

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Section number Photographs Page 1

Bridge No. 5721 (Bridge No. 82524)
Name of Property
Washington County, Minnesota
County and State
<i>Iron and Steel Bridges in Minnesota</i>
Name of multiple listing (if applicable)

Name of Property: Bridge No. 82524
 City or Vicinity: Stillwater Township
 County: Washington County
 State: MN
 Photographer: Robert M. Frame III, Ph.D.
 Date Photographed: June 27, 2011
 Location of Original Digital Files: 7900 W. 78th Street, Minneapolis, MN 55439
 Number of Photographs: 7

Photo #1

General view northwest elevation, camera facing southeast.

Photo #2

General view southeast elevation, camera facing northwest.

Photo #3

View of the southwest portal, camera facing northeast.

Photo #4

Detail of the reconstructed lattice portal element, camera facing southwest.

Photo #5

View of northeast portal, camera facing southwest.

Photo #6

Detail of the pinned panel connection, showing the combination of reused iron members and some replicated members in steel, camera facing up.

Photo #7

Oblique view of northwest elevation including setting, view facing south.

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Bridge No. 5721 (Bridge No. 82524)
Name of Property
Washington County, Minnesota
County and State
<i>Iron and Steel Bridges in Minnesota</i>
Name of multiple listing (if applicable)

Name of Property

Historic name Bridge No. 5721

Other names/site number Bridge No. 82524

When Bridge 5721 was moved to its new location, spanning Manning Avenue, it was renumbered by the Minnesota Department of Transportation to Bridge No. 82524. The previous bridge number, 5721, was subsequently retired.

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Location

street & number Gateway Trail over Manning Avenue

N/A
x

not for publication

city or town Stillwater Township

vicinity

state Minnesota code MN county Washington code 163 zip code N/A

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In 2006 the Minnesota Department of Transportation (Mn/DOT) completed a Historic Bridge Management Plan (Plan) for Bridge No. 5721.¹ The Plan for Bridge No. 5721 was one of 24 such plans completed for selected state-owned bridges in a bridge preservation program developed by Mn/DOT in cooperation with the Minnesota State Historic Preservation Office (SHPO) and the Federal Highway Administration (FHWA). Each Plan evaluated its subject bridge from both historical and engineering perspectives and determined an appropriate program for preservation, considering the each bridge’s significance and character-defining features, based on the National Register statements of significance.

Because of the poor physical condition of Bridge No. 5721, and its deficiencies in structural capacity and geometry, the Plan concluded that “attempts to address the structural capacity and geometry of the truss span as necessary to meet transportation needs would severely compromise the bridge’s historic integrity.” Because the historic wrought-iron truss itself, the main span, had “good historic design integrity,” it was considered “a viable candidate for relocation and rehabilitation.” Therefore, the Plan “recommended that the wrought-iron Parker truss be removed from the trunk highway system and relocated for less demanding use.” The Plan stated that, as part of the relocation, “the truss should be rehabilitated based on the Secretary of the Interior’s Standards for Rehabilitation [Secretary’s Standards]...with the historic significance of the truss maintained at the new location.” It further concluded that “the existing approach spans and substructure are not historically significant and need not be salvaged.”

Subsequent to the completion of the Plan, Mn/DOT collaborated with the Minnesota Department of Natural Resources (DNR) to relocate Bridge No. 5721 from Koochiching County to a new site in Washington County, where it would carry the DNR’s Gateway Trail over Manning Avenue (County State Aid Highway 15). The Gateway Trail is a combination pedestrian, bicycle, and equestrian trail. Prior to the bridge relocation, the trail crossed the road at grade.

In fall 2009 the historic truss superstructure was disassembled at its site in Koochiching County, where it had carried Trunk Highway 65 over the Little Fork River since its relocation to that site in 1937. Originally it had been located in Sauk Centre, Minnesota. On May 20, 2011, the rehabilitated and reassembled truss was lifted by crane onto new reinforced-concrete abutments that had been constructed at the Gateway Trail site.

Between the disassembly in 2009 and the re-erection in 2010-2011, the individual members and components of the historic truss were inspected to determine structural soundness for reassembly at the new location in compliance with the Secretary’s Standards as required by the Plan. Parts that were feasible to be preserved and

¹ Minnesota Department of Transportation, Historic Bridge Management Plan, Bridge Number 5721, prepared by Mead & Hunt, Inc., and HNTB Corp., June 2006. Copy available at Cultural Resource Unit, Minnesota Department of Transportation, St. Paul, Minnesota.

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reused were cleaned, refurbished in a Minnesota metalworking facility, and transported to the Manning Avenue site for reassembly. Efforts were made to preserve and reuse as many original wrought-iron components as possible. Iron components judged too deteriorated to be reused were replicated in steel. Historic components replaced include the following:

1. Top lateral diagonal members, iron, pre-1937 (12)
2. Bottom lateral diagonal members, iron, pre-1937 (17)
3. Floor beams, shop-riveted, built-up I-section, iron, pre-1937 (2)
4. Top chord struts, iron, pre-1937 (2)
5. Truss diagonal eyebars (flat-plate, cut eyes), iron, pre-1937 (8)
6. Bottom chord eyebars (flat-plate, cut eyes), iron, pre-1937 (2)
7. Truss pins, steel, 1937 (16)
8. Bearings, steel, 1937 or later (4)
9. Floor system stringers, steel, 1937 or later (all)

To comply with current codes and standards for continued in-service use, selected components were replaced by modern functionally equivalent components, including roller bearings being replaced by elastomeric bearings. A lightweight concrete deck was installed to facilitate equestrian use and protect metal truss members and connections below the deck.

In 1964 the historic iron lattice overhead portal element on each end of the truss had been removed and replaced with a modern steel lattice portal unit in order to achieve a 16-foot overhead clearance above the deck. The clearance was required for use by trucks. As part of the rehabilitation, the 1964 non-historic portal was replaced and the original portal design and construction restored by using the original design as found on the 1937 erection plans.

The members of the 1937 steel railing were slightly repositioned in the reassembly to achieve necessary rail spacing and height to meet current railing standards. This was accomplished by adding removable metal plates at existing railing post drill holes, thereby not damaging the historic material and achieving reversibility. Additional protective railing height required by DNR for equestrian and bicycle use was achieved by adding several horizontal rows of stainless steel cables above the historic rail. Cables have been determined to have minimal visual impact on the historic appearance of the truss and the historic railing. Cables were anchored to the truss portal diagonals by a reversible clamp to avoid drilling the historic wrought iron. DNR also required a stainless-steel two-inch mesh behind the historic railing to provide protection to the highway below from stones and debris kicked up by the horse traffic.

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Although it was determined to replace existing rivets with high-strength, button-head bolts (or hex-head bolts, depending on location), field rivets were used in one area to assess the feasibility of field-riveting on historic truss bridge rehabilitation projects. The area selected for field riveting was the connection of the mid-truss horizontal braces to the truss vertical members. This field riveting was completed during the reassembly process using traditional field-riveting techniques with pneumatic rivet hammers and hot rivets.

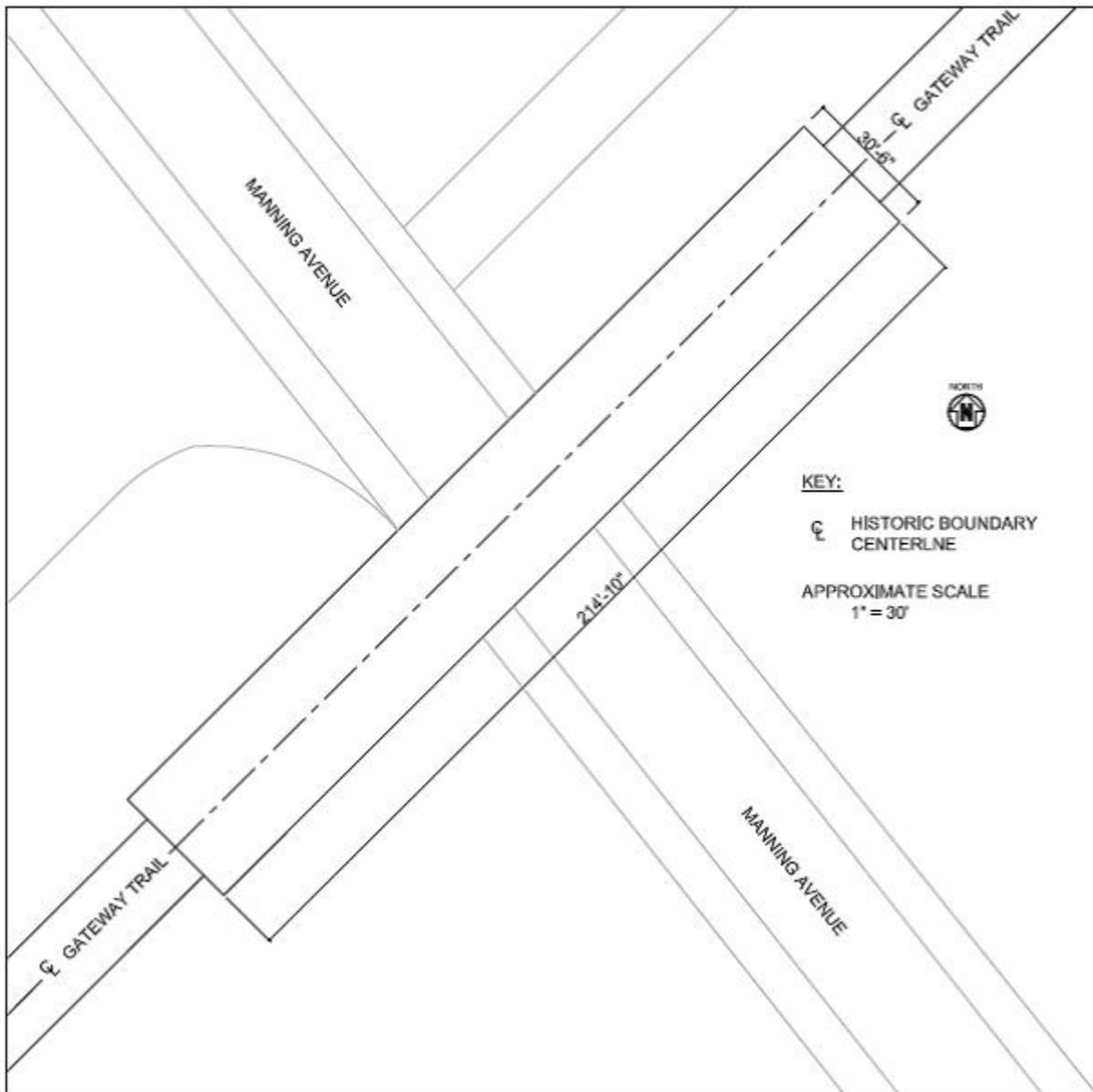
The bridge was repainted in the color combination used in the 1937 reassembly in Koochiching County, the earliest paint color scheme that could be determined with any accuracy. The colors used are black and gray (historically, an aluminum paint, no longer in use for bridges in Minnesota, would be used instead of gray).

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Section number Additional Documentation Page 1



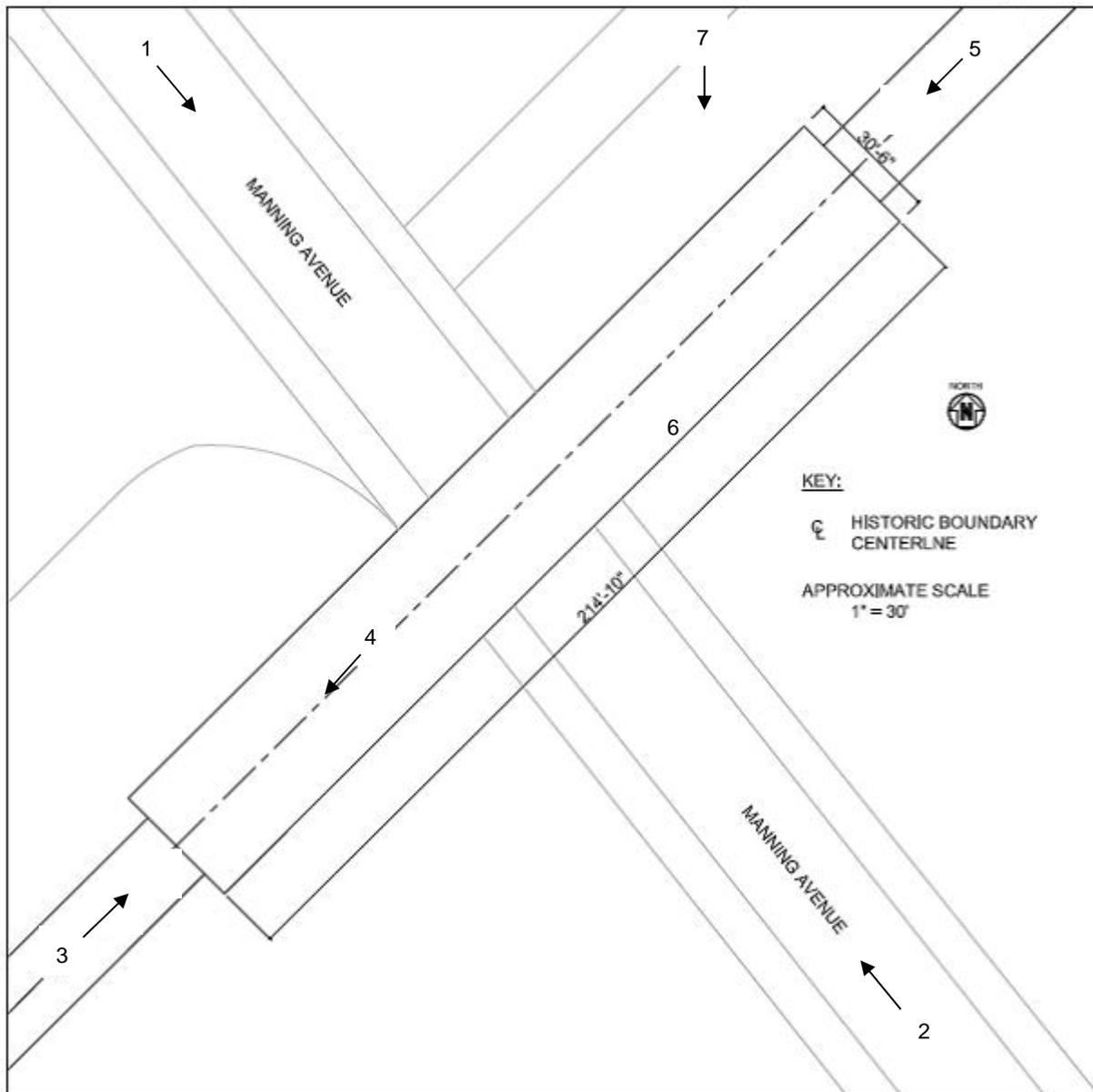
Boundary Map
 Bridge No. 5721 (Bridge No. 82524)
 Washington County, Minnesota

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Bridge No. 5721 (Bridge No. 82524)
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Photograph Key
 Bridge No. 5721 (Bridge No. 82524)
 Washington County, Minnesota

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NATIONAL REGISTER OF HISTORIC PLACES REGISTRATION FORM

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in *How to Complete the National Register of Historic Places Registration Form* (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name Bridge No. 5721

other names/site number N/A

2. Location

street & number Mn. Hwy. 65 over Little Fork River

not for publication N/A

city or town Unorganized Territory Silverdale vicinity X

state Minnesota code MN county Koochiching code 071

zip code 55772

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1986, as amended, I hereby certify that this x 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. I recommend that this property be considered significant ✓ nationally statewide x locally. (See continuation sheet for additional comments.)

Signature of certifying official

Date

Ian R. Stewart, Deputy State Historic Preservation Officer

5/12/98

State or Federal agency and bureau Minnesota Historical Society

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:

<input type="checkbox"/>	entered in the National Register	_____	_____
	<input type="checkbox"/> See continuation sheet.		
<input type="checkbox"/>	determined eligible for the	_____	_____
	National Register		
	<input type="checkbox"/> See continuation sheet.		
<input type="checkbox"/>	determined not eligible for the	_____	_____
	National Register		
<input type="checkbox"/>	removed from the National Register	_____	_____
<input type="checkbox"/>	other (explain): _____		
		_____	_____
		Signature of Keeper	Date
			of Action

5. Classification

Ownership of Property (Check as many boxes as apply)

- private
- public-local
- public-State
- public-Federal

Category of Property (Check only one box)

- building(s)
- district
- site
- structure
- object

Number of Resources within Property

Contributing	Noncontributing
<u> 0 </u>	<u> 0 </u> buildings
<u> 0 </u>	<u> 0 </u> sites
<u> 1 </u>	<u> 0 </u> structures
<u> 0 </u>	<u> 0 </u> objects
<u> 1 </u>	<u> 0 </u> Total

Number of contributing resources previously listed in the National Register N/A

Name of related multiple property listing (Enter "N/A" if property is not part of a multiple property listing.)

Historic Iron and Steel Bridges in Minnesota

6. Function or Use

Historic Functions (Enter categories from instructions)

Cat: TRANSPORTATION Sub: road-related (vehicular)

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Current Functions (Enter categories from instructions)

Cat: TRANSPORTATION Sub: road-related (vehicular)

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

7. Description

Architectural Classification (Enter categories from instructions)

OTHER: Camelback through truss

Materials (Enter categories from instructions)

foundation (Substructure) WOOD

roof _____

walls _____

other (Superstructure) METAL: Iron

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

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

Period of Significance ca. 1890; 1937

Significant Dates ca. 1890, 1937

Significant Person (Complete if Criterion B is marked above)

Cultural Affiliation _____

Architect/Builder Contractor/Builder: E.W. Coons, Inc.
Designer: Minnesota Highway Department

Narrative Statement of Significance (Explain the significance of the property on one or more continuation sheets.)

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 Record # _____

- Primary Location of Additional Data
- State Historic Preservation Office
 - Other State agency
 - Federal agency
 - Local government
 - University
 - Other

Name of repository: Minnesota Department of Transportation

10. Geographical Data

Acreeage of Property less than one acre

UTM References (Place additional UTM references on a continuation sheet)

	Zone	Easting	Northing	Zone	Easting	Northing
1	15	489290	5313450	3	_____	_____
2	_____	_____	_____	4	_____	_____
_____ See continuation sheet.						

Rauch, Minn., 1970

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 By

name/title Jeffrey A. Hess, Historian
organization Hess, Roise and Company
street & number The Foster House, 100 North First Street
city or town Minneapolis state MN zip code 55401
telephone (612) 338-1987
date September 1997

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 Owner

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

name _____
street & number _____
telephone _____
city or town _____ state _____ zip code _____

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C. 470 et seq.). Estimated Burden Statement: Public reporting burden for this form is estimated to average 18.1 hours per response including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Chief, Administrative Services Division, National Park Service, P.O. Box 37127, Washington, DC 20013-7127; and the Office of Management and Budget, Paperwork Reductions Project (1024-0018), Washington, DC 20503.

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**NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET**

Section 7 Page 1 Bridge No. 5721
name of property
 Koochiching County, Minnesota
county and state

Description

Located in rural southeastern Koochiching County, Bridge No. 5721 carries Minnesota Trunk Highway 65 over the Little Fork River, about two miles southwest of the small community of Silverdale. Aligned on a north-south axis, the crossing consists of a 160-foot, wrought-iron, eight-panel, pin-connected, Camelback through truss with three steel-stringer approach spans on the north, and three on the south. The superstructure rests on H-piling abutments and wood-trestle piers. In the main span, the two truss webs are identically detailed. Two channel sections with V-lacing form the upper chord, while two punched eyebars comprise the lower chord. All vertical members are four angle sections with V-lacing. Diagonal members are paired punched eyebars, while counters are looped eyerods with turnbuckles. The counters are paired in the two center panels, single in the outer panels. The truss webs are stiffened in the four center panels by intermediate horizontal struts consisting of paired channel sections with battens. Portal bracing is a lattice of angle sections, while overhead sway bracing consists of four angles with X-lacing and knee braces. The sway bracing also contains ornamental plates punched with four circles and a cross. Top-lateral and bottom-lateral bracing both utilize crossed eyerods, with the former containing turnbuckles. In the truss's flooring system, built-up wrought-iron floor beams support 10 rolled steel stringers (eight I-beams and two outer channel sections), which, in turn, carry a bituminous-surfaced wood deck that accommodates a 17-foot-wide roadway between channel-section railings. On the bridge's southernmost approach span, a metal plaque bears the following inscription: "Minnesota Highway Dept Bridge No 5721 1937."

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**NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET**

Section 8 Page 1 Bridge No. 5721
name of property
Koochiching County, Minnesota
county and state

Summary of Significance

In December 1936, the *Improvement Bulletin* reported that the Minnesota Highway Department had recently awarded a low-bid contract, in the amount of \$35,089, to E. W. Coons, Inc., of Hibbing, Minnesota, to construct Bridge No. 5721 in Koochiching County. According to the trade journal, the project involved the reconstruction of an "old 160-foot truss span with new stringers and 6 new 36-foot approach spans, total length 380 feet." As noted on drawings prepared by the highway department in November 1936, the contractor was responsible for furnishing structural steel for the new approach spans and for the new joists in the floor system of the old truss. On its part, the state agreed to "deliver to the bridge contractor, without cost to him, at some Twin City fabricating plant, the old material for the . . . truss span complete & ready for erection." Apart from indicating that the old truss was being held in a "storage yard" in Sauk Centre, Minnesota, the drawings provided no information on the span's history. One notation, however, did shed some light on the truss's vintage: "All old material is wrot. iron." As historian Fredric L. Quivik has explained in his study of Minnesota metal trusses, wrought iron "remained the principal bridge building material into the late 19th century." With the emergence of open-hearth steel in the early 1890s, steel became the preferred material, and "wrought iron disappeared from bridge work by the mid-1890s."

In 1937, E. W. Coons, Inc. completed its work on Bridge No. 5721, securing the old truss span from the highway department and new structural steel from the Lakeside Bridge and Steel Company of Milwaukee, Wisconsin. Upon its re-erection, the 160-foot main span retained not only much of its original material, but also much of its original pin-connected, Camelback, through-truss design. Its late nineteenth-century fabrication was evident in the detailing of its top chord (which used lacing instead of a cover plate), in the construction of its floor beams (which were built-up girders rather than rolled beams), and in the

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**NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET**

Section 8 Page 2 Bridge No. 5721
name of property
 Koochiching County, Minnesota
county and state

ornamentation of its overhead sway bracing (which displayed metal plates punched with circles and crosses). Neither the new I-beam flooring system nor the new wood-trestle substructure markedly affected the truss's original appearance. Indeed, it was not until the mid-1960s that the truss superstructure experienced noticeable remodeling. At that time, the state highway department raised the portal bracing by about two feet to provide a 16-foot minimum vertical clearance. But, overall, in its design, workmanship, and materials, Bridge No. 5721 retained its historical integrity as a late nineteenth-century, pin-connected, wrought-iron, Camelback through truss.

Bridge No. 5721 is a rare Minnesota example of both a wrought-iron truss and a truss with ornamental detailing. It is eligible for the National Register under Criterion C in the area of engineering, within the historic context of "Historic Iron and Steel Bridges in Minnesota." The Multiple Property Documentation Form (MPDF) associated with this context recognizes that wrought-iron bridges are highly significant "in light of their small number." The MPDF also recognizes that truss bridges may be eligible for "special decorative features."

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CONTINUATION SHEET**

Section 9 Page 1 Bridge No. 5721
name of property
 Koochiching County, Minnesota
county and state

Bibliography

Published Sources

Improvement Bulletin 83 (18 December 1936): 24.

International Falls Press, 1936-1937 (no mention of project).

Unpublished Sources

Quivik, Fredric L. "Iron and Steel Bridges in Minnesota."
Multiple Property Documentation Form, 1988. State Historic
Preservation Office, St. Paul.

Archival Sources

Bridge Database. Minnesota Department of Transportation, St.
Paul.

Bridge No. 5721 File (contract, correspondence). Minnesota
Department of Transportation, Record Storage Center, St.
Paul.

Bridge No. 5721 File (plans). Minnesota Department of
Transportation, District 1 Office, Duluth.

Bridge No. 5721 File. Minnesota Department of Transportation,
Bridge Division, St. Paul.

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**NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET**

Section 10 Page 1 Bridge No. 5721
name of property
Koochiching County, Minnesota
county and state

Verbal Boundary Description

The general area of the nominated property is a rectangle 18 feet wide, whose long center axis parallels the centerline of the bridge. The property is bounded at each end by the outer edges of the abutments.

Boundary Justification

Based on measurements provided by the Minnesota Department of Transportation, the boundaries enclose the entire historic resource.

T. 64 N.
540 000
FEET

T. 63 N.

*BLAKE No. 5721,
UNORGANIZED TWP. 1
Kochi Mining Co., (M)
UTM REFERENCE:
15:489290, 5313450*

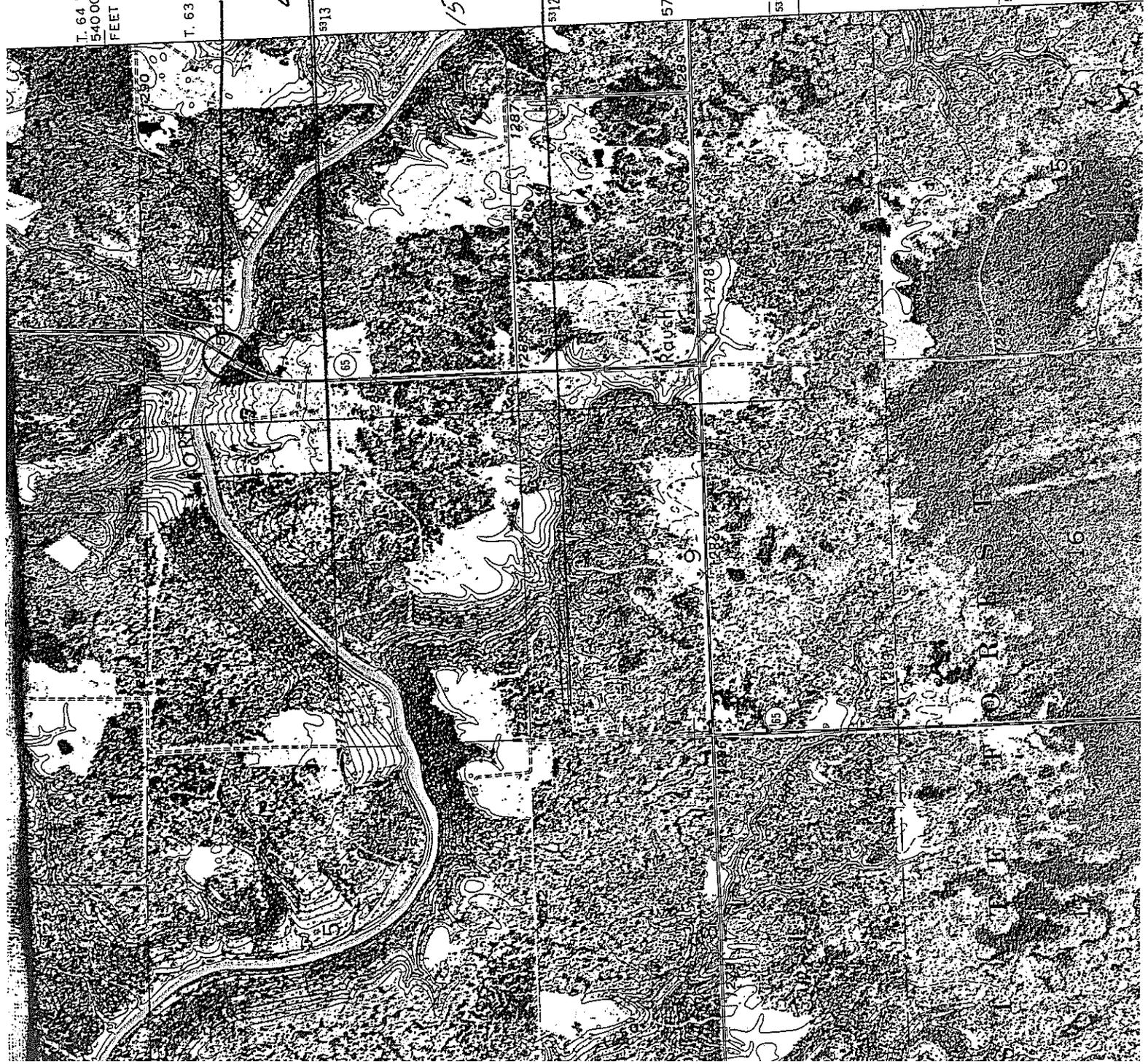
5313

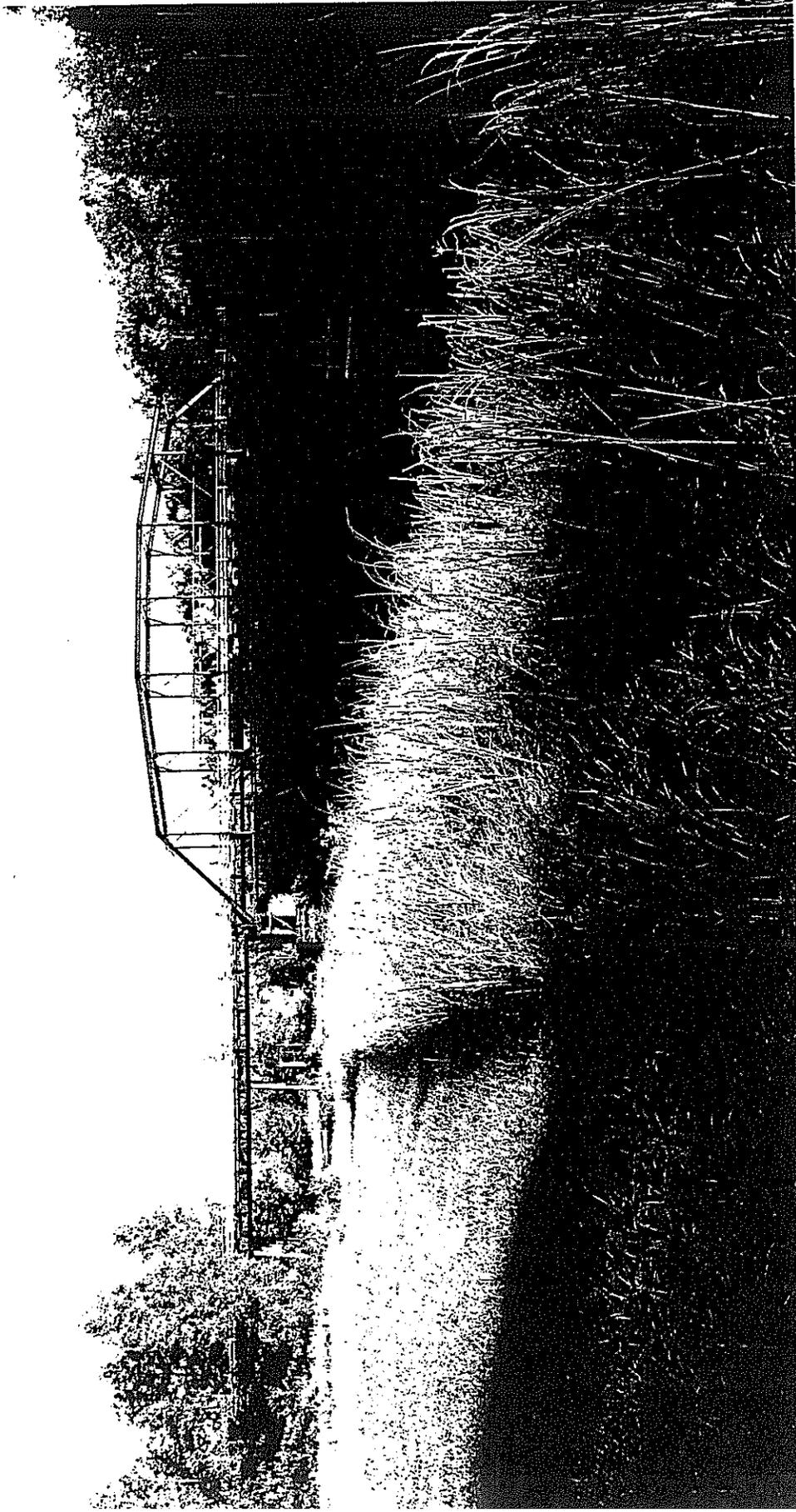
5312

5730"

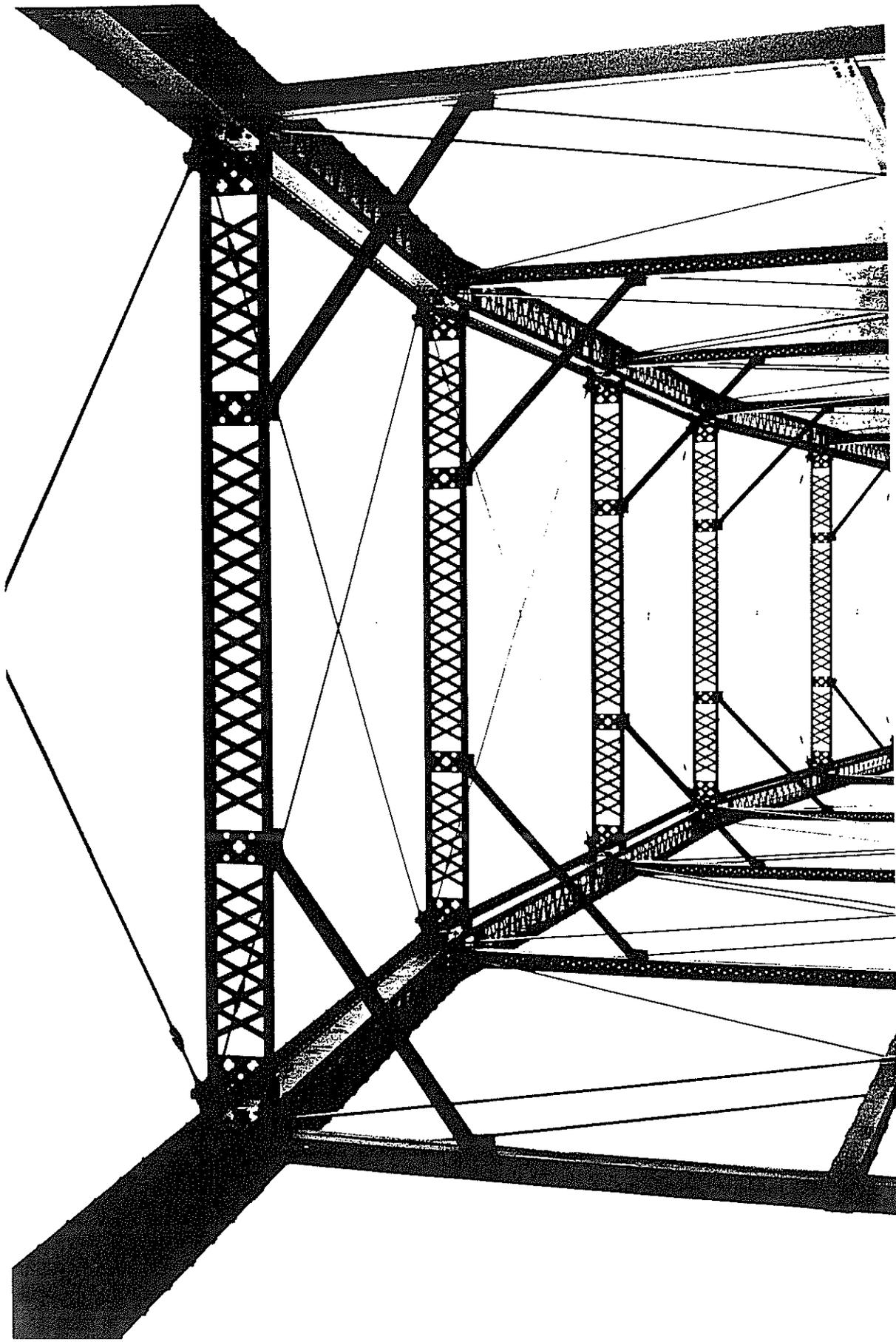
5311

5310





Bridge No. 5721
MN Highway 65 Over Little Fork River, Unorganized Territory (vicinity of Rauch)
Koochiching Co., MN
D12616-23



Bridge no. 5721
Mn Highway 65 Over Little Fork River, Unorganized Territory (Vicinity of Ranch)
Koochiching Co., MN
D12622-11A/12



Bridge No. 5701
Mn Highway 65 over Little Fork River, unorganized Territory (vicinity of Rauch)
Koochiching Co., Mn
012616-24