

Conference on Ecological and Ecosystem Restoration  
*Lessons Learned*  
on Coastal Restoration Projects  
July 31, 2014  
Kenneth Bahlinger



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# LESSONS LEARNED

- CONSTRUCTION
- ENGINEERING AND DESIGN
- PLANNING
- MONITORING
- OPERATIONS AND MAINTENANCE



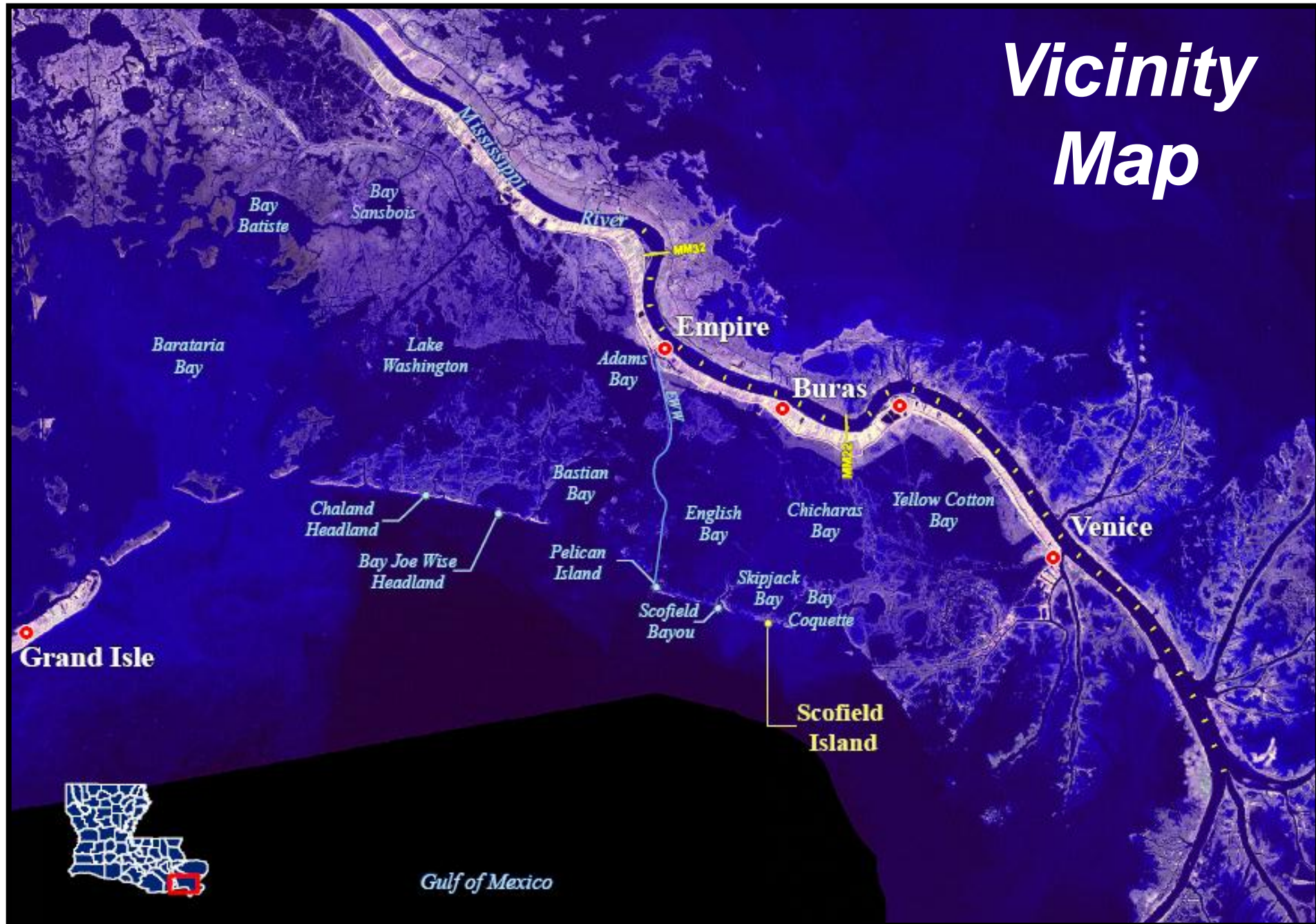
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# Riverine Sand Mining/Scofield Island Restoration (BA-40)

# Vicinity Map



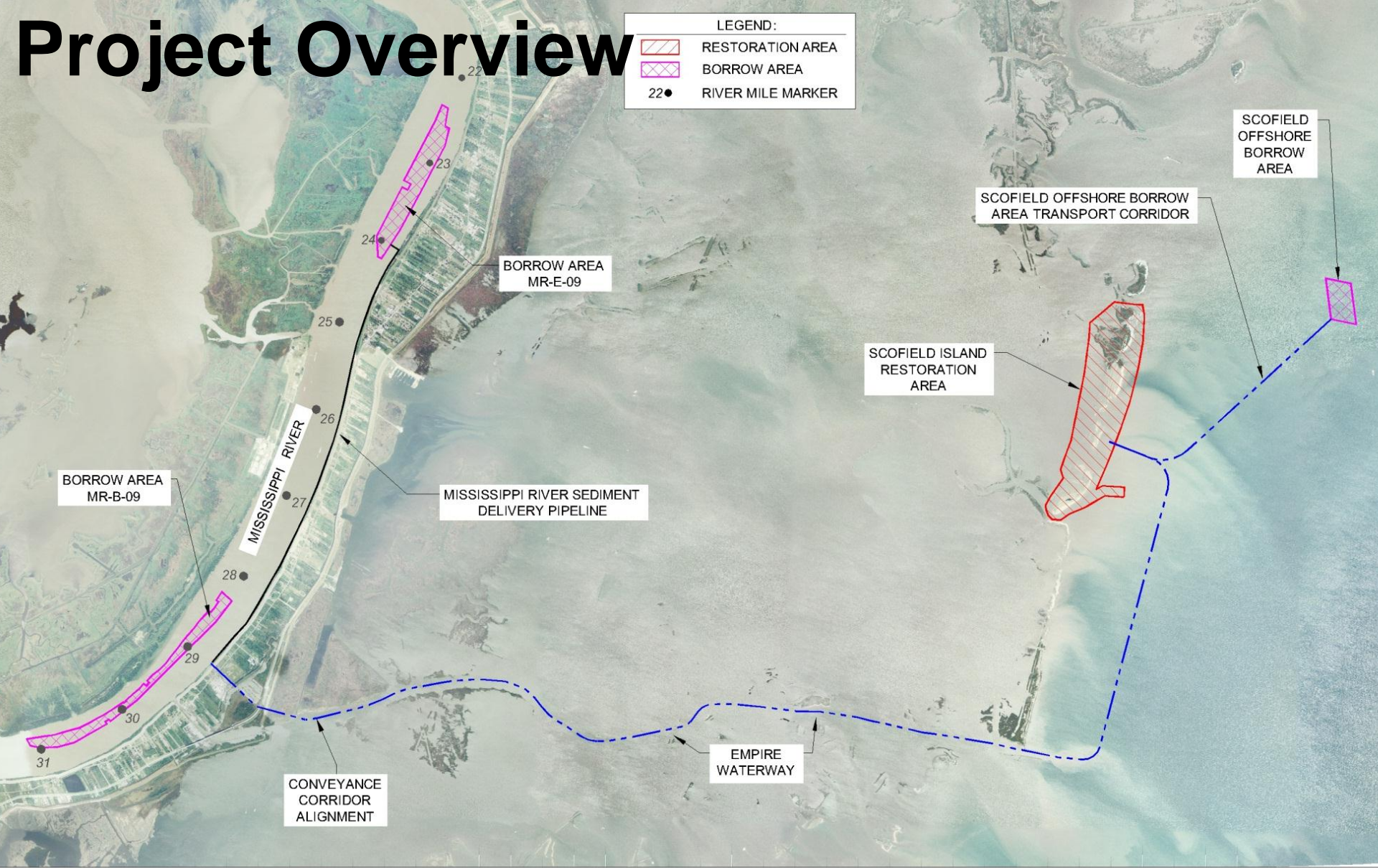
# Project Overview

LEGEND:

RESTORATION AREA

BORROW AREA

22●RIVER MILE MARKER



NOTES:  
1. AERIAL IMAGE FROM U.S. DEPARTMENT OF AGRICULTURE, NOVEMBER 2007.



# Scofield Island



# Unique Aspects of the Project

- First use of Mississippi River Sand for Barrier Island.
- Excavation in one of the nation's busiest navigational waterways.
- Delivery of riverine sediments over 22 miles.
- Construct barrier island on berm platform.
- A conveyance corridors that requires:
  - Jack and bore casing pipe installation under two highways.
  - Crossing of 2 levees and a harbor canal.



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# Lessons Learned

- Sand quality of the Mississippi River performance versus offshore sand source performance.
- Renewability of the Riverine sources.
- Logistics of Riverine Mining in the Mississippi River.
- Communication/Coordinating with Stakeholders.
- Work together with Navigation Industry, U. S. Coast Guard, and U.S. Army Corps of Engineers to ensure Safety, Open Navigation Channel, and River Operations Working together to keep the Mississippi River open, safe, and restore the coast of Louisiana.



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**CPRA**  
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# Containment Dike Failure

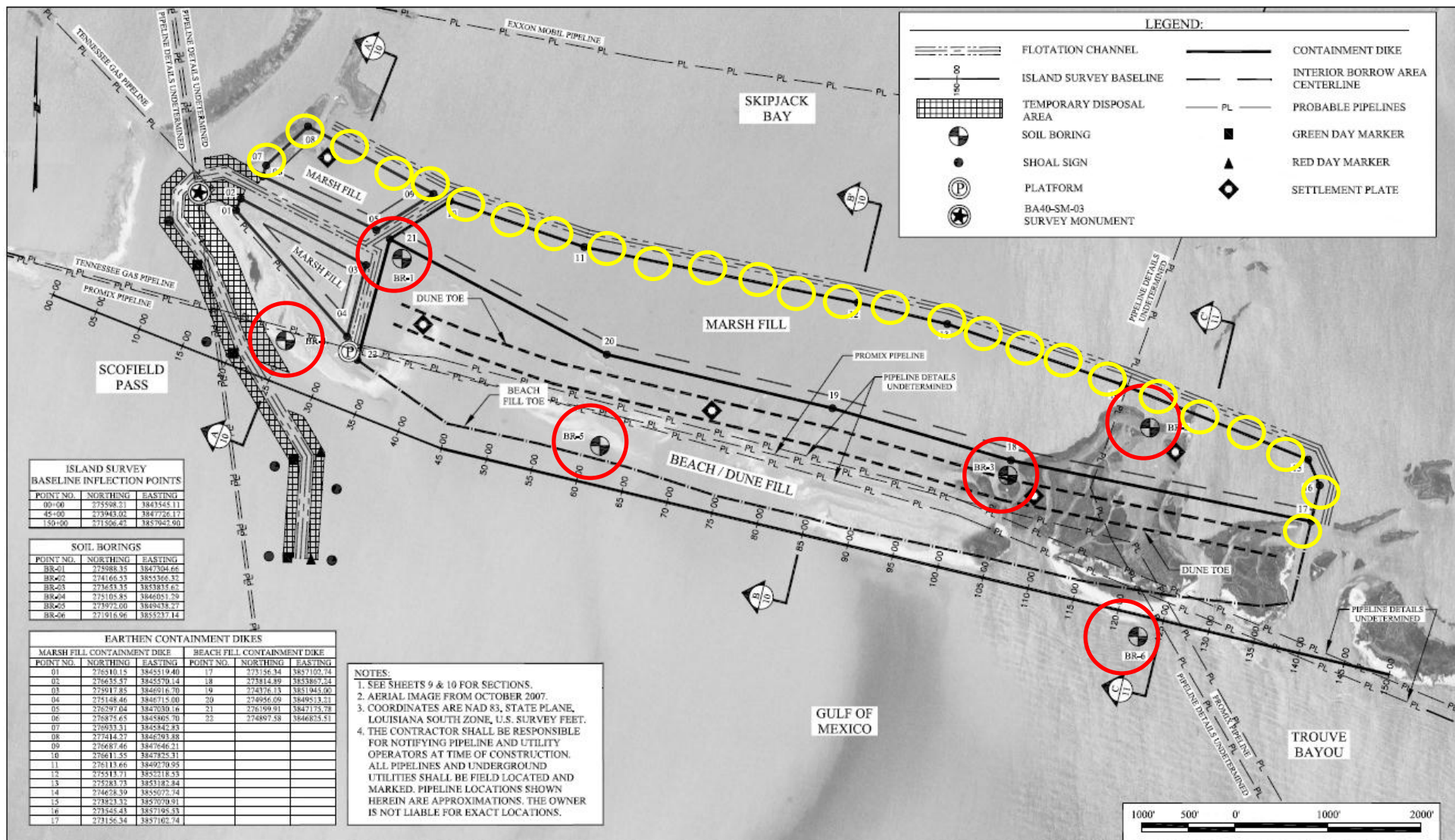


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- Two primary containment dike breaches occurred.
- Progress surveys during construction of the containment dike should be required frequently.
- Soil characteristics can vary along the containment dike alignment.
- The Cone Penetrometer Testing (CPT) provide a cost effective method of providing information about the in-situ soils at the desired higher density along the dike alignment.



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ISLAND SURVEY  
BASELINE INFLECTION POINTS

POINT NO.	NORTHING	EASTING
00+00	275598.21	384345.11
45+00	273943.02	3847726.17
150+00	271506.47	3857942.90

SOIL BORINGS

POINT NO.	NORTHING	EASTING
BR-01	275888.15	3847304.44
BR-02	274166.53	3855366.32
BR-03	273651.35	3853835.63
BR-04	275105.85	3846051.29
BR-05	275975.00	3849538.27
BR-06	271916.96	3853237.14

EARTHEN CONTAINMENT DIKES

MARSH FILL CONTAINMENT DIKE			BEACH FILL CONTAINMENT DIKE		
POINT NO.	NORTHING	EASTING	POINT NO.	NORTHING	EASTING
01	276510.15	3845519.40	17	273156.34	3857102.74
02	274635.37	3845570.14	18	27314.89	3853807.24
03	275917.85	3846016.70	19	274376.13	3851945.60
04	275148.46	3846715.00	20	274956.09	3849513.21
05	276297.04	3847030.16	21	276199.91	3847135.78
06	276875.65	3845405.70	22	274897.58	3846635.51
07	276933.31	3845462.85			
08	275144.27	3846793.88			
09	276687.46	3847646.21			
10	276611.35	3847925.31			
11	276111.66	3849270.95			
12	275113.17	3857118.53			
13	275283.73	3851185.84			
14	274628.39	3855072.74			
15	273823.32	3857070.91			
16	273545.43	3857195.33			
17	273156.34	3857102.74			

NOTES:

1. SEE SHEETS 9 & 10 FOR SECTIONS.
2. AERIAL IMAGE FROM OCTOBER 2007.
3. COORDINATES ARE NAD 83, STATE PLANE, LOUISIANA SOUTH ZONE, U.S. SURVEY FEET.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING PIPELINE AND UTILITY OPERATORS AT TIME OF CONSTRUCTION. ALL PIPELINES AND UNDERGROUND UTILITIES SHALL BE FIELD LOCATED AND MARKED. PIPELINE LOCATIONS SHOWN HEREIN ARE APPROXIMATIONS. THE OWNER IS NOT LIABLE FOR EXACT LOCATIONS.

**STB GROUP, LLC**  
QUALITY BY DESIGN

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NAPLES, FLORIDA 34104

OFFICE OF COASTAL PROTECTION & RESTORATION  
ENGINEERING BRANCH

450 LAUREL STREET  
BATON ROUGE, LOUISIANA 70801

DRAWN BY: DARTEZ

DESIGNED BY: ROBERT CANGELOS, P.E.

RIVERINE SAND MINING /  
SCOFIELD ISLAND RESTORATION

STATE PROJECT NUMBER: BA-40

FEDERAL PROJECT NUMBER: BA-40

APPROVED BY: MAURY CHATELIER, P.E.

ISLAND RESTORATION  
PLAN VIEW

DATE: JANUARY, 2010

SHEET 8 OF 26

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# Permit Modifications

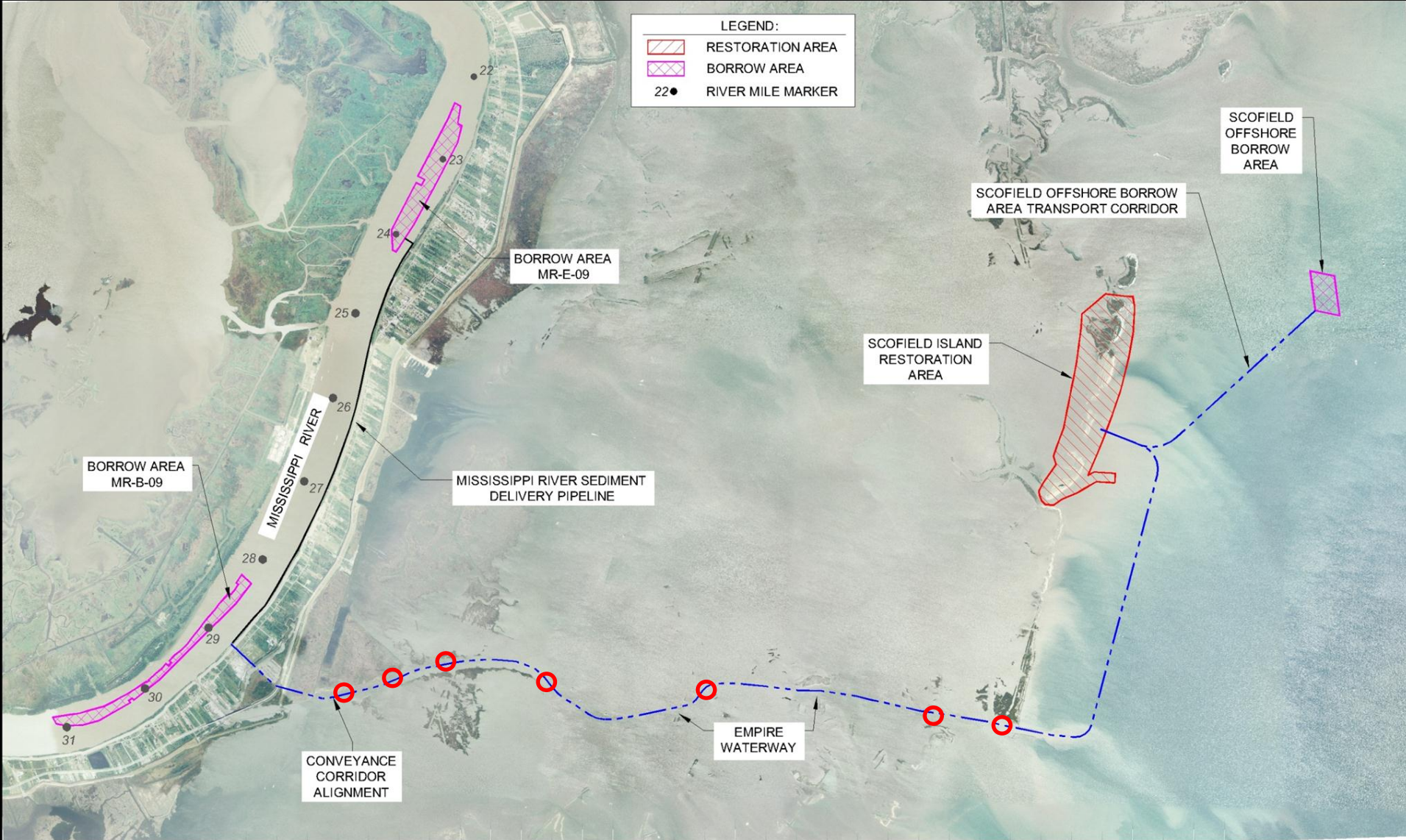
- Anticipate permit modifications.
- Permit more than you need cut and fill.
- Provide options in the permit; Means, methods, corridors, Access, staging areas.



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NOTES:

1. AERIAL IMAGE FROM U.S. DEPARTMENT OF AGRICULTURE, NOVEMBER 2007.



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# Stakeholder Meetings

- Concerns about dredging in the Mississippi River.
- Meet Often and Communicate with Stakeholders.
- Keeps them as a part of the project team.
- Daily e-mail to ACOE, USCG, MNSA on location of dredge, pipe, anchors, and any other pertinent information.



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# Stakeholder Meetings (2007-2011)

- Plaquemines Parish Government
- U.S. Army Corps of Engineers (USACE)
- Louisiana State Historic Preservation Office
- Ancil Taylor
- Plaquemines Parish Government Coastal Zone Management Meeting
- Maritime Navigation Safety Association
- Mississippi River Maintenance Forum
- Louisiana Department of Transportation and Development
- Louisiana State Historic Preservation Office
- USACE – New Orleans District
- Empire Waterway users local interest meeting
- Maritime Navigation Safety Association
- United States Coast Guard
- Plaquemines Parish Government Coastal Zone Management
- Mississippi River Maintenance Forum
- Lower Mississippi River Waterway Safety Advisory Committee
- Crescent City River Pilots
- Gulf States Maritime Association
- USACE – New Orleans District
- Louisiana State Historic Preservation Officers
- Maritime Navigation Safety Association
- USACE – New Orleans District
- Maritime Navigation Safety Association
- Mississippi River Maintenance Forum
- Maritime Navigation Safety Association

# Progress Surveys

- Need Surveys to verify payment.
- Progress Surveys should be required monthly.
- Can tie payment into submission of surveys.
- Allow to verify permit requirements.
- Help manage use of sediments and sediment availability.



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# Inspector

## Quarters barge versus on-land housing

- Contractor works 24/7.
- Inspector should be able to access site at all time.
- At mercy of contractor for transportation to work site.
- Office on quarters barge.
- Better communication and sense of work.



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# Marsh Fill Stakes

- Metal Stakes easier to read
- Contractors prefer cane poles, wooden stakes
- Cane poles, wooden stakes biodegradable
- Metal stakes need to be removed.



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2006/03/10



2013/04/01

# Sand Fencing

- To keep sand from leaving the berm, sand fencing should be installed soon after completion.
- After a section of dune is accepted, sandfencing is to be installed within a period of time after.



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2013/03/29

# Bird Abatement Plan

- Bird Abatement Plan a part of the permit requirements.
- Contractor should begin bird abatement plan early and deter birds often.



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# Rectified Before and After Aerials

A small price to pay to have good visual documentation of work.



# Daily Construction Reports

- Contractor should submit daily reports.
- Include specification to withhold payment unless daily reports submitted.



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# Mandatory Pre-bid Meeting

- Ensures contractors bidding on the project understand all aspects of the project.
- Allow contractors to submit questions in writing.
- Written responses a part of the addendum.



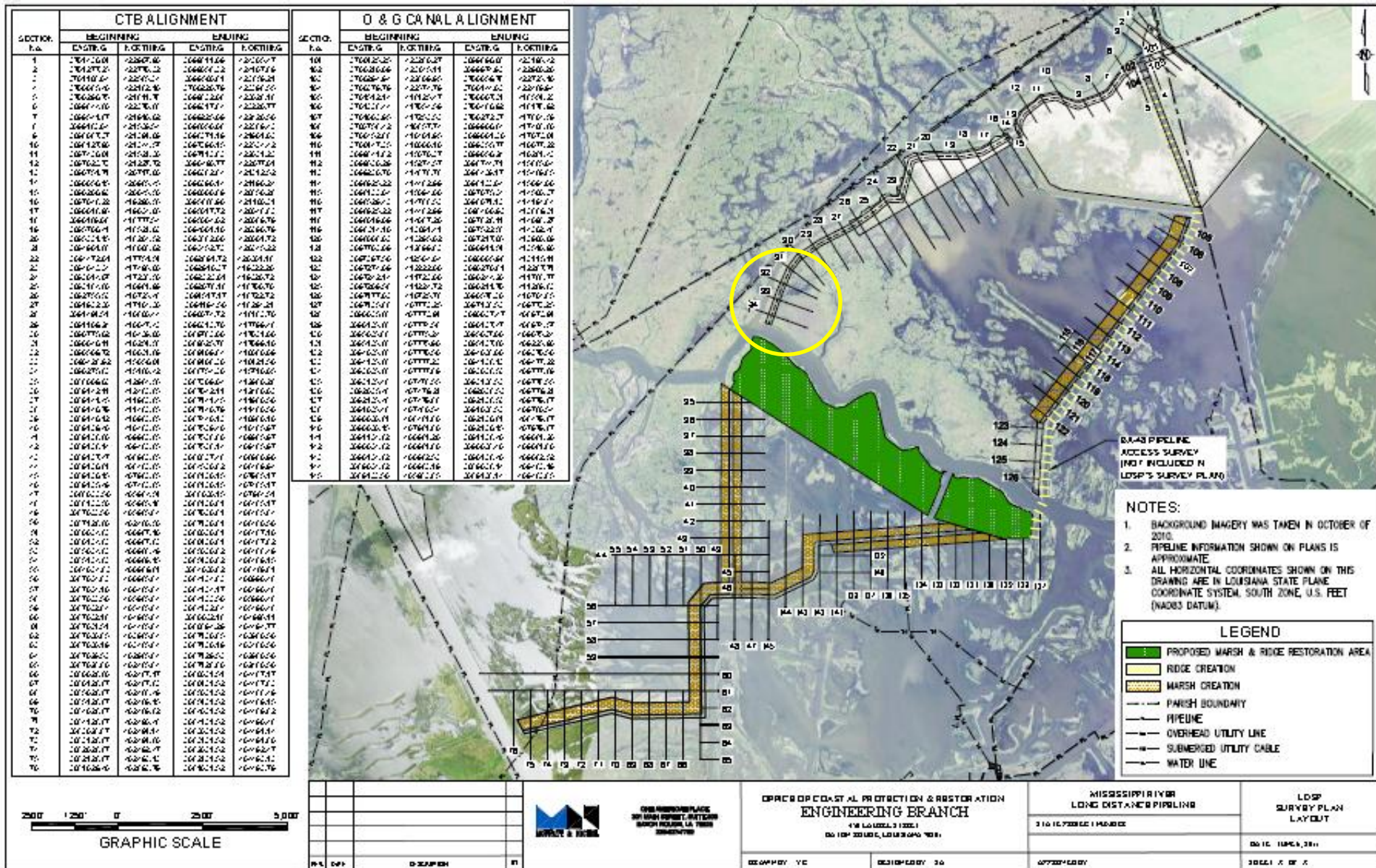
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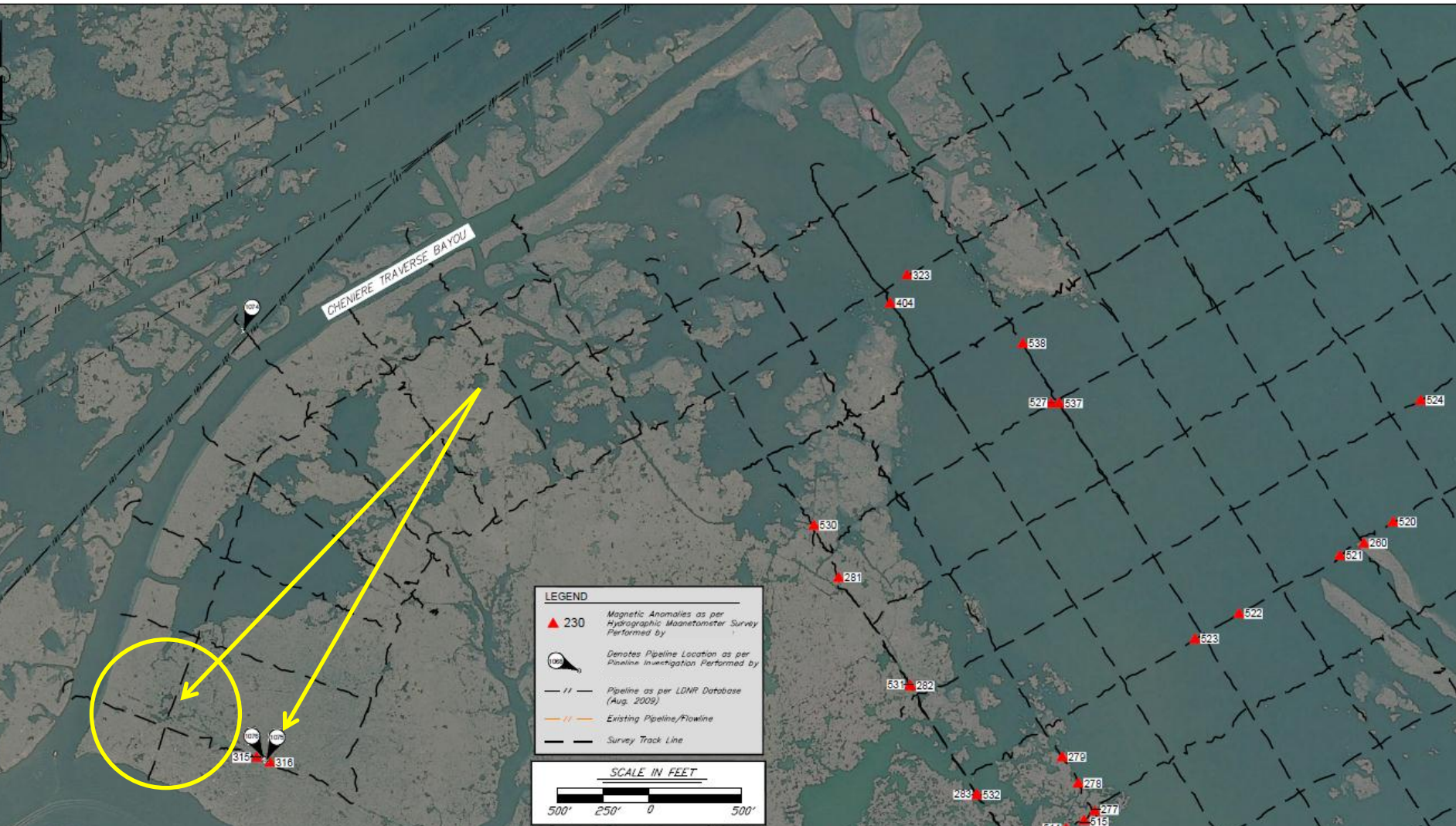
- Pay on the cut lowers cost and risk to contractor.
- Pay on the cut contractor will try to fill to upper tolerances.
- Pay on the fill ensures contractor will meet grade.



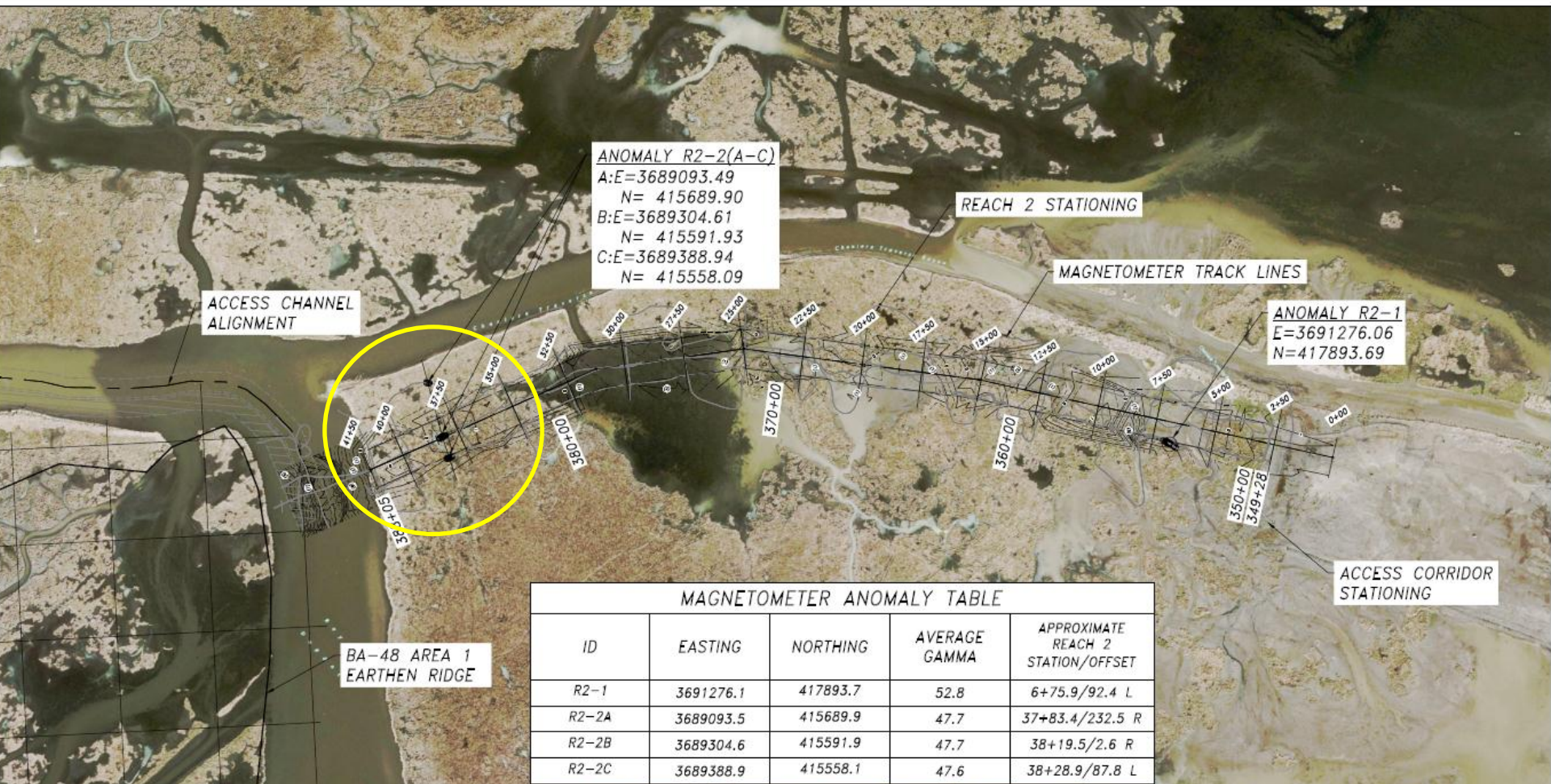
# Magnetometer Survey



# Magnetometer Pre-Design Survey



# Magnetometer Pre-Construction Survey





Cheniere Travers

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Google earth

1998

Imagery Date: 11/14/2012 29°38'17.00" N 90°02'54.43" W elev 2 ft eye alt 12266 ft

# Magnetometer Survey

- Pre-Design Magnetometer Survey.
- Pre-Construction Magnetometer Survey.
- No hits does not always mean area is clear.
- If you get an area of no hits, check to see that magnetometer properly set and calibrated.
- Should almost always get small hits (debris, crabtraps, etc.)



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# Data Collection

“There is no such thing as too much geotechnical data.”



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6/25/09

For additional information/discussion:



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