Conference on Ecological and Ecosystem Restoration

Lessons Learned on Coastal Restoration Projects

July 31, 2014

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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)
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.
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.
Sand Encountered Under Hwy. 23 during Jack and Bore

- Team Meeting to Review Alternatives
- The need for geotechnical investigations should be assessed during design. Sub-surface soil characteristics of a prior Project may not be indicative of current conditions at this location.
Containment Dike Failure

- 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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Permit Modifications

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

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

- 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

Magnetometer Anomaly Table

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<th>ID</th>
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<th>Approximate Reach 2 Station/Offset</th>
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Access Channel Alignment

BA-48 Area 1 Earthen Ridge

Reach 2 Stationing

Magnetometer Track Lines

Anomaly R2-2(A-C)
A:E=3689083.49
N= 415689.90
B:E=3689304.61
N= 415591.93
C:E=3689388.94
N= 415558.09

Anomaly R2-1
L=3691276.06
N=417893.69

Access Corridor Stationing
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.)
Data Collection

“There is no such thing as too much geotechnical data.”
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For additional information/discussion:

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