PROTECTING OUR NATURAL RESOURCES

USACE LPV108

New Orleans East, Louisiana

ACB LEVEE ARMORING

CASE STUDY

PROJECT TEAM

OWNER:
U.S. Army Corps of Engineers
New Orleans, LA

ENGINEER:
U.S. Army Corps of Engineers
New Orleans, LA

JOB NUMBER:
W912P8-15-D-0001 0002 USACE

CONTRACTOR:
BIS / Phylway Construction, LLC

SUPPLIER:
Premier Concrete Products, Inc.

TECHNICAL DESCRIPTION:

Product:	Shoreblock SD 900
Block Type	Open Cell
Square Feet:	754,200
Thickness:	9”
Installation Date:	Oct. 2015

Project Description:

This levee is located on Lake Pontchartrain, New Orleans East. Designers had two concerns: 1) Levee being breached by Lake Pontchartrain due to overtopping and scour **2)** Needed a solution to provide Amtrak & Norfolk Southern an all-weather road to access their rail. The USACE also considered the protection of 380,000 people from the potential storm surge of Lake Pontchartrain.

Problem:

Prior to this project, the area experienced many years of threatening storm surge similar to Hurricane Katrina in 2005. The levee performance issues seen during Katrina prompted many governing agencies to begin rethinking the levee protection system surrounding New Orleans. Using this project as a model, many similar projects are being proposed and designed in a cumulative effort to enhance the New Orleans and Plaquemines Parish Hurricane Risk Reduction System.

Solution:

The Corps of Engineers selected a 9” open cell articulating concrete block along with a HPTRM erosion control mat for the landslide slope to armor six miles of levee and provide: flexibility, protection against storm surge from Lake Pontchartrain, revegetation growth and a driveable/all-weather road for Amtrak and Norfolk Southern rail system.

The New Orleans USACE District Office provided leadership and coordination with the US Coast Guard and the Southeast Louisiana Flood Protection Authority for a successful resolution.

PROTECTING OUR NATURAL RESOURCES

CASE STUDY

HOLLY BEACH

Cameron Parish, Louisiana

ACB SHORELINE PROTECTION

LAND SIDE AFTER HURRICANE IKE (2008)

GULF SIDE AFTER HURRICANE IKE (2008)

PROJECT TEAM

OWNER:
Louisiana Dept. of Transporation & Development

ENGINEER:
Louisiana Dept. of Transporation & Development

SUPPLIER:
Premier Concrete Products, Inc.

TECHNICAL DESCRIPTION:

Product:	Shoreblock SD 900
Block Type:	Open Cell
Square Feet:	465,000
Thickness:	9”
Installation Date:	1984

Holly Beach project site is located in Cameron Parish, in extreme southwestern Louisiana. The Chenier Ridge that supports LA Hwy 82 is the last line of defense protecting thousands of acres of intermediate marsh habitat in the Sabine National Wildlife Refuge from the Gulf of Mexico. LA Hwy 82, the only east-west road in the area, also serves as the only Hurricane evacuation route for local communities providing residents of Johnson’s Bayou, Ocean View Beach, Constance Beach, and Holly Beach egress west to east, and then northward on LA 27.

Shoreline erosion in this area is caused by Mississippi River channelization and Calcasieu Ship Channel jetties, limiting sediment transport availability, and is accelerated by frequent storm events. Prior to the 1984 and 1988 ACB armoring projects, shoreline erosion in the project area was occurring at rate of 24 ft. per year. Following several unsuccessful shoreline armoring projects in 1970 and 1977, the Louisiana Department of Transportation utilized 9” thick ACB mattresses on two subsequent projects completed in 1984 and 1988.

Since completion of these two Gulf-Side Armoring projects, the site has experienced numerous Tropical Storms and Hurricanes during the last 20 year period, including a direct hit from Rita in 2005 and significant effects from Ike in 2008. Although the highway has sustained repeated damage on the **un-armored** landside during overtopping events, the armored Gulf side has performed exceptionally, while preventing any significant damage to the armored (Gulf) side of Hwy 82[1].