

OZARK COUNTY

INCLUDED: [Significant feature(s) of bridge given in boldface]
 [Field inventoried bridge indicated by asterisk]

Inv. No.	FHWA	Bridge Name	Description
*OZAR01	K 817R	Bull Shoals Lake Bridge	10-180' riveted Camelback through truss 1952 Maxwell Bridge Company
*OZAR02	253000.3	Barren Fork Bridge	3- 80' concrete filled spandrel arch 1925 Republic Concrete Constr. Co.

EXCLUDED:

Warren pony truss
S 475

Steel stringer
S 476 189000.4 254000.1 255000.5

Concrete girder
X 768 156000.2

Concrete slab
T 968 X 990 Y 579 015002.5 107001.1 113002.0 119000.5
119000.9 134001.7 134002.6 137000.8 152001.9 156000.1 184000.1
193000.8 256000.1

Concrete box culvert
S 78 S 477 S 610 Y 494

Timber stringer
223004.9

SUMMARY:

	Primary	Secondary	Urban	Other	Total
Included	1	1	0	0	2
Excluded	10	18	0	0	28
	11	19	0	0	30 structures

Bull Shoals Lake Bridge

OZAR01

GENERAL DATA

structure no.:	K 817R	city/town:	12.0 miles southwest of Gainesville
county:	Ozark	feature inters.:	Bull Shoals Lake
		cadastral grid:	S19, T22N, R15W
		highway route:	State Highway 160
		highway distr.:	8
		current owner:	Missouri Highway and Transportation Department

STRUCTURAL DATA

superstructure:	steel, 8-panel, rigid-connected Camelback through truss		
substructure:	concrete abutments, wingwalls and piers		
span number:	10	condition:	excellent
span length:	180.0'	alterations:	none
total length:	1817.0'	floor/decking :	asphalt-covered concrete deck over steel road-stringers
way width:	22.0'	other features:	upper chord and inclined end post: 2 channels with cover plate and lacing; lower chord: 2 channels with batten plates; vertical: wide flange; diagonal: wide flange; counter: 2 angles with batten plates; lateral bracing: 2 angles with batten plates -top, 1 angle - bottom; strut: built-up I-beam; floor beam: I-beam; guardrail: 2 steel channels (Armco at approach spans)

HISTORICAL DATA

erection date:	1951-52
erection cost:	\$927,965.80
designer:	Missouri State Highway Department
fabricator :	U.S. Steel Company, Pittsburgh PA
contractor:	Maxwell Bridge Company
references:	Missouri Highway and Transportation Department, Structure Inventory and Appraisal: Structure No. K 817R; Missouri Highway and Transportation Department, Primary System Bridge Record, located at Bridge Division, MHTD, Jefferson City MO; field inspection by Clayton Fraser and Paula Sutton, 25 January 1990.
sign. rating:	63
evaluation:	NRHP possibly eligible (well-preserved, large-scale highway bridge, less than fifty years old)

inventoried by: Clayton B. Fraser 1 March 1990

Barren Fork Bridge

OZAR02

GENERAL DATA

structure no.:	253000.3	city/town:	7.1 miles northwest of Gainesville
county:	Ozark	feature inters.:	Barren Fork Creek
		cadastral grid:	S16/17, T23N, R14W
		highway route:	old State Highway 5, now County Road 833
		highway distr.:	8
		current owner:	Ozark County

STRUCTURAL DATA

superstructure:	concrete filled spandrel arch		
substructure:	concrete abutments, wingwalls and piers		
span number:	3	condition:	good
span length:	80.0'	alterations:	none
total length:	296.0'	floor/decking :	asphalt-covered concrete deck
roadway width:	20.0'	other features:	MSHD-standard concrete guardrail design with square balusters and angled brackets

HISTORICAL DATA

erection date:	1925
erection cost:	\$20,995.49
designer:	Missouri State Highway Department
fabricator :	none
contractor:	Republic Concrete Construction Company
references:	Missouri Highway and Transportation Department, Structure Inventory and Appraisal: Structure No. 253000.3; Missouri State Highway Commission, Fifth Biennial Report : 1925-26, page 203; Missouri Highway and Transportation Department, Primary System Bridge Record, located at Bridge Division, MHTD, Jefferson City MO; field inspection by Clayton Fraser and Paula Sutton, 25 January 1990.
sign. rating:	51
evaluation:	NRHP possibly eligible (well-preserved, multiple-span example of MSHD arch bridge construction)

inventoried by: Clayton B. Fraser 1 March 1990

HAER INVENTORY

Missouri Historic Bridge Inventory

NAME(S) OF STRUCTURE

Bull Shoals Lake Bridge
MHTD: K 817R

OZAR01

DATE(S) OF CONSTRUCTION

1951-52

LOCATION

State Highway 160 over Bull Shoals Lake; S19, T22N, R15W
12.0 miles southwest of Gainesville; Ozark County, Missouri

USE (ORIGINAL / CURRENT)

highway bridge / highway bridge

RATING NRHP possibly eligible (score: 63)

CONDITION

excellent

OWNER

Missouri Highway and Transportation Department

span number: 10
span length: 180.0'
total length: 1817.0'
roadway wdt.: 22.0'

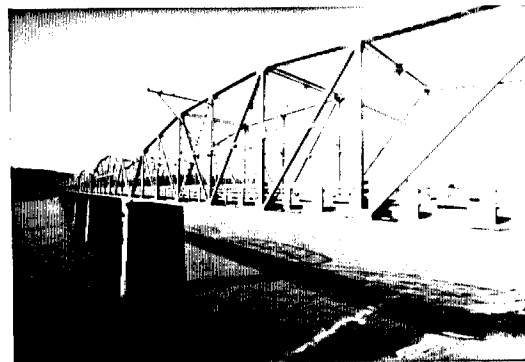
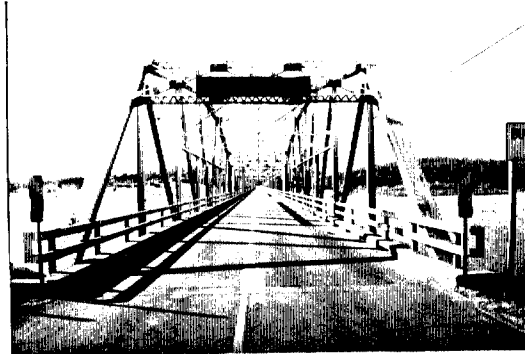
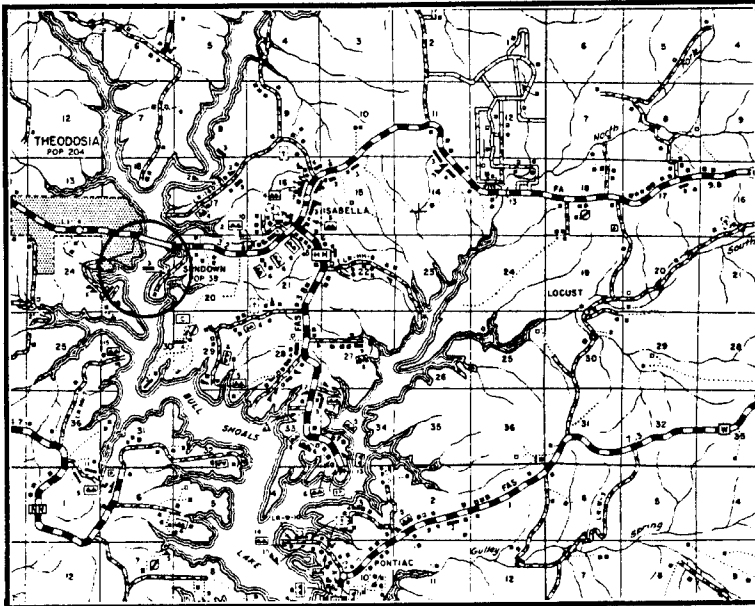
superstructure: steel, 8-panel, rigid-connected Camelback through truss
substructure: concrete abutments, wingwalls and piers
floor/decking: asphalt-covered concrete deck over steel stringers
other features: upper chord and inclined end post: 2 channels with cover plate and lacing; lower chord: 2 channels with batten plates; vertical: wide flange; diagonal: wide flange; counter: 2 angles with batten plates; lateral bracing: 2 angles with batten plates -top, 1 angle -bottom; strut: built-up I-beam; floor beam: I-beam; guardrail: 2 steel channels (Armco at approach spans)

In mid-1941, the Missouri State Highway Department designed a nine-span concrete deck girder bridge to carry State Highway 160 over the North Fork of the White River in western Ozark County. That October a construction contract was awarded to Carruthers and Crouch to build the bridge. They completed the structure the following year. The White River Bridge carried traffic for only ten years before it was threatened by water impounded behind the Bull Shoals Dam. Built by the U.S. Army Corps of Engineers in northern Arkansas, the dam impounded the White River, backing the reservoir over the level of the existing bridge. In 1951 the state highway department designed a replacement structure for this crossing - a ten-span riveted through truss. With an overall length of over 1800 feet, it was more than four times longer than the 1941 bridge; additionally the concrete piers and abutments held the trusses much higher than the girders of the earlier structure. In August a contract was awarded to the Maxwell Bridge Company to build the replacement bridge for \$927,965.80. Since its completion the following year, the new Bull Shoals Lake Bridge has carried traffic in unaltered condition.

From its formative years to the present, the Missouri State Highway Department has always relied on standard designs for its bridges. During the 1920s and 1930s MSHD employed the riveted Pratt truss for its medium-span through truss, with the polygonal-chorded Parker configuration for its longer span trusses. After World War II, steel beam bridges largely superseded Pratt trusses for medium spans, and the riveted Camelback replaced the Parker for long-span trusses. The Bull Shoals Lake Bridge represents this latter construction trend. With its ten Camelback through spans extending some 1800 feet, it is one of the largest trussed crossings undertaken by the state highway department. The bridge has retained a high degree of physical integrity and is an impressive structure as it spans one of the fingers of Bull Shoals Lake. One of just three riveted through Camelbacks identified by the statewide bridge inventory, it is technologically noteworthy as an uncommon, late example of MSHD truss bridge engineering.

NAME(S) OF STRUCTURE

Bull Shoals Lake Bridge

PHOTOS AND SKETCH MAP OF LOCATION**LOCATION MAP**

TAKEN FROM MISSOURI HIGHWAY AND TRANSPORTATION DEPARTMENT
GENERAL HIGHWAY MAP

SOURCES

Missouri Highway and Transportation Department, Structure Inventory and Appraisal: Structure No. K 817R; Missouri Highway and Transportation Department, Primary System Bridge Record, located at Bridge Division, MHTD, Jefferson City MO; field inspection by Clayton Fraser and Paula Sutton, 25 January 1990.

INVENTORIED BY

Clayton B. Fraser

AFFILIATION

Fraserdesign, Loveland CO

DATE

1 March 1990

HAER INVENTORY

Missouri Historic Bridge Inventory

NAME(S) OF STRUCTURE

Barren Fork Bridge
MHTD: 253000.3

OZAR02

DATE(S) OF CONSTRUCTION

1925

LOCATION

old State Highway 5 over Barren Fork Creek; S16/17, T23N, R14W
7.1 miles northwest of Gainesville; Ozark County, Missouri

USE (ORIGINAL / CURRENT)

highway bridge / roadway bridge

RATING NRHP possibly eligible (score: 51)

CONDITION

good

OWNER

Ozark County

span number: 3
span length: 80.0'
total length: 296.0'
roadway wdt.: 20.0'

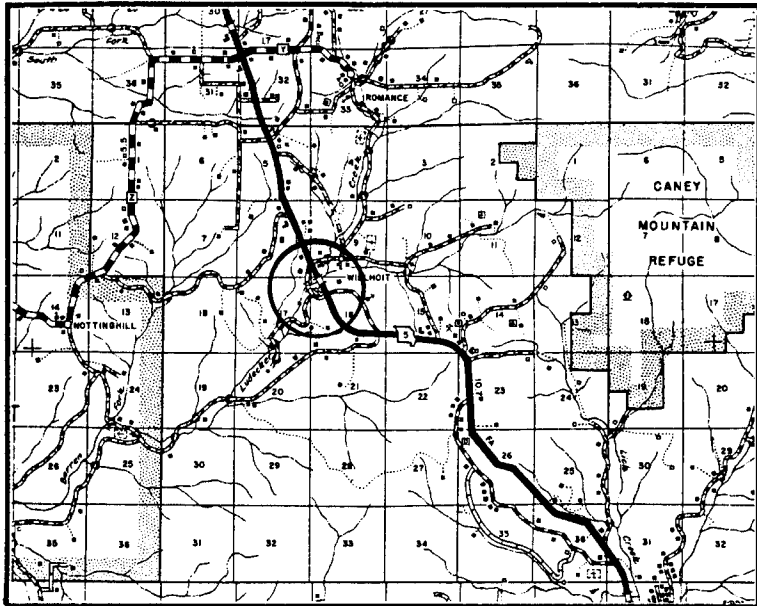
superstructure: concrete filled spandrel arch
substructure: concrete abutments, wingwalls and piers
floor/decking: asphalt-covered concrete deck
other features: MSHD-standard concrete guardrail design with square balusters and angled brackets

This multiple-span concrete arch bridge once carried Missouri State Highway 5 over Barren Fork in central Ozark County; since a route re-alignment, however, it now carries a county road, near the re-routed highway. Designated Structure No. H-17, the bridge was designed by engineers for the state highway department in 1925. That June the state highway commission awarded a contract to build the concrete-arch structure to the Republic Concrete Construction Company for \$20,995.49. A Republic crew began work on the substructural excavation soon thereafter, and in April 1926 the Barren Fork Bridge was complete. It remains today in unaltered condition.

Although there were exceptions, the Missouri State Highway Department typically used filled spandrel designs for its concrete arches with 80 feet or less of span; open spandrel arches were employed for longer-span applications. MSHD engineers designed numerous single-span examples of the former configuration in the 1920s, but few filled spandrel arches with multiple spans. A handful of these large-scale bridges have been identified by the statewide bridge inventory. The Barren Fork Bridge in Ozark County stands out among those remaining for its high degree of physical integrity. It is thus technologically significant as a well-preserved, multiple-span representative of Missouri State Highway Department concrete design of the 1920s.

NAME(S) OF STRUCTURE

Barren Fork Bridge

PHOTOS AND SKETCH MAP OF LOCATION**LOCATION MAP**TAKEN FROM MISSOURI HIGHWAY AND TRANSPORTATION DEPARTMENT
GENERAL HIGHWAY MAP

SOURCES

Missouri Highway and Transportation Department, Structure Inventory and Appraisal: Structure No. 253000.3; Missouri State Highway Commission, **Fifth Biennial Report: 1925-26**, page 203; Missouri Highway and Transportation Department, Primary System Bridge Record, located at Bridge Division, MHTD, Jefferson City MO; field inspection by Clayton Fraser and Paula Sutton, 25 January 1990.

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