

United States Department of the Interior  
National Park Service

National Register of Historic Places  
Continuation Sheet

Section number \_\_\_\_\_ Page \_\_\_\_\_

SUPPLEMENTARY LISTING RECORD

NRIS Reference Number: 96000480

Date Listed: 4/25/96

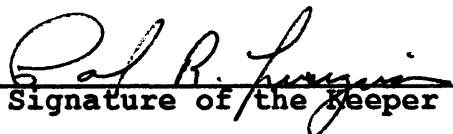
Tenth Street Bridge  
Property Name

Cascade  
County

MT  
State

N/A  
Multiple Name

-----  
This property is listed in the National Register of Historic Places in accordance with the attached nomination documentation subject to the following exceptions, exclusions, or amendments, notwithstanding the National Park Service certification included in the nomination documentation.

  
Signature of the Keeper

4/25/96  
Date of Action

Amended Items in Nomination:

U.T.M. Coordinates:

The correct UTM coordinate for point A is: 12 478200 5263030

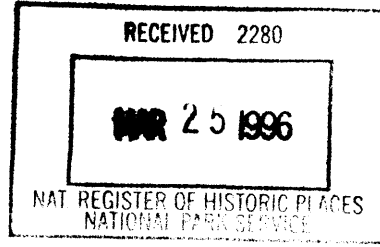
This information was confirmed with Chere Jiusto of the MT SHPO.

DISTRIBUTION:

- National Register property file
- Nominating Authority (without nomination attachment)

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NATIONAL REGISTER OF HISTORIC PLACES  
REGISTRATION FORM

1. Name of Property

historic name: Tenth Street Bridge

other name/site number:

2. Location

street & number: Tenth Street across the Missouri River

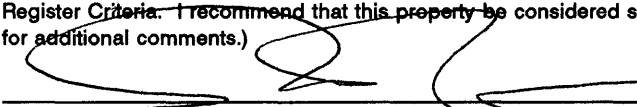
not for publication: n/a  
vicinity: n/a

city/town: Great Falls

state: Montana code: MT county: Cascade code: 013 zip code: 59401

3. State/Federal Agency Certification

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

 \_\_\_\_\_ 3-19-96  
Signature of certifying official/Title Date

Montana State Historic Preservation Office  
State or Federal agency or bureau

In my opinion, the property  meets  does not meet the National Register criteria.

\_\_\_\_\_  
Signature of commenting or other official Date

\_\_\_\_\_  
State or Federal agency and bureau

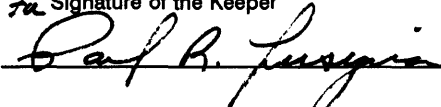
4. National Park Service Certification

I, hereby certify that this property is:

Signature of the Keeper

Date of Action

- entered in the National Register  see continuation sheet
- determined eligible for the National Register  see continuation sheet
- determined not eligible for the National Register  see continuation sheet
- removed from the National Register  see continuation sheet
- other (explain): \_\_\_\_\_

 \_\_\_\_\_ 4/25/96 \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. Classification

<b>Ownership of Property:</b> Public - local	<b>Number of Resources within Property</b>	
<b>Category of Property:</b> Structure	Contributing	Noncontributing
<b>Number of contributing resources previously listed in the National Register:</b> Previously determined eligible for listing.	___	___ building(s)
<b>Recorded in the Historic American Engineering Record, HAER No.MT-8</b>	___	___ sites
<b>Name of related multiple property listing:</b> n/a	<u>1</u>	___ structures
	___	___ objects
	<u>1</u>	___ TOTAL

6. Function or Use

<b>Historic Functions:</b>	<b>Current Functions:</b>
Transportation: Road-related	Transportation: Road-related

7. Description

<b>Architectural Classification:</b>	<b>Materials:</b>
Other: Multi-arch, open spandrel bridge	foundation: n/a
	walls: n/a
	roof: n/a
	other: concrete

Narrative Description

Montana's longest and oldest reinforced concrete, open spandrel, multi-arch bridge extends 1130 feet over the Missouri River which hastens to the uppermost drop of the "Great Falls of the Missouri" one mile downstream. The bridge spans across an eastward arching bend of the river, which encompasses the northernmost portion of the Original Townsite of Great Falls, to the south. Eight double ribbed, low-rise parabolic arches of just over 141 feet in length are connected to accomplish the crossing; they are supported by classically articulated concrete piers and ice-guard abutments that penetrate into the riverbed below. The spandrel area between each arch and the bridge deck above is subdivided into thirteen open Vierendeel panels each having an arched head, framed by a vertical concrete "rib" supported by the cast-in-place concrete arches below. An additional infilled panel occurs directly above each pier location, and if built according to the original drawings, the panels featured a raised garland festoon cast into the concrete, which is no longer visible. The primary arches are spaced 29 feet and 6 inches apart and are connected along their length by reinforced concrete beams and purlins that also support the concrete deck and roadbed above. The bridge deck cantilevers on tapered haunches to the upstream (west) side of the bridge to accommodate a seven and one-half foot wide pedestrian/bike causeway for non-vehicular traffic, and the overhang on the east side is one foot wide bringing the total deck width to thirty-eight feet. Bridge edges are elegantly protected and defined by a decorative railing derived from Second Renaissance Revival architectural details. The reinforced concrete railing is divided into rectangular sections which are centered above each of the spandrel arches. Each section contains eight vase-shaped balusters, with the exception of the portion directly above each pier location, which is concrete infilled and features cast and paired rectangular panels.

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The Tenth Street Bridge remains essentially unaltered since its 1920 construction. The bridge's main arches are in good shape, with only minor cracks. The vertical, spandrel columns that transfer the deck's load to the main arches are in fair condition, but display some surface spalls and cracks. The spandrel arches (that span between the spandrel columns and the main arches) are severely cracked and spalled, but were built deeper than needed structurally (for original design purposes) and are repairable. The overhang portions of the deck and the existing handrails are badly deteriorated. Years of applying corrosive de-icing salts have clearly eroded the bridge's most exposed surfaces. This deterioration has been further exacerbated by years of deferred maintenance. The original light standards and the track used by the Great Falls Street Railway Company were removed after the Great Falls Street Railway Company discontinued service in 1931. During temporary repairs in 1975, W-beam guard rail was bolted to the inside of the west side railing and concrete Jersey rail was placed on both sides of the roadway for the length of the bridge.

The consideration for pedestrians, use of the bridge for the Great Falls Street Railway, and the application of a bridge design "valued by planners for its scenic quality," all reflect the long term thinking and planning for the community in 1920. As mirrored by water that appears deceptively calm, and as viewed from adjacent developed parkland or undeveloped riverbank, the bridge makes a very strong visual statement combining engineering and grace along the most important natural and historical feature in Great Falls - the Missouri River.

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## 8. Statement of Significance

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Applicable National Register Criteria: A, C

Areas of Significance: Transportation, Engineering, Community Planning and Development

Criteria Considerations (Exceptions): n/a

Period(s) of Significance: 1920-1946

Significant Person(s): n/a

Significant Dates: 1920

Cultural Affiliation: n/a

Architect/Builder: George Shanley and Ralph Adams

### Narrative Statement of Significance

The Tenth Street Bridge is eligible for the National Register under Criterion A for the important role it played in the development of Great Falls and its transportation system. The bridge, completed in 1920, provided a critical connection between Great Falls and outlying communities to the north, particularly the Black Eagle community directly across the Missouri River. The bridge gains significance as it reflects the "vision" of Paris Gibson, the founder of Great Falls, who had great influence on determining the physical plans for the city. Gibson spearheaded the creation of the Tenth Street Bridge, which continues to make a statement about the pride and optimism of the community during the early years of this century. The Tenth Street Bridge is of engineering significance as the longest, open spandrel, ribbed arch, concrete bridge in Montana, thus is also eligible for National Register listing under Criterion C. It predates both the much shorter three-span Carter Bridge in Park County and the Squaw Creek Bridge across the Gallatin River in Gallatin County. These are the only other surviving examples of open spandrel, arch bridge engineering in the state. Additional significance is gained because the bridge design was produced by the collaboration of Ralph Adams, a structural engineer from Spokane, and George Shanley, a prominent Great Falls architect. Shanley made Great Falls his permanent home in 1907 and over several decades he designed numerous buildings throughout Montana, and beyond, in addition to adding over 40 prominent buildings to the City of Great Falls, including the Rainbow Hotel, First National Bank Building, YMCA Building, Washington School, Cascade County Jail Building, the Ursuline Centre, and many others. Shanley and Adams also designed the First Avenue North Bridge in Great Falls (demolished in 1980) which was essentially a twin of the Tenth Street Bridge and was built in the same year. The two bridges facilitated community development and commerce across the broad Missouri River. When the Tenth Street Bridge was completed, the *Great Falls Tribune* described the bridge as "an imposing structure of sweeping arches...a carved monument above the water." The sweeping arches of the Tenth Street Bridge have inspired artists and photographers, delighted the eyes and served the traveling public for seventy-five years.

### HISTORICAL BACKGROUND

When Paris Gibson first viewed the area that was to become Great Falls in late 1880, he was immediately taken by the beauty and potential of the terrain and vowed to one day build a fine city on the site. His dream was realized in 1883, when he and James J. Hill created a partnership to acquire thousands of acres near the falls. Gibson drew from both his milling experience and the physical plan of Minneapolis in drafting his plan for the city.

Growth in the new townsite was slow until Hill's St. Paul, Minneapolis and Manitoba Railroad arrived in 1887. It then grew rapidly during the first two decades of the twentieth century, to become the largest agricultural and industrial center in northern Montana. Gibson remained a major stockholder in the Townsite Company and had considerable influence on the development of the city, which was incorporated in 1888. In his original town plat he designated seven hundred acres for public parks and he continued to work for a gracious and prosperous community until his death in 1920.

The homestead boom was largely responsible for the growth of agriculture-related facilities constructed in the city between 1900 and 1920, which served to make Great Falls a significant agricultural center. During the same period, construction of two hydroelectric facilities east of the city and the development of the Anaconda Mining Company's copper concentrate refinery added to the city's industrial development. The Great Falls population grew from about 14,000 in 1910 to an estimated 38,000 in 1916. Building construction flourished and the infrastructure was in a constant state of improvement in response to the city's booming economy. Streets, roads and bridges were a high priority item on the agendas of both the City of Great Falls and the Cascade County Board of Commissioners during this period of rapid growth. Only two bridges served Great Falls in 1916: the First Avenue North Bridge, built in 1888 which was closed to motorized vehicles because

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of a deteriorated deck, and the Fifteenth Street Bridge, built in 1891, also in poor condition. The county commissioners refused to consider the matter of a new bridge when approached by citizens, noting that state law prohibited the use of county funds on projects within incorporated city limits. The citizens of Great Falls may have taken their bridge concerns to the state legislature because, in 1917, legislation was approved which gave counties the authority to build bridges within city limits and required that street railway companies share in the costs of construction and maintenance for bridges which carried their lines.

In the spring of 1917, the Montana Power Company, owner of the Great Falls Street Railway Company, agreed to share in the costs of construction, with the provision that it be allowed franchises for use of two new bridges. When the decision was made to replace the First Avenue North bridge and build another "on the North Side," among the most ardent supporters for the Tenth Street location was the Great Falls Commercial Club, a forerunner of the Chamber of Commerce. Paris Gibson generally represented the club before the Board of Commissioners and was a member of the official bridge committee which advised the Board on all matters of the two bridge projects from site selection to design. When the choice was made, the City of Great Falls accepted the responsibility for construction of both approaches to the First Avenue Bridge and the south approach to the Tenth Street Bridge which were all within the city limits.

The State Highway Commission agreed to provide plans and a resident engineer to supervise construction of the bridges early in 1918, and Cascade County scheduled a special election at which a bond issue passed in the amount of \$243,000 for the First Avenue North Bridge and \$224,000 for the Tenth Street Bridge. Progress was halted when bids were opened, and had to be rejected because they all exceeded the available funds. The project again gained momentum in April of 1919, when the county Board, in a surprise move, announced a design competition, with the designer of the selected plans to receive \$1000. Of the five plans submitted, only two were accepted, and bridge contractors had the opportunity to bid on either. Three companies submitted bids, and on August 25, 1919, the county commissioners awarded the contract for both bridges to the Porter Brothers Company of Spokane, Washington for \$462,000. The firm proposed to build according to the plans submitted by Ralph Adams and George Shanley.

Work on the bridges began almost immediately, under the supervision of Evarts Blakeslee, State Highway Commission engineer, and by March of 1919, the first set of arches for the Tenth Street Bridge were being poured. When completed, in December of 1920, the bridge stood as the largest reinforced concrete structure in the state.

Access to the south end of the bridge proved a major problem when the City learned that the price to build the approach would be \$40,000 to \$50,000 instead of the \$15,000 estimated in 1917. The city claimed it was unable to live up to its agreement to build the south approach and requested help from the county, which went unheeded. Cascade County completed the north approach as part of a federally-aided project, but the city ultimately had to complete the south approach itself.

The Montana Power Company and its subsidiary, the Great Falls Street Railway Company, erected its line on the east side of the bridge and operated its trolley service until December 1931, when trolleys were replaced by buses for public transportation in the city.

### ENGINEERING

The Tenth Street Bridge was Determined Eligible for listing in the National Register of Historic Places on May 5, 1985 because of its historical and engineering significance. It was the subject of study by the Historic American Engineering Record inventory in 1979. In an addendum to the inventory, Mitzi Rossillon described the engineering of the bridge:

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At the time the Tenth Street Bridge was erected, reinforced concrete arch bridge construction was essentially standardized. The previous two decades saw considerable experimentation with reinforcing systems, such as the Melan, Kahn trussed bars, and Luten systems. There was also experimentation with overall design and aesthetics. For long bridges, the barrel arch with one solid arch across the width of the bridge was gradually succeeded by the rib arch, usually consisting of one longitudinal rib on either side of the bridge. Also, concrete arch bridges became more streamlined during this period with a move toward 'flattened parabolic curves of narrow ribs, the slender spandrel posts, and the minimal piers.' Clearly the Tenth Street Bridge was a typical design for the post-World War I period, with its rib arch design, parabolic profile, and open spandrel of decorative arches.

There is a reason to suspect that the Tenth Street Bridge was built using the Kahn trussed bar system of reinforcing concrete arches. Ralph Adams, the structural engineer who designed the bridge (with George Shanley), was an agent of the Trussed-Concrete Steel Company, which was founded by Julius Kahn. Bridge plans do not identify the Kahn design by name, but 'trussed bars' were specified for reinforcing steel in part of the bridge. The Kahn bar, patented in 1903, was a 'flat bar with the outside edges cut and bent upward to form shear reinforcement.'

The most significant advances in reinforced concrete bridge designs, in the early part of the twentieth century, were made by Midwest and West Coast bridge engineers. Although the concrete industry developed standard designs for reinforced concrete bridges, the Montana Highway Commission was conservative in their use of the material and their bridge department did not develop plans for monumental concrete bridges. The number of reinforced concrete arch bridges built in Montana is extremely limited, and only three extant structures are open spandrel, multi arch bridges: the Tenth Street Bridge, the Carter Bridge located on the Yellowstone River near Livingston and the Squaw Creek Bridge across the Gallatin River south of Bozeman.

After the Carter Bridge was completed in 1921, the Commission abandoned large reinforced concrete bridge design. In 1928, the Commission authorized the construction of two small concrete arch bridges in Glacier County, likely to "enhance the scenic quality of the area." The Forest Service used CCC crews to build the Squaw Creek Bridge in 1935, but it was not until 1945 that the Commission built another arch bridge. The Vine Street Bridge in Missoula was the last concrete bridge constructed by the Commission in Montana. It is a small (90 feet) slab bridge with an arched superstructure, with metal pipe guardrails and it is not ornamented.

When the Tenth Street Bridge was completed in 1920, the Highway Commission reported that it represented "in every detail, the most advanced ideas of modern bridge building." 350 tons of reinforcing steel were used in the construction of the bridge. The concrete mixing plant, located on the north bank of the river, mixed approximately 11,000 barrels of cement with 8,500 cubic yards of gravel and sand. The construction crews utilized railcars to carry material to the wood forms, on a railroad trestle built across the Missouri River for that purpose.

### RECENT HISTORY AND FUTURE OF THE BRIDGE

In the late 1960s, concerns about safety and adequacy of the Tenth Street Bridge arose and, in 1971, the structure was identified as a top priority for replacement by the State of Montana and Cascade County because of its deteriorated condition and low sufficiency rating. The bridge was closed in 1975, for about a year, to make temporary repairs to the bridge deck. In 1986, the city and county governments escalated efforts to demolish the 1920 bridge and replace it with a new bridge on a slightly different alignment. The Tenth Street Bridge had been determined eligible for listing in the National Register of Historic Places several years prior to that decision, and its demolition became the subject of much

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debate through 1988, when the Advisory Council on Historic Preservation concluded that there were "prudent and feasible alternatives" to demolition.

Although the bridge was structurally sound, and in spite of pressure from federal and state agencies and local citizens, plans were made to build a new bridge at a site immediately upstream, and demolish the longest, multi-span, open-spandrel concrete bridge in Montana.

However, many people continue to hold out hope that the Tenth Street Bridge will be saved. Much has happened in Great Falls and the nation since the 1988 bridge hearings. There is a growing movement to identify, protect and promote the community's historic resources: three districts have been listed in the National Register of Historic Places and Great Falls/Cascade County has established a Preservation (CLG) Commission, which is in agreement that the Tenth Street Bridge is important to the Great Falls landscape and is worthy of preservation. The River's Edge Trail, a walk/bike facility has been added to the landscape along the south bank of the Missouri River on abandoned railroad tracks, offering the potential for active pedestrian use of the bridge. Trail use has grown considerably, and plans are underway to provide a north bank trail. To date, over 5,000 residents have signed petitions to save the bridge.

In the 1980s, when plans were made for a new bridge, changes in the law which govern the nation's transportation system had not occurred. The 1991 Intermodal Surface Transportation Efficiency Act offers additional recognition and protection to historic resources, walk/bike trails, and scenic by-ways, and introduced changes in transportation planning practices all geared to make "transportation part of the livable-community process." Two engineering studies in the past year have confirmed the Advisory Council's 1988 determination that "prudent and feasible alternatives" to demolition remain for the bridge.

The Tenth Street Bridge is not only historically and aesthetically important to the City of Great Falls, it also serves as an emotional symbol to the community, as evidenced by the level of support that has continued to exist, even after the public was told that the bridge was marked for demolition. Today, the future of the Tenth Street Bridge is uncertain. The new Ninth Street bridge has been completed and to date, the Tenth Street Bridge remains slated for demolition in 1996.



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## 9. Major Bibliographic References

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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: Montana Dept. of Transportation

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## 10. Geographical Data

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**Acreage of Property:** 1.21 acres

UTM References:	Zone	Easting	Northing
A	12	478200	5262030
B	12	478200	5262620

**Legal Location (Township, Range & Section(s)):** Located in the W½, NW & SW¼, NE¼ of Section 1, T20N, R3E.

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**Verbal Boundary Description**

Beginning at the existing Point of Intersection of the centerlines of Tenth Street North and River Drive in the City of Great Falls, extending east for 19 feet; thence north 0 degrees, 20 minutes, 45 seconds east for a distance of 1387.30 feet; thence west for 38 feet; thence south 89 degrees, 39 minutes, 15 seconds west for a distance of 1387.30 feet; thence east for a distance of 19 feet to the point of beginning; all within the NE Quarter section of Section 1, Township 20 North, Range 3 East, Montana Principal Meridian.

The boundary is additionally shown on an accompanying map.

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**Boundary Justification**

The boundary encompasses the land and water occupied by the Tenth Street Bridge and the approaches historically associated with the bridge, all of which convey the bridge's historic setting and directly contribute to its historic significance.

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## 11. Form Prepared By

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name/title: Sievert & Sievert, Cultural Resource Consultants	date: January 1996
organization: Save the Bridge/Cascade County Historical Society	telephone: (406) 452-5492
street & number: 1409 4th Avenue South	zip code: 59405
city or town: Great Falls	state: MT

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## Property Owner

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name/title: Cascade County	telephone:
street & number: Courthouse Annex	zip code: 59401
city or town: Great Falls	state: MT

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Axline, Jon. Monuments Above the Water: Montana's Historic Highway Bridges, 1860-1956. Montana Department of Transportation, Helena, Montana, 1993.

Lacy & Ebeling Engineering, Inc. "10th Street Bridge: Pedestrian Use Feasibility Study" Unpublished report for the Cascade County Commissioners. May 23, 1995.

Lichtenstein, Abba. "Tenth Street Bridge Over the Missouri River; Great Falls, Cascade County, Montana." Unpublished report on the feasibility to restore the extant structure. January 17, 1995.

Page-Werner & Partners; Historical Research Associates; McDonald, James R. "Historical and Architectural Survey of a Selected Area Within the Great Falls Revitalization District." Unpublished report prepared for the Cascade County Historical Society. September 21, 1984.

Quivik, Fredric L., Historic Bridges in Montana. U. S. Department of the Interior, National Park Service, Historic American Engineering Record. Spring 1982.

----- "Historic American Engineering Record Inventory" Unpublished report on the Tenth Street Bridge from the Montana Historic Bridge Inventory for the Historic American Engineering Record. August 12, 1979.

Rossillon, Mitzi; Renewable Technologies, Inc. "Addendum to Historic American Engineering Record: Tenth Street Bridge." Unpublished report for the National Park Service. April, 1992.

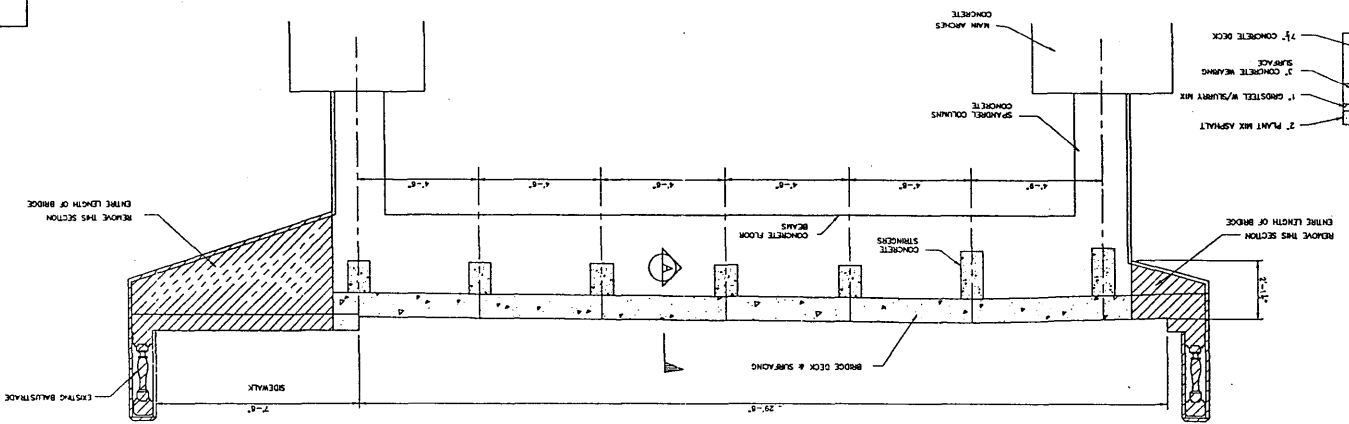
Wirth Design Associates. "Tenth Street Bridge; North Entry Trail Access Feasibility Study" Unpublished report for the National Trust for Historic Preservation and the Cascade County Historical Society. September, 1995.

**TYPICAL SECTION**  
**10th STREET BRIDGE**  
**GREAT FALLS, MONTANA**

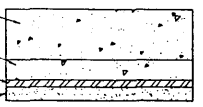
DATE: 10/1/00  
 DRAWN BY: J. L. ...  
 CHECKED BY: ...  
 PROJECT NO.: ...  
 SHEET NO.: ...

**LACY & BOND ENGINEERING, INC.**  
 1000 10th Street  
 Great Falls, Montana 59401  
 (406) 761-1111  
 FAX: (406) 761-1112  
 E-MAIL: info@lacyandbond.com

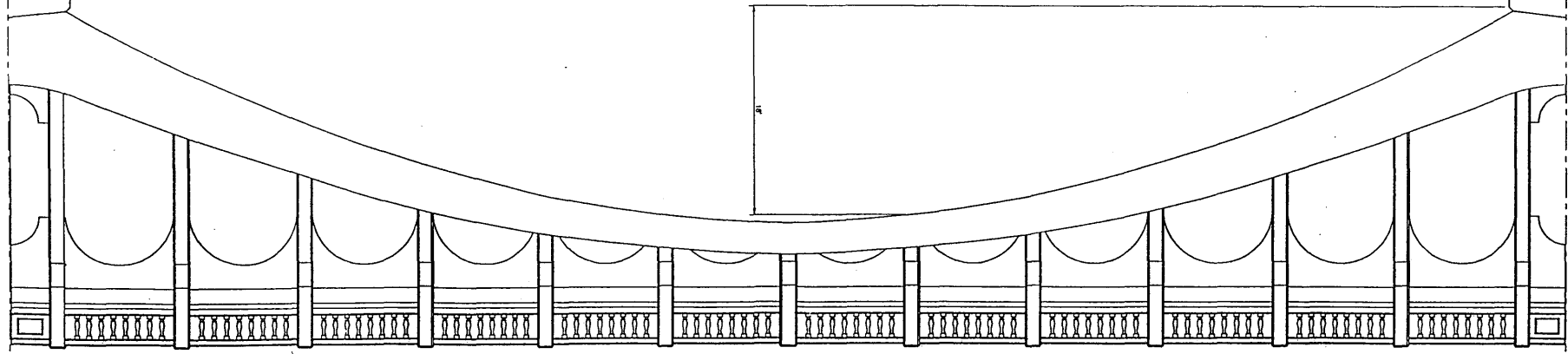
TYPICAL SECTION  
 SCALE: 1/2"=1'-0"



SECTION  
 SCALE: 3/4"=1'-0"  
 A  
 S1



TYPICAL ELEVATION  
 SCALE: 1/4"=1'-0"



141'-3" TO 5 FEET 8 SPANS TOTAL BRIDGE LENGTH=1110'