NPS Form 10-900
(Rev. 8-86)

OMB No. 1024-0018

United States Department of the Interior
National Park Service

157-0000-0036

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations of eligibility for individual properties or districts. See instructions in *Guidelines for Completing National Register Forms* (National Register Bulletin 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, styles, materials, and areas of significance, enter only the categories and subcategories listed in the instructions. For additional space use continuation sheets (Form 10-900a). Type all entries.

1. Name of Property

historic name East Riley Creek Bridge

other names/site number Same

2. Location 2 miles south and .9 miles west of intersection of U.S. Highway 36 & F.A.S. 2037.

street & number on unmarked county road ☐ not for publication

city, town Belleville ☒ vicinity

state Kansas code KS county Republic code 157 zip code 66935

3. Classification

Ownership of Property	Category of Property	Number of Resources within Property	
		Contributing	Noncontributing
☐ private	☐ building(s)		buildings
☒ public-local	☐ district		sites
☐ public-State	☐ site	1	structures
☐ public-Federal	☒ structure		objects
	☐ object	1	Total

Name of related multiple property listing:
Metal Truss Bridges in Kansas

Number of contributing resources previously listed in the National Register 0

4. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this ☐ nomination ☐ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property ☒ meets ☐ does not meet the National Register criteria. ☐ See continuation sheet.

Signature of certifying official — Date: Nov. 16, 1989

State or Federal agency and bureau

In my opinion, the property ☐ meets ☐ does not meet the National Register criteria. ☐ See continuation sheet.

Signature of commenting or other official — Date

State or Federal agency and bureau

5. National Park Service Certification

I, hereby, certify that this property is:

☐ entered in the National Register.
☐ See continuation sheet.

☐ determined eligible for the National Register. ☐ See continuation sheet.

☐ determined not eligible for the National Register.

☐ removed from the National Register.

☐ other, (explain:) _____

Signature of the Keeper — Date of Action

6. Function or Use

Historic Functions (enter categories from instructions)	Current Functions (enter categories from instructions)
Transportation: Road Related (Vehicular); Bridge	Transportation: Road Related (Vehicular): Bridge

7. Description

Architectural Classification (enter categories from instructions)

Other: Pratt Through Truss

Materials (enter categories from instructions)

foundation
walls
roof
other Metal: Wrought Iron

Describe present and historic physical appearance.

The Riley Creek bridge is a pin connected Pratt through truss. The single span is 100 feet long and 16 feet wide. The wooden deck rises 16 feet above the creek bed. It is located on a light duty road two miles south of Belleville. Belleville, with a population of 2,805, is the largest town in Republic county and is also the county seat.

The members of a truss bridge are designated either as chord members or web members. Chord members are those mainly defining the outlines of the structure and they are termed lower or upper chord members depending on whether they are found at the bottom or the top of the structure. Members between the chords are web members. They are called posts or ties if they sustain compression or tension respectively. In the instance of the East Riley Creek Bridge, as with all Pratt trusses, the web members are alternately vertical and inclined. The inclined members are in tension and the verticals in compression.

The inclined end posts and top chord of the East Riley Creek Bridge are fabricated from sections of channel iron, tied together by single bar lacing. The girders thus formed are topped with an iron cover plate. The hip verticals and compression posts are made up of single bar lacing and channel pieces. The main diagonals or ties consist of flat iron eye bars, as are the lower chords. The floor beams are attached to the compression posts by means of a square bar stirrup. The portal bracing is fabricated from angle stock and forms an interlocked triangle design. Individual components are fabricated of stock angles and straps by being rivited together. The main members of the bridge, however, are connected at panel points by the use of a pin.

The bridge retains a high degree of its structural integrity. The wooden railing, added at an unknown date, has deteriorated and only remnants remain.

☐ See continuation sheet

8. Statement of Significance

Certifying official has considered the significance of this property in relation to other properties:
☐ nationally ☒ statewide ☐ locally

Applicable National Register Criteria ☐ A ☐ B ☒ C ☐ D

Criteria Considerations (Exceptions) ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G

Areas of Significance (enter categories from instructions)	Period of Significance	Significant Dates
Engineering	1899	1899
Transportation	1899	1899

Cultural Affiliation: n/a

Significant Person: n/a

Architect/Builder: Wrought Iron Bridge Builders

State significance of property, and justify criteria, criteria considerations, and areas and periods of significance noted above.

The great evolution of truss bridge construction began in the United States soon after the publication of Squire Whipple's historic work on stresses in 1840. Prior to this the design work was essentially that of trial and error, experience and judgement. The Warren and Pratt trusses were rational designs and lent themselves readily to the system of analyses postulated by Whipple. They were, therefore, readily and rapidly accepted and formed the foundation for a greater part of American truss design.

The basis Pratt truss was patented in 1844 by Thomas and Caleb Pratt and the Warren, a design patented by two British engineers in 1848, demonstrated their versatility, durability, and most important for the west, cost effectiveness.

In the Pratt design the diagonals were placed in tension and vertical members in compression, with the exception of the hip verticals. Generally, until the 20th century, all panel point connections were made with the use of a pin. This became such a widespread practice that it became one of the distinctive features of United States bridge construction. The pin was selected for several reasons. It was simple in design and it was much easier for period engineers to calculate stress at the panel points and throughout the structure than if the members were connected by the use of rivets. Although the riveted structure was much more rigid, the inability to insure that the individual rivets had not been damaged during insertion made early failure an unknown quantity. It was extremely difficult to calculate the stress throughout the joint. The pin could be considered basically as a single rivet.

Time was always a consideration in American construction. Logically labor costs would be less if the bridge went in quickly but also the falsework in the river would not have to be in place long. Flash floods were the bane of any bridge contractor. The pin connected bridge could be put up more quickly and with the use of less skilled employees. The portable pneumatic riveter was also in its infancy in the 1890s and without

☒ See continuation sheet

it, erection of totally riveted bridges was almost impossible. It was much easier to have the bridge members fabricated and riveted in a shop setting and pin them together on the job site.

The use of wrought iron in bridge construction was in its golden years by 1899. It was being quickly replaced by steel. Although wrought iron's use was vestigial in 1899 it was almost entirely replaced by 1910.

Seemingly at the end of a design era with its use of wrought iron, the Riley Creek Bridge epitomized the then fixed trend of standardization. Gone were the days of peculiar truss designs. Bridges were built up using mass produced, standard shaped posts, channels, angles and straps. In the instance of the East Riley Creek Bridge the wrought iron was produced by the firm Jones and Laughlin.

The East Riley Creek Bridge is significant because it is a good example of the Pratt truss design of the late 19th century and as the work of one of the major out-of-state bridge fabrication companies, namely the Wrought Iron Bridge Company of Canton, Ohio. Out of the approximately 262 Pratt through trusses in Kansas only nine have presently been identified as having been built by Wrought Iron Bridge. These are spread throughout the state in Anderson, Bourbon, Cloud, Miami, Republic, Smith and Wilson counties. All are presently in use on the county highway systems.

The year 1899 was a banner year for bridge construction in Republic county. in the fall of that year no less than eight were purchased by the county from Wrought Iron Bridge Company. The sales were consummated by Kansas City, Missouri bridge engineer and general agent J. W. Hoover. The bridge being nominated was one of three spans erected over the Republican river near the townsite of Warwick. During the 1940s the bridge was divided and moved to various parts of the county. A second span, the East Riley Creek bridge is also being nominated.

Organized in 1864 by David Hammond, Wrought Iron Bridge Company was incorporated in 1871. Its major offices were located at Canton, New York City, Chicago and Kansas City, Missouri. From 1880-1900 the company was one of the major suppliers of metal truss bridges. In 1900 the company was absorbed by J. P. Morgan's American Bridge Company. Current information suggests that the company only sold Pratt truss structures in Kansas.

The Kansas Department of Transportation (KDOT) carried out a statewide inventory of historic bridges between 1980 and 1983. The bridges to be included were identified through computer printouts developed by KDOT, from information supplied by the counties (since almost all of the historic bridges were located on secondary rather than the primary road system), and by direct observation by field personnel. All bridges were inspected by KDOT personnel to verify the data on file. That information was jointly

evaluated by representatives of KDOT, Kansas State Historical Society, and the State Historic Preservation Officer.

Each structure was evaluated using a points rating system adapted from the points evaluation rating developed by the Ohio Department of Transportation and Ohio Historic Preservation Office. Consideration was given to areas such as age, builder, number of spans, length, special features, history, integrity, surviving numbers, and preservation potential.

In many instances there is little information about individual structures. Often bridge plaques which may have contained information have been removed, or the county's records are not complete or have been destroyed. Due to the large numbers of similar structures there is often little to choose from in differentiating among individual bridges other than condition and the likelihood of preservation.

The purpose of the KDOT study and subsequent evaluation was to identify a representative selection of bridges of each class. Through this approach KDOT and KSHS hope to preserve for posterity some examples of each type.

The East Riley Creek Bridge was rated quite high in significance because of its age, because it was the work of a known prolific out-of-state builder, retained a good degree of its integrity and possesses a fair bypass potential.

In summary the bridge is significant because it was built near the end of the period when wrought iron was the most popular bridge building material. It shows us the ascendancy of standardization and mass produced parts. It is also a good example of the Pratt truss design.

9. Major Bibliographical References

Victor C. Darnell, American Bridge Building Companies, Washington, DC: Society for Industrial Archeology Occasional Publication 4, 1984.

"Eight New Bridges," Belleville Freeman, May 4, 1899, p. 4, c. 3.

David Weitzman, Traces of the Past: A Field Guide to Industrial Archeology, New York: Charles Saibner's Sons, 1980.

☐ See continuation sheet

Previous documentation on file (NPS):
- ☐ preliminary determination of individual listing (36 CFR 67) has been requested
- ☐ previously listed in the National Register
- ☐ previously determined eligible by the National Register
- ☐ designated a National Historic Landmark
- ☐ recorded by Historic American Buildings Survey # _____
- ☐ recorded by Historic American Engineering Record # _____

Primary location of additional data:
- ☒ State historic preservation office
- ☐ Other State agency
- ☐ Federal agency
- ☐ Local government
- ☐ University
- ☐ Other

Specify repository: Kansas State Historical Society

10. Geographical Data

Acreage of property Less than one acre

UTM References

	Zone	Easting	Northing
A	14	617320	4404410
B			
C			
D			

☐ See continuation sheet

Verbal Boundary Description

The nominated property is located on the SE¼, SE¼, SW¼, SW¼, Section 14, Township 3 south, Range 3 west, on a tract measuring 100' x 16' whose northeast corner is represented by the northeast corner of the bridge. Beginning at the northeast corner the boundary proceeds 100' west, 16' south, 100' east, and 16' north to the point of beginning.

☐ See continuation sheet

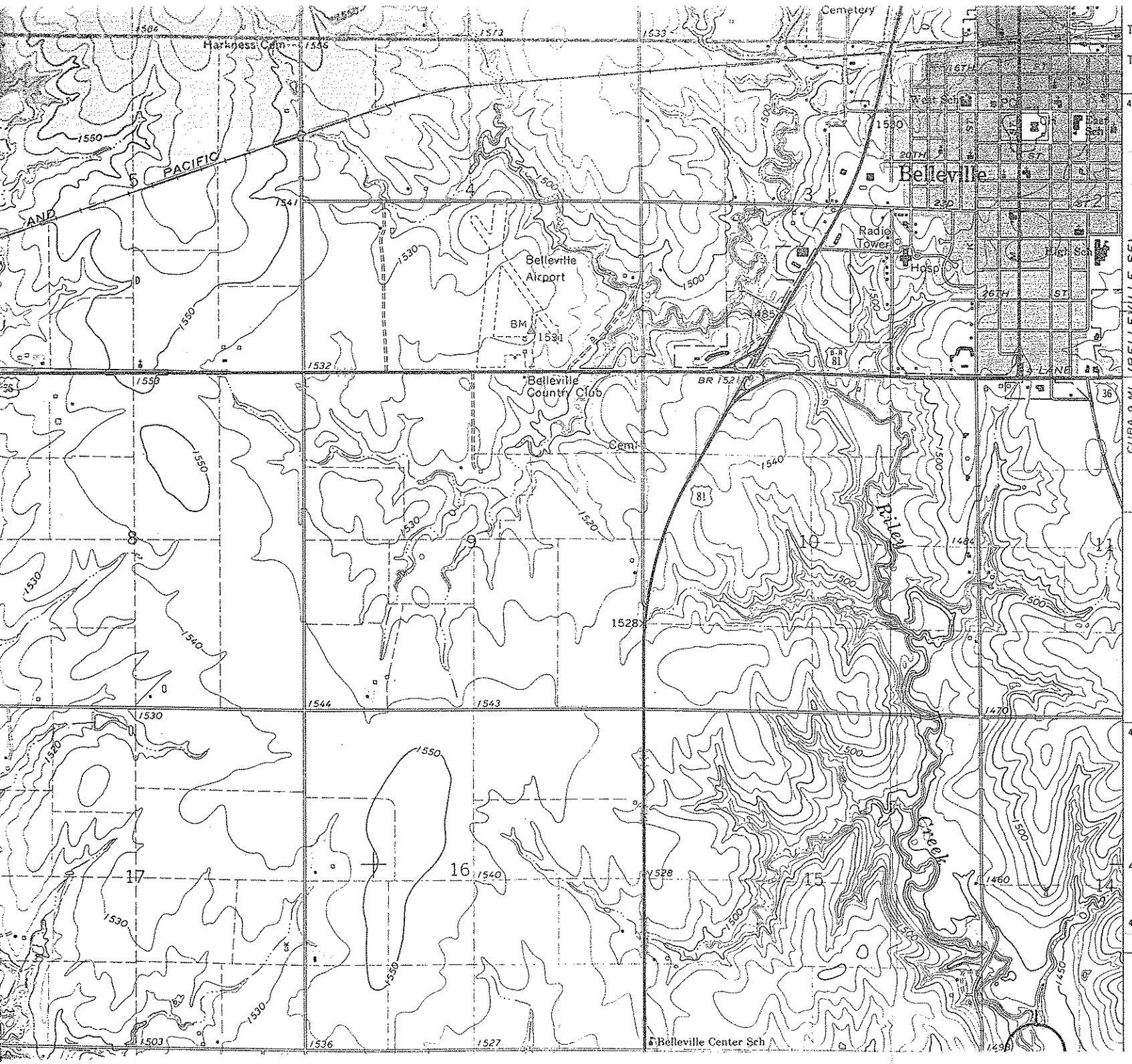
Boundary Justification

The boundary includes only that area that is historically associated with the nominated property.

☐ See continuation sheet

11. Form Prepared By

name/title Larry Jochims
organization Kansas State Historical Society date September 20, 1989
street & number 120 W. 10th telephone (913) 296-2973
city or town Topeka state Kansas zip code 66612



East Riley Creek Bridge
Belleville, Kansas

UTM 14/617320/4404410