

*2015 Western Dredging Association  
Gulf Coast Chapter Annual Meeting  
New Orleans, LA – November 19, 2015*

*The Triple 'T' of Construction  
Tubes, Terns, and Turtles – Oh My!*

*Construction of the Caminada Headland Beach  
and Dune Restoration (BA-45) Project*

Presented By:



# *Outline*

- *Project Overview*
- Challenges Prior to Construction
- Challenges During Construction
- Lessons to be Learned

# Cast of Characters

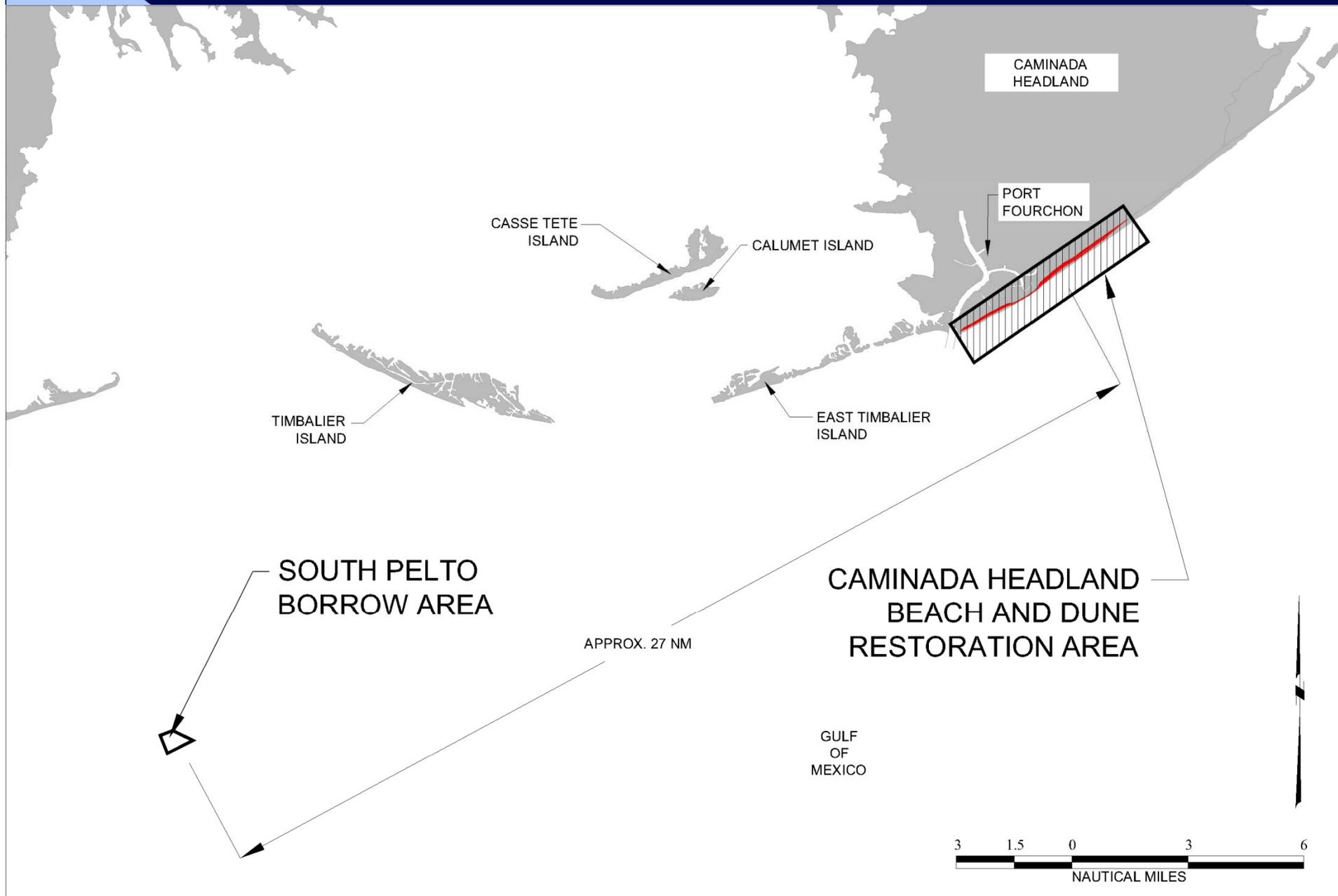
## Client and Funding Agencies



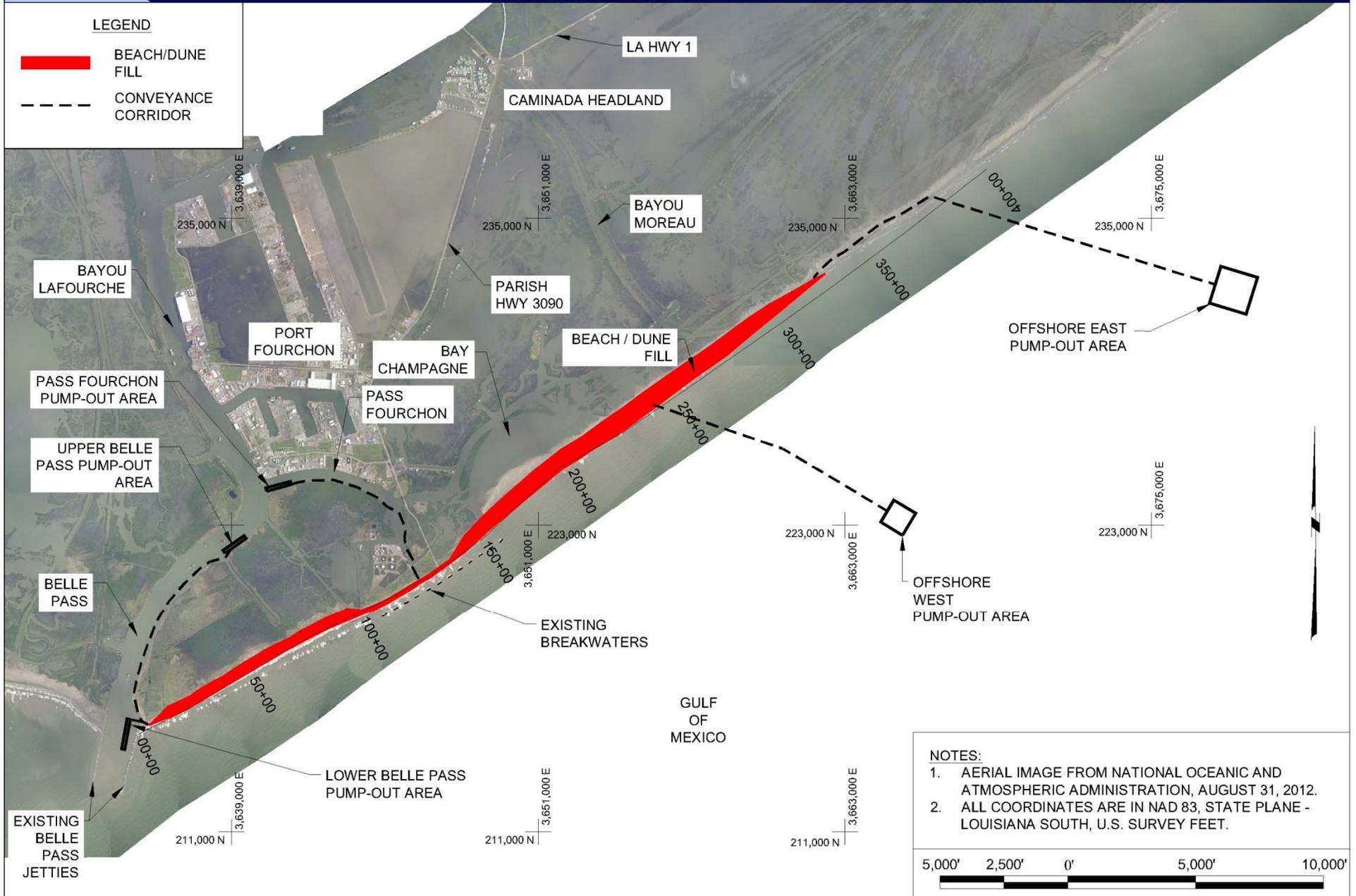
## Design & Construction Team



# *Project Location*



# Headland Overview



## *Project Aspects*

- Construction duration: June 2013 to January 2015.
- Project length: 31,000 Feet
- Maximum sediment transport distance: ~ 30NM.
- Total fill placed: 3.62 million cubic yards.
- 374 acres of restored habitat.

# Sediment Transport Method



Cutterhead Dredge  
Excavation and Filling Scow  
Barge via Spider Barge



Scow Barge Transport  
to Fill Area



Hydraulic Unloading of Scow  
Barge and Pump to Fill Area



Hopper Dredge Excavation  
and Transport to Fill Area



Hopper Dredge Pump  
to Fill Area



Discharge at Fill Area

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# Hurricane Isaac

## Here We Go Again!

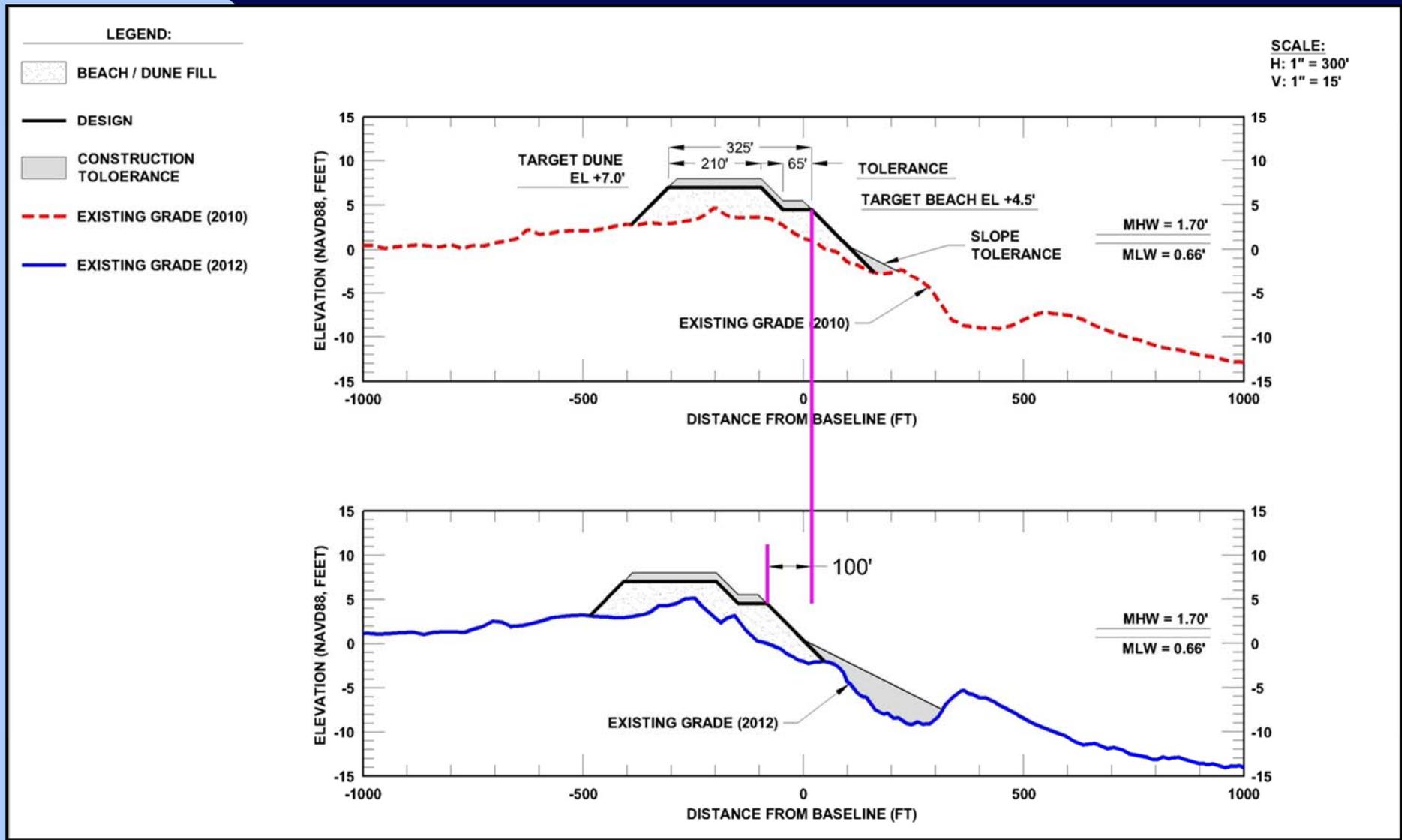


ISAAC 2012

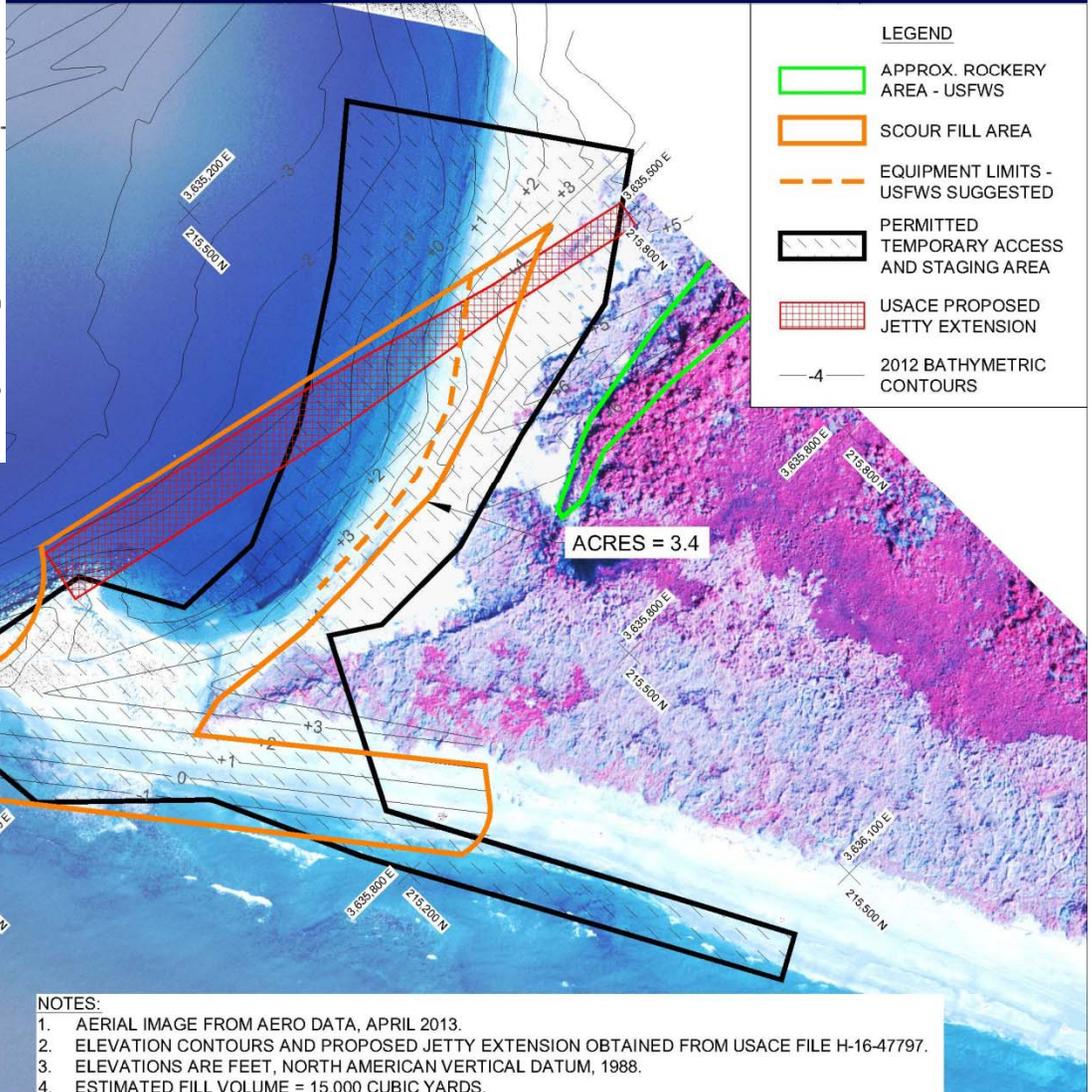
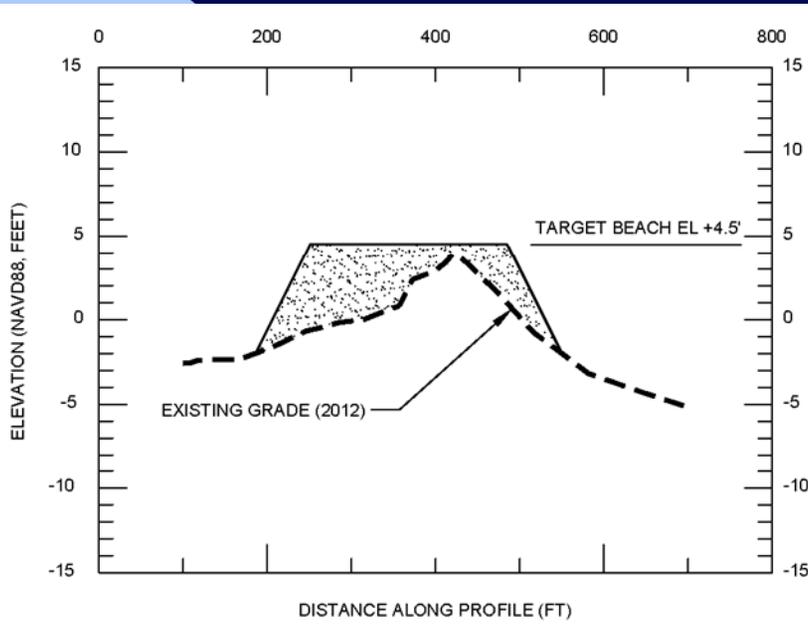


KATRINA 2005

# Hurricane Isaac Template Adjustment



# Scour Fill Area

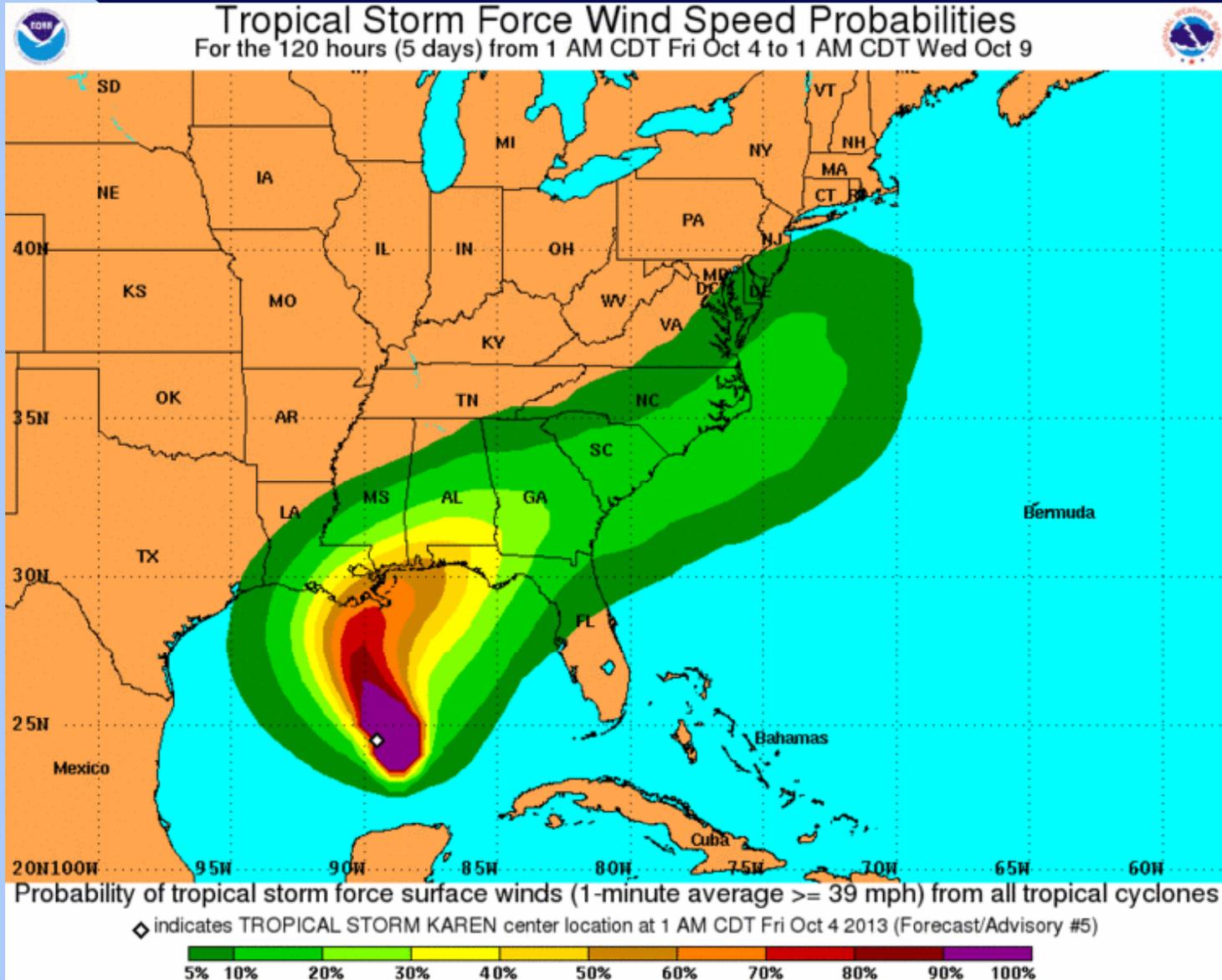


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# Tropical Storm Karen

## Are You Kidding Me, Again!



# *Subsidence Monitoring Control Station* <sup>14</sup>

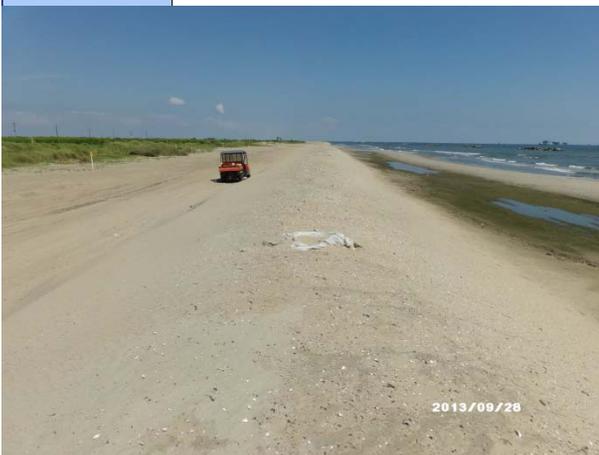
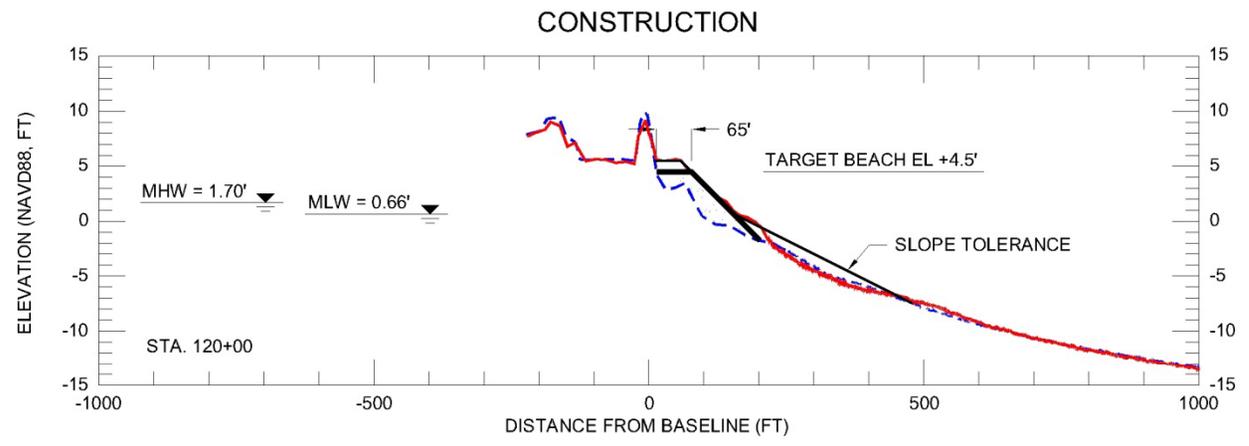
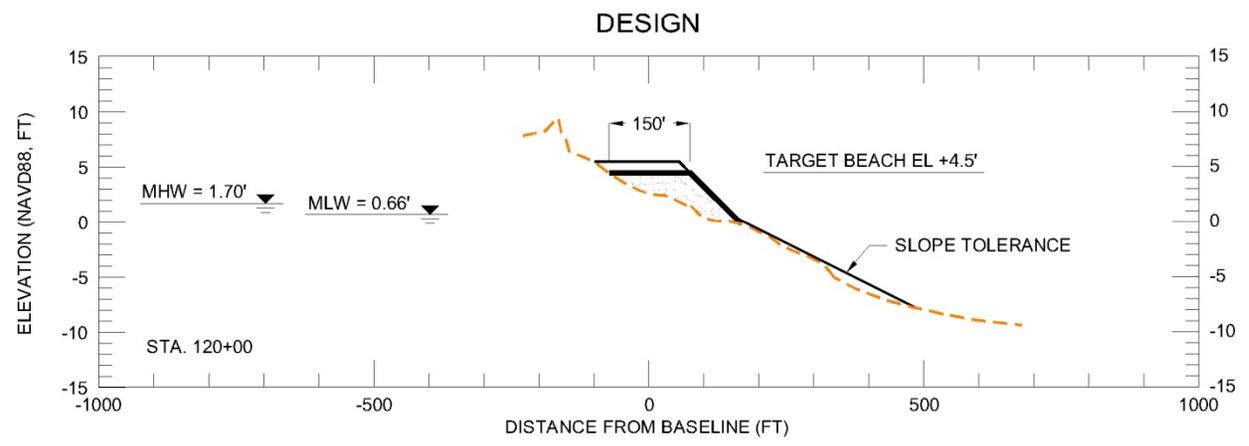


# “T” Number 1 - Tubes

## Port Fourchon Geo-Tube Project

**LEGEND:**

-  BEACH / DUNE FILL
-  DESIGN
-  CONSTRUCTION TOLERANCE
-  EXISTING GRADE (2012) - DESIGN
-  EXISTING GRADE (2013) - PRE-CONSTRUCTION / POST GEO-TUBE CONSTRUCTION
-  EXISTING GRADE (2013) - POST-CONSTRUCTION



# Weather

| Dredge / Month                  | Mar-13        | Apr-13         | May-14         | Jun-14         | Jul-13         | Aug-13         | Sep-13         | Oct-13               |
|---------------------------------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------------|
| <b>E.W. Ellefsen</b>            |               |                |                |                |                |                |                |                      |
| <b>R.N. Weeks</b>               |               |                |                |                |                |                |                |                      |
| <b>B.E. Lindholm</b>            |               |                |                |                |                |                |                |                      |
| <b>Total Production (CYS) *</b> | <b>0</b>      | <b>0</b>       | <b>0</b>       | <b>0</b>       | <b>7,700</b>   | <b>266,145</b> | <b>317,160</b> | <b>426,975</b>       |
| <b>Weather Days</b>             | <b>N/A</b>    | <b>N/A</b>     | <b>N/A</b>     | <b>N/A</b>     | <b>0</b>       | <b>0</b>       | <b>8</b>       | <b>7</b>             |
| Dredge / Month                  | Nov-13        | Dec-13         | Jan-14         | Feb-14         | Mar-14         | Apr-14         | May-14         | Jun-14               |
| <b>E.W. Ellefsen</b>            |               |                |                |                |                |                |                |                      |
| <b>R.N. Weeks</b>               |               |                |                |                |                |                |                |                      |
| <b>B.E. Lindholm</b>            |               |                |                |                |                |                |                |                      |
| <b>Total Production (CYS) *</b> | <b>73,245</b> | <b>222,195</b> | <b>277,545</b> | <b>0</b>       | <b>0</b>       | <b>0</b>       | <b>22,865</b>  | <b>155,060</b>       |
| <b>Weather Days</b>             | <b>23</b>     | <b>10</b>      | <b>5</b>       | <b>N/A</b>     | <b>N/A</b>     | <b>N/A</b>     | <b>0</b>       | <b>0</b>             |
| Dredge / Month                  | Jul-14        | Aug-14         | Sep-14         | Oct-14         | Nov-14         | Dec-14         | Jan-15         | Totals               |
| <b>E.W. Ellefsen</b>            |               |                |                |                |                |                |                | <b>226 days</b>      |
| <b>R.N. Weeks</b>               |               |                |                |                |                |                |                | <b>90 days</b>       |
| <b>B.E. Lindholm</b>            |               |                |                |                |                |                |                | <b>81 days</b>       |
| <b>Total Production (CYS) *</b> | <b>46,100</b> | <b>0</b>       | <b>229,610</b> | <b>748,540</b> | <b>279,980</b> | <b>133,575</b> | <b>0</b>       | <b>3,206,695 CYS</b> |
| <b>Weather Days</b>             | <b>0</b>      | <b>N/A</b>     | <b>4</b>       | <b>3</b>       | <b>0</b>       | <b>0</b>       | <b>N/A</b>     | <b>60 days</b>       |

N/A = Not Applicable, Dredges not mobilized to Project

Arbitrary Demobilization

\* Based on reporting from the Construction Contractor's Daily Progress Reports

# *“T” Number 2 – Terns*

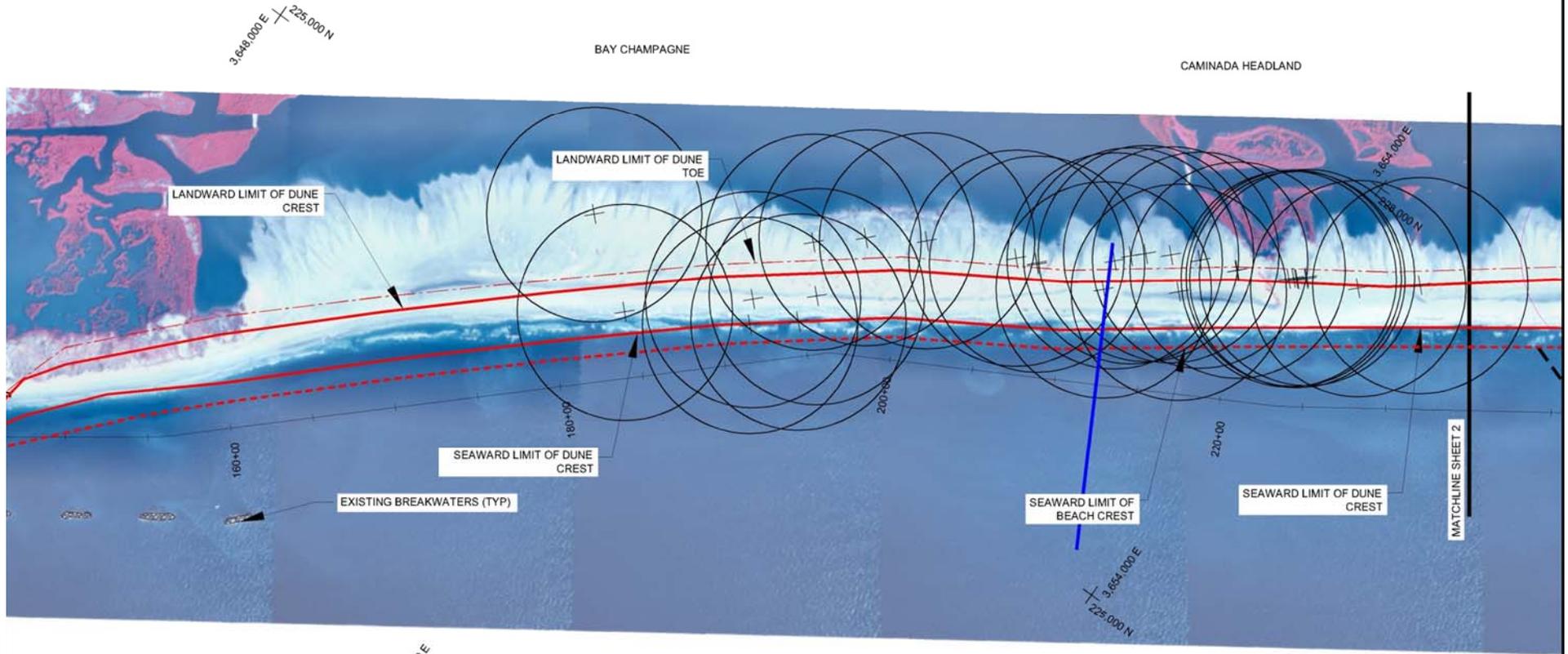
## *Houston We Have A Problem!*



2014/05/18



# Nesting Bird Abundance Buffers, Buffers Everywhere



**LEGEND**

|  |                     |  |                          |
|--|---------------------|--|--------------------------|
|  | DUNE CREST          |  | DUNE TOE                 |
|  | BEACH CREST         |  | HEADLAND SURVEY BASELINE |
|  | END OF CURRENT FILL |  | NEST                     |
|  | 650' BUFFER         |  |                          |

- NOTES:**
1. AERIAL IMAGE FROM AERO DATA (APRIL 6, 2013) AND NOAA (AUGUST 31, 2012).
  2. ALL COORDINATES ARE IN NAD 83, STATE PLANE - LOUISIANA SOUTH ZONE US SURVEY FT.
  3. NESTING LOCATIONS PROVIDED BY BTNEP FROM MONITORING CONDUCTED ON 05-07-2014.

GULF OF MEXICO

# *Best Bird Abatement – Winds Rows*

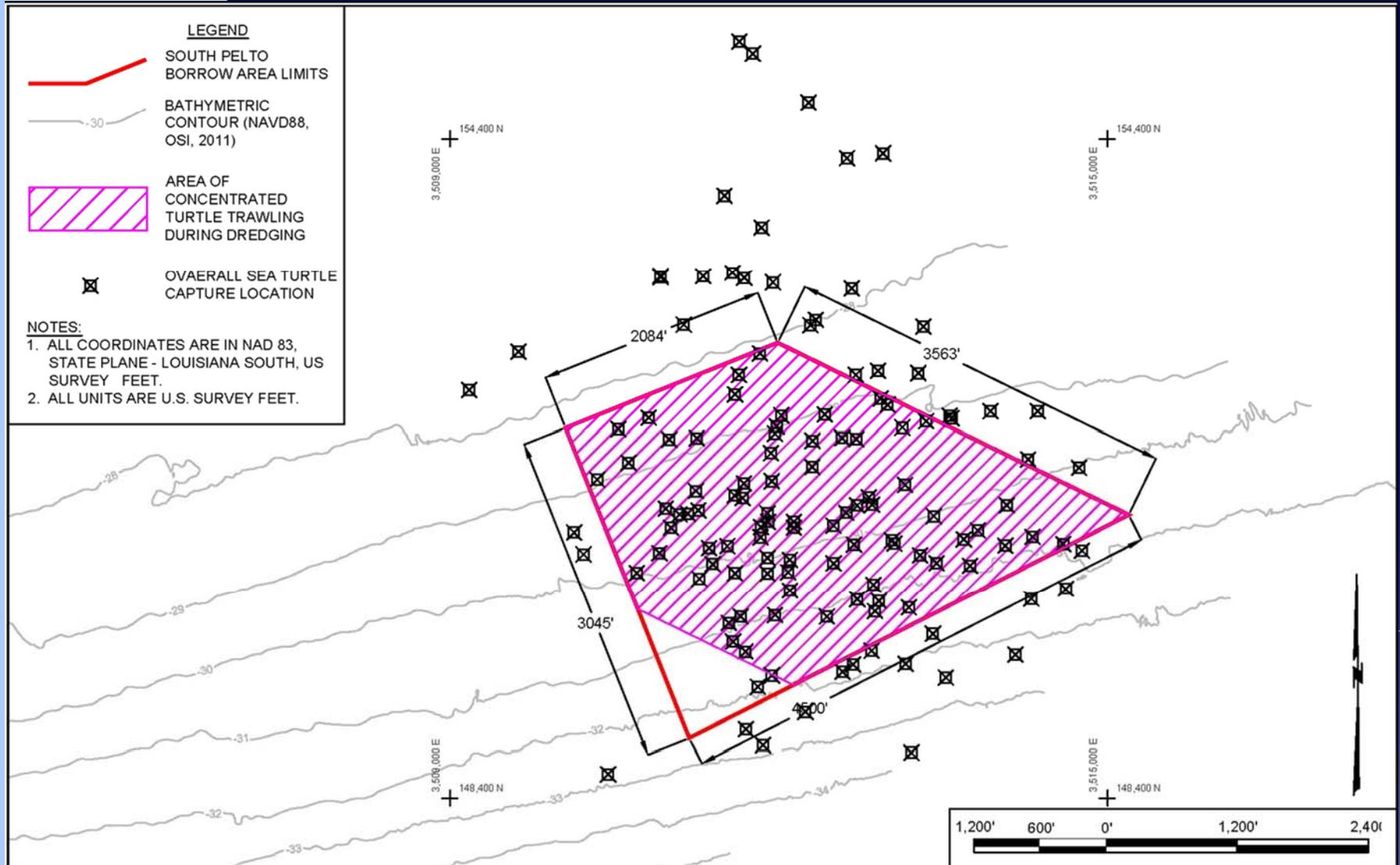


## *“T” Number 3 – Turtles*

- Total Allowable Take for Turtles to be Relocated Bi-Annually was 76.
- Turtle Relocation Trawling began in May 2014.
- 76<sup>th</sup> Turtle Relocated on June 7, 2014...
- BOEM re-initiated consultation with NMFS to continue and in total there were 157 relocations for this project. No turtles were harmed during relocation trawling activities.
- Some of the highest numbers of mature male turtles ever tagged and released!

# Sea Turtle Abundance

## Relocation Trawling Capture Locations



# *Hopper Dredging and Sea Turtles*

- Total Hopper Dredging Days = 114
- Total Number of Hopper Loads – 384
- Volume of Sediment Excavated = 765,000cy
- Total Number of Relocation Trawls – 1,582
- Total Relocations = 157 (154 individual turtles)
- All relocated turtles were tagged and tissue sampled prior to release. *Enormous amount of information gathered.*
- Unfortunately, there was one incidental take (loggerhead) by the dredge during the Project.

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# *Lessons Learned*

- Engage all agencies and stakeholders early and often during design and permitting.
- Design and permit as many construction access options as practical to allow the contractor flexibility.
- Plan for environmental contingencies in your design.
- Constant Communication with Regulatory Agencies is Essential.
- Expect the unexpected.

An aerial photograph of a coastal region. A long, narrow sandy beach runs diagonally from the bottom left towards the top right. To the left of the beach is a large area of dark green marshland. In the background, a town with various buildings and a harbor is visible. The ocean is on the right side of the image, with waves breaking onto the beach. The sky is overcast and grey.

***SUCCESS***

***QUESTIONS***