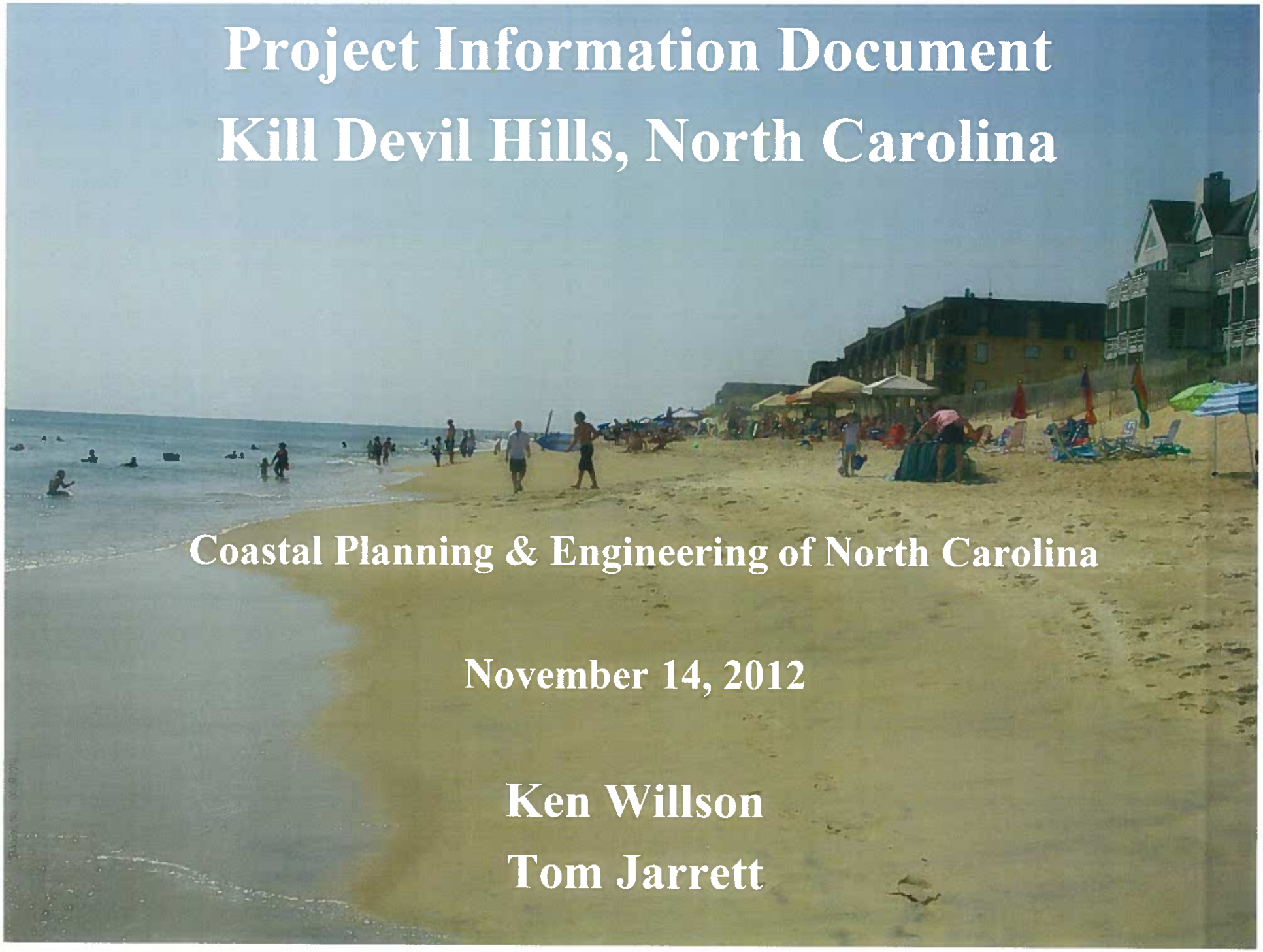
Project Information Document
Kill Devil Hills, North Carolina



Coastal Planning & Engineering of North Carolina

November 14, 2012

Ken Willson

Tom Jarrett

Future Options:

Pursue Shore Protection Program?

Yes

Pursue Section 206

Pursue Locally Funded Project

Develop Project Information Document

No

What are the costs??

Project Information Document:

- Conduct Beach Profile Surveys
- Detailed Description of the Proposed Storm Damage Reduction Project: Length, Density, Sand Source, and Construction Methods
- Compare USACE Authorized Project and Proposed Section 206 Project
- Develop a Description of The USACE's Anticipated Role and a Proposed Schedule
- Development of Environmental Data Inventory
- Development of Formal Correspondence (3 Items)

Tracking No. 00.00.2011

Item	Authorized North Dare Storm Damage Reduction Project	Proposed 206 Project
Length of Project (Feet)	21,900 (15,900 Main Fill, 3,000 North and South Transitions)	16,830 (10,830 Main Fill, 3,000 North and South Transition
Dune Dimensions (Feet)	Width = 25, Elevation = +12 NAVD88, Seaward Slope = 1V:10H	Width = 25, Elevation = +12 NAVD88, Seaward Slope = 1V:10H
Berm Dimensions (Feet)	Width = 50, Elevation = +6 NAVD88	Width = 50, Elevation = +6 NAVD88
Construction volume (Million Cubic Yards)	4.300	1.166 to 1.943
Construction Time (Months)	12	5
Construction Equipment	Cutterhead Pipeline Dredge	Hopper Dredge
Borrow Area	N1	S1
Mean Grain Size of Borrow Source (mm)	0.22	0.4 - 0.5

KITTY HAWK
N1
NORTH DARE COUNTY PROJECT
KILL DEVIL HILLS PORTION OF NORTH DARE COUNTY PROJECT
KILL DEVIL HILLS
ALBEMARLE SOUND
NAGS HEAD
SOUTH DARE COUNTY PROJECT
S3
S1
S2
ATLANTIC OCEAN
ALBEMARLE SOUND
ATLANTIC OCEAN
PAMLICO SOUND
CAPE HATTERAS

Kitty Hawk
North Taper Limit
160+00
Atlantic Ocean
210+00
Project Limits
240+00
260+00
Kill Devil Hills
320+00
South Taper Limit
860000
850000
2980000
2990000
N
W
E
S
0
1,500
3,000
Feet
1 inch = 3,000 feet

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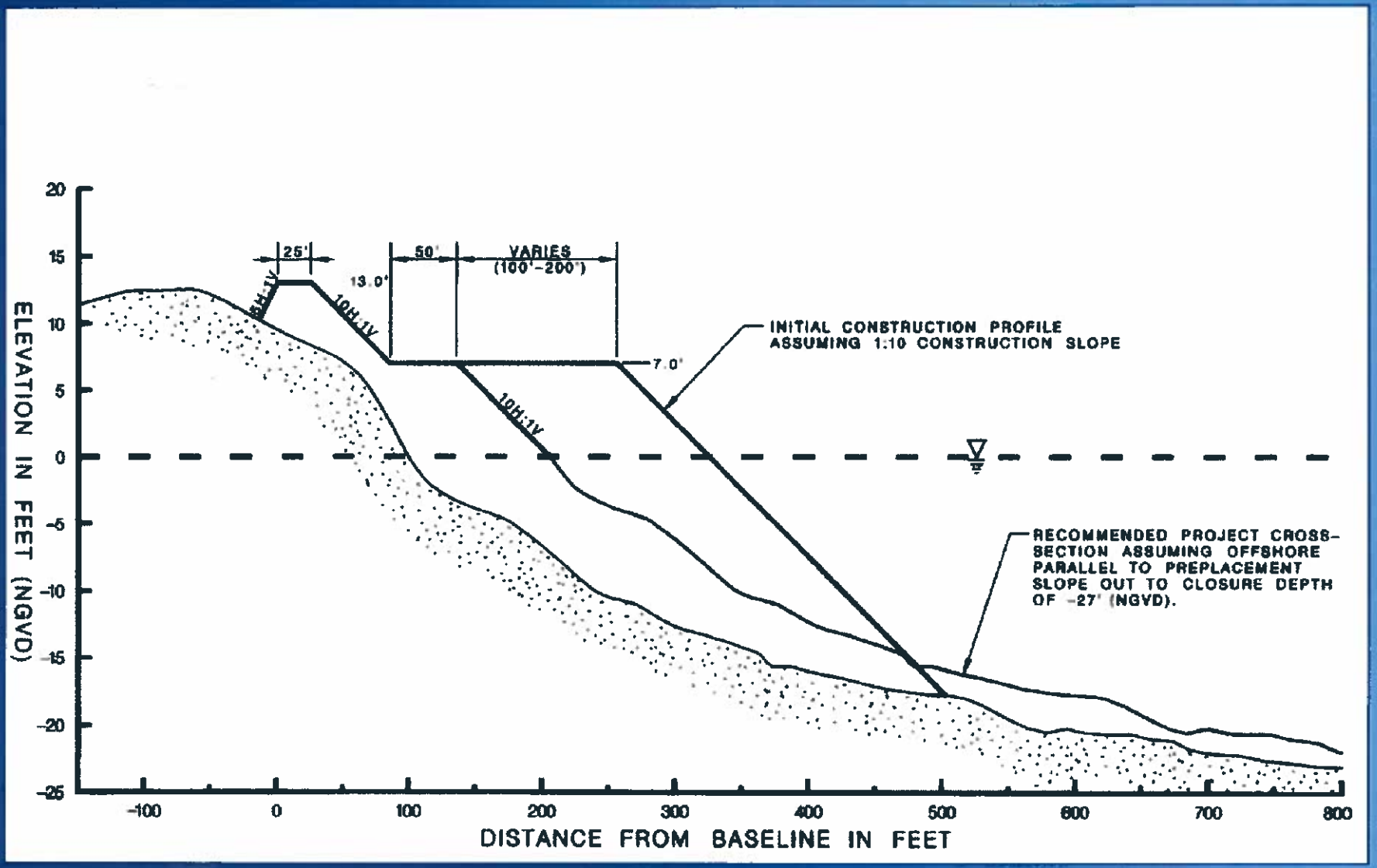
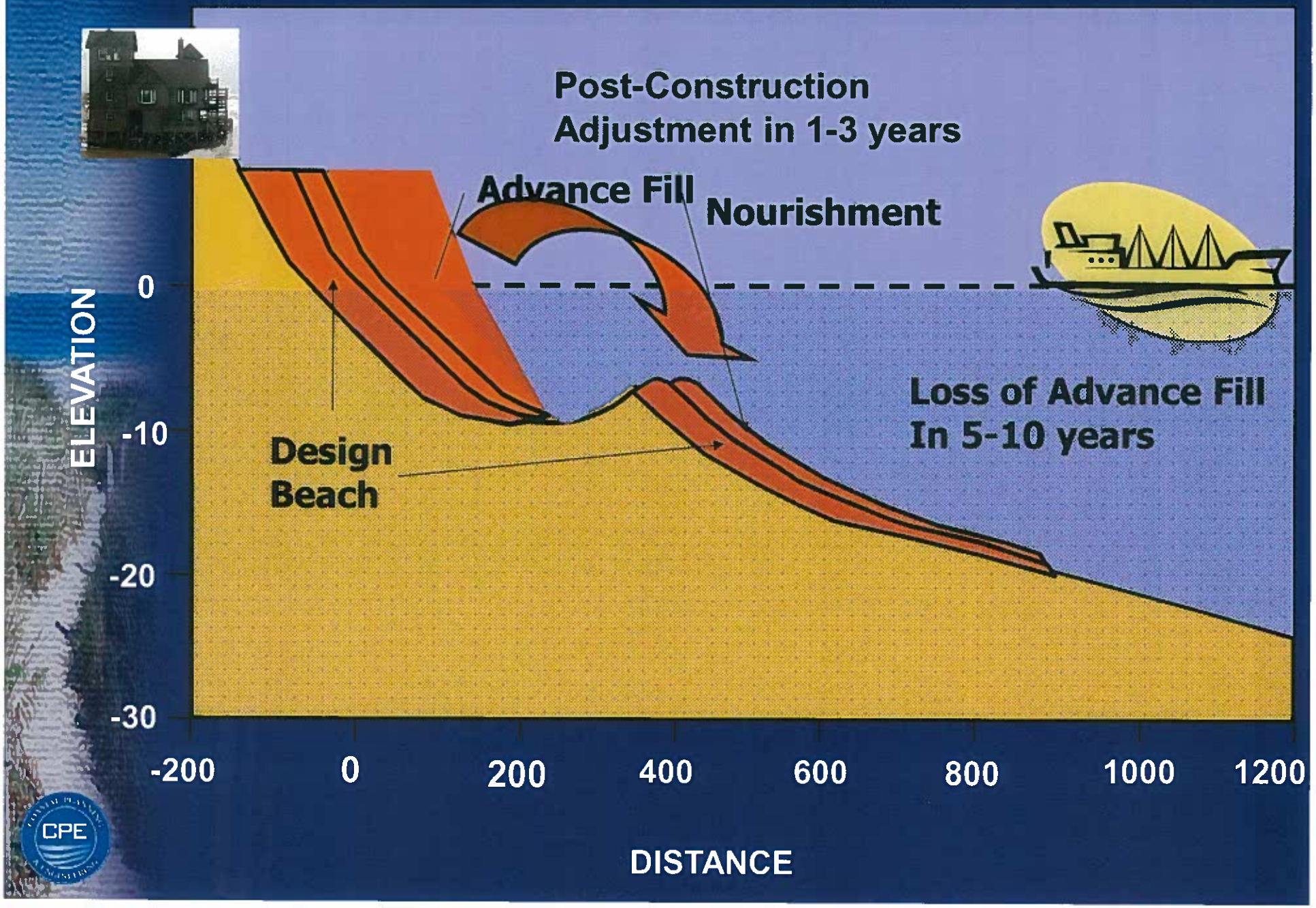
Berm and Dune Dimensions:



PROFILE EVOLUTION OF BEACH NOURISHMENT



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Tracking No.: 00.00.2011

Construction Volume:

- USACE (2000): 4.3 Million CY
- Overfill Ratio for N1 = 1.5: Effectively 2.9 Million
- 43.8 CY/LF of Advanced Fill
- 1.9 Million CY needed to Construct Proposed Section 206 Project
- Comparison of 2005 and 2012 Profile Surveys: 300,000 cy Less Fill Required
- Grain Size Reduction: Potential Reduction of 40% - 1.16 Million CY

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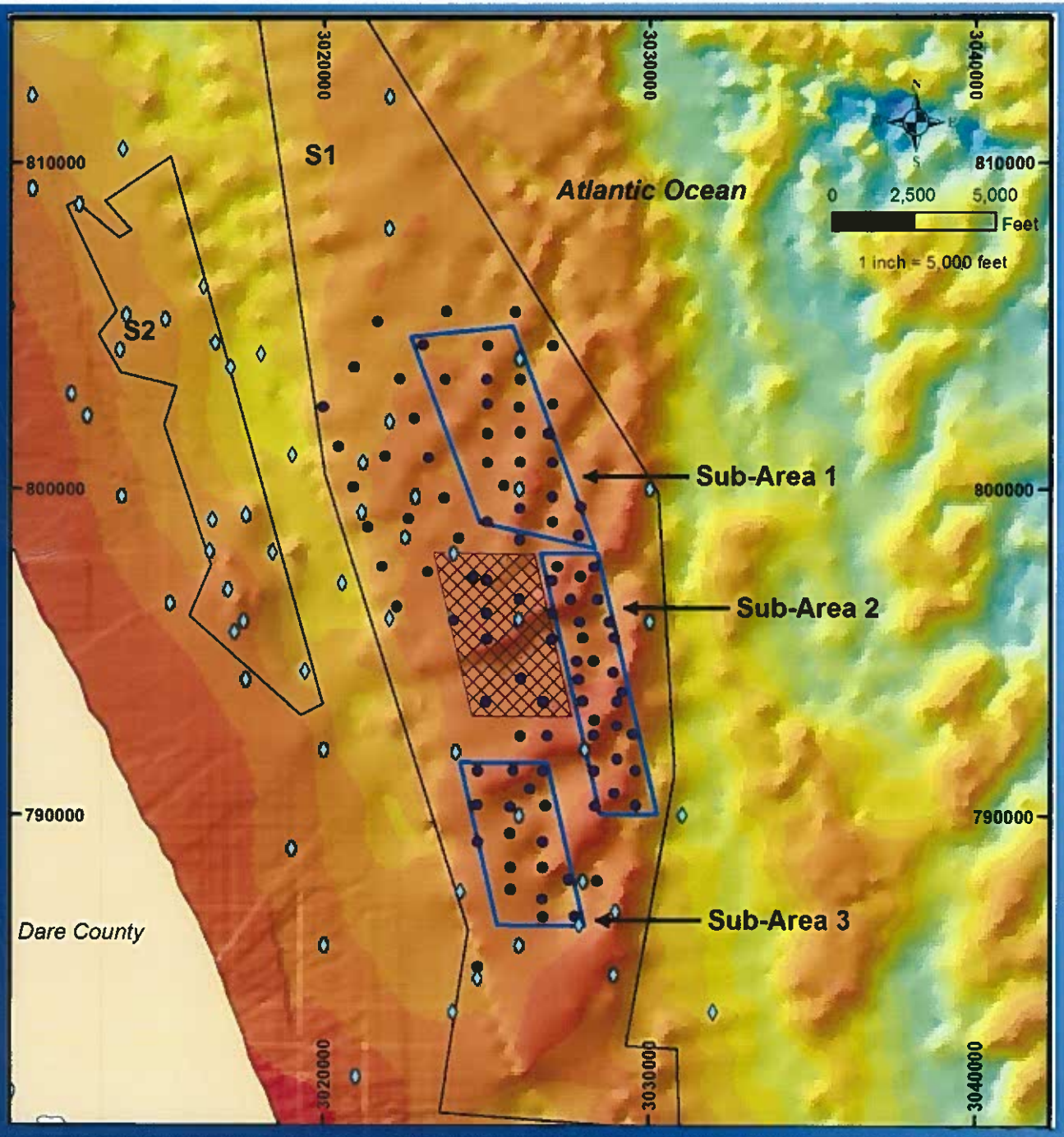
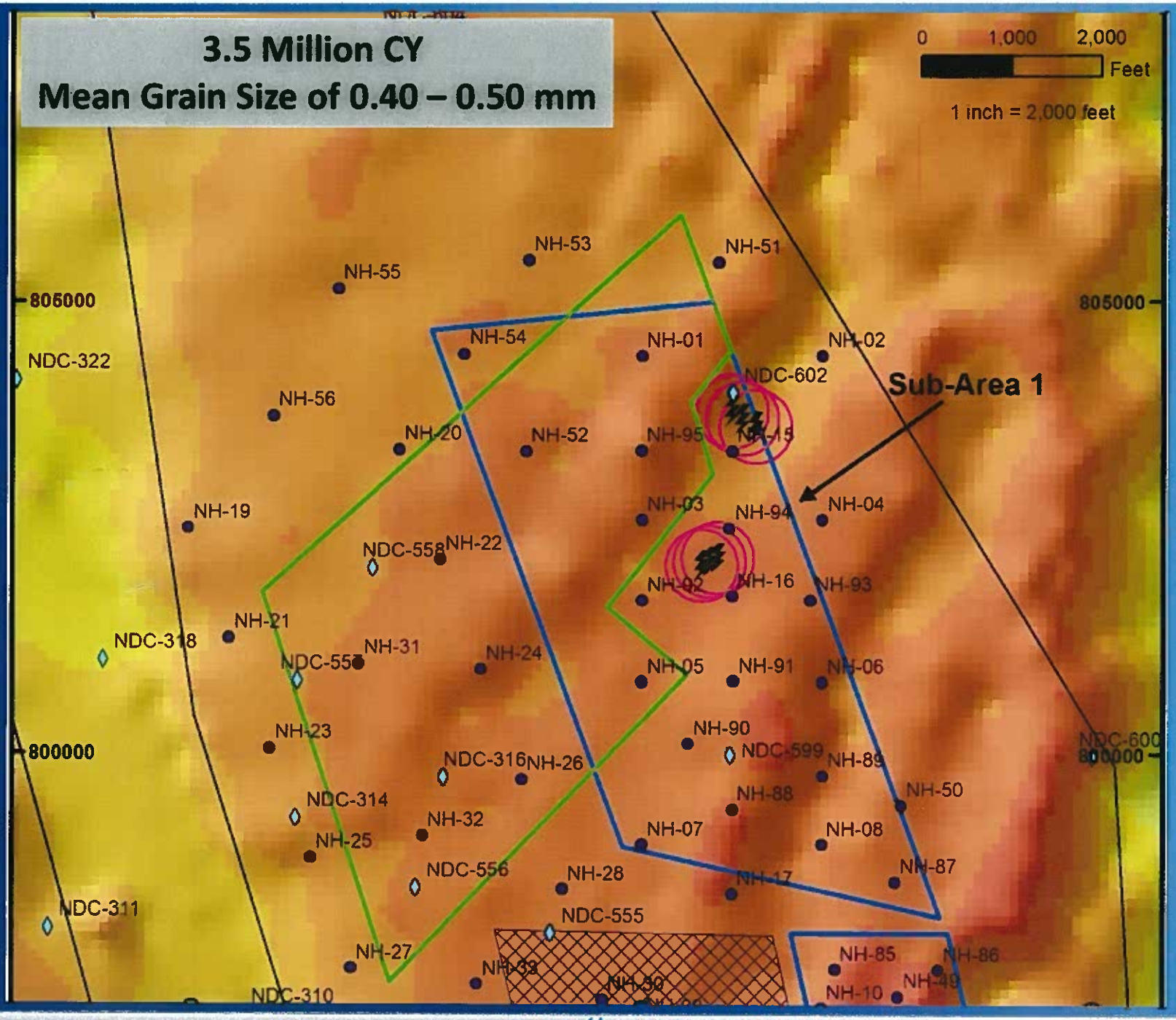

3020000
3030000
3040000
810000
800000
790000
S1
S2
Atlantic Ocean
Dare County
Sub-Area 1
Sub-Area 2
Sub-Area 3
0
2,500
5,000
Feet
1 inch = 5,000 feet

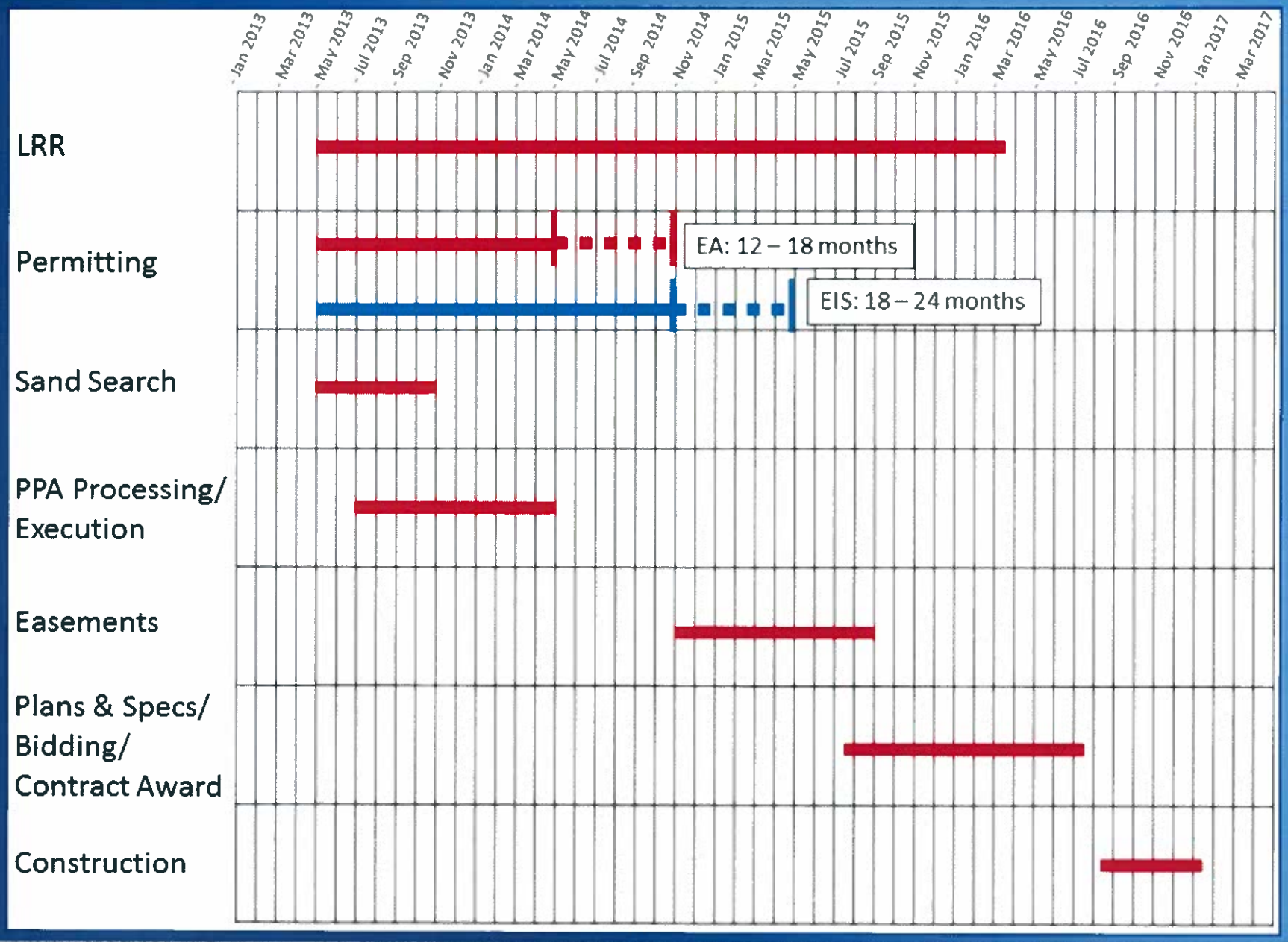

3.5 Million CY
Mean Grain Size of 0.40 – 0.50 mm
0 1,000 2,000
Feet
1 inch = 2,000 feet
Sub-Area 1
806000
805000
800000
NH-53
NH-51
NH-55
NH-54
NH-01
NH-02
NDC-322
NDC-602
NH-56
NH-20
NH-52
NH-95
NH-15
NH-19
NH-03
NH-94
NH-04
NDC-558
NH-22
NH-92
NH-16
NH-93
NH-21
NDC-318
NH-31
NH-24
NH-05
NH-91
NH-06
NH-23
NH-90
NDC-599
NH-89
NDC-316
NH-26
NH-88
NH-50
NDC-314
NH-32
NH-07
NH-08
NH-25
NDC-556
NH-28
NH-17
NH-87
NDC-311
NDC-555
NH-27
NH-85
NH-86
NH-33
NH-10
NH-49
NDC-310

Section 206:

- Limited Reevaluation Report (LRR)
- Project Partnership Agreement
- USACE Review of Plans/Specifications and Bids

Tracking No. 00.00.2011

Section 206:


Jan 2013
Mar 2013
May 2013
Jul 2013
Sep 2013
Nov 2013
Jan 2014
Mar 2014
May 2014
Jul 2014
Sep 2014
Nov 2014
Jan 2015
Mar 2015
May 2015
Jul 2015
Sep 2015
Nov 2015
Jan 2016
Mar 2016
May 2016
Jul 2016
Sep 2016
Nov 2016
Jan 2017
Mar 2017
LRR
Permitting
EA: 12 – 18 months
EIS: 18 – 24 months
Sand Search
PPA Processing/ Execution
Easements
Plans & Specs/ Bidding/ Contract Award
Construction

Environmental Inventory (2 Primary Sources):

- FEIS for Federal Hurricane Protection and Beach Erosion Control Project, Dare County
  - Draft Fish and Wildlife Coordination Act Report
  - Pre-Construction Ecological Conditions Report
  - Record of Decision
- FEIS for Nags Head Beach Nourishment Project
  - Essential Fish Habitat Assessment
  - Biological Assessment
  - Baseline Environmental Monitoring Report
  - Biological Opinion (USFWS)
  - Record of Decision
  - Letter from Dredging Contractors of America to the Town of Nags Head

Environmental Inventory:

- Data Obtained From Primary Sources:
  - Sea Turtles
  - Piping Plovers
  - Other Shorebirds
  - Seabeach Amaranth
  - Benthic Fauna
- Other Data Obtained Directly from Agencies:
  - Sea Turtle Nesting
  - Shorebird and Waterbird
  - Atlantic Sturgeon

Tracking No. 0.00.2011

Future Options:

Pursue Shore Protection Program?

Yes

Pursue Section 206

Pursue Locally Funded Project

Develop Information Document

Solicit Comments From USACE

No

What are the costs??

Future Options:

Pursue Shore Protection Program

Pursue Section 206

Pursue Locally Funded Project

Initiate Section 206 Project

- LRR
- PPA
- Review of Plans and Specs and Bidding

- Sand Search
- Permitting
- Easements
- Plans and Specs and Bidding

CONSTRUCTION

Proposed 206 Project Cost Estimate:

- Mobilizations - $2.7 Million
- Unit Cost - $9.00 / CY
- Construction - $15.2 – $23.2 Million (Includes 15% Contingency)
- Soft Costs - $1.9 Million
- Non Federal Share After Reimbursement: $7.2 Million - $10 Million
  - Assumes 65% Federal Cost Share of Construction Costs
  - Additional Cost Sharing Possible from State and Dare County

Future Options:

Pursue Shore Protection Program

Pursue Section 206

Pursue Locally Funded Project

Initiate Section 206 Project

- LRR
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- Review of Plans and Specs and Bidding

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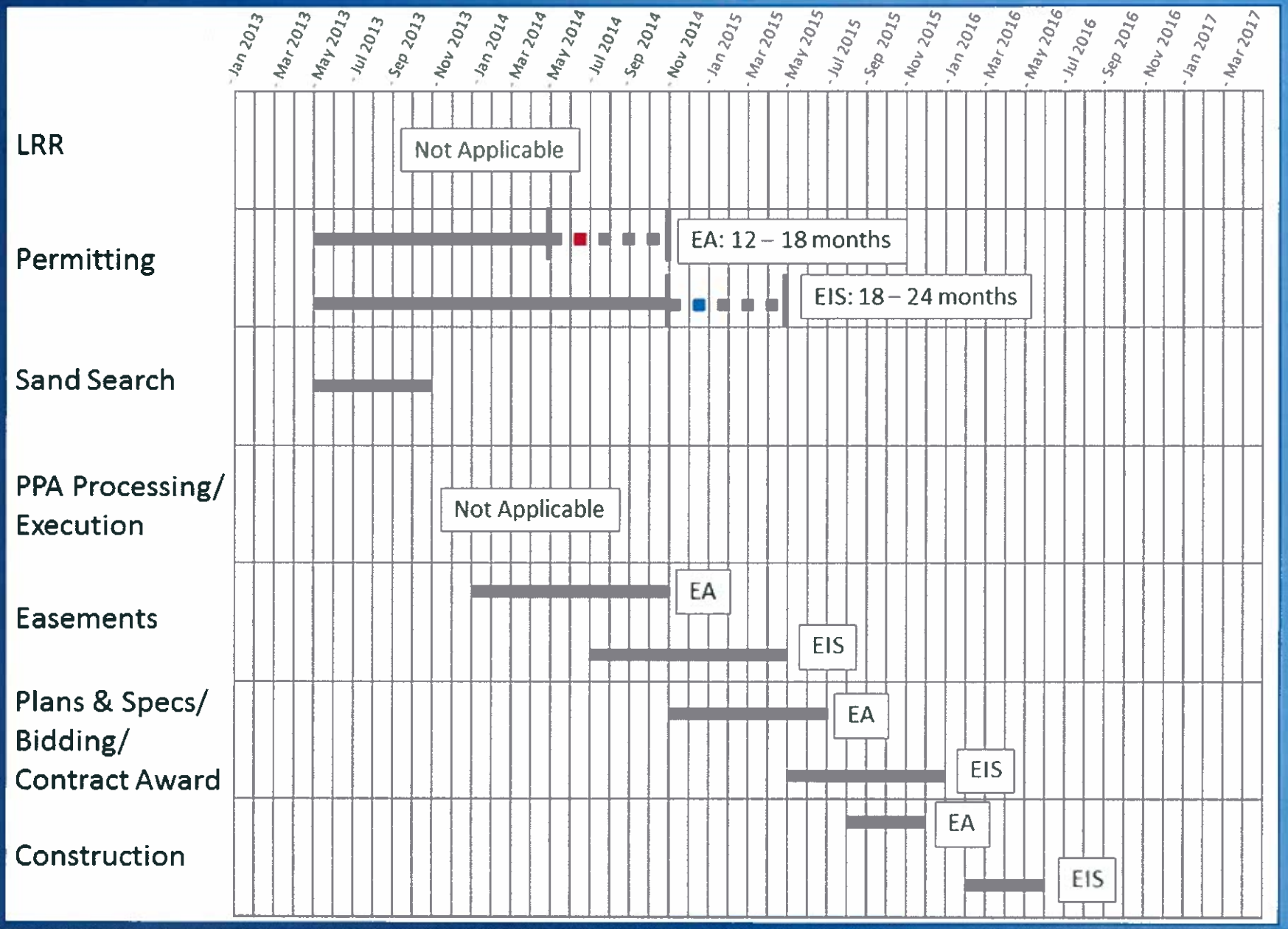
CONSTRUCTION

Local Project:



Local Project Cost Estimate:

- Mobilizations - $2.7 Million
- Unit Cost - $9.00 / CY
- Soft Costs - $1.28 Million
- Eligible for Cost Sharing from State and Dare County

Pros and Cons of Section 206:

Pros:

- Gives You a Chance at Federal Funds
- Earmarks may be coming back
- Contributing Authority

Cons:

- Added Time
- Added Money
- Risk You Will Not Be Reimbursed
- USACE Will Not Prioritize the Project
- First Time for Wilmington District
- Need For Continuous Advocacy

Closing Thoughts:

- Beach Nourishment is a viable and economic method to mitigate long-term shoreline erosion and provide storm damage reduction
- USACE will not construct this project on their own
- Section 206 or some Federal credit is still viable, BUT you must be your own advocate
- Active public affairs campaign (DC/Raleigh)
- If you pursue 206, seek County and Kitty Hawk/Nags Head blessing
- There are other advocates that are in the same position (We can put you in contact with them)

Coastal Planning & Engineering of North Carolina

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Beaches 101: Debunking of Myths:

- Mitigate Long-Term Erosion
- Storm Damage Reduction

CPE

Shaw a world of Solutions

Beaches 101: Debunking of Myths : Long Term Erosion

N. Kill Devil Hills to S. Duck

Long-Term Average Annual Shoreline Change Study & Setback Factors

Updated Through 1998

Beaches 101: Debunking of Myths : Storm Damage Reduction

Beaches 101: Debunking of Myths :

You Can't Fight Mother Nature!

~~"Shore Protection"~~

"Storm Damage Reduction"

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Beaches 101: Debunking of Myths : Storm Damage Reduction

Life-Cycle Risk Management

"Getting Ready"

Actions taken BEFORE the event, including planning, training, and preparations

Flood Risk Management system assessment / inspections

Monitoring / forecasting threats

State and Local Coordination

Reservoir operations

Flood Fight Preparation

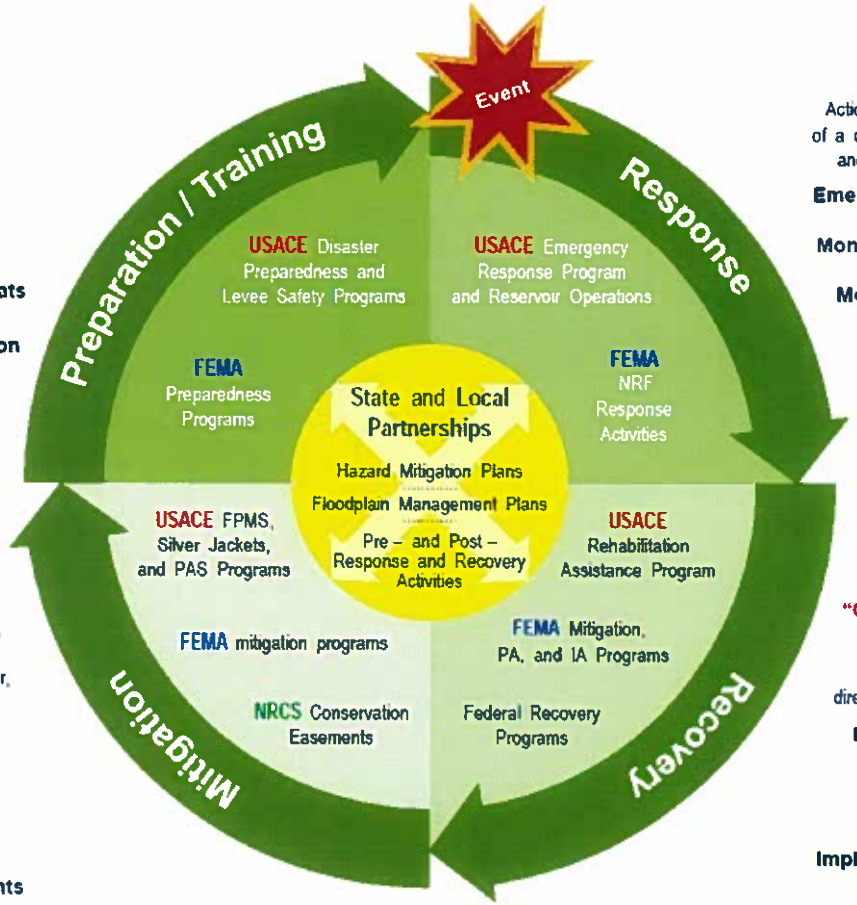
"Driving Down the Risks"

Activities that PREVENT a disaster, reduce its chance of happening, or reduce its damaging effects

Modify mitigation plans

Identify future mitigation opportunities

Develop system improvements



"The Flood Fight"

Actions taken DURING the initial impact of a disaster, including those to save lives and prevent further property damage

Emergency system strengthening

Monitor and report flood impact

Monitor system performance

Support State / Local FF

"Getting back on our feet"

Actions taken AFTER the initial impact, including those directed toward a return to normalcy

Repair damaged systems

Assess and document system performance

Implement mitigation measures / system improvements

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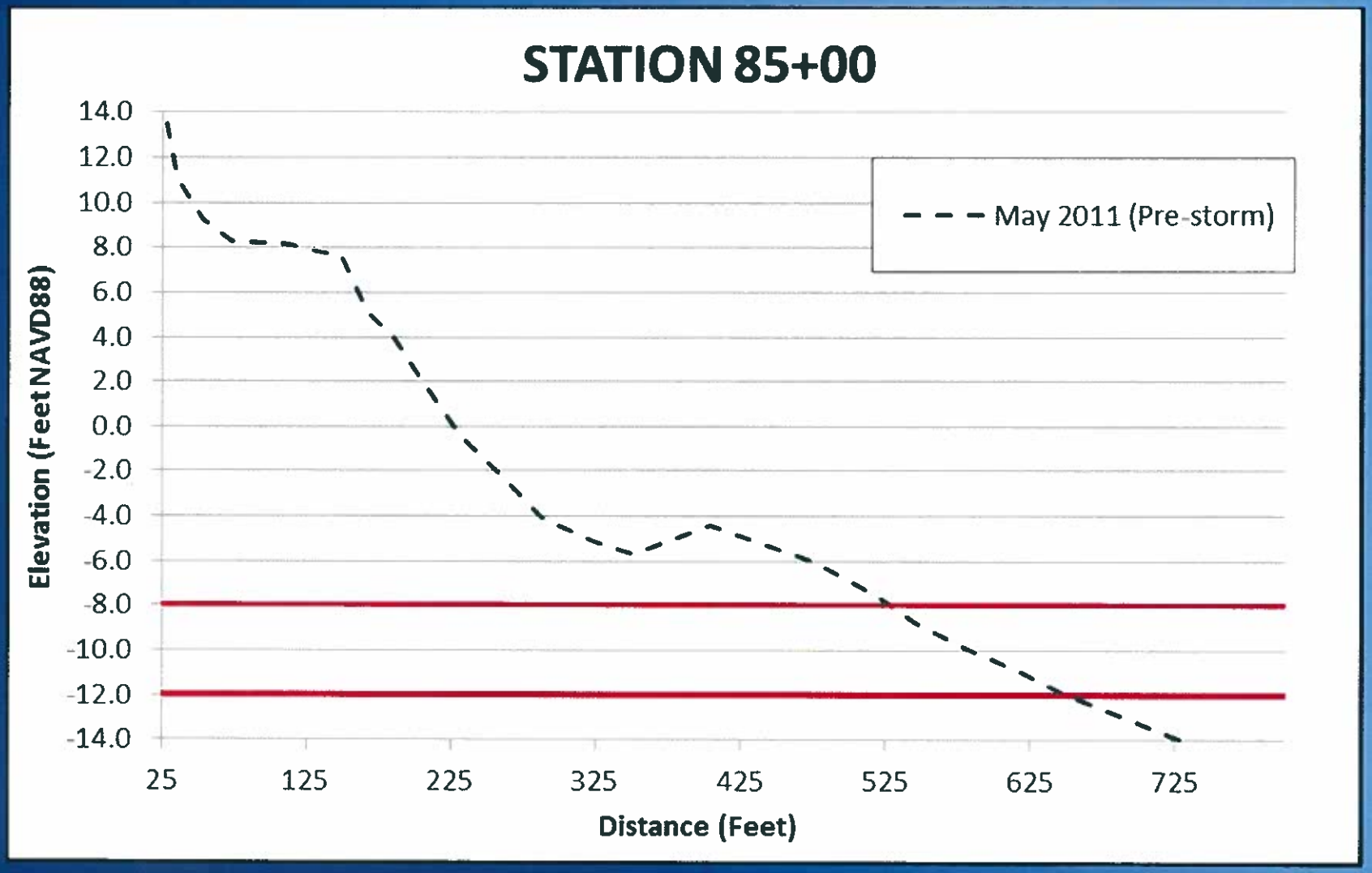
Beaches 101: Debunking of Myths :

The Sand Will All Just Wash Away!

Tracking No 00.00.2011

Beaches 101 and Debunking of Myths :



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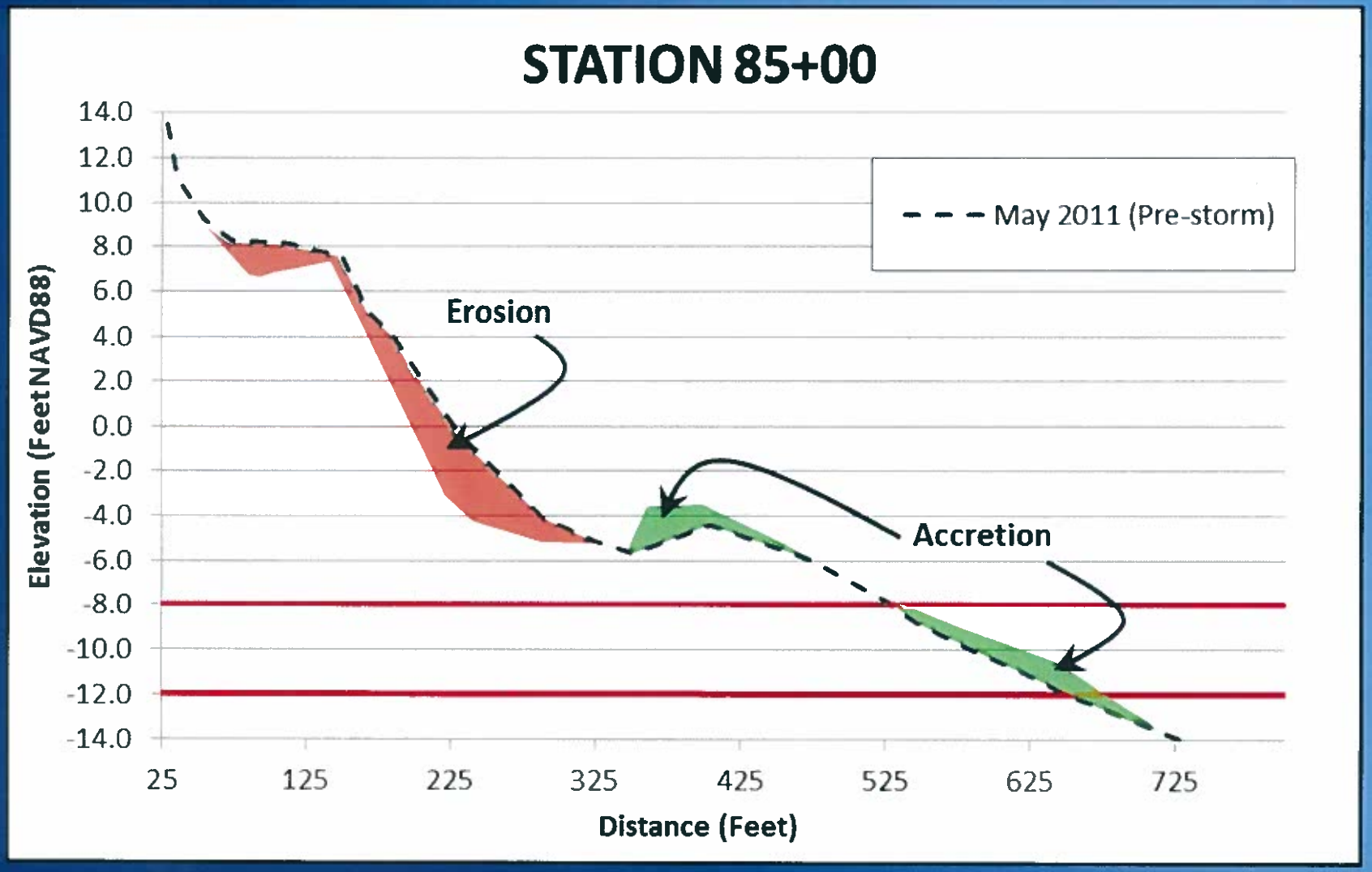

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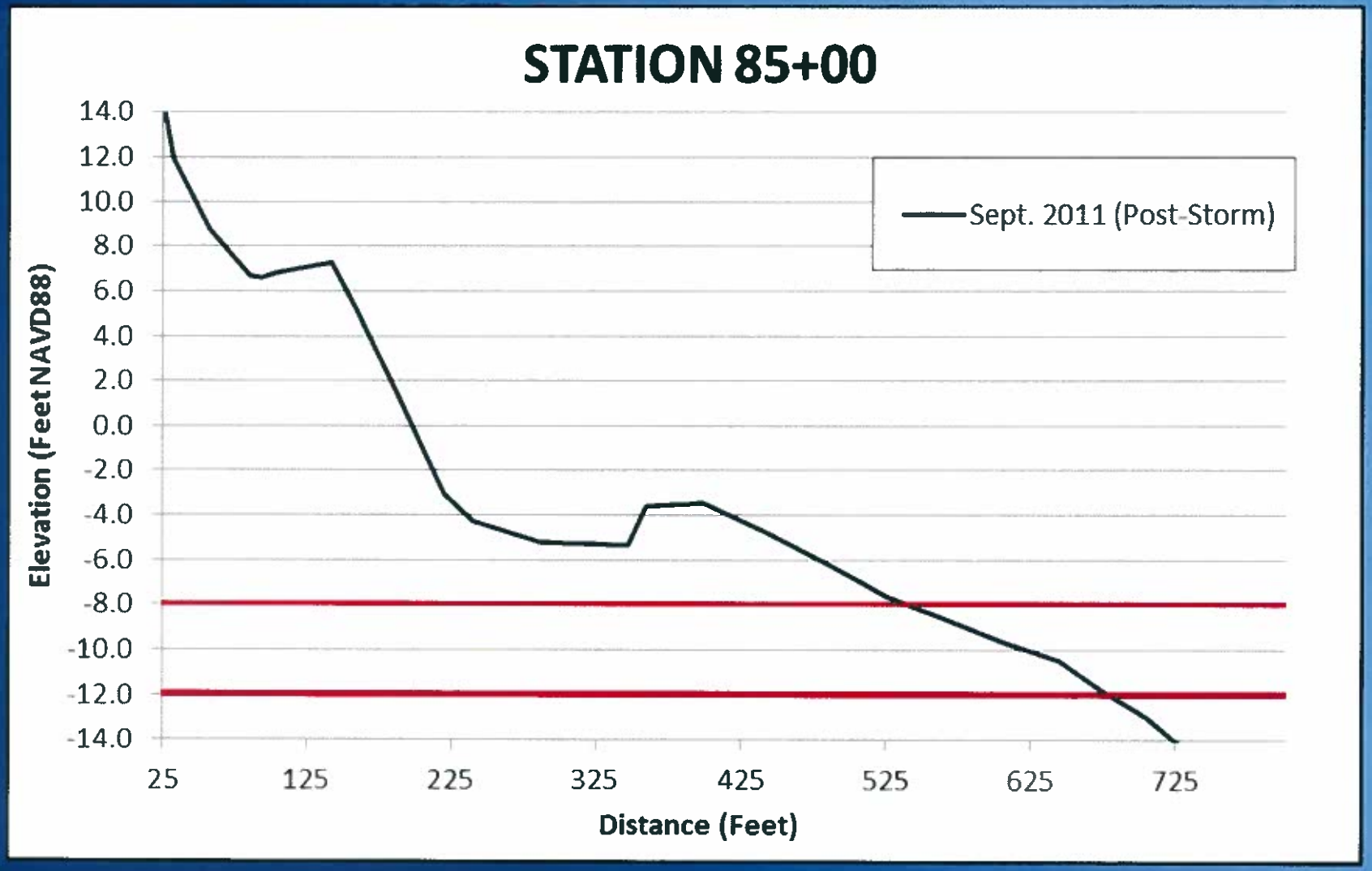


Beaches 101: Debunking of Myths :

Beach Nourishment Won't Work HERE!

- Laws of Physics are Universal.
- Successful Projects in Similar Locations:
  - Virginia Beach, VA
  - Sandbridge, VA
  - Damneck, VA
  - Ocean City, MD
  - Wrightsville, Carolina, Kure Beach, NC
  - Delray Beach, FL

Tracking No. 00.00.2011

Beaches 101: Debunking of Myths :

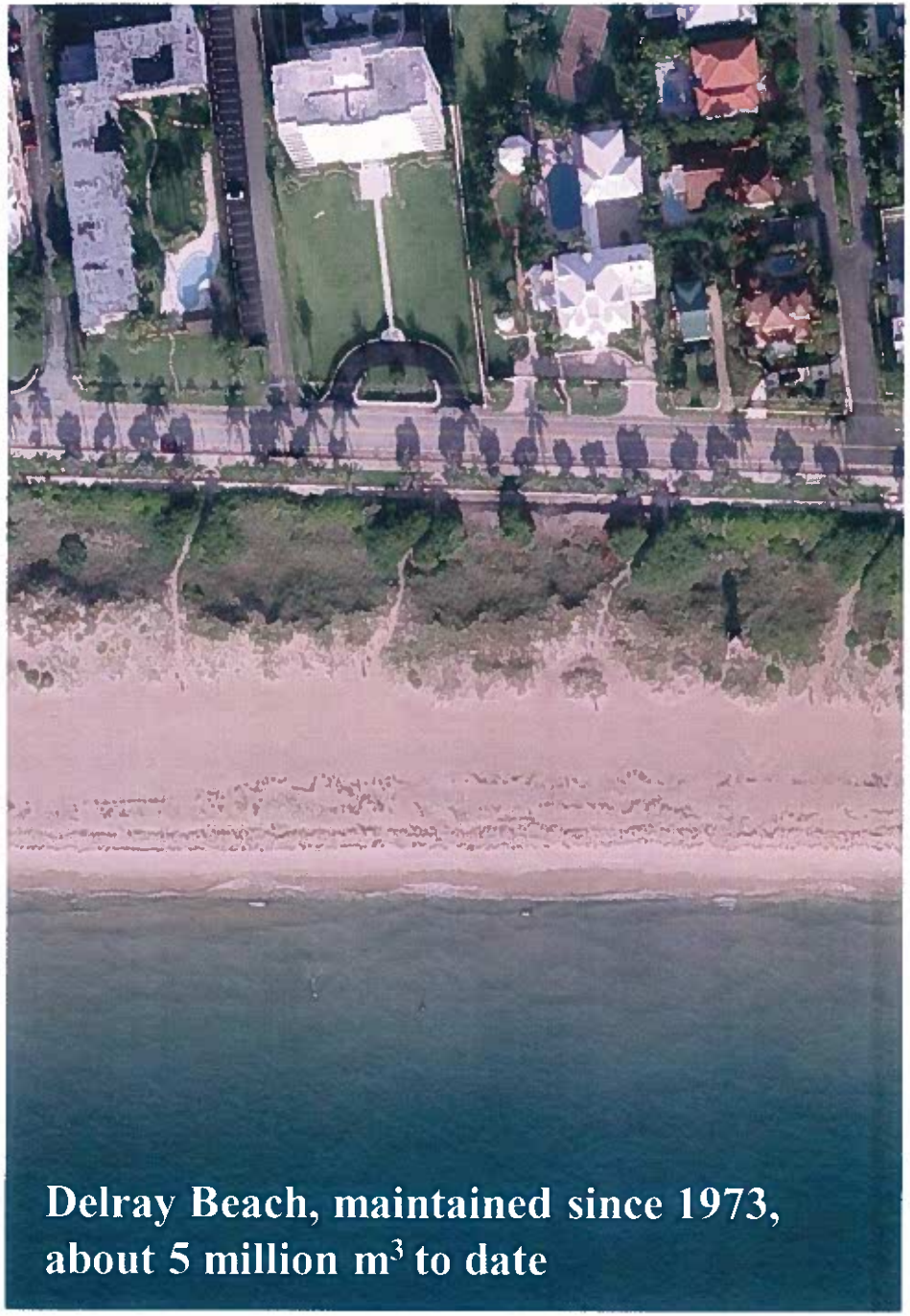
Table III – Beach Nourishment Costs (Before ISABEL, 2003) and Storm Damage Prevention Benefits (ISABEL, 2003)

City / Federal Gov't (Beach)	Nourishment Cost, $ Before Sep. 2003	Storm Damage Benefits, $ ISABEL (Sep. 18, 2003)
Virginia Beach (Oceanfront) (Sandbridge)	$125 million $ 10 million	$82 million $23 million
Norfolk (Ocean Park)	$ 6 million	$ 5 million
Hamptom (Buckroe)	$ 4 million	$ 3 million
US Navy (Dam Neck	$ 7.5 million	$18 million
Totals	$152.50 million	131 million

1 Storm Event

City of Virginia Beach

- 4 Million cy originally placed
- 10 Years Later – 1.2 Million Lost



Delray Beach, maintained since 1973, about 5 million m^3 to date

	Description		Locally Constucted 206 NED	Locally Constructed 2006 Locally Preferred	Locally Constructed Emergency Interim
	TOTAL VOLUME		**1.8 Million cy**	**1.3 Million cy**	**1.3 Million cy**
	TOTAL CONSTRUCTION COST		**$17,220,000**	**$13,270,000**	**$13,270,000**
SOFT COST	206 Agreement Process		$100,000	$100,000	---------
	Permitting		$300,000	$300,000	$300,000
	Easements		$250,000	$250,000	$250,000
	LRR		$300,000	$300,000	---------
	Engineering Design, Plans, Specs		$150,000	$150,000	$150,000
	Sand Investigation		$0*	$0*	$0*
	Construction Administration		$350,000	$250,000	$250,000
	ESTIMATE		**$18,670,000**	**$14,620,000**	**$14,220,000**
	CONTINGENCY (15%)		**$2,800,500**	**$2,193,000**	**$2,133,000**
	TOTAL (With Contingency)		**$21,470,500**	**$16,813,000**	**$16,353,000**
COST SHARING	FEDERAL		**$13,133,570**	**$10,106,200**	---------
	STATE	High Est.	---------	---------	**$7,774,000**
		Mid Est.	---------	---------	**$5,441,800**
		Low Est.	**$3,535,965**	**$2,720,900**	**$0**
	LOCAL COST SHARE (DARE COUNTY / KILL DEVIL HILLS)	**High Est.**	---------	---------	**$8,579,000**
		Mid Est.	**4,800,965**	**3,985,900**	**$10,911,200**
		Low Est.	---------	---------	**$16,353,000**

* At this time it is unknown as to whether or not a sand search investigation is needed

Tracking No. 00.00.2011

Coordination Meeting 1
USACE Civil Works:

1. Wilmington District Staff Unfamiliar with Section 206 Process
2. Many Recent Policy Changes = More Red Tape
3. No Earmarks in Congress (USACE Funding)
4. How / When Will Funding be Appropriated
5. Economic Analysis Methodology

Coordination Meeting 2
Inter Agency:

1. USACE, USFWS, NMFS, NC DMF, NC DWQ, NC DCM, NC WRC
2. Context of Federal Plan, Nags Head Plan, and What Kill Devil Hills is Proposing
3. Agencies Provided Comments on Items to Consider: Turtle Nesting, Summer Dredging, Atlantic Sturgeon, etc.
4. Raleigh Bland (USACE): Complications with Permitting a Section 206 Project / Higher Level of Scrutiny
5. Permitting Process: Likely EA / Possible EIS

Coordination Meeting 3
USACE Joint Meeting:

1. Justin McCorkle, Pam Castens, Raleigh Bland (USACE)
2. Seeking Clarification on the Process
3. Civil Works Review Delays / Funding
4. Requested Letter of Intent and Project Information Document