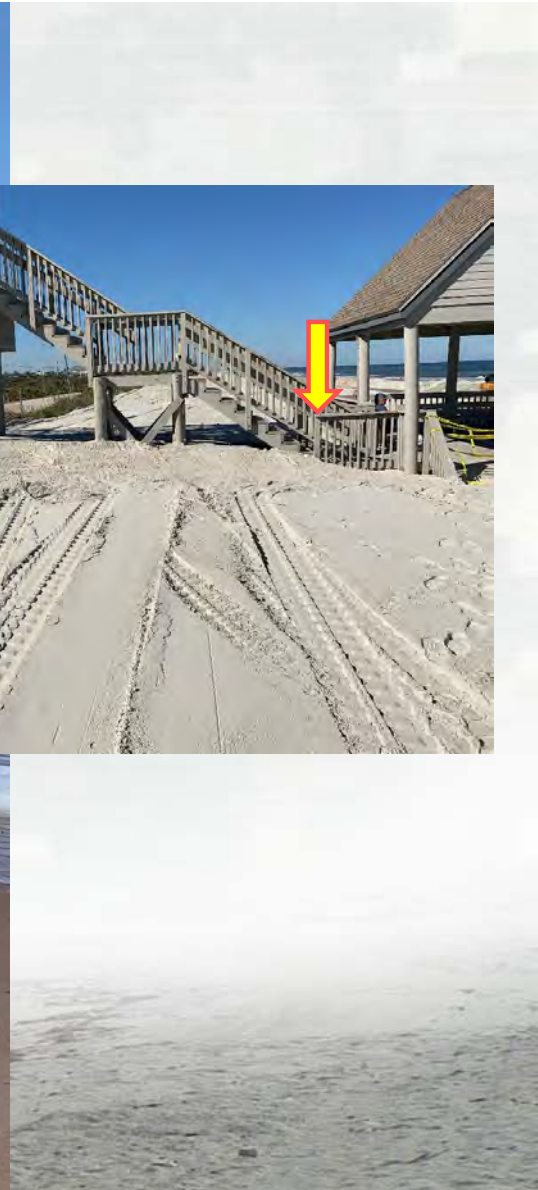
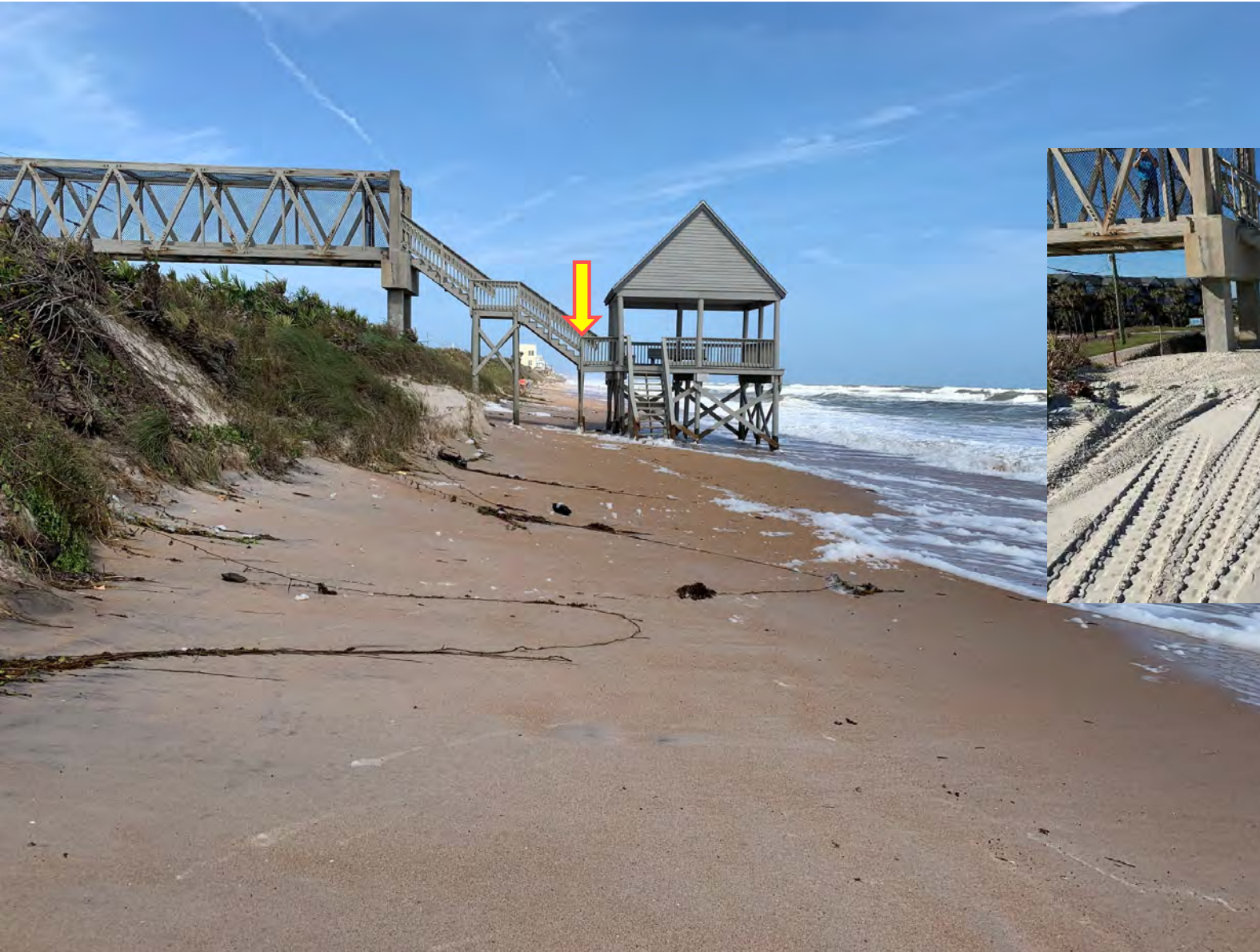


































































# CONCLUSION & LESSONS LEARNED



BUILDING STRONG<sup>®</sup>

- Keys to Success
  - Commitment at beginning of design
  - Comprehensive data collection – the details matter
  - Upfront thorough coordination with homeowners
  - Pre-construction coordination with contractors
  - In-construction walk-aheads of landward limit of fill

---

*Trusted Partners Delivering Value Today for a Better Tomorrow*





# QUESTIONS



BUILDING STRONG

- Thank you!

[William.L.Reilly@usace.army.mil](mailto:William.L.Reilly@usace.army.mil)

[Rosemarie.E.Pinto@usace.army.mil](mailto:Rosemarie.E.Pinto@usace.army.mil)

[Geoffrey.M.Klug@usace.army.mil](mailto:Geoffrey.M.Klug@usace.army.mil)



*Trusted Partners Delivering Value Today for a Better Tomorrow*