The control structure. High level crossings of the Texas and Pacific Railroad traverse 125 bays, each 28 feet 3 inches wide, with gates operated by gantry crane. The structure consists of a concrete weir supported on piles. The weir has a head of 55 feet above mean sea level, with 13 feet above normal water level and 400 feet or more horizontal clearance. Navigation under the bridges is facilitated by fixed type gates with vertical clearances of 2 feet above high water and 13 feet above normal water level with 400 feet or more horizontal clearance.

Channel construction was completed in January, 1942, and the floodgates were completed in September, 1950. The levee along the Mississippi River is 100 miles long, with an average of 20 feet in height. It is continuous from Pointe Coupee Parish above the town of Morganza, approximately 12 miles southeast to the city of Morgan City. The levee along the Atchafalaya River is 20 miles long, with an average of 15 feet in height. The levees along the Mississippi and Atchafalaya Rivers provide protection for farmlands adjacent to the floodway, which is completely enclosed and protected by the levees along the Mississippi and Atchafalaya Rivers.

The Wax Lake Outlet is located in the lower Atchafalaya Basin, providing an additional outlet from the Atchafalaya River to the Mississippi River. It is located 7.9 miles in length along Bayou des Glaises and provides protection for the lower guide levee extending from the control structure at Morganza to Atchafalaya Springs, a distance of 20 miles. The floodway is situated between the River levee and the West Atchafalaya Basin protection levee. The floodway is 400 feet in depth, with an average of 15 feet in height. It provides protection for the levees along the Mississippi and Atchafalaya Rivers and the transcontinental communication routes at Rouen, New Orleans, and Mexico.

The Morganza System traced to Acadiana Areas. The diagram shows the levee, earthfill dam, U.S. Highway, and U.S. Canal and the Wax Lake Outlet. The Morganza System was completed in 1954, with a total cost of $300 million. The system consists of levees, floodgates, and spillways designed to prevent floodwaters from entering the bayou area and to provide protection for the levees along the Mississippi and Atchafalaya Rivers.