

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

1. Name of Property

Historic name: N/A

Other name/site number: Salt Creek Truss Leg Bedstead Bridge (preferred); 53-LT-02

2. Location On B Road, 0.6 miles east of the intersection with 24th Road; 1.0 mile north of the town of Barnard.

city or town Barnard not for publication
X vicinity

state code KS county Lincoln county code 105 zip code 67418

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1986, as amended, I hereby certify that this XX 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 XX meets does not meet the National Register criteria. I recommend that this property be considered significant nationally XX statewide locally. (See continuation sheet for additional comments.)

Richard D. Parkutz
Signature of certifying official

4/09/03
Date

KANSAS STATE HISTORICAL SOCIETY

State or Federal agency and bureau

In my opinion, the property meets does not meet the National Register criteria.
(See continuation sheet for additional comments.)

Signature of commenting or other official

Date

State or Federal agency and bureau

4. 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 Keeper

Date of Action

Property Name Salt Creek Truss Leg Bedstead BridgeCounty and State Lincoln, KansasPage 2**5. Classification**

Ownership of Property	Category of Property	No. of Resources within Property	
		contributing	noncontributing
☐ private	☐ building(s)		☐ buildings
☒ public-local	☐ district		☐ sites
☐ public-State	☐ site		☐ structures
☐ public-Federal	☒ structure	<u>1</u>	☐ objects
	☐ object		☐ objects
		<u>1</u>	<u>0</u> Total

Name of related multiple property listing:
(Enter "N/A" if property is not part of a
multiple property listing.):Metal Truss Bridges in KansasNo. of contributing resources previously
listed in the National Register0**6. Functions or Use**Historic Functions
(Enter categories from instructions.)TRANSPORTATION: Road-related (vehicular)Current Functions
(Enter categories from instructions.)TRANSPORTATION: Road-related (vehicular)**7. Description**Architectural Classification
(Enter categories from instructions.)OTHER: Truss Leg BedsteadMaterials
(Enter categories from instructions.)Foundation Limestone

Walls _____

Roof _____

Other Metal: Iron, steel

Property Name Salt Creek Truss Leg Bedstead Bridge

County and State Lincoln, Kansas

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8. Statement of Significance

Applicable National Register Criteria (Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- ☐ A Property is associated with events that have made a significant contribution to the broad patterns of our history.
- ☐ B Property is associated with the lives of persons significant in our past.
- ☒ C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- ☐ D Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations (Mark "x" in all the boxes that apply.)

- ☐ A owned by a religious institution or used for religious purposes.
- ☐ B removed from its original location.
- ☐ C a birthplace or a grave.
- ☐ D a cemetery.
- ☐ E a reconstructed building, object, or structure.
- ☐ F a commemorative property.
- ☐ G less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance
Enter categories from instructions.)

ENGINEERING

TRANSPORTATION

Period of Significance

1903

Significant Dates

1903

Cultural Affiliation

N/A

Significant Person

N/A

Architect/Builder

Kansas City Bridge Company (Kansas City, Missouri)

Narrative Description (Describe the historic and current condition of the property on one or more continuation sheets.)

Property Name Salt Creek Truss Leg Bedstead BridgeCounty and State Lincoln, KansasPage 4**9. Major Bibliographical References**

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

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

Primary location of additional data:

☒ State Historic Preservation Office

☐ Other State agency _____

☐ Federal agency _____

☒ Local government _____

☐ University _____

☐ Other _____

Specify repository:

Record # _____

10. Geographical DataAcreage of property <1 acre

UTM References

1 1/4 5/8/2/0/9/0 4/3/3/9/7/3/0
Zone Easting Northing3 / / / / / / / / / / /
Zone Easting Northing2 / / / / / / / / / / /4 / / / / / / / / / / /

____ See continuation sheet

Verbal Boundary Description (Describe the boundaries of the property on a continuation sheet.)

Boundary Justification (Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared Byname/title Kerry Davis, Architectural Historian & Elizabeth Rosin, Partnerorganization Historic Preservation Servicesdate August 5, 2002street & number 323 West Eighth Street, Suite 112telephone (816) 221-5133city or town Kansas Citystate Missouri zip code 64105**Additional Documentation**

Submit the following items with the completed form:

Continuation Sheets

Maps

A USGS map (7.5 or 15 minute series) indicating the property's location.

A sketch map for historic districts and properties having large acreage or numerous resources.

Photographs

Representative black-and-white photographs of the property.

Additional items (Check with the SHPO or FPO for any additional items.)

Property Owners (Complete this item at the request of the SHPO or FPO.)Name County of Lincolnstreet & number 216 East Lincoln Avenuetelephone 785-524-4443city or town Lincolnstate KS zip code 67455

United States Department of the Interior
National Park Service

**NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET**

Section Number 7 Page 1

Salt Creek Truss Leg Bedstead Bridge
Lincoln County, Kansas

DESCRIPTION

LOCATION AND SETTING

The Salt Creek Truss Leg Bedstead Bridge is located 1.0 mile north of the town of Barnard, in the heart of the Smoky Hills region of north central Kansas, on the line between the NE $\frac{1}{4}$ of Section 12 and the SE $\frac{1}{4}$ of Section 1, Township 10S, Range 7W. The region is defined by vast highland prairie hills with tree-lined creeks. The Salt Creek Truss Leg Bedstead Bridge carries B Road across Salt Creek, a wide, meandering branch of the Solomon River. The dirt roadway, flanked by cultivated fields, aligns directly with the Salt Creek Truss Leg Bedstead Bridge.

TRUSS TYPE

The Salt Creek Truss Leg Bedstead Bridge consists of a pin-connected Pratt pony truss¹ that measures 50 feet in length and a flat girder approach span on each end. The east approach span measures 35 feet in length and the west approach span measures 37 feet in length. The deck is 16 feet wide. Rough-cut, coursed limestone abutments support the outside ends of the approach spans. The abutment side walls extend approximately 10 feet along the approach grade. The vertical end posts extend below the end floor beams to form the characteristic "legs" of the truss leg bedstead design. These legs are embedded into poured concrete foundation pads.

The long vertical end posts rise from the poured concrete foundation pads and meet the horizontal top chords to form a rectangular shape. The top chords and end posts consist of two channels, cover plate, and lacing bars; the bottom chords consist of paired flat eye bars.

The web members consist of vertical posts that form three equivalent panels and diagonal ties that intersect within the central panel. Angle stock and lacing bars compose the vertical posts; flat eye bars and tension rods compose the diagonal ties.

The timber deck is 16 feet wide and rises 16 feet above the creek bed on steel I-beam stringers. Floor beams located at the base of each vertical post are connected by lower lateral bracing rods.

The historic, paired, parallel, channel stock guardrails are intact along the length of the bridge. Four, rectangular, cast iron plaques are located at the top of each end post; the pairs located diagonally opposite one another are identical. One pair reads "KANSAS CITY / BRIDGE / CO / KANSAS CITY, MO." The other pair reads "1903." Letters in relief read "CAMBRIA" on several structural components.

INTEGRITY

The Salt Creek Truss Leg Bedstead Bridge is an excellent example of this bridge type, historically popular in Kansas.² With no apparent alterations to the original design or materials, the Salt Creek Truss Leg Bedstead Bridge retains a high degree of integrity. The original workmanship, materials, design, setting, and feeling of the structure are readily apparent. Furthermore, the potential for preservation of the bridge is high. Located on a lightly traveled road, it is unlikely that traffic requirements will necessitate alteration or replacement.

¹ A pony truss is also referred to as a low truss.

² Dale Nimz, *Activity III Review Initial Assessment Metal Truss Bridges*. (Topeka: Kansas State Historical Society, 1998), 6. Nimz identifies approximately 375 extant truss leg bedstead bridges in Kansas.

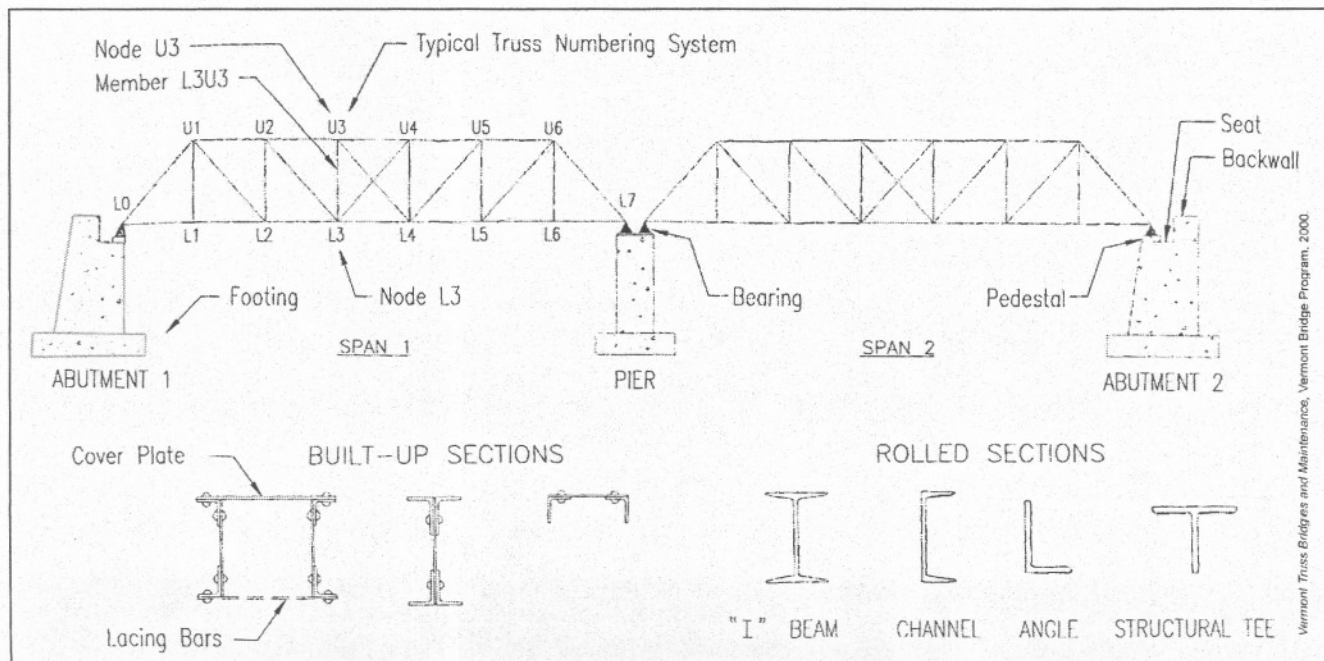
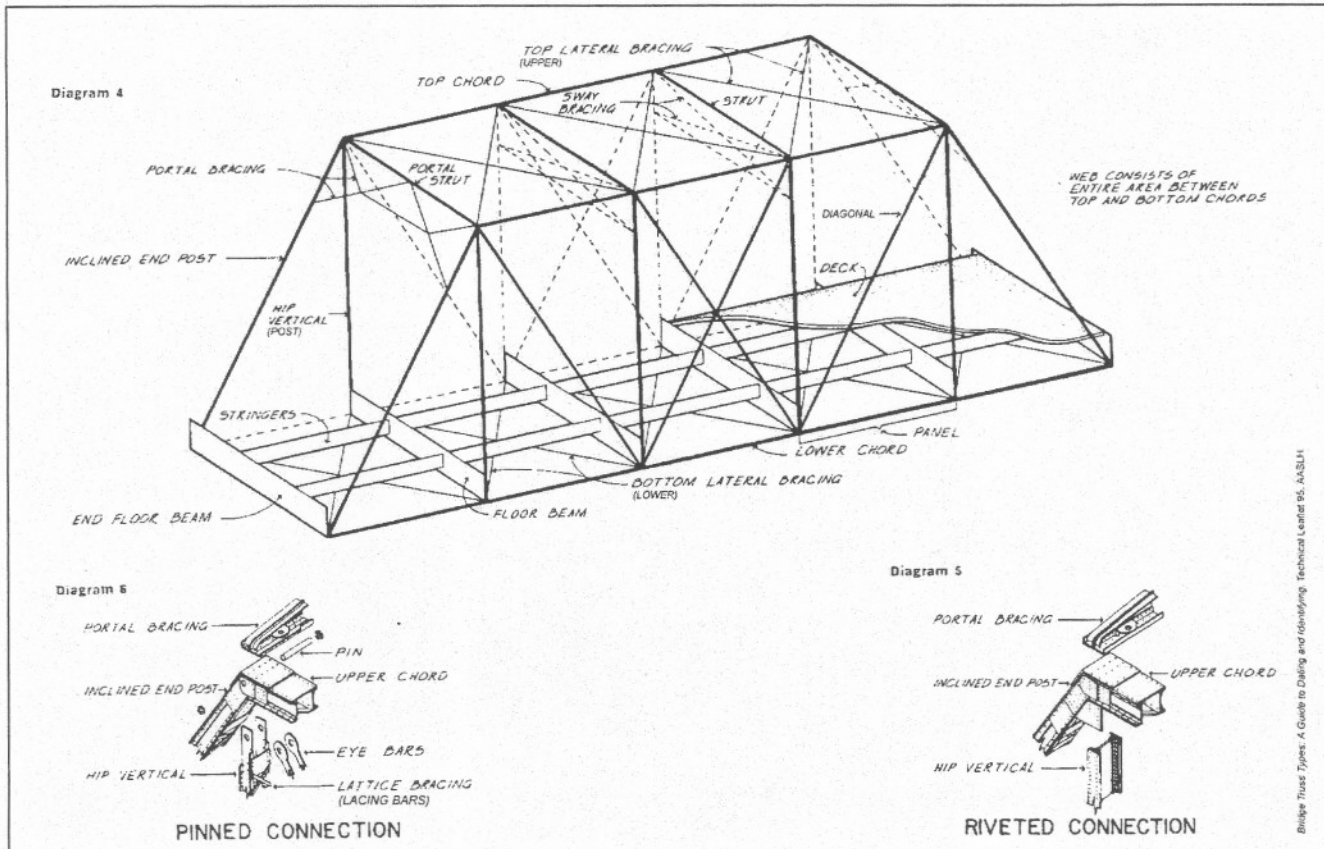
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**NATIONAL REGISTER OF HISTORIC PLACES
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Salt Creek Truss Leg Bedstead Bridge
Lincoln County, Kansas

TRUSS TERMINOLOGY



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Salt Creek Truss Leg Bedstead Bridge
Lincoln County, Kansas

STATEMENT OF SIGNIFICANCE

The Salt Creek Truss Leg Bedstead Bridge is significant under National Register Criterion C in the areas of Engineering and Transportation. As defined by the *Multiple Property Documentation Form for Metal Truss Bridges in Kansas*, it is an excellent example of the truss leg bedstead bridge type. Built in 1903, the Salt Creek Truss Leg Bedstead Bridge represents a common, economical bridge solution applied to a relatively short span. Its pin-connected structure, timber deck, and limestone abutments, coupled with poured concrete foundation pads, illustrate the technological transitions taking place during the period of significance. As no historic name identifies this bridge, the preferred name "Salt Creek Truss Leg Bedstead Bridge" has been assigned. This describes the location, design, and function of the structure.

ELABORATION

The need for all-weather crossings of rivers and streams corresponded to the growth of the market economy across Kansas during the late nineteenth and early twentieth centuries. Bridges provided farmers easy access to markets and could make the difference between growth and stagnation for the many small, young communities across the state.¹ Proximity to a bridge often secured a town's economic stability, and it contributed to a local sense of modernity.

Prior to the 1930s, the railroad was the primary means of long-distance travel and there was little need for roads to extend more than a few dozen miles. With little stimulus for improving roads that would cross multiple jurisdictions, road construction and maintenance remained local concerns. County commissioners often carried the burden of selecting bridge locations, over which much contention was common.

The range of choices for bridge designs and companies was vast. Many of the larger bridge companies sold metal truss bridges through mail order catalogues. County commissioners could simply specify the span, clearance needs, and truss type (if there was a preference), then choose the lowest bidder from the numerous competing companies that had salesmen in the field.

By the late nineteenth century, fabrication of iron and steel was widespread. The speed of construction and the relatively low cost of metal truss bridge parts ensured their popularity over labor-intensive masonry bridges and short-lived timber bridges. Toward the end of the nineteenth century, the quality, quantity, and cost of steel improved to such a degree that it virtually replaced wrought iron for bridge construction by 1910.²

Most metal trusses were constructed of built-up members composed of mass-produced, standard-shaped channel, plate, and angle stock purchased from one or more of the numerous steel companies nationwide. The bridge companies preassembled trusses in their factories then simply shipped them to the bridge site for installation. Installation involved grading approaches, constructing abutments and piers, erecting preassembled floor and truss members, and placing deck material.

¹ Larry Jochims, *Metal Truss Bridges in Kansas 1861-1939, National Register of Historic Places Multiple Property Documentation Form*, (Topeka: Kansas State Historical Society, 1989), E.

² Ibid, F.

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Salt Creek Truss Leg Bedstead Bridge
Lincoln County, Kansas

Before 1900, generally all panel point connections – the locations at which structural bridge elements intersect – were made with the use of a pin. This technique was so widespread that it became one of the distinctive features of American bridge construction in the nineteenth century.³ The pin-connected construction of the Salt Creek Truss Leg Bedstead Bridge illustrates the standardization of this technique. However, subsequent advancements in pneumatic riveting techniques greatly improved rivet installation quality, enabling more reliable panel point connections. With the increased portability of this construction technology, the more rigid riveting technique rapidly surpassed pin-connected bridge construction during the first years of the twentieth century.

In addition, the contemporary development of economic cement production promoted the widespread combination of steel and concrete in bridge construction. It was not uncommon for older metal truss bridges to receive new reinforced concrete decks or poured concrete reinforcements for older stone abutments. By the 1920s, reinforced concrete was the standard material for abutments, piers, and decks of steel truss bridges. The combination of limestone abutments and poured concrete foundation pads at the Salt Creek Truss Leg Bedstead Bridge illustrates the transition in construction technology and materials that occurred during the period of significance.

The Salt Creek Truss Leg Bedstead Bridge is a classic example of this truss design. The truss leg bedstead is a variation of the Pratt truss. Patented in 1844, the Pratt truss incorporates vertical members in compression and diagonal members in tension, a design that reduces the required length of compression members, helping to prevent bending or buckling. It became the most common bridge truss type of the late nineteenth and early twentieth centuries and spawned numerous variations including Parker, Camelback, Truss Leg Bedstead, Baltimore, Lenticular, and Pennsylvania trusses.⁴

The truss leg bedstead is a Pratt pony truss with vertical end posts that extend down below the end floor beams and are embedded into foundation pads or abutments, thus forming the namesake “legs” of the design. This variation of the standard Pratt truss design was intended for short spans between 30 and 100 feet. The truss leg bedstead bridge type was widespread and continued to be constructed into the twentieth century in Kansas, indicating the appeal of its simplicity and economical construction costs. In 1998, approximately 375 truss leg bedstead bridges, including the Sand Creek Truss Leg Bedstead Bridge, existed throughout the state of Kansas.⁵

STRUCTURE HISTORY

The nearby town of Barnard was established in 1882 as the town of Nimrod. The name was changed in 1888 to honor John Fiske Barnard, a division manager for the Atchison, Topeka & Santa Fe Railroad, when the railroad's Barnard branch line was constructed. As the branch terminus, Barnard was the closest railroad station to at least six surrounding townships in both Lincoln and Mitchell counties. Typical of small towns throughout Kansas, it

³ Ibid, F.

⁴ T. Allan Comp and Donald Jackson, *Bridge Truss Types: A guide to dating and identifying*. (Nashville, Tennessee: American Association for State and Local History, Technical Leaflet 95), 8.

⁵ Nimz, 6.

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Salt Creek Truss Leg Bedstead Bridge
Lincoln County, Kansas

served as a trading and shipping point for the surrounding rural community. As a result, the fords and bridges that provided area farmers with access to local markets were critical to the survival of the regional economy.

The Kansas City Bridge and Iron Company of Kansas City, Missouri, a prolific out-of-state bridge builder in Kansas, built the Salt Creek Truss Leg Bedstead Bridge in 1903. Markings on the structural members indicate that Kansas City Bridge and Iron Company purchased the stock metal from the Cambria Steel Company of Johnstown, Pennsylvania. Organized between 1880 and 1882, the Kansas City Bridge and Iron Company was controlled in 1887 by G. H. Wheelock, president; A. M. Blodgett, vice president; and E. I. Farnsworth, chief engineer. Farnsworth was previously chief engineer for King Iron Bridge Company and a co-founder of Missouri Valley Bridge Company of Leavenworth, Kansas.⁶

The *Barnard Bee* reported on June 11, 1908 that floodwaters on Salt Creek had recently damaged or destroyed several bridges in the area, as they had done four years earlier. With no apparent alterations to the original design or materials, the Salt Creek Truss Leg Bedstead Bridge evidently withstood these two events and continues to serve the surrounding community in its original function. No further construction history has presently been located.⁷

⁶ Jochims, E3.

⁷ Inquiry into the Lincoln County Road and Bridge records, Kansas Department of Transportation records, and Kansas State Historical Society archives revealed no further construction history specific to the Salt Creek Truss Leg Bedstead Bridge.

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Salt Creek Truss Leg Bedstead Bridge
Lincoln County, Kansas

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**NATIONAL REGISTER OF HISTORIC PLACES
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Section Number 10 Page 7

Salt Creek Truss Leg Bedstead Bridge
Lincoln County, Kansas

GEOGRAPHICAL DATA

Verbal Boundary Description:

Located on the east-west section line between the NE $\frac{1}{4}$ of Section 12 and the SE $\frac{1}{4}$ of Section 1, Township 10S, Range 7W, the Salt Creek Truss Leg Bedstead Bridge encompasses an area measuring approximately 123 feet by 16 feet. The northwest corner of this area corresponds to the northwest corner of the bridge.

Boundary Justification:

The boundary includes the truss, deck, abutments, and associated approaches that represent the significant features associated with the bridge structure.

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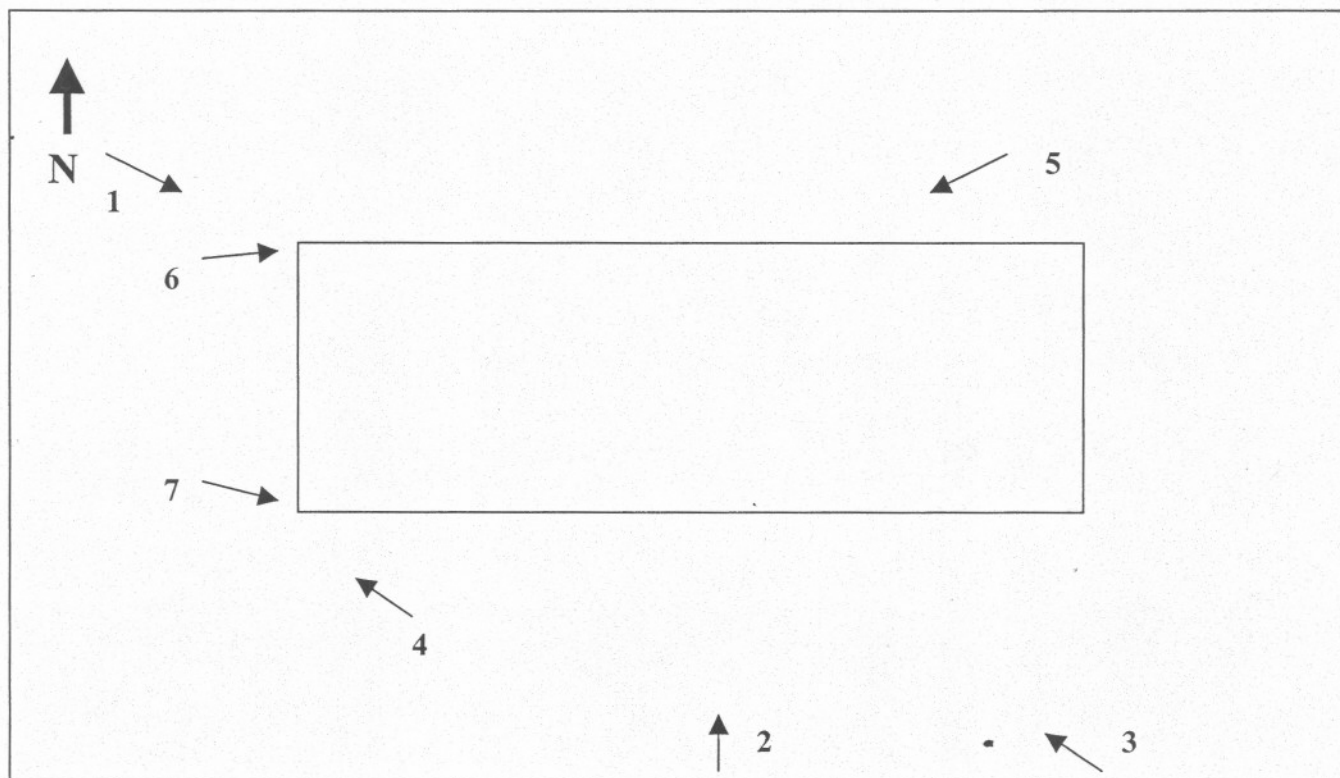
Section - Photographic Documentation Page 8

Salt Creek Truss Leg Bedstead Bridge
Lincoln County, Kansas

PHOTO LOG

Photographer: Kerry Davis
Date of Photographs: February 2002
Location of Original Negative: . Kansas State Historical Society, Topeka, Kansas

Photograph Number	Camera View
1.	View SE, bridge truss and roadway
2.	View N, bridge truss and Salt Creek
3.	View NW, bridge truss
4.	View NW, west abutment and approach span detail
5.	View SW, bridge understructure and west abutment
6.	View NE, plaque detail
7.	View SE, plaque detail



BARNARD QUADRAN
KANSAS
7.5 MINUTE SERIES (TOPOC

SE
(SE)

582

R. 7 W.

2'30" R. 6 W.

1 990 000 FEET

584

585

