SOUTH FORK LITTLE RED RIVER BRIDGE
Spanning South Fork Little Red River at US 65
Clinton vicinity
Van Buren County
Arkansas

HAER AR-95
AR-95

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
U.S. Department of the Interior
1849 C Street NW
Washington, DC 20240-0001

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SOUTH FORK LITTLE RED RIVER BRIDGE

HAER No. AR-95

Location:	Spanning South Fork Little Red River and Pilgrim's Pride Road at US 65, Clinton vicinity, Van Buren County, Arkansas
UTM:	15.549693.3938102, Clinton, Arkansas, Quad.
AHTD #:	01486
Structural Type:	Continuous Warren deck truss
Construction Date:	1931; widened 1962
Designer:	N.B. Garver, Engineer, Arkansas State Highway Commission
Builder:	M.K. Orr Contracting, Little Rock, Arkansas
Owner:	State of Arkansas
Use:	Vehicular bridge
Significance:	Designed by the Arkansas State Highway Commission, the South Fork Little Red River Bridge was an important component of the development of US Highway 65, which opened the Ozark Region to tourism and commerce and remains a heavily-traveled highway. The bridge is slated for replacement as of 2007.
Project Information:	The Arkansas Historic Bridges Recording Project is part of the Historic American Engineering Record (HAER), a long-range program that documents historically significant engineering sites and structures in the United States. HAER is administered by the Heritage Documentation Programs Division of the National Park Service, United States Department of the Interior, Richard O'Connor, Manager. The Arkansas State Highway and Transportation Department sponsored this project. Lola Bennett, HAER Historian, 2007

Chronology

1803 Louisiana Purchase doubles size of the United States

1819 Arkansas Territory created from part of Louisiana Purchase

1833 Van Buren County formed

1836 Arkansas becomes 25th state to join the Union

1842 George Counts of Tennessee settles at present-day Clinton

1844 Van Buren County seat established at Clinton

1906 *Arkansas Gazette* describes Clinton as a "*progressive and prosperous*" community

1910 First automobile at Clinton gets stuck in the mud while attempting to cross South Fork

1912 Clinton population 500

1913 Arkansas Highway Commission created

1931 South Fork Little Red River Bridge constructed

1938 Town of Clinton incorporated

1962 South Fork Little Red River Bridge widened

2008 South Fork Little Red River Bridge scheduled for replacement when US 65 is widened

Description

South Fork Little Red River Bridge is a riveted steel, continuous Warren deck truss bridge on cylindrical concrete piers, with a four-span reinforced concrete girder approach at the west end. The bridge is 405' long overall, with a 100' main span. The bridge was widened on the south side with a continuous welded plate girder in 1962.

History

This section of present-day US Highway 65 was laid out as a county road sometime prior to 1916, when it appears on maps of Van Buren County. No records have been found concerning a prior bridge at this location, so presumably the river was forded until the present bridge was erected in 1931.

By the late 1920s, the Ozark region was becoming a popular tourist destination and a group of local delegates formed the US Highway 65 Association to promote improvements on this heavily-traveled scenic route through Arkansas and Missouri.[1] The Arkansas State Highway Commission began drawing up plans for the South Fork Little Red River Bridge in February 1931. Two months later, the construction contract was let to M.K. Orr of Little Rock.[2] Construction of the South Fork Little Red River Bridge began in May and was completed in October 1931 at a cost of $50,529.23.[3]

Design

In 1848, British engineers James Warren and Theobald Monzani patented the "triangular girder," commonly known as the Warren truss.[4] The Warren truss has inclined members sloping in opposite directions to form a series of equilateral triangles. This configuration allowed the web members to alternately carry tensile and compressive stresses under moving loads. In 1849, Squire Whipple (1804-1888) became the first American bridge builder to apply this simple and economical truss type to bridges.[5] While never common during the wooden bridge era, the Warren truss gained popularity in the latter half of the nineteenth century, when it was adapted to iron and steel. By 1900, the Warren and Pratt trusses were almost universally used for steel highway and railroad bridges. Differentiations that occurred tended toward engineering modifications (e.g. polygonal chords and sub-divided panels), deck placement, and the use of continuous spans.

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[1] "To Urge Paving of U.S. Highway No. 65," *Van Buren County Democrat*, 5 June 1931, 1.
[2] Milan K. (M.K.) Orr was listed as a bridge contractor in Little Rock city directories in 1929-31.
[3] Arkansas State Highway and Transportation Department, Bridge Records: Bridge No. 01486.
[4] James Warren and Theobald Monzani, British Patent No. 12,242, 1848.
[5] Whipple states "The author built several small bridges upon this plan, to carry a railroad track over common highways, in 1849 or 1850, believed to have been the first application of this form of truss." [Squire Whipple, *An Elementary and Practical Treatise on Bridge Building* (New York: D. Van Nostrand, 1883), footnote, p.69.]

The primary rationale for the use of a deck truss, with the truss below the roadway, is one of economy, allowing for significantly shorter—and less expensive—substructure (i.e. piers and abutments) than would be required for a through truss bridge.

Making the trusses continuous over the piers allows loads on one span to be resisted, in part, by adjacent spans. This redistribution of stresses results in maximum member forces, allowing for longer spans using the same amount of material. The haunches supply a greater web depth over the piers, where reverse bending forces occur.

South Fork Little Red River Bridge is one of three continuous deck truss bridges identified in the Arkansas Highway and Transportation Department historic bridges database, the others being the White River Bridge (1952) on US 62 in Carroll County and the East Cadron Creek Bridge (1939) on US 65 in Faulkner County.[6]

[6] Six bridges are classified as steel deck trusses in the Arkansas Highway and Transportation Department historic bridges database, but only the South Fork, White River and East Cadron Creek bridges are continuous over the piers.

Sources

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