WEST BANK & VICINITY (WBV) 72

CLIENT	West Bank & Vicinity (WBV) 72
LOCATION	New Orleans, Louisiana
VALUE	$ 32 M
DATE	November 2009 - February 2011
SAFETY	Zero OSHA Recordables

Levee | Bridge | Dewatering

Project Background

Following the extensive damage of Hurricane Katrina in August 2005, legislation authorized and funded the reconstruction and improvement of the levee system in the New Orleans region. WBV 72 is part of the West Bank and Vicinity Hurricane Storm Damage and Risk Reduction System (HSDRRS). WBV 72 is a clay levee located in St. Charles Parish and serves the system as a Lake Cataouatche Western Tie In Levee (or East-West Levee).

The WBV 72 construction was designed to add to the existing levee, but not directly on top. As in many of the other ongoing improvement projects, the design called for off-setting the new alignment behind the existing levee and building it taller and farther back.

NorthStar performed all earthwork for the project, including construction of the new embankment over poor soils, removal of an existing levee, dewatering, borrow pit operations and soil conditioning, and overseeing construction of two bridges by our subcontractor.

The overall goal of the entire program is designed to reduce risk to residents within the project area. Structural features being built by the Corps will reduce the risk associated with a storm surge that has a one percent chance of occurring in any given year, or a 100-year storm surge. The total construction value for this area is an estimated $500 million.

Project Snapshot

- 2.4 miles of levee construction/reconstruction
- Embankment height of 13.5'
- Moisture conditioning/compaction of clay soils
- Geotextile for base reinforcement/ separation
- 900,000 CY of materials excavated and placed
- Extensive construction dewatering
- Stringent site environmental controls
- Met fast-track construction schedule

Project Details

Site environmental controls - NorthStar developed and implemented a detailed Environmental Protection Plan in accordance with federal, Louisiana, and local regulatory requirements. The Plan incorporated use of best management practices (BMPs) and construction phasing to comply with water quality standards and protect land, water, air, cultural, and fish and wildlife resources. BMPs for erosion and sediment control included silt fence, hay bales. turbidity curtains, diversion berms/channels, retention ponds and traps, temporary seeding, surface roughening, and proper handling of waste materials.

Earthwork and dewatering - NorthStar excavated and placed about 900,000 cubic yards of material for this project. We used an existing borrow pit as the source of materials for the construction. The pit contained clayey soils (CH and CL) down to about 25 ft that met the project specs. We installed a hydraulic pumping system to maintain groundwater below the excavation grade and facilitate removal of relatively dry material. As material was excavated, it was placed on the high part of the borrow area to allow draining of water and initial soil moisture conditioning prior to hauling.

As part of the work scope, we removed an existing levee in order to construct and stabilize a haul route and soil conditioning area north of the new levee. We also constructed a dewatering trench on the south side of the levee for dewatering during material placement and compaction.

Geotextile placement - The embankment foundation soils were weak, so high-strength woven geotextiles were installed at the subgrade to reinforce the base and separate the poor foundation soils from the overlying embankment. One of the main cost advantages of this solution meant that the poor site soils did not need to be removed and replaced with something more structural, an approach that would have been significantly more expensive. Instead, reinforcing over the subgrade with the geotextile eliminated both differential settlement and slip plane failure concerns.

Embankment construction - The new levee embankment was about 2.4 miles long and 13.5 feet in height. NorthStar installed settlement gauges so that embankment settlement could be calculated as it happened and vetted against the original design. Settlement plates were placed at 300 foot intervals, pre surveyed, and then checked at intervals throughout construction. In areas that settled, we placed and compacted additional fill in order to meet design lines and grades.

Material from the borrow pit was hauled to the north toe of the new levee and either conditioned prior to placement or, if moisture contents were suitable, placed directly onto the levee. Approved embankment materials (those with suitable moisture content) were placed in 6" or 12" loose lifts and compacted per the specifications. Independent QC testing confirmed the adequacy of moisture content and compaction per the specs.

Personnel & equipment

The project was performed with a NorthStar crew of 36 and 67 pieces of equipment.

Schedule and Cost Performance

Like similar fast-track projects in the region simultaneously directed by the USACE New Orleans District Office, WBV-72 had an abbreviated timeline for construction and a strict finish date. NorthStar met the tight schedule, overcoming challenges and performing to the high standards expected by the USACE.
The work was completed within budget.