

PASS CHALAND TO GRAND BAYOU PASS BARRIER SHORELINE RESTORATION PROJECT (BA-35)



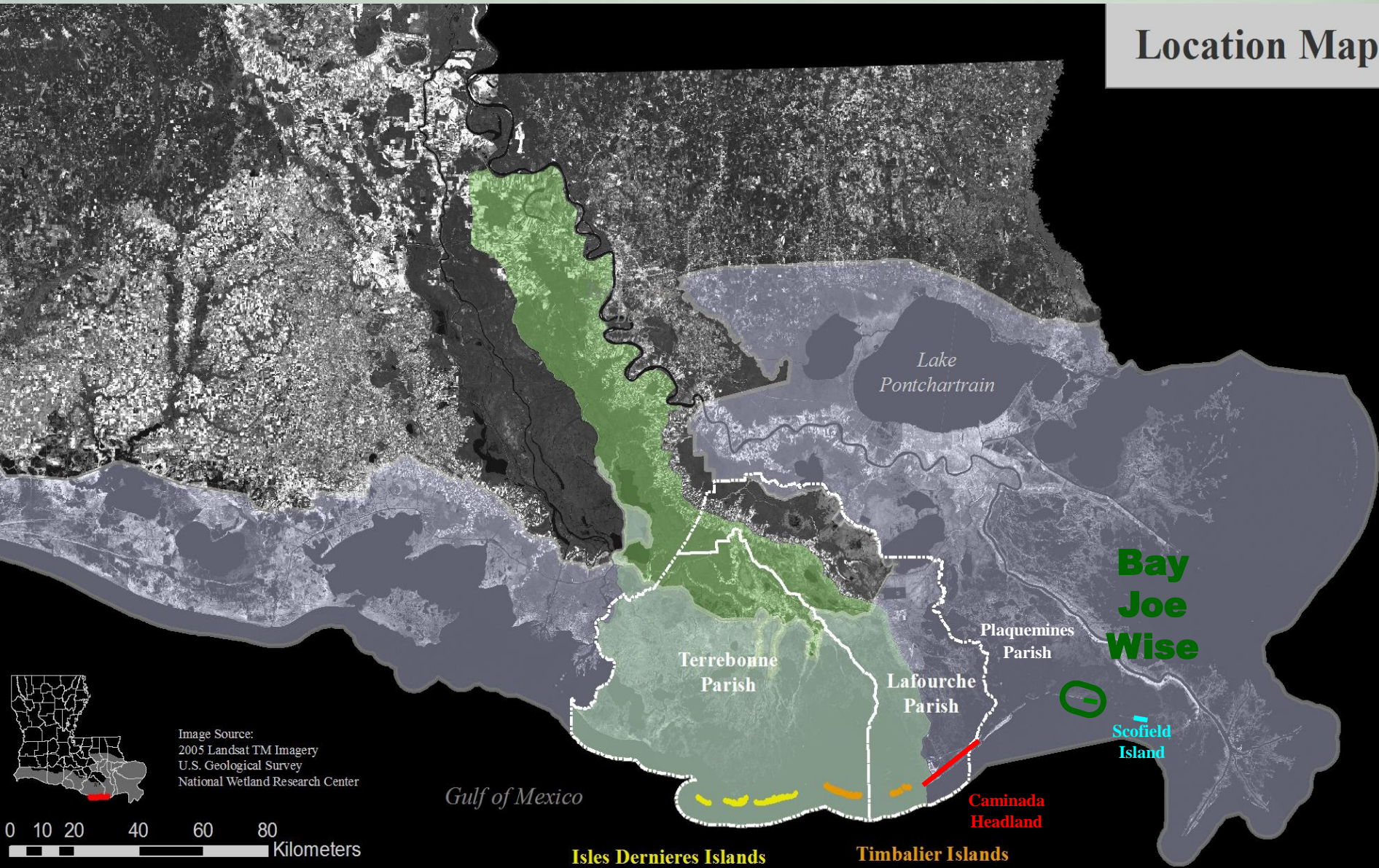
**FLORIDA SHORE & BEACH
PRESERVATION
ASSOCIATION**

SEPTEMBER 16, 2009



BAY JOE WISE HEADLAND

Location Map



PROJECT AUTHORIZATION

- **NOAA Fisheries**
- **LA Office of Coastal Protection & Restoration**
- **Coastal Wetlands Planning, Protection, and Restoration Act (16 U.S.C.A., Sections 3951-3956)**
- **PL 101-646 Task Force**



OUTLINE

- **Project Setting**
- **Design Features**
- **Design Challenges**
- **Hurricane Impacts**
- **Construction Details**
- **Construction Challenges**



PROJECT SETTING

➤ **Bay Joe Wise Headland**

- Approximately 50 miles southeast of New Orleans
- Project area extends from Pass Chalard to Grand Bayou Pass
- 3 miles of gulf front shoreline
- Berm elevations generally +3 to +4 feet NAVD
- Loss rate of over 73 acres per year since 1988
- Existing breaches along shoreline

➤ **Pipelines**

- Oil and gas pipelines identified through the Project area

➤ **Oyster Leases**

- Oyster Leases identified through the Project area



Conceptual Plan ~ CWPPRA



**Bay Joe
Wise** Bay Joe Wise

Chaland Pass

Pass Chaland

Grand Bayou Pass

2002 Aerial

Grand Bayou Pass

Site Reconnaissance

To Breach or Not to Breach, that was the Question...

JULY 2003

Project Goals

➤ **Barrier Shoreline**

- Add beach and dune restoration component
- Close existing and prevent future breaches
- Protect and preserve structural integrity of island
- Vegetate new dune and marsh platforms
- Maintain water quality and circulation between inlets

➤ **Habitat Goals**

- Create over 420 AC ~ Mature to 160 AC at 20-yr life

➤ **Borrow Area**

- Provide beach / dune compatible sand and mixed sediment for back barrier marsh
- Avoid impacts to adjacent shorelines from mining source








DESIGN FEATURES

- **Barrier Island Elements**
- **Construction Access**
- **Borrow Area**



Barrier Island Elements

LEGEND

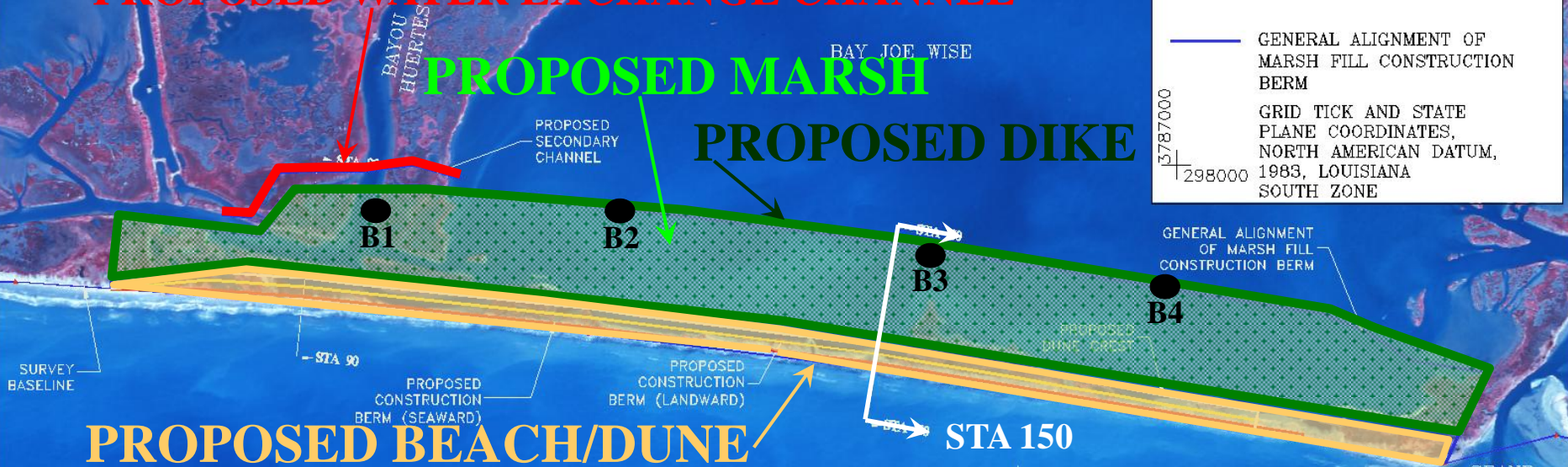
-  CONTROL MONUMENT LOCATION AND SURVEY BASELINE
 -  PROPOSED CONSTRUCTION BERM (SEAWARD)
 -  PROPOSED CONSTRUCTION BERM (LANDWARD)
 -  PROPOSED DUNE CREST
 -  GENERAL ALIGNMENT OF MARSH FILL CONSTRUCTION BERM
- GRID TICK AND STATE PLANE COORDINATES, NORTH AMERICAN DATUM, 1983, LOUISIANA SOUTH ZONE

PROPOSED WATER EXCHANGE CHANNEL

PROPOSED MARSH

PROPOSED DIKE

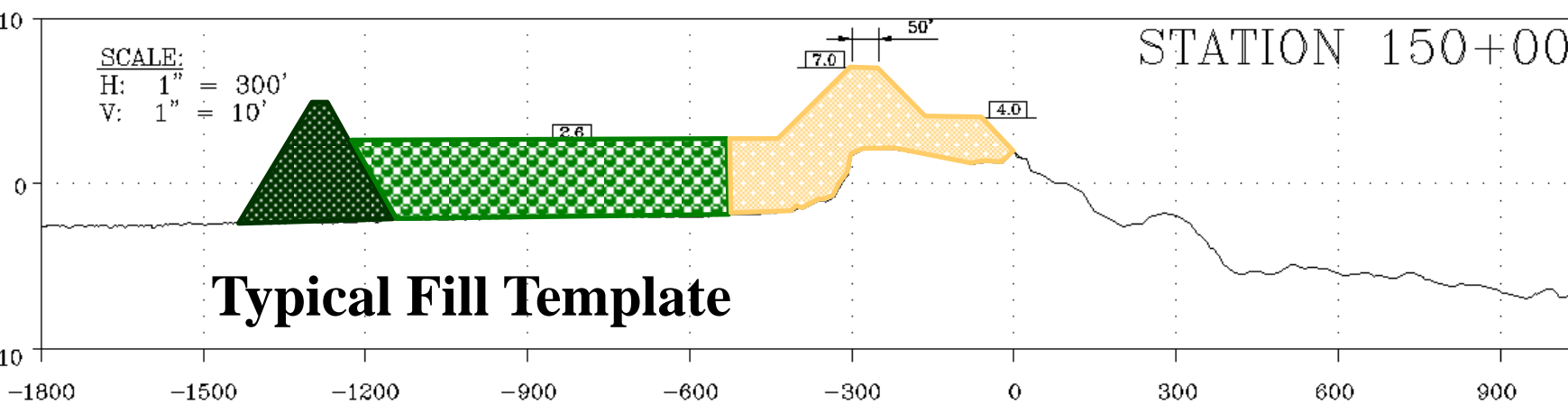
PROPOSED BEACH/DUNE



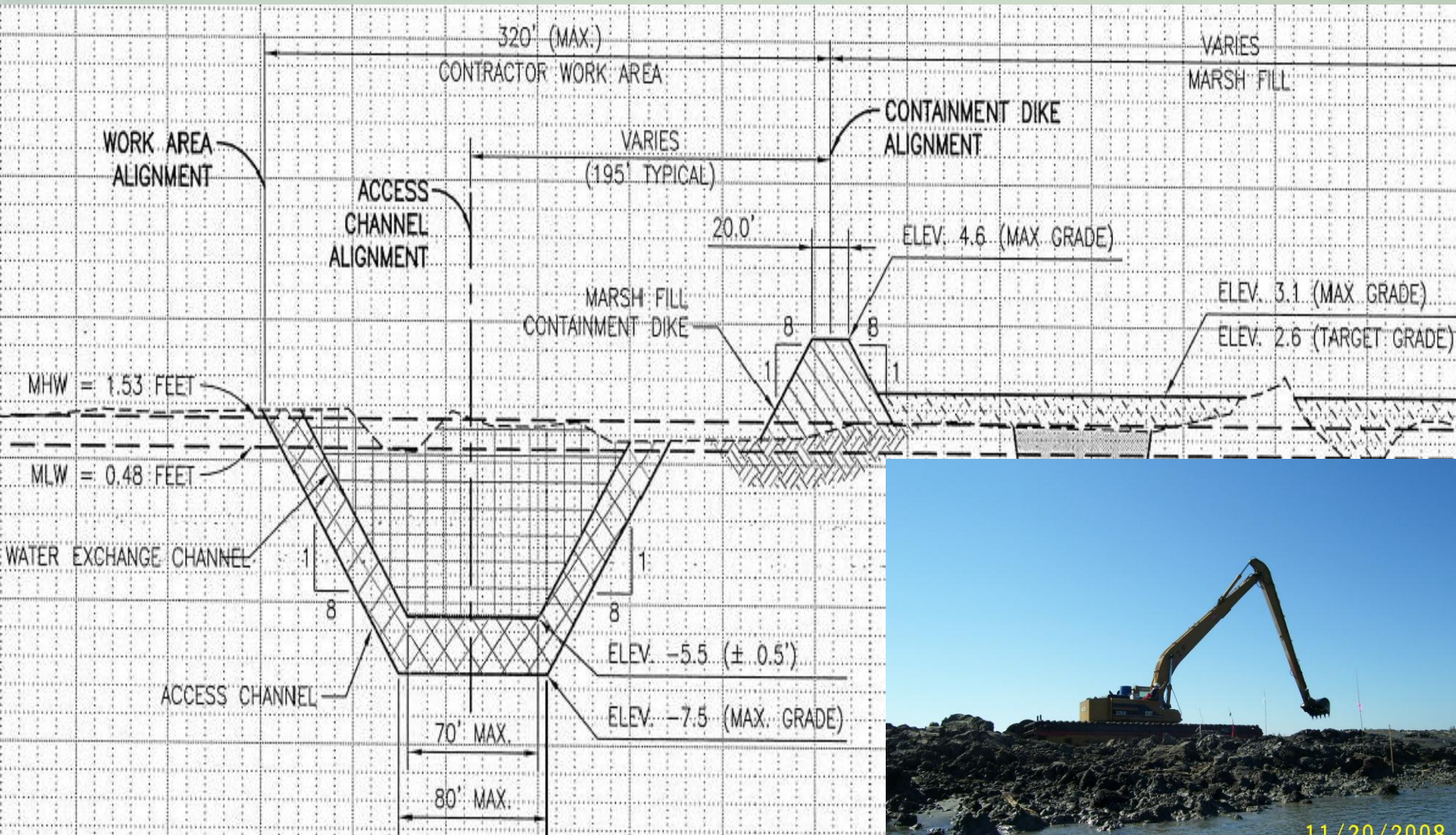
SCALE:
H: 1" = 300'
V: 1" = 10'

STATION 150+00

Typical Fill Template

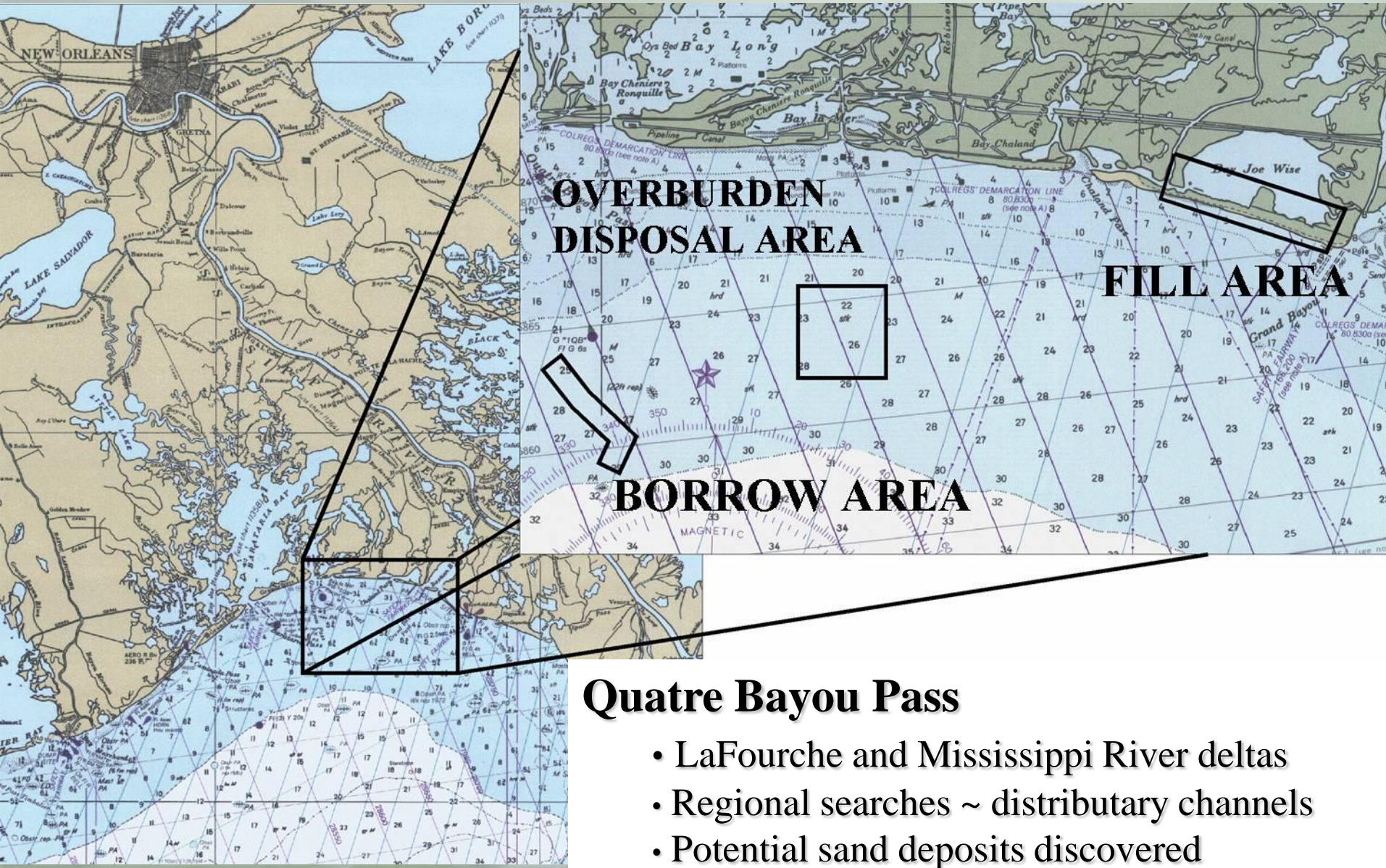


Construction Access



11/20/2008

Borrow Area



Quatre Bayou Pass

- LaFourche and Mississippi River deltas
- Regional searches ~ distributary channels
- Potential sand deposits discovered

DESIGN CHALLENGES

- Bay Circulation and Flushing
- Sand Source Search
 - Three Primary Sedimentologic Units
 - Selective Dredging Process
- Oyster Leases, Pipelines, and Landowners



HURRICANE IMPACTS

➤ **2005: Hurricanes Katrina and Rita**

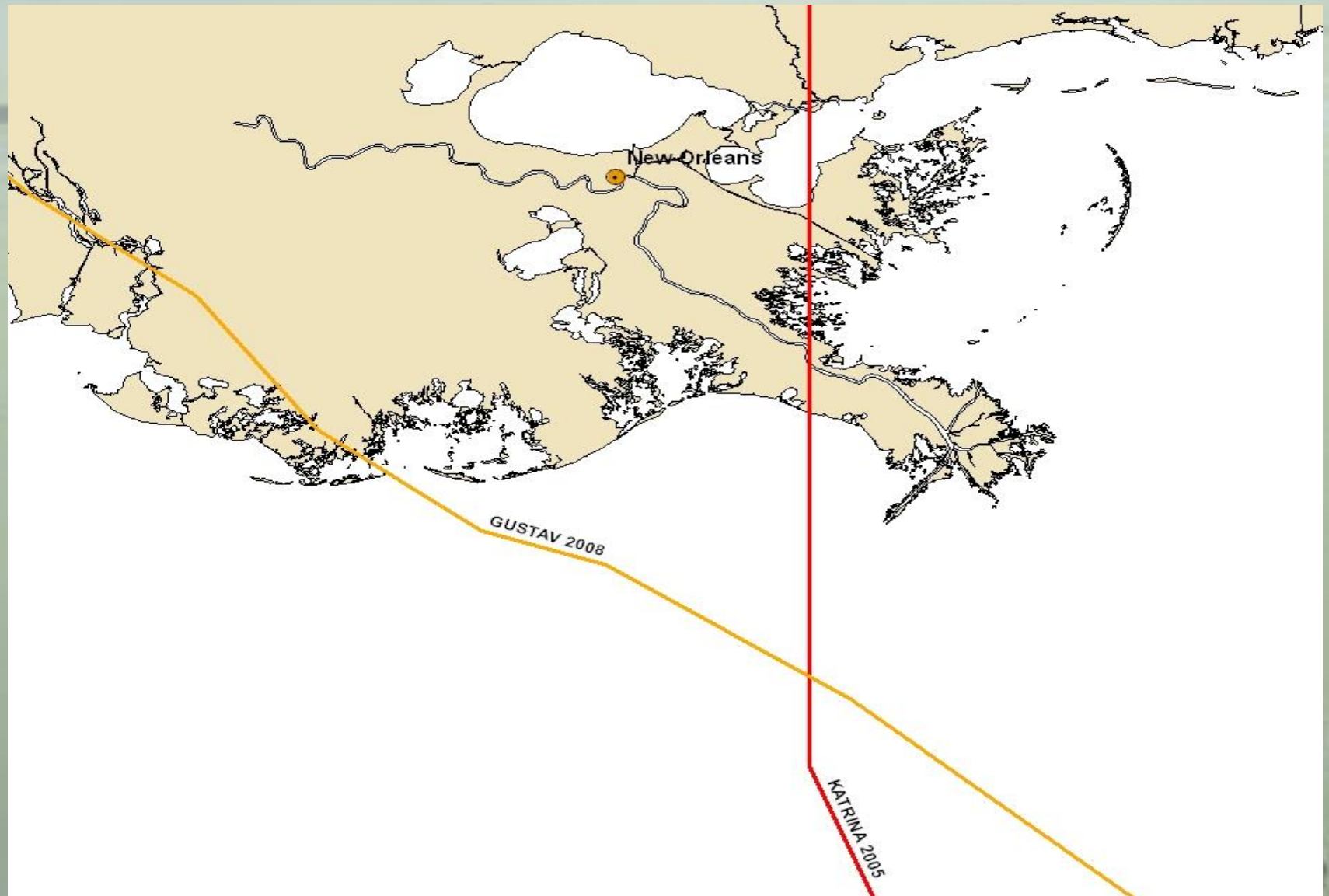
- Design completed prior to storms
- Breach fully opened and became primary tidal exchange with Bay
- Grand Bayou Pass closed ~ leaving one construction access
- > **500,000 CY** of loss / overwash into Bay ~ Necessitated complete redesign of project fill templates

➤ **2008: Hurricanes Gustav and Ike**

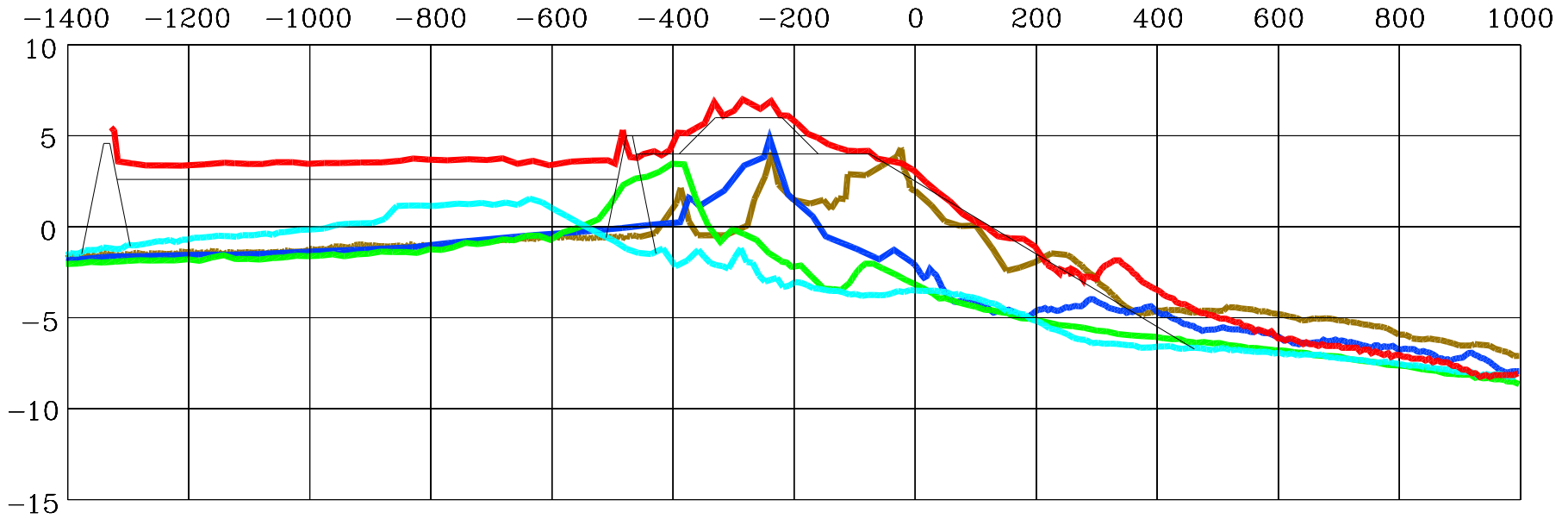
- Contractors demobilized for ~ 40 days
 - 2nd fill template redesign to account for sand overwashing into back bay as well as offshore and alongshore losses
- ❖ **Losses combined with prior storms and background erosion totaled over 1 MCY since 2005 design completed... Price tag increased over \$10 Million Dollars**



Hurricane Tracks



Profile Comparisons



160+00

LEGEND:

- 2003
- 2007
- JUNE 2008 (PRE-CONSTRUCTION)
- NOV. 2008 (PRE-CONSTRUCTION, POST-IKE)
- POST-CONSTRUCTION

CONSTRUCTION DETAILS

➤ **Schedules**

- Construction Period: 6/6/08 – 6/11/09
- Primary Dike Construction Window: 7/3/08 – 2/14/09
- Beach/Dune/Marsh Fill Construction Window: 12/23/08 – 5/17/09

➤ **Dredge Details**

- Dredge: Alaska 30” Cutterhead ~ Great Lakes D&D
 - Average Production Rate ~ 20,630 CY/Day
- Bucket Dredge: Terrebonne Bay ~ Manson Gulf



Construction Elements

➤ **Fill Volumes**

- Beach ~ 1,886,000 CY
- Dune ~ 180,000 CY
- Marsh ~ 890,000 CY

➤ **Dikes**

- Primary ~ 25,600 L.F.
- Secondary ~ 3,000 L.F.

➤ **Accessory**

- Water Exchange Channel ~ 4,100 L.F.
- 6 Settlement Plates
- Sand Fencing ~ 14,400 L.F.
- Vegetative Plantings ~ Back Dike & Dune in 2009

Marsh in 2011



CONSTRUCTION CHALLENGES

- **Addressing Significant Background Erosion & Episodic Losses**
 - Redesigned Restoration Templates
 - Revisited Borrow Area Design
 - Isolated Sections of Central Layer to Provide Sediment to Fill Breach and Complete Restoration Templates
- **Constructing Primary Dikes Adjacent to Breaches**
 - Constructed “low fill” to seal breach
 - Eliminated tidal exchange between bay and gulf
 - Forced flow through Pass Chaland
~ helped maintain access channel



ACKNOWLEDGEMENTS

- **Louisiana Office of Coastal Protection & Restoration**
- **Federal Sponsors: NOAA Fisheries**
- **Contractors: GLDD & Manson Gulf**
- **Aero Photo (aerial shots)**
- **CWPPRA Task Force**
- **Stakeholders**
- **SJB Group, Baton Rouge**
- **CEC Staff**



THAT WAS THEN

December 1, 2008



THIS IS NOW

May 5, 2009



POP QUIZ:

Louisiana Culture

➤ **Question No. 1**

➤ **What is the definition of NUTRIA?**

➤ **A. President Obama's New Urban Tax Relief & Incentives for Americans?**

➤ **B. Swamp rat that is contributing to the decline of the nation's most fragile ecosystem?**

➤ **Save a Marsh.... Eat a Nutria**



POP QUIZ: Louisiana Culture

➤ **Question No. 2**

➤ **What is the definition of BOUDIN BAG?**

➤ **A. Mike Barnett's New Pet Name for Chp 62B-56
"Sand-Filled Geotextile Dune Cores"**

➤ **B. LA Treat ~ Sausage Casing Stuffed with Crawfish,
Alligator, Pork or Seafood with Rice and Vegetables**

➤ **Pass the Hot Sauce....**



POP QUIZ:

Louisiana Culture

➤ Question No. 3

➤ What is the definition of CAJUN?



➤ A. Reality TV's New NetLingo Acronym for
Kate & Jon Make Break

➤ B. French Canadians driven out of Acadia
(aka Nova Scotia) by British in 18th century,
who settled in southern Louisiana

➤ Mardi Gras, Zydeko & Jambalaya...

