Bayou d'Inde (Area B)/Lower Canal Sediment Remediation and Marsh Beneficial Reuse Restoration Project Lake Charles, Louisiana

Sevenson Environmental Services, Inc. November 14, 2024

Location



Remedy

- Consolidate impacted sediment from the Bayou d'Inde channel in Lockport Marsh
- Contain impacted sediments by capping
- Reduce concentrations of COCs in impacted sediments by mixing with cover





Wetland Restoration

- Restore wetlands to an elevation that will promote successful plant growth (Spartina Alterniflora)
 - Approximately 40 percent of the coastal wetlands of the lower forty-eight states are located in Louisiana
 - Louisiana has lost up to 40 square miles of marsh per year for several decades
 - Wetland loss average rate of a football field every hour

160 Acres Of Degraded Wetlands







Remedy



New Berth 105,000 CY

> Sediment Placement Areas

27,600 CY Coon Island Lockport Marsh and Lower Canal

Barge Slip

12,000 CY

Clooney Island

Terminals

KCN here DrJ

210

Lake Charles

Bayou d'Inde Channel 149,500 CY

Prien Lake

Port of Lake Charles Terminal 350,000 CY

Site Preparation

- Raise 7,500 LF of existing stone roadways 1-2 feet to contain inflow
- Build more than 7,200 LF of sidecast berms 2 to 4 feet high
- Install water control structures (spillways) to allow controlled discharge of slurry decant water to the surrounding waters
- Installed 875 LF of steel and vinyl sheeting



Site Preparation

- Mobilization of two dredges
- Mobilization of four booster pumps
- Mobilization of +20,000 feet of pipeline





Unique Project Specifications

- Restrictions on flow rates of 3,500 to 7,800 GPM for settling fine solids in the dredge slurry
- In situ cap and cover of minimum 12 and 6 inches using clean dredge materials
- Achieve a target final elevation of 1.7 feet NAVD88
- Placement tolerance of +/- 6 inches within wetlands over 85% of the area
- Constraints working around active oilfield production wells and other pipelines





Field Operations

- Develop a dredge material inflow plan that allowed flexibility and inflow at multiple locations
- Full time dedicated survey and pipeline crew to manage inflow locations and placement coordination





Field Operations

- Work with owner and owners rep during inflow to monitor dredge material coverage, sediment settlement and foundation settlement
- Weekly surveys of dredge material inflow elevations
- Inflow was restricted to 1 foot lifts





Inflow Locations



Barge Slip Construction

Inflow Operations







| Planting Summary | |
|------------------|------------------------|
| Area | Number of Plants Added |
| LP-1 | 25,650 |
| LP-2 | 18,200 |
| LC-3 | 2,600 |
| LP-5 | 3,800 |
| FM-2 | 1,000 |
| FM-3 | 3,200 |
| Total | 54,450 |







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June 2016

August 2016

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Summary

- Sediment cover sampling was required after dewatering to confirm COC concentrations met agency requirements
- Cover sampling was repeated in 2017 and after the first major hurricane
- Two years following construction, dikes were breached to allow natural tidal flow
- Topographic surveys were performed to confirm elevation targets were met





Summary

- 76,200 cy of impacted sediment dredged and placed in sediment containment areas
- 535,000 cy of un-impacted sediment dredged and used for clean cap, cover, and wetland restoration
- Approximately 120 acres of open water/mudflats developed into wetlands
- No change orders for changed conditions
- SES competitively bid and won the next 4 projects
- Client and Sevenson worked closely on additional scope items and value engineering



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