

BONANZA BRIDGE
(Shoal Creek Bridge)
(Bridge 324001.9)
spanning Shoal Creek on CART Road 324
Kingston Vicinity
Caldwell County
Missouri

HAER No. MO-73

HAER
MO
13-KINTO.V,
2-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

REDUCED COPIES OF MEASURED DRAWINGS

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Department of the Interior
Denver, Colorado 80225-0287

HAER
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Historic American Engineering Record
Bonanza Bridge

I. INTRODUCTION

Location: Located on Cart Road 324 over Shoal Creek in New York Township in Caldwell County, Missouri. In Section 19, Township 56 North, Range 27 West. It is approximately 3.5 miles east of Kingston or 1.5 miles east and 6.4 miles south of junction of State Highway 13 and U.S. Highway 36. This location is south of the town of Bonanza.

Quadrangle: Hamilton East

Latitude: 39 degrees, 38 minutes, 4 seconds

Longitude: 93 degrees, 58 minutes, 21 seconds

UTM: Point A: 15/4388413/416520
Point B: 15/4388356/416520
(See Page 8 for location)

Date of Construction Circa 1880

Present Owner: Caldwell County
Caldwell County Courthouse
Kingston, MO 64650

Present Use: Vehicular bridge to be replaced by a new vehicular bridge. Projected date of removal: Spring 1994.

Significance: The Bonanza Bridge is an example of a pin-connected Whipple through truss used for longer span crossings between 1850 and 1900. The Whipple truss design utilized for the Bonanza Bridge is one of only three such structures known to still exist in Missouri, thereby making it one of the most significant bridges in Missouri's historic bridge

inventory.(1) It is not known who
fabricated the bridge.(2)

Compiled by:

Robert S. Chambers, P.E., Cook,
Flatt & Strobel, Engineers, P.A.,
6111 S.W. 29th St., Topeka, KS
66614.

II. HISTORY

A. COUNTY RECORDS

The Bonanza Bridge was believed to be constructed in 1880. The Caldwell County Courthouse, along with all county records, was destroyed by fire in 1897. In addition, no newspapers in the county have retained early records of their publications.

A request was made of the Missouri State Historical Society in Columbia for any records in their possession for Caldwell County newspapers published between 1880 and 1890. Microfilm was obtained containing some publications from several County newspapers and a book on the History of Caldwell County, however only one reference to the Bonanza Bridge was disclosed.(3)

It was noted in 1881 that a "splendid Iron Bridge" was located on the Richmond and Hamilton Road near Bonanza.(4)

The Bonanza Bridge is one of only three Whipple through truss known to still exist in Missouri.(5) First patented by Squire Whipple, bridge engineer and builder from Albany, New York, the Whipple truss was a popular choice for longer span crossings between 1850 and 1900.(6) Whipple trusses were mainly used on railroad bridges, but they were never very common for wagon trusses.(7)

B. CONSTRUCTION CHRONOLOGY

The chronology of development and construction of the Bonanza Bridge was lost in the Caldwell County Courthouse fire of 1897.

C. LOCATION

The Bonanza Bridge is located on CART Road 324 along the quarter section line of Section 19, Township 56 North, Range 27 West in New York Township, Caldwell County, Missouri. It is approximately 3.5 miles east of Kingston. From the intersection of U.S. Highway 36 and Missouri Highway 13 it is 1.5 miles east and 6.4 miles south.

III. THE BRIDGE

A. DESCRIPTION

The cost for construction of the Bonanza Bridge is unknown due to loss of records.

The Bonanza Bridge is a single span, eleven panel, pin-connected Whipple through truss (or double-intersection Pratt). Total length of the bridge is 187 feet. Vertical clearance over the deck is 15.3 feet. The clear roadway is 14.0 feet.

The bridge has diagonal members in tension with eight inside vertical members acting in compression. The two vertical members nearest the ends of the structure are hangers and act in tension. The tension members consist of eyebars. The inside vertical

members consist of two channels tied together with lacing riveted in place. Diagonal members which extend across two panels consist of double eyebars with turnbuckles tied to pins top and bottom. The end posts and top chord are comprised of two channels with a solid cover plate on top and intermediate bottom cover plates. Round rods were used for diagonal bracing both top and bottom. The upper bracing, which is in two layers, is fabricated of angles with riveted gusset plate connections. The bracing connects the vertical compression members and the end posts. The bottom chords are eyebars pin connected to the vertical members. The floorbeams are attached to the vertical members by a "U"-bolt.

The bridge has decorative ornamentation located at each portal in the upper bracing. There were no plaques present on the bridge.

The bridge deck, except the first two panels at each end, is made of rough sawn lumber of various dimensions. The decking is laid transverse to the centerline of the bridge with a second layer of three boards laid longitudinally in each wheel line. The first two panels at each end have a five inch concrete deck. Two lines of various sizes of lumber have been laid longitudinally to provide a curb on the timber portion of the deck. The deck is supported by steel stringers comprised of I beams and channels. The stringers are supported by the floorbeams which are fabricated of angles and a plate riveted together.

Handrails

The handrail consists of small channels on each side of the roadway bolted to vertical channels spaced along the edge of deck. There are two lines of longitudinal channels on each side of the roadway. One of the channels forms the top of the rail and the second is spaced approximately half way between the top channel and the bridge deck.

Abutments

The south abutment consists of stone and mortar while the north abutment is concrete and caisson construction. The north abutment is in fair-good condition whereas the south abutment is in poor condition.

B. OWNERSHIP & FUTURE

The Bonanza Bridge has been owned and maintained by Caldwell County since its original construction.

The county bridge inventory number is 324001.9. Field inspection shows the structure to be in poor condition. The deck is showing signs of heavy deterioration and many structural members are rusted from exposure to the elements.

The bridge is posted for a 3 ton weight limit. This restriction, along with the narrow roadway, makes the structure inadequate for present needs.

The Bonanza Bridge has been scheduled for replacement. An advertisement regarding availability of the bridge will be placed in The Missouri Transportation Bulletin, Preservation News, a local newspaper, and Rails to Trails Conservancy. If no new owner is found, the Caldwell County Commission will designate a site in the immediate vicinity for the relocation of the bridge where it will be maintained and available to the public.

IV. BIOGRAPHICAL MATERIAL

Records of the designer, fabricator and builder of the Bonanza Bridge were lost when the Caldwell County courthouse burned near the turn of the century.

V. PROJECT INFORMATION

This Historic American Engineering Record (HAER) project was undertaken by Caldwell County Commission and Missouri Highway and Transportation Department in conjunction with a Bridge Replacement Project in Caldwell County. The project was conducted in accordance with the Federal Highway Administration's (FHWA) Memorandum of Agreement (MOA) with the Missouri State Historic Preservation and the Advisory Council on Historic Preservation. The MOA stipulates that HAER documentation be provided for the Bonanza Bridge. The field work, report and drawings were prepared

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by Cook, Flatt & Strobel of Topeka, Kansas. Archival photography
was by Phillip Geller of St. Joseph, Missouri.

V. ENDNOTES

1. Missouri Department of Natural Resources, October 3, 1991: letter to Cook, Flatt & Strobel.
2. Memorandum dated September 30, 1991 from Claire Blackwell to Wayne Gross noted that the Bonanza Bridge was designed by J. C. Dildine but this could not be verified.
3. Missouri State Historical Society microfilm containing copies of some publications of The Breckenridge Bulletin, Cowgill Chief, Hamilton Farmers Advocate, Hamiltonian, Hamilton News-Graphic, Caldwell County Banner, Caldwell County Sentinel, and the Kingston Times.
4. History of Caldwell and Livingston Counties, St. Louis: National Historical Company, p. 447-448, 1886.
5. Missouri Department of Natural Resources, October 3, 1991: letter to Cook, Flatt & Strobel.
6. Missouri Department of Natural Resources, October 3, 1991: letter to Cook, Flatt & Strobel.

Darnell, Victor C., Directory of American Bridge-Building Companies 1840-1900, Washington, DC, Society for Industrial Archeology, Page 36, 1984.
7. Missouri Department of Natural Resources, October 3, 1991: letter to Cook, Flatt & Strobel.

PRODUCED BY THE UNITED STATES GEOLOGICAL SURVEY
 CONTROL BY USGS AND NOS/NOAA
 COMPILED FROM AERIAL PHOTOGRAPHS TAKEN 1980
 FIELD CHECKED 1982. MAP EDITED 1984
 PROJECTION UNIVERSAL TRANSVERSE MERCATOR
 GRID: 1000-METER UNIVERSAL TRANSVERSE MERCATOR ZONE 15
 10,000-FOOT STATE GRID TICKS MISSOURI, WEST ZONE
 UTM GRID DECLINATION 0°36' WEST
 1984 MAGNETIC NORTH DECLINATION 5°00' EAST
 VERTICAL DATUM NATIONAL GEODETIC VERTICAL DATUM OF 1929
 HORIZONTAL DATUM 1927 NORTH AMERICAN DATUM

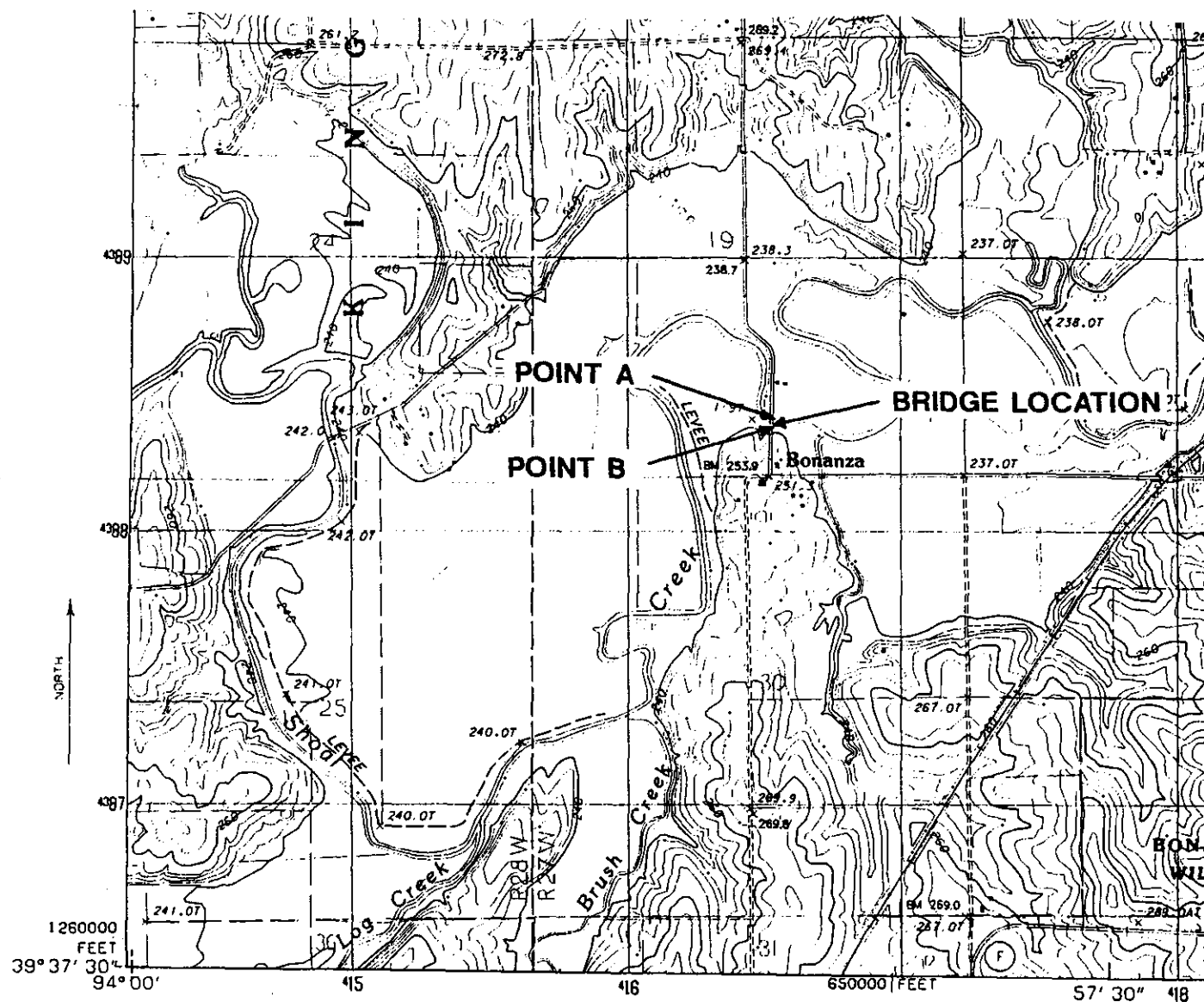
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to place on the predicted North American Datum of 1983,
 move the projection lines as shown by dashed corner ticks
 (3 meters north and 18 meters east)

There may be private inholdings within the boundaries of any
 Federal and State Reservations shown on this map

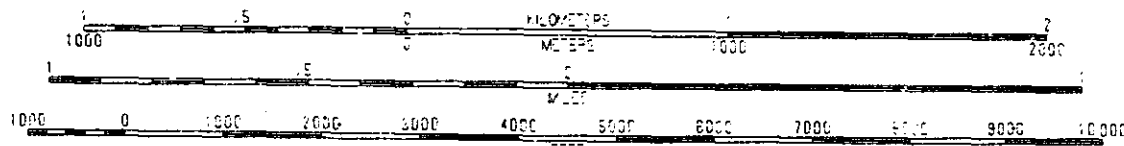
No distinction made between houses, barns, and other buildings

Gray tint indicates area in which selected buildings are shown



HAMILTON EAST QUADRANGLE
 MISSOURI-CALDWELL CO.

SCALE 1:24 000



CONTOUR INTERVAL 4 METERS
 SUPPLEMENTARY CONTOUR INTERVAL 2 METERS

