Kansas Historic Resources Inventory

Printed: 01/11/2022



137-0000-00123 Sand Creek Truss Leg Bedstead Bridge 00 Y RD Lenora vicinity





LOCATION:

County: Norton
Address: 00 Y RD

Address Remarks: Rd. Y, 0.5 mi. W of int with K-283 HWY, 2 mi. N of K-9 HWY and 6 mi. NE of Lenora. 2.0 N

& 4.0 W of Edmond.

City: Lenora vicinity

Zip: 67645

Parcel ID:

Legal Description: NW 1/4 of Section 3 Township 5S Range 23W

Legal Description Remarks: On section-line road between S3-T5S-R23W & S34-T4S-R23W

Latitude, Longitude 1: 39.65380 -99.90076

Latitude, Longitude 2: Latitude, Longitude 3: Latitude, Longitude 4:

Datum: WGS84

DESCRIPTION:

Historic Name: Sand Creek Truss Leg Bedstead Bridge

Alternate Name: Bridge #000660975003108

Historic Function: Transportation

Subcategory: Road-Related (Vehicular)

Historic Function Remarks:

Present Function: Transportation

Subcategory: Road-Related (Vehicular)

Present Function Remarks:

Residential/Commercial/Religious Style:

Secondary Style:

Barn Type: Not Applicable
Bridge Type: Bedstead Truss

Physical Description/Remarks: Truss Leg Bedstead. 1 span, 64' long by 16' wide. Suff. rating: 19.4. 5 ton

weight limit.

steel & concrete foundation; iron; steel

Plan Form: Rectangle

Landscape Type: Not Applicable

Commercial Building Type: Not Applicable

Roof Form: Not Applicable

Stories: 1

Condition: Good

Principal Material: Metal

Condition Remarks:

Architect/Designer/Builder: Canton (Ohio) Bridge Co.

Year of Construction: 1906

Certainty: Estimated

Date Notes:

General Remarks: Duplicate record 137-0000-00124 merged & deleted (09/08/2014).

Ancillary Structures: None

Ancillary Structure Remarks:

REGISTER STATUS:

Listed in State Register: Yes

Date of State Listing: 05/09/2003

Listed in National Register: Yes

Date of National Listing: 05/09/2003

Historic District:

Demolished:

Date Demolished (if applicable):

Potentially Eligible for National Register:

Register Status Remarks: The proposed new location for the Sand Creek Truss Leg Bedstead Bridge

meets the requirements of Criteria Consideration B. Under Criterion C, all of the significant architectural features will be retained including iron and steel frame and its combination of timber abutments and poured concrete foundation pads – features which illustrate the transition in construction technology and materials that occurred during the period of significance. The bridge is scheduled to be presented to the November 18, 2017 HSBR. Draft

nomination here: http://www.kshs.org/14633.

Thematic Nomination (MPDF): Metal Truss Bridges in Kansas

National Historic Landmark:

SURVEY INFORMATION:

Survey 1

Survey Project Name: Kansas - KDOT/Historic Bridge Inventory - Metal Truss Bridges

Sequence Number: 69-LT-22

Surveyed By:

Survey Date: 06/14/1989

IMAGES & DOCUMENTS



Sand Creek Truss Leg Bedstead Bridge. 2013.

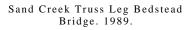


Sand Creek Truss Leg Bedstead Bridge. 2013.



Sand Creek Truss Leg Bedstead Bridge. 2013.







Sand Creek Truss Leg Bedstead Bridge. 1989.



Sand Creek Truss Leg Bedstead Bridge. Lenora vicinity. Proposed location, facing E. July 2017.

Sand Creek Truss Leg Bedstead Bridge. National Register nomination.



NPS Form 10-900 GMB No. 1024-0018 (Rev. 10/90)

United States Department of the Interior National Park Service

Signature of Keeper

National Register of Historic Places Registration Form

1	
1. Name of Property	
Historic name: N/A	
Other name/site number: Sand Creek Truss Leg Bedstead Bridge (preferred	d): 69-LT-22
2. Location On Road Y, 0.5 miles west of intersection with Route 283; 2 miles	north of Route 9 and 6 miles
northeast of the town of Lenora.	
	not for publication
city or town Lenora	X vicinity
state code KS county Norton county code 137	zip code 67645
As the designated authority under the National Historic Preservation Act of certify that this XX nomination request for determination of eligibility standards for registering properties in the National Register of Historic F and professional requirements set forth in 36 CFR Part 60. In my opinion, to does not meet the National Register criteria. I recommend that this property nationally XX statewide locally. (See continuation sheet for act Signature of certifying official Date KANSAS STATE HISTORICAL SOCIETY	ty meets the documentation Places and meets the procedural the property XX meets by be considered significant ditional comments.)
State or Federal agency and bureau	
In my opinion, the propertymeetsdoes not meet the National Regist (See continuation sheet for additional comments.)	cer criteria.
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:)	

Date of Action

Property Name Sand Creek Truss Leg Bedstead Bridge			
County and State Norton, Kansas			Page 2
5. Classification			
			dable December
Ownership of Property	Category of Property		within Property
private	building(s)	contributing	noncontributing
X public-local	district		buildings
public-State	site		sites
public-Federal	X structure	_1_	structures
	object		objects
		1	OTotal
Name of related multiple pro (Enter "N/A" if property is multiple property listing.):	not part of a	No. of contribut listed in the Na	ing resources previously tional Register
Metal Truss Bridges in Kans	sas	0	
6. Functions or Use			
Historic Functions (Enter categories from inst	ructions.)	Current Functions (Enter categories	from instructions.)
TRANSPORTATION: Road-rela	ated (vehicular)	TRANSPORTATIO	N: Road-related (vehicular)
		-	
7. Description			
Architectural Classification	n	Materials	
(Enter categories from inst	ructions.)	(Enter categorie	s from instructions.)
OTHER: Truss Leg Bedstead			eel, Concrete
		Walls	
		Roof	
		Other <u>Meta</u>	al: Iron, Steel

USDI/NPS NRHP Registration Form

Property Name Sand Creek Truss Leg Bedstead Bri	dge	
County and State Norton, Kansas		Page 3
8. Statement of Significance		
Applicable National Register Criteria (Mark "x" in property for National Register listing.)	one or more boxes for the criter	ria qualifying the
A Property is associated with events that have of our history.	made a significant contribution	n to the broad patterns
B Property is associated with the lives of per	sons significant in our past.	
X C Property embodies the distinctive characteri or represents the work of a master, or posse and distinguishable entity whose components.	sses high artistic values, or re	nod of construction epresents a significant
D Property has yielded, or is likely to yield,	information important in prehis	story 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 structu	re.	
F a commemorative property.		
Gless than 50 years of age or achieved signif	icance within the past 50 years.	
Areas of Significance Enter categories from instructions.)	Period of Significance	Significant Dates
ENGINEERING	1906	1906
TRANSPORTATION		
	Cultural Affiliation	
	N/A	
	11/11	
Significant Person	Architect/Builder	
N/A	Canton Bridge Company (Canton	n, Ohio)

USDI/NPS NRHP Registration Form	
Property Name Sand Creek Truss Leg Bedstead Bridge	
County and State Norton, Kansas	Page <u>4</u>
9. Major Bibliographical References	
(Cite the books, articles, and other sources used in preparing t sheets.)	this form on one or more continuation
Previous documentation on file (NPS):	Primary location of additional data:
preliminary determination of individual listing	X State Historic Preservation Office
(36 CFR 67) has been requested	Other State agency
previously listed in the National Register	Federal agency
previously determined eligible by the National Register	X Local government
designated a National Historic Landmark	University
recorded by Historic American Buildings	Other
Survey #	Specify repository:
recorded by Historic American Engineering	
Record #	
10. Geographical Data	
Acreage of property _ <1 acre	
UTM References 1 1/4 4/2/2/7/6/0 4/3/8/9/5/0/0 3 / //// Zone Easting Northing Zone Easting	///// Northing
2 / //// //// 4 / ////	<u>·/////</u>
See con	tinuation sheet
Verbal Boundary Description (Describe the boundaries of the proj	perty on a continuation sheet.)
Boundary Justification (Explain why the boundaries were selected	d on a continuation sheet.)
11. Form Prepared By	
name/title Kerry Davis, Architectural Historian & Elizabeth Rosin, Parti	ner
organization Historic Preservation Services	date <u>August 5, 2002</u>
street & number 323 West Eighth Street, Suite 112	telephone(816) 221-5133
city or town Kansas City	state <u>Missouri</u> zip code <u>64105</u>
Additional Documentation	
Submit the following items with the completed form:	
Continuation Sheets	
Maps	
A USGS map (7.5 or 15 minute series) indicating the propert A sketch map for historic districts and properties having Photographs	
Representative black-and-white photographs of the property. Additional items (Check with the SHPO or FPO for any additional	

Property Owners (Complete this item at the request of the SHPO or FPO.)

Name County of Norton

 street & number ___105 S. Kansas, P.O. Box 70
 telephone __785-877-5740

 city or town ___Norton
 state ___KS __zip code 67654

NPS Form 10-900-a (8-86)

United States Department of the Interior National Park Service

NATIONAL REGISTER OF HISTORIC PLACES CONTINUATION SHEET

Section Number 7 Page 1

Sand Creek Truss Leg Bedstead Bridge Norton County, Kansas

DESCRIPTION

LOCATION AND SETTING

The Sand Creek Truss Leg Bedstead Bridge is located 6 miles east and 2 miles north of the town of Lenora in north central Kansas, on the east-west section line between the NW ¼ of Section 3, Township 5S and the SW ¼ of Section 34, Township 4S, Range 23W. The region is defined by rolling prairie hills with tree-lined creeks. The Sand Creek Truss Leg Bedstead Bridge carries Road Y across Sand Creek, which is a meandering, intermittent branch of the North Fork Solomon River. The dirt roadway, flanked by fenced pasture, aligns directly with the Sand Creek Truss Leg Bedstead Bridge.

TRUSS TYPE

The Sand Creek Truss Leg Bedstead Bridge is a single span pin-connected pony truss¹ that measures 64 feet in length and 16 feet in width.² Timber piles and plank retaining walls form the abutments that support the approach grades. The abutment side walls extend approximately 10 feet along the roadway. 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, a cover plate, and lacing bars; the bottom chords consist of two flat eye bars.

The web members include vertical posts that form four equivalent panels and diagonal ties, which intersect within the two central panels. 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 12 feet above the creek bed on timber stringers. Floor beams located at the base of each vertical post are connected by lower lateral bracing rods.

The paired historic parallel angle bar guardrails are intact along the length of the truss. A damaged, rectangular cast iron plaque located on the northwest vertical end post reads "...CANTON / BRIDGE CO. / CANTON OHIO." Letters in relief read "JONES & LAUGHLINS" on several structural components.

INTEGRITY

The Sand Creek Truss Leg Bedstead Bridge is an excellent example of this bridge type, historically popular in Kansas.³ With no apparent alterations made to the original design or materials, the Sand 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.

² The length equals the distance between abutments; the width equals deck width.

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

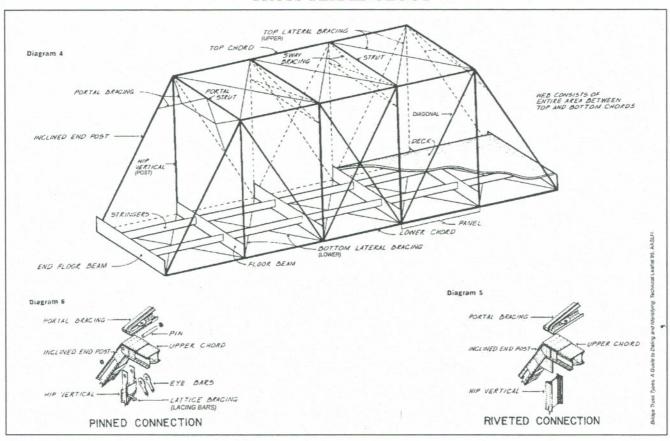
³ Dale Nimz, *Activity III Review Initial Assessment Metal Truss Bridges*. (Topeka: Kansas State Historical Society, 1998), 6. Nimz identifies approximately 375 extant Truss Leg Bedstead bridges in Kansas.

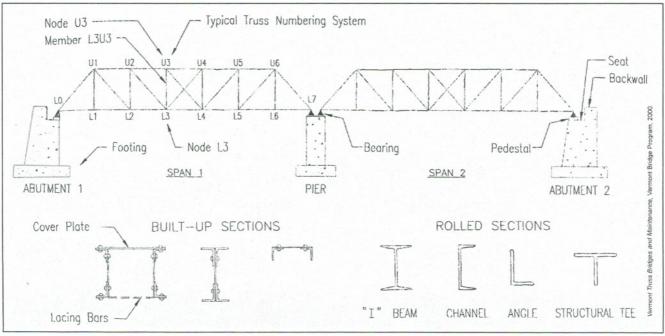
NATIONAL REGISTER OF HISTORIC PLACES CONTINUATION SHEET

Section Number 7 Page 2

Sand Creek Truss Leg Bedstead Bridge Norton County, Kansas

TRUSS TERMINOLOGY





NPS Form 10-900-a (8-86)

United States Department of the Interior National Park Service

NATIONAL REGISTER OF HISTORIC PLACES CONTINUATION SHEET

Section Number 8 Page 3

Sand Creek Truss Leg Bedstead Bridge Norton County, Kansas

STATEMENT OF SIGNIFICANCE

The Sand 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 1906, the Sand Creek Truss Leg Bedstead Bridge is an example of a common bridge solution applied to a relatively short span. Its pin-connected structure, timber deck and abutments, coupled with poured concrete foundation pads illustrates the technological transitions taking place during the period of significance. As no historic name identifies this bridge, the preferred name "Sand 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.² 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 a degree that it virtually replaced wrought iron for bridge construction by 1910.³

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.

³ Ibid, F.

¹ Norton County Road and Bridge records, Norton, Kansas.

² 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..

NATIONAL REGISTER OF HISTORIC PLACES CONTINUATION SHEET

Section Number 8 Page 4

Sand Creek Truss Leg Bedstead Bridge Norton 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. 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. The pin-connected construction of the Sand Creek Truss Leg Bedstead Bridge is a relatively late example of this once standard technique.

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 timber abutments and poured concrete foundation pads at the Sand Creek Truss Leg Bedstead Bridge illustrates the transition in construction technology and materials that occurred during the period of significance.

The Sand 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.⁵

The Truss Leg Bedstead is a Pratt pony truss with vertical end posts that extend 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.⁶

STRUCTURE HISTORY

First settled in 1873, the nearby town of Lenora was the thriving western terminus of the Central Branch of the Union Pacific Railroad. Named in honor of Mrs. Lenora Hauser, the town featured both a post office and a store by 1875. Lenora had only 125 residents in 1880, but as a regional trading center supported three general merchandise stores, three physicians, two hotels, two mills, two shoemakers, two livery stables, a barber shop, a billiard hall, a lumberyard, a meat market, a restaurant, a blacksmith, a hardware store, a drug store, a wagon

⁴ Ibid, F.

⁵ 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.
⁶ Nimz, 6.

NATIONAL REGISTER OF HISTORIC PLACES CONTINUATION SHEET

Section Number 8 Page 5

Sand Creek Truss Leg Bedstead Bridge Norton County, Kansas

maker, a lawyer, a flour store, and a newspaper office. Typical of small towns throughout Kansas, it served as a trading and shipping point for the surrounding rural community. As a result, fords and bridges that provided area farmers with access to local markets were critical to the survival of the regional economy.

The Canton Bridge Company of Canton, Ohio built the Sand Creek Truss Leg Bedstead Bridge in 1906.⁸ Markings on the structural members indicate that the Canton Bridge Company purchased the stock metal from the Jones & Laughlins Steel Corporation of Pittsburgh, Pennsylvania. A prolific out-of-state bridge builder in Kansas, the Canton Bridge Company heavily marketed short-span truss bridges in this region at the turn of the century.⁹ No further construction history has presently been located.¹⁰

The Canton Bridge Company of Canton, Ohio advertised in *Engineering Record* as early as 1876 and was incorporated in 1891. The executives in 1891 included W. E. Sherlock, President; V. H. Hammond, Vice President; and C. E. Timkler, Chief Engineer. Massillion Steel Joist Company of Massillion, Ohio purchased the company in 1925 and the two companies were merged into Macomber Steel Company in 1927.

⁷ William G. Cutler, *History of the State of Kansas: Norton County*. (Chicago: A. T. Andreas, 1883).

⁸ An identification plaque affixed to the bridge states the bridge company; Norton County Road and Bridge records state the construction date.

⁹ Larry Jochims, West Sappa Creek Lattice Bridge, National Register of Historic Places Registration Form, (Topeka: Kansas State Historical Society, 1989

¹⁰ Inquiry into the Norton County Road and Bridge records, Kansas Department of Transportation records, Kansas State Historical Society archives, Norton County Historical Society archives, and Western Contractor revealed no further construction history specific to the Sand Creek Truss Leg Bedstead Bridge.

¹¹ Jochims, West Sappa Creek Lattice Bridge.

¹² Ibid. It is likely that V. H. Hammond is a relation of D. Hammond of Wrought Iron Bridge Company in Canton, Ohio.

NATIONAL REGISTER OF HISTORIC PLACES CONTINUATION SHEET

Section Number 9 Page 6

Sand Creek Truss Leg Bedstead Bridge Norton County, Kansas

BIBLIOGRAPHY

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

Cutler, William G. History of the State of Kansas. Chicago: A. T. Andreas, 1883.

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"Industrial Images from the Library of Congress," *Illustrated Pittsburgh Retrospective* [article on-line]; available from http://www.andrew.cmu.edu/user/vck/pghretro.htm; Internet; accessed 18 March 2002.

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

Jochims, Larry. West Sappa Creek Lattice, National Register of Historic Places Registration Form. Topeka: Kansas State Historical Society, 1989.

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Nimz, Dale E. Activity III Review Initial Assessment Metal Truss Bridges. Topeka: Kansas State Historical Society, 1998.

Second Ohio Historic Bridge Inventory, The; Evaluation and Preservation Plan. Columbus: Ohio Department of Transportation, 1990.

Vermont Truss Bridges and Maintenance. Vermont Bridge Program, 2000.

WPA Guide to 1930s Kansas. Lawrence: University of Kansas Press, 1984.

NATIONAL REGISTER OF HISTORIC PLACES CONTINUATION SHEET

Section Number 10 Page 7

Sand Creek Truss Leg Bedstead Bridge Norton County, Kansas

GEOGRAPHICAL DATA

Verbal Boundary Description:

Located on the line between the NW ¼ of Section 3, Township 5S and the SW ¼ of Section 34, Township 4S, Range 23 W, the Sand Creek Truss Leg Bedstead Bridge encompasses an area measuring approximately 64 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.

NATIONAL REGISTER OF HISTORIC PLACES CONTINUATION SHEET

Section - Photographic Documentation Page 8

Sand Creek Truss Leg Bedstead Bridge Norton 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 NW, bridge truss and abutments
2.	View NE, bridge truss and abutments
3.	View SW, bridge truss and abutments
4.	View E, bridge truss along roadway
5.	View NW, bridge understructure and west abutment
6.	View NW, upper node detail
7.	View E, plaque detail

