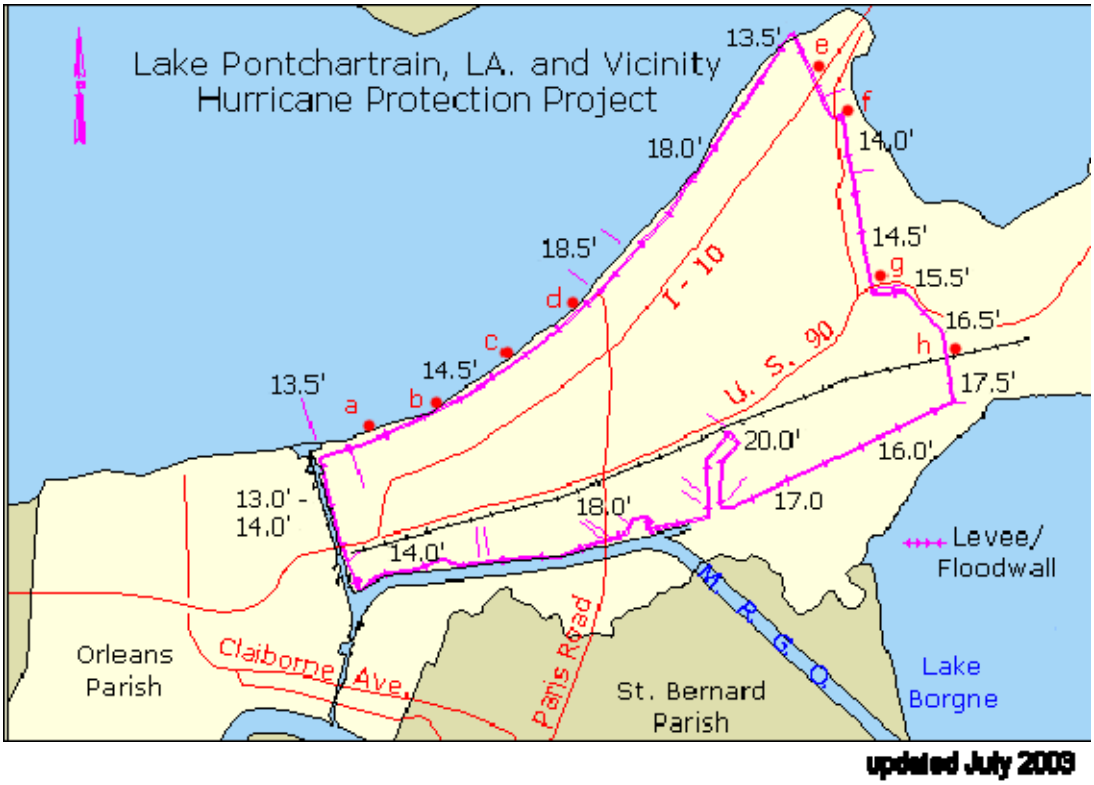
LAKE PONTCHARTRAIN, LA AND VICINITY HURRICANE PROTECTION PROJECT
ORLEANS, ST. BERNARD, JEFFERSON AND ST. CHARLES PARISHES, LA

NEW ORLEANS EAST

1 OCTOBER 2005

DAMAGE SURVEY REPORT (DSR)



Background

The New Orleans East hurricane protection system was designed as part of the Lake Pontchartrain, LA. And Vicinity Hurricane Protection Project. The New Orleans East portion of the project protects 45,000 acres of urban, industrial, commercial, and industrial lands. The levee is constructed with a 10-foot crown width with side slopes of 1 on 3. The height of the levee varies but is in the range of 13 - 19 feet. There are also floodwall segments along the line of protection that consists of sheet-pile walls or concrete I-walls constructed on the top of sheet-pile. The line of protection was designed to provide protection from the Standard Project Hurricane (approximately a fast moving Category 3 storm).

The New Orleans East Protection Levee east of New Orleans, LA was damaged by Hurricane Katrina in late August 2005. The protected area is located just east of the Inner Harbor Ship Channel. The flood event produced storm levels at the levee along the Gulf Intracoastal Waterway at approximately EL. 19.0. The height of the existing levees levees varied but the levee crowns were generally at approximately EL. 17.0. Several breaches, scour and severe erosion occurred along this stretch of levee as the result of the over topping.

Hurricane Protection Features

206,000 ft of Levees and Floodwalls
8 Pump Stations
2 Highway Closure Structures
1 Railroad Closure Structure

Damage

Total length of levee w/o cross section	2,900 ft.
Total length of levee w/reduced cross section	3,800 ft.
Total length of damaged flood wall	24,600 ft
	31,300 ft.

Additional information detailing specific damages are presented in the Levee and Inspection Observation Sheets included in this DSR. The Levee and Inspection Observation Sheets identify type and location of protection feature, and the severity of damage. The inspection sheet are available electronically at: \\mvn-fs01\data\ed\edt\katrina\Katrina TFG NO East\DSR.

Note: In preparing this DSR, all quantity estimates of fill material in this report were calculated from digital terrain models. The digital terrain models were developed by entering X,Y,Z data sets in Inroads (Select CADD).

1. **Railroad Floodgate**: The CSX railroad floodgate and adjacent section of the levee were damaged during the storm event. There was scour of the structural fill material resulting from overtopping of the closure gate and levee.

Figure 1 CSX Railroad gate (Photo S-1)

Index to photos provided at last page of this document

2. **New Orleans East Back Levee**: There is 12,750 feet of levee east of Pump Station #15 that is completely degraded. West of the pump station, 9,800 feet of levee is completely degraded. The remaining level of protection is EL 4.0. It is estimated that 400,000 cys of fill will be required to restore the degraded levee in the reach.

Figure 2 Intracoastal Waterway Breach east of Pump Station #15 - levee completely degraded (Photo S-7)

Figure 3 Partial breach east of Pump Station #15 (Photo S-8 thru 19)

Figure 4 I-wall failure with erosion and scouring (Photo S-20)

Figure 5 Hydrogen Plant (Air Products) Breach. I-wall failure (Photo S-32)

Figure 6 Localized scouring - typical of several locations

(S- 22 thru 26 and 28 thru 31)

2. Citrus Back Levee

The most severe damage in this reach is a 2000 ft. section of I-wall that failed by rotation, with attendant erosion and scouring. The extend of material below the water surface that has been removed by the scouring is unknown. Localized scouring occurred at several locations along this reach. The total quantity of material removed by scouring within this reach is estimated at 150,000 cys.

Figure 7 I-wall failed by rotation with attendant erosion and scouring. Quantity of materials removed estimated at 65,000 cys

(Photo S-37)

Figure 8 Land side slope erosion at utility crossing

(Photo S - 38 thru 40)

Figure 9 Major erosion of crown, river and land side slopes

(Photo S - 4 and 5)

Figure 10 Narrow breach (Photo S - 34)

Figure 11 Scouring at closure structure and road

(Photo S - 42)

Figure 12 L/S Scouring of 600 ft reach (Photo S- 35)

3. New Orleans Lakefront Levee

The damage in this reach of the protection system is primarily scouring along the landside of the floodwall and levee sections at several distinct locations. The severity of the scouring varies from minor to severe. Scouring occurred, to some degree at each of the tie-in to the closure structures located within this reach. The total quantity of materials removed by scouring along the entire Lakefront reach is estimated to be less than 5000 cys.

Figure 13 Scouring at N.O. Airport Floodwall

(Photo S - 49)

Figure 14 Crown and L/S scouring - typical of this reach

(Photo S - 52)

Figure 15 Minor scouring L/S of floodwall

(Photo S - 53 and 54)

New Orleans East Photo Index