STEEL BRIDGES OF EASTERN IDAHO
ITD Key #12479/Project #A012(479)

Prepared for

IDAHO TRANSPORTATION DEPARTMENT
By

PRESERVATION SOLUTIONS LLC
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TABLE OF CONTENTS

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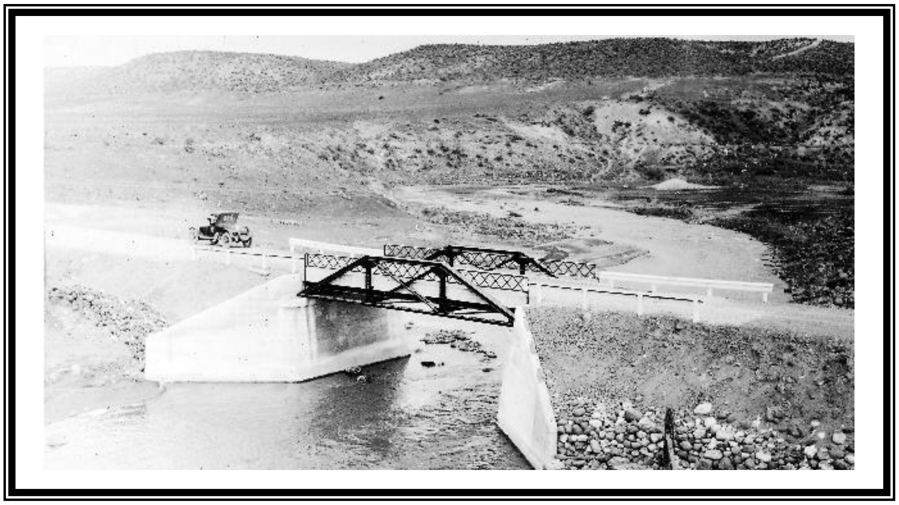
This cultural resource survey has been financed in part with federal funds from the Federal Highway Administration (FHWA), U.S. Department of Transportation. However, the contents and opinions do not necessarily reflect the view or policies of the Department of the Transportation, nor does the mention of trade names or commercial products constitute endorsement or recommendation by the Department of Transportation.

Cover photos top to bottom: 1) Unidentified Bridge Over Big Wood River, no date (courtesy Idaho State Archives, 73.221.547); 2) OSL Railroad Parker Truss Overpass, Spencer (vicinity), June 2017 (PSLLC); and 3) Unidentified Bridge Over the Snake River (courtesy ITD online photo collection *ITD06485_F.A. 84E*).
Next page: Unidentified Bridge over Clover Creek, Elmore County, 1946 (courtesy ITD Online Photo Collection).



INTRODUCTION

An agency can take steps to protect the significant historic resources under its administration only if it knows what is within its jurisdiction. Thus, cultural resource survey and development of associated historic contexts are basic building blocks for any agency's preservation program. Information gathered through such efforts are the foundation for decisions affecting an agency's cultural resources, guiding the planning, maintenance, and investment decisions of officials, staff, and contractors.

The Idaho Transportation Department (ITD) has under its care thousands of bridges statewide. Among the hundreds nearing or past fifty years of age are the increasingly rare steel bridges. In particular, the metal trusses, some of which are more than one hundred years of age. Initially very common, most have been replaced or abandoned over time with only a few dozen remaining, a loss of well over 80 percent.

CERTIFICATION OF RESULTS

I certify that this investigation was conducted and documented according to Secretary of Interior's Standards and guidelines and that the report is complete and accurate to the best of my knowledge.

Signature of Principle Investigator

May 22, 2018

Date

PROJECT DESCRIPTION

PURPOSE

This project was conducted as mitigation for the loss of both the Henry's Fork Snake River Bridge (aka Del Rio Bridge; ITD District 6, Key #12741; IHSI No. 43-5789) and the Topaz Overhead Bridge in Bannock County (ITD District, Key 7749; IHSI No. 05-18253). This project consisted of a cultural resources survey and development of historic contexts related to the construction of steel vehicular bridges in Eastern Idaho.

PROJECT AREA

The study area spanned all of ITD Districts 4, 5, and 6, comprising twenty-four counties; an area encompassing almost 40,000 square miles (about 25.6 million acres). This area, comparable to the size of the State of Kentucky and predominantly rural, is home to about 567,000 Idahoans.

For the purposes of this study, Eastern Idaho comprises the vast area bounded by the state line to the south, east, and north, and east of Owyhee, Elmore, Boise, and Valley counties. Including the Sawtooth Basin, part of the Bitterroot Range, and Salmon River Mountains, as well as the Magic Valley, Caribou Range, and South Hills, Eastern Idaho spans a great variety of terrain. Granite mountains with timbered slopes and meadowed valleys characterize the northern sections of Eastern Idaho, while the more arid sage steppe and lava fields characterize the southern section of the study area.

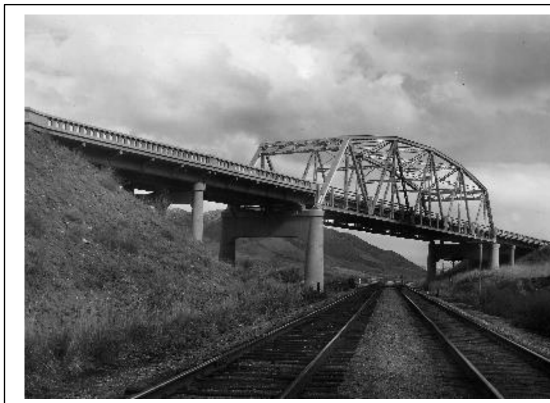
With such diverse geography, the character of transportation corridors and impediments to travel thereof, varies widely. Roadways carried by bridges in this study run the gamut from unmaintained dirt tracks dozens of miles from the nearest town to multi-lane U.S. highways. Among the obstacles spanned by bridges included in this study were rivers, creeks, canyons, railroad grades, and irrigation canals.

Del Rio Bridge, 2014
Courtesy ITD Inspection Records

RESULTS OVERVIEW

This project identified trends in the manufacture, construction, and legacy of historic steel bridges in Eastern Idaho. At the same time, the project team surveyed twenty-five existing steel bridges in thirteen counties to identify extant historic structures and determine their NRHP eligibility.

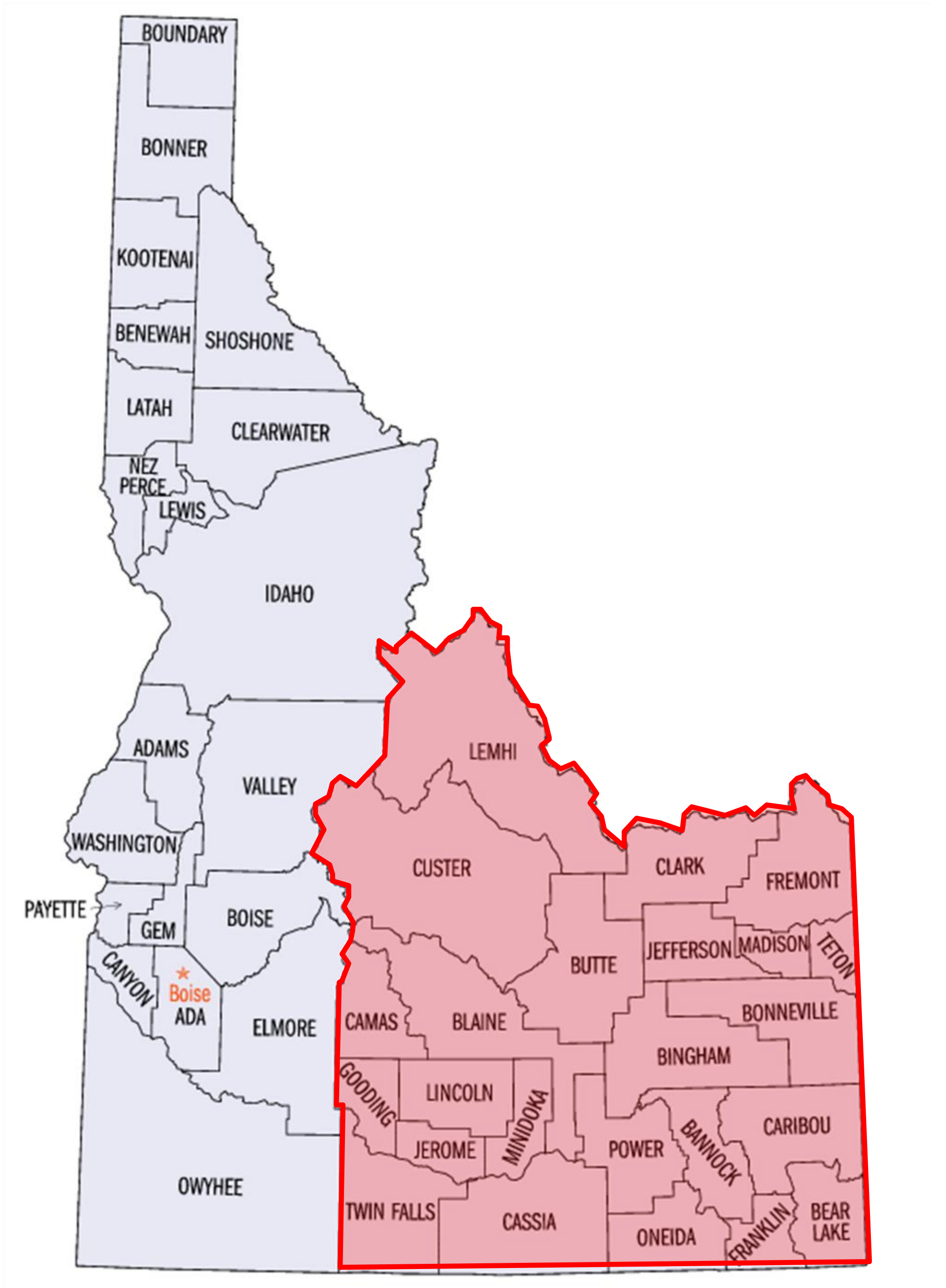
By means of compiling all available ITD and Idaho State Historic Preservation Office (SHPO) resource databases, 350+/- steel bridges were identified as potential for field survey. Among those, ten were documented at the reconnaissance level and fifteen documented intensively. (See Methodology section below for an elaborated discussion of the survey selection process.) Of the twenty-five surveyed, only three



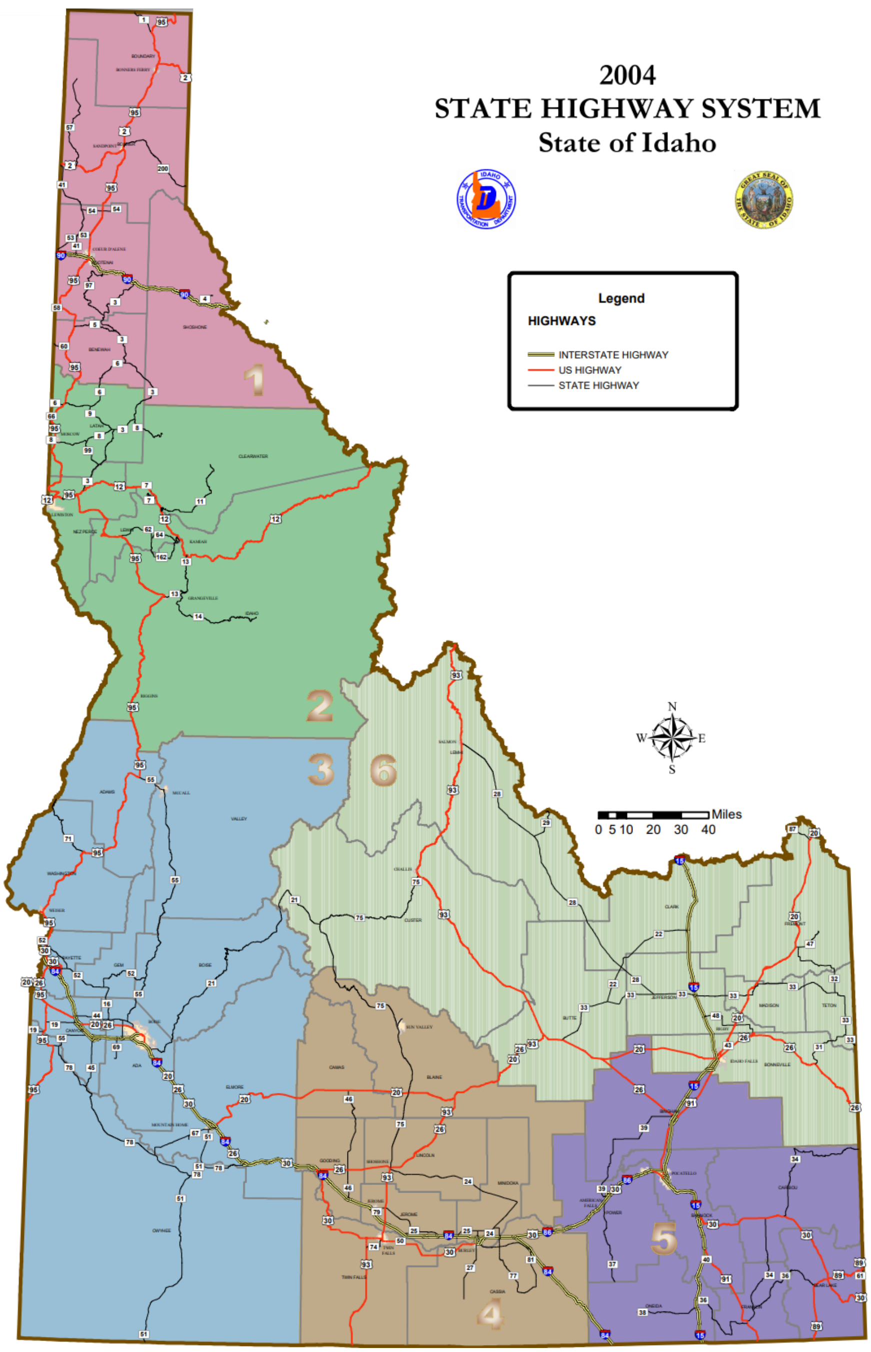
Topaz Overhead Bridge, c.1960
Courtesy ITD Online Photo Collection

had not been previously documented. Though most had been previously documented, the vast majority had not been surveyed since the 1980s.

All twenty-five bridges documented as part of this effort were found to be NHRP-eligible.



Eastern Idaho



ITD Districts

METHODOLOGY

PERSONNEL AND TIMELINE

This project launched in February 2017. Preservation Solutions architectural historian, Kerry Davis, M.S., acted as the project lead and conducted all aspects of project planning and fieldwork. Davis collaborated with architectural historian, Dan Everhart, in the archival research and report preparation. Project manager for ITD, Tracy Schwartz, provided all readily available ITD records and facilitated receipt of SHPO records. Davis completed the necessary pre-field research and reviewed all available records through ITD and Idaho SHPO to identify National Register of Historic Places (NRHP)-eligible or NRHP-listed properties. Davis met with ITD Architectural Historian, Tracy Schwartz, in Spring 2017 for verification of documentation methodology. Budget constraints dictated only fifteen bridges were to be surveyed to the full Idaho SHPO requirements for Intensive-Level Survey. PSLLC completed an additional ten Reconnaissance-Level inventory forms. Draft inventory forms were submitted to ITD from November 2017 through April 2018. Preservation Solutions (PSLLC) submitted the draft report in mid-April 2018, with all final materials delivered on May 22, 2018.

PRE-FIELD RESEARCH

In April 2017, Idaho SHPO provided all available IHSI forms for all steel vehicular bridges previously documented in all twenty-four counties within ITD Districts 4, 5, and 6. Concurrently, ITD provided all available spreadsheets containing steel bridge information, as well as all relevant inspection files, construction records, and architectural plans.

Three steel bridge studies have taken place over the years, but none specific to steel bridges since the 2001 Multiple Property Documentation Form (MPDF) for *Metal Truss Highway Bridges in Idaho,* which was based on a 1982 statewide bridge survey. Summary of previous bridge studies:

Author	Date	Title
Herbst, R.	1982	Idaho Bridge Inventory
Watts, D.	2001	Metal Truss Highway Bridges of Idaho, NRHP MPDF
Grey, D.	2004	Idaho's Historic Bridges

Review of previous ITD records and SHPO files (including both IHSI and ASI databases) indicated the vast majority of steel bridges had been previously documented. However, a handful had not been previously documented as they were either off-system (i.e. not owned by ITD), on private property, and/or were not previously of age sufficient to warrant traditional documentation methodology (i.e. ~50 years of age).

PSLLC merged all available ITD and SHPO spreadsheets containing steel vehicular bridge information and contacted both U.S. Forest Service (USFS) and Bureau of Land Management (BLM) staff for any information regarding potential steel bridges on federal lands within the study area. List compilation resulted in a total finding of 350 extant steel bridge structures in Eastern Idaho. This included the entire gamut of steel bridges, including nonhistoric structures, nonextant structures, and stringer girder structures.

In order to narrow down the list of potential bridges to field document and survey at the intensive level, nonhistoric structures, nonextant structures, railroad bridges, and stringer girder bridges were eliminated.

Stringer girder bridges were eliminated from the list of potential structures to be surveyed due to the 2012 Advisory Council on Historic Preservation's (ACHP) *Program Comment for Common Post-1945 Concrete and Steel Bridges*. The Program Comment "relieves federal agencies from the Section 106 requirements to consider the effects of undertakings" on certain common bridge types identified in Section V of the comment.[1] Exceptions to the Program Comment include: bridges previously determined eligible for or listed in the National Register of Historic Places; truss, arch, suspension, cable-stayed, or covered bridges, and those with moveable spans; and any bridges identified by the state Department of Transportation as being of exceptional significance. ITD, in consultation with the Idaho SHPO, did not identify any exclusions to the exemption.[2]

To further narrow down the list, the following aspects were prioritized:

- ITD-owned bridges
- Bridges not previously documented with IHSI form
- Bridges with previous survey documentation outdated or insufficient

Per ongoing consultation with ITD, a final list of twenty-five bridges was compiled to develop a fieldwork route through each of ITD Districts 4, 5, and 6. Though contracted to document fifteen bridges, PSLLC field verified and completed IHSI forms for all twenty-five structures (see list below).

FIELDWORK

Field survey took place on various dates from May through November 2017. Combined with the applicable research on Eastern Idaho's past development, the fieldwork provided a basis for an accurate analysis of NRHP eligibility. The consultant conducted an on-site structure-by-structure assessment, which included field investigation and documentation of each of bridge resource. The lead field investigator recorded all structure information sufficient to complete the Idaho Historic Sites Inventory (IHSI) Form.

Fieldwork included on-site integrity assessments, location verification, and photographic documentation of all properties. Field analysis led to identification of resource eligibility in accordance with *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation.* Photographic documentation followed Idaho SHPO photography policies.

As mentioned above, due to budget constraints, only fifteen bridges were to be surveyed to the full Idaho SHPO requirements for Intensive Survey. In order to achieve a more thorough assessment of conditions and patterns, PSLLC exceeded the requirements and field verified twenty-five potential bridge sites based on information and maps provided by ITD and SHPO.

COMPILATION AND ANALYSIS OF DATA

Preservation Solutions used the Idaho SHPO Microsoft Access database template to compile survey information based upon information required by the Idaho SHPO Inventory Form. This included data fields for each structure's historic and current function, physical features (e.g., principal materials, plan shape); architect and/or builder, if known; estimated or documented date of construction; source(s) of historic

[1] Advisory Council on Historic Preservation, Program Comment for Common Post-1945 Concrete and Steel Bridges, 77 § 222 (final rule November 16, 2012).
[2] Ibid.

information; and notes about the history of the structure. In addition to these fields, the database includes assessment of eligibility.

Analysis

In order to accurately evaluate the eligibility of each resource and/or group of resources according to the criteria and standards for historic resources established by the Secretary of the Interior and the Idaho SHPO, the consultant analyzed the following four categories of data to identify structures that are potentially eligible for NRHP listing. A detailed description of the four areas of analysis and results appears in the "Survey Findings" section of this report.

- Date of Construction
- Bridge Form
- Integrity
- Truss Type/Bridge Design

EVALUATION

As defined by the National Register of Historic Places (NRHP), "historic integrity is the authenticity of a property's historic identity, evidenced by the survival of physical characteristics that existed during the property's historic period."[3] All properties eligible for listing in the National Register of Historic Places must retain sufficient historic architectural integrity to convey the period of time in which they are significant.[4] Thus, to be listed in the National Register of Historic Places, a property must not only have historic significance, but it must also retain integrity.[5] The consultant visually inspected the structures to determine the retention of integrity of each resource identified.

The significance of historic bridges lies in their association with transportation in Idaho and their engineered design. Additionally, they reflect local settlement patterns of the community served. While location is an important aspect of integrity, the Multiple Property Documentation Form for Idaho's Metal Truss Highway Bridges acknowledges that for NRHP eligibility, "it should be noted that truss bridges, by their very nature, can be considered moveable structures."[6] As such, bridges that have been moved from their original location, which commonly occurred to accommodate changes in load requirements, are often still eligible under Criterion C for Engineering and their truss type/bridge design.

An elaborated discussion of NRHP eligibility can be found in Appendix A.

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[3] National Park Service, *National Register Bulletin: How to Complete the National Register Registration Form* (Washington D.C.: U.S. Department of Interior, 1997), 4.

[4] Historic architectural integrity should not be confused with the physical condition of a building or structure. A structure may be in excellent physical and structural condition but may have lost its historical character-defining elements. Conversely, a building may retain all of its historical architectural features, but may be structurally unsound and, therefore, in poor condition.

[5] National Park Service, *National Register Bulletin: How to Apply the National Register Criteria for Evaluation* (Washington D.C.: U.S. Department of Interior, 1997), 44.

[6] Donald Watts, National Register of Historic Places Multiple Property Documentation Form, "Metal Truss Highway Bridges of Idaho," (Boise, Idaho: Idaho State Historic Preservation Office, 2000), F-5.

GLOSSARY

Camelback: While some commonly refer to any arched truss or any bridge with a segmented/polygonal top chord as a 'Camelback' truss, technically the term Camelback only applies to a Parker Truss with a top chord of exactly five slopes. No Camelback truss bridges were identified in this survey effort. For an elaboration on the Parker Truss and others, please see Survey Findings section below.

Cantilevered Bridge: This is a bridge in which each span is constructed from cantilevers built out sideways from piers. Two examples of this type of construction were identified in this survey effort – the Owsley Bridge and the Pleasant Valley Creek Bridge.

Owsley Bridge
(47-005153/ITD Key# 24340)

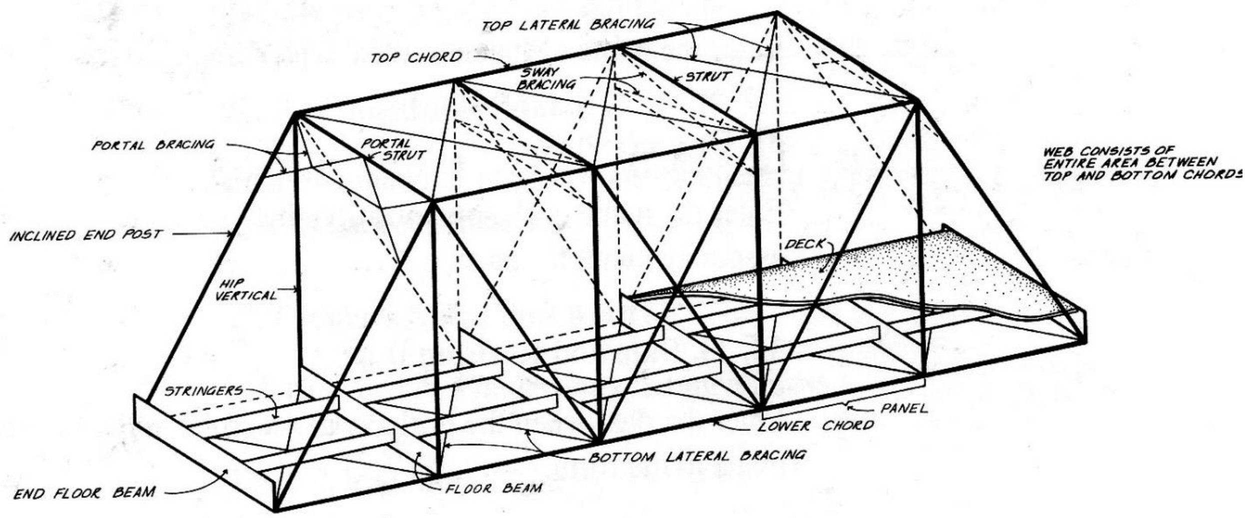
Key #s: ITD assigns a Key Number to all structures, projects, and so forth as a means of tracking the thousands of sites, and their respective projects. Around 1980, this numbering/tracking system started at '10000' after which new numbers were assigned in increments of '5' with little if any semblance of order and often at random. For 'replacement' bridges ITD will often add a '1' to the number, but this is not executed consistently and is a relatively recent trend. Previously, ITD would simply assign a replacement bridge the same key number as the previous structure.

Off-system: Not owned by ITD. Examples include those bridges under the ownership of counties, towns, and/or private individuals.

'Reconstruction' and 'Year Built': ITD uses these words in a manner specific to their needs. The agency's traditional use of these words is as follows:[7]

> **Reconstruction**: This is the year a bridge structure received considerable work (e.g. a new deck or abutments) or was replaced. It should be noted this word does not necessarily mean the previous bridge is nonextant; sometimes it has merely been bypassed and is still in the vicinity or has been relocated and received a new ITD Key # at its new location.
>
> **Year Built**: This is the year when the bridge was installed at its current site. For example, a 1930 steel truss bridge moved to its current location in 1980 would be given a Year Built of 1980.

[7] Email communication via Tracy Schwartz (ITD) with Patty Fish (ITD), Spring 2018.



Bridge Terminology Diagram
Courtesy Historic American Engineering Record

SURVEY FINDINGS

A total of twenty-five bridges were documented, fifteen intensively and ten at reconnaissance level. All were found to be NRHP-eligible, one of which was listed in the NRHP in 1998 (Owsley Bridge). Three had not been previously documented. All bridges newly recorded and pre-recorded include:

Site #	Site/Feature Type	NR Status
05-005178	W. Whitman St. Warren Truss Bridge	Individually Eligible
10FM287	Fall River Pratt Deck Truss Bridge	Individually Eligible
11-005190	W. Bridge Street Bridge	Individually Eligible
25-005156	Camas Creek Truss Leg Bedstead Bridge	Individually Eligible
25-005157	Camas Creek Pratt Truss Bridge	Individually Eligible
33-005776	OSL RR Parker Truss Overpass	Individually Eligible
33-005777	Pleasant Valley Creek Steel Arch Truss Bridge	Individually Eligible
37-004918	Salmon River Pratt Truss Bridge (Lyon Creek)	Individually Eligible
37-005783	Salmon River Parker Truss Bridge	Individually Eligible
37-005784	Salmon River Pratt Truss Bridge at Bayhorse Creek	Individually Eligible
41-005191	Bear River Warren Truss Bridge (Oneida Narrows Road)	Individually Eligible
41-005762	Bear River Warren Truss Bridge (Riverdale Road)	Individually Eligible
43-005790	Henry's Fork Pratt Truss Bridge (aka Fun Farm Bridge)	Individually Eligible
47-005153	Owsley Bridge	NR-Listed
47-005160	Big Wood River Warren Truss Bridge	Individually Eligible
53-004912	Blue Lakes Bridge	Individually Eligible
53-007924	Perrine Bridge	Individually Eligible
59-004920	Salmon River Warren Truss Bridge (Rattlesnake Creek)	Individually Eligible
59-005796	Lemhi River Warren Truss Bridge	Individually Eligible
63-005166	Little Wood River Warren Truss Bridge (N. Birch St.)	Individually Eligible
63-005168	Little Wood River Warren Truss Bridge (E. 3rd St.)	Individually Eligible
83-005171	High Line Canal Warren Truss Bridge	Individually Eligible
ITD-21105	Fall River Steel Strut Frame Bridge	Individually Eligible
ITD-23745	Little Wood River Warren Truss Bridge	Individually Eligible
ITD-24465	Clover Creek Warren Truss Bridge	Individually Eligible

Per NRHP and Idaho SHPO guidelines, PSLLC identified and assessed bridge structures according to construction date, integrity, bridge form, and bridge design, thus recognizing both shared associative (functional), as well as physical (bridge form and bridge design) characteristics.

INTEGRITY

Using NRHP guidelines, as well as the bridge-specific registration requirements outlined in the *Metal Truss Highway Bridges of Idaho* MPDF, the consultant assessed integrity for each structure surveyed. All twenty-five bridges were found to retain sufficient integrity to clearly communicate their historic associations. It should be noted the MPDF specifically outlines integrity of location as carrying less weight, particularly for steel truss bridges which "by their very nature, can be considered moveable structures." Furthermore, the reader is cautioned not to confuse physical condition with integrity; a structure may be in poor physical condition but retain its historic character-defining elements, and thus maintains integrity.

DATES OF CONSTRUCTION

Using the information provided by historic maps, ITD records, local primary resources, newspapers, historic photos, previous survey, and added secondary sources, as well as truss type and bridge form, the consultant determined estimated dates of construction for the twenty-five resources surveyed.

ERA	NUMBER OF BRIDGES
Up to 1909	1
c.1910 – c.1919	10
c.1920 – c.1929	5
c.1930 – c.1940	7
c.1941 – c.1950	0
c.1951 – c.1960	0
c.1961 – c.1970	1
c.1971 – c.1980	1
TOTAL	**25**

BRIDGE FORMS

Bridge form (also referred to as 'roadbed type') classification provides insight into patterns of construction method and design. The survey documented a degree of diversity of bridge forms, the categorization of which follows the classification terminology required and accepted by the National Register of Historic Places program, as well as what is defined in the statewide Multiple Property Documentation Form (MPDF) for *Metal Truss Highway Bridges in Idaho*.

BRIDGE FORMS	NUMBER OF RESOURCES
Pony	13
Through	8
Deck	4
TOTAL	**25**

PONY

A Pony bridge structure has low side ‘walls’ that rise above the roadbed but have no overhead lateral bracing. Also known as a ‘half-through’ truss, this bridge form was typically used for short spans.

The survey identified thirteen examples of pony bridges constructed between 1911 and 1931, among which the Highline Canal Warren Truss Bridge, Big Wood River Warren Truss Bridge, and Camas Creek Truss Leg Bedstead Bridge, all seen at right, are classic examples.

Highline Canal Warren Truss Bridge
(83-005171/ITD Key# 25355)

Big Wood River Warren Truss Bridge
(47-005160/ITD Key# 24440)

Camas Creek Truss Leg Bedstead Bridge
(25-005156/ITD Key# 23800)

THROUGH

A Through bridge structure has tall side ‘panels’ that rise above the roadbed and overhead lateral bracing between the top chords. This bridge form was commonly used for moderate to long spans.

The survey identified eight examples of through bridges constructed between c.1907 and 1936, among which the Salmon River Pratt Truss Bridge at Bayhorse Creek, the OSL Railroad Parker Truss Overpass, and the West Bridge Street Bridge, all seen at right, are classic examples.

Salmon River Pratt Truss Bridge at Bayhorse Creek (37-005784/ITD Key# 31660)

OSL Railroad Parker Truss Overpass
(33-005776/ITD Key# 31565)

West Bridge Street Bridge
(11-005190/ITD Key# 23120)

DECK

A Deck bridge structure features the roadbed atop the truss or frame structure, and the traffic load is level with the top chords. The survey identified four examples of deck bridges – the c.1920 Fall River Pratt Deck Truss Bridge, the 1936 Pleasant Valley Creek Bridge, the 1969 Fall River Steel Rigid Frame Bridge, and the 1976 Perrine Bridge, an example of a very long span Arch Deck Truss design.

Fall River Pratt Deck Truss Bridge
(aka Kirkham Bridge)
(10FM287/Off-System)

Pleasant Valley Creek Bridge
(33-005777/ITD Key# 31610

Perrine Bridge
(53-007924/ITD Key# 17580)

BRIDGE DESIGNS

In addition to bridge form categorization, resource classification of shared physical attributes typically includes bridge design. The bridge designs identified in the survey and discussed below follow the terminology required and accepted by the National Register of Historic Places program. Of the twenty-five structures surveyed, most reflect pre-World War II design, with two outliers dating to 1969 and 1976, respectively.

BRIDGE DESIGNS	NUMBER OF RESOURCES
Pratt Truss	6
Warren Truss	13
Parker Truss	2
Truss Leg Bedstead	1
Arch	2
Steel Rigid Frame	1
TOTAL	**25**

Pratt

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.[8] The Pratt truss became the most common bridge type of the late nineteenth and early twentieth centuries and spawned numerous variations including Parker, Camelback, Baltimore, Truss Leg Bedstead, Lenticular, and Pennsylvania trusses.[9]

In Idaho, Pratt trusses were constructed into the twentieth century, suggesting the appeal of the design's strength and economical construction costs. A 1982 survey of bridges statewide identified seventy-seven Pratt truss bridges statewide, of which the current survey effort documented six, including the Henry's Fork Pratt Truss Bridge, the Salmon River Pratt Truss Bridge, and Camas Creek Pratt Truss Bridge (seen at right), all classic examples of this truss design.

Henry's Fork Pratt Truss Bridge
(aka Fun Farm Bridge)
(43-005790/ITD Key# 31840)

Salmon River Pratt Truss Bridge at Bayhorse Creek
(37-005784/ITD Key# 31660)

Camas Creek Pratt Truss Bridge
(25-005157/ITD Key# 23825)

[8] 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.
[9] Ibid.

WARREN

Patented in 1848, the Warren truss has diagonal members that are alternately placed in either tension or compression, resulting in a visually distinctive system of alternating equilateral or isosceles triangles. Vertical members are often incorporated to further strengthen the truss, as in the Clover Creek Warren Truss Bridge, Little Wood River Warren Truss Bridge, and Salmon River Warren Truss Bridge (at right).

While the straightforward design of the Warren truss was desirable, the lack of counters and sometimes verticals subjected the center pins to extensive wear, making it less durable and therefore less popular than the Pratt truss during the nineteenth century. The later standardization of riveted construction techniques eliminated these issues and the Warren truss gained popularity. In Idaho, Warren trusses were constructed into the middle of the twentieth century, suggesting the appeal of the design's strength, simplicity, and economical construction costs.

A 1982 survey of bridges statewide identified fifty-two Warren truss bridges in existence throughout the state of Idaho at that time. The current survey effort documented thirteen, two of which had not been previously identified – the Clover Creek Warren Truss Bridge and the Little Wood River Warren Truss Bridge (both seen at right).

Clover Creek Warren Truss Bridge
(Temp. No. ITD-24465/ITD Key# 24465)

Little Wood River Warren Truss Bridge
(Temp. No. ITD-23745/ITD Key# 23745)

Salmon River Warren Truss Bridge
(Rattlesnake Creek)
(59-004920/ITD Key# 32750)

PARKER

Patented in 1870, the Parker truss is a variation of the Pratt truss wherein the bottom and top chords are *not* parallel. The top chord of a Parker truss is segmented, with each segment connecting to each respective vertical post, which vary in height. The result is an overall arched shape when viewed in elevation. As with the Pratt truss, the Parker 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.[10] The benefit of the Parker truss design is that it used less material than the Pratt truss. However, the drawback was that the Parker truss assembly was more complex. A relatively uncommon bridge type of the late nineteenth and early twentieth centuries, the Parker truss bridge is most commonly executed as a through truss.[11]

In Idaho, Parker trusses were relatively uncommon. A 1982 survey of bridges statewide identified only four Parker truss bridges statewide, two of which were surveyed as part of this effort – the 1936 OSL Parker Truss Overpass near Spencer and 1915 Salmon River Parker Truss Bridge near Clayton.

OSL Parker Truss Overpass
(33-005776/ITD Key# 31565)

Salmon River Parker Truss Bridge
(37-005783; ITD Key# 31650)

[10] Comp and Jackson, 8.
[11] Ibid.

TRUSS LEG BEDSTEAD

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.[12] It became the most common bridge type of the late nineteenth and early twentieth centuries and spawned numerous variations including Parker, Camelback, Baltimore, Truss Leg Bedstead, Lenticular, and Pennsylvania trusses.[13]

Camas Creek Truss Leg Bedstead Bridge
(25-005156/ITD Key# 23800)

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 thirty and one-hundred feet. In Idaho, while Pratt trusses were very popular, the Truss Leg Bedstead subtype was rare. A 1982 survey of bridges statewide identified only two as extant, including the Camas Creek Truss Leg Bedstead Bridge, the only example of this design extant in Eastern Idaho.

STEEL RIGID FRAME

Steel Rigid Frame bridges feature monolithic structural members (legs and horizontal girders), with the rigid inclined legs forming the primary support. Typically used for spans of fifty to two hundred feet, the overall 'splayed-leg' form was economical, aesthetically pleasing, and eliminated the need for intermediate supports or piers.[14]

Fall River Steel Rigid Frame Bridge
(aka Ashton-Flagg Ranch Road Bridge)
(Temp. No. ITD-21105/ITD Key# 21105)

Initially devised in the early twentieth century, steel rigid frame bridges date from the 1920s through the 1960s and developed concurrently with the reinforced concrete rigid frame bridges, though they were much less common, both nationwide and in Idaho. Only two examples are known to exist in Idaho – the 1975 White Bird Bridge (ITD Key# 18365/District 2) and the 1969 Fall River Steel Rigid Frame Bridge that was surveyed as part of this effort and the only extant example in Eastern Idaho.[15]

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[12] Comp and Jackson, 8.
[13] Ibid.
[14] Cody Chase, "A Look at Bridges: A Study of Types, Histories, and the Marriage of Engineering and Architecture," (New London, Connecticut: Connecticut College, 2015), Architectural Studies Integrative Projects, Paper 73, 65. Available from http//digitalcommons.conncoll.edu/archstudintproj/73.
[15] Additional survey outside the scope of this project is recommended to confirm no additional Steel Rigid Frame bridges exist in Districts 1, 2, or 3.

ARCH

One of the oldest known structural solutions and initially executed in stone or timber, the arch bridge design transfers weight into a horizontal thrust restrained by its abutments. First executed in steel in the late nineteenth century, steel arch bridges feature strong compressive, tensile, and shear capabilities. Though relatively popular nationwide in the 1920s and 1930s, during the 1960s and 1970s, the steel arch bridge was a popular solution for significant crossings because of its aesthetic appeal and relatively economical erection methods.[16]

Pleasant Valley Creek Bridge
(33-005777/ITD Key# 31610)

A 1982 survey of Idaho bridges statewide identified only two steel arch bridges, both in Eastern Idaho – the 1938 Pine Creek Bridge (19-005764/ITD Key# 13835) and the 1934 Pleasant Valley Creek Bridge, a cantilevered bridge with a central arch. The current survey field verified and documented both the Pleasant Valley Creek Bridge and the 1976 Perrine Bridge (both seen at right).

Perrine Bridge
(53-007924/ITD Key# 17580)

[16] *Utah Historic Bridge Inventory: Volume 1*, Mead & Hunt, Inc., 2011), 100.

HISTORIC CONTEXTS

To fully appreciate the significance of Eastern Idaho's steel bridges, it is important to understand the forces that influenced the evolution of the region in general, as well as the development trends that occurred statewide and nationally. The National Park Service defines historic context as "a broad pattern of historical development in a community or its region that may be represented by historic resources."[17] According to the Secretary of Interior's *Standards for Preservation Planning, Identification, and Evaluation*, proper evaluation of the significance of historic resources can occur only when they are assessed within broad patterns of historical development. Only then may the NRHP criteria for evaluating property eligibility be accurately applied.

Establishing historic contexts is a means of organizing information about resources that share common historic, architectural, engineering, and/or cultural themes. What follows is an overview of the historic contexts identifying themes representing Eastern Idaho's development and settlement patterns, which drove the establishment of bridges. The region's steel bridges, discussed in detail above, relate to these themes. When historic resources are viewed in relationship to the context within which they were built, it is possible to apply the established criteria for evaluating eligibility for designation to the national and local historic registers.

Technological advancement, settlement patterns, geography, and impediments to travel on the land are key drivers in bridge existence, location, design, and construction technique. In Eastern Idaho, rivers, creeks, canyons, railroad grades, and irrigation canals represent the landscape elements in need of crossing. Initially forded, ferried, or avoided by means of an out-of-the way route, bridge construction typically took place at or near existing fords or ferry locations, with canyon crossings balancing between the narrowest span between rims and convenience to existing roadways/route between settlements.

[17] National Park Service, *National Register Bulletin: Guidelines for Local Surveys* http://www.nps.gov/history/nr/publications/bulletins/nrb24/chapter1.htm (accessed June 2, 2013).

PRE-CONTACT AND EURO-AMERICAN EXPLORATION: PRE-1840S

Pre-contact occupation of the upper Snake River Plain began thousands of years ago. Archaeological discoveries confirm occupation across the region dates to at least 10,000 years Before Present.[18] Seasonal migrations by bands of native peoples to hunt, fish, and collect various plants for food, shelter, and trade defined the earliest human exploration and use of what we now know as Eastern Idaho.

Aboriginal interaction with the various waterways of the region was a necessity. Anadromous fish populations were seasonally exploited along the Snake River and its tributaries, providing a major source of food and raw material needed for the manufacture of certain tools. The shade and botanical diversity of rivers and creeks could also provide temporary shelter from the harsh climate of the Idaho desert, resulting in the de facto formation of regionally-known locales for trade and social interaction by disparate tribes.

These same waterways could both define and prevent the migratory routes developed by native peoples to access seasonal hunting and gathering. While rapids and waterfalls could provide natural barriers to fish passage and therefore serve as ideal locations for necessary fishing activities, the steep canyons and cliffs which often accompany such river features could prove difficult if not impossible to traverse. Spring floods could prevent the crossing of swollen rivers and delay needed access to places known for a particular resource.

Trails established along the easiest line of travel by animals and indigenous people formed the earliest "roads" in Idaho. Crossing of creeks and rivers was made at places shallow enough to easily ford and the establishment of well-known fords defined transportation routes both before and after native contact with Euro-American explorers. Though there are no known examples of aboriginal bridges in Eastern Idaho, Native American tribes most assuredly built the first "bridges" over creeks and rivers not amenable to fording.[19]

American Falls on the Snake River, 1845
Illustration from Capt. Fremont's *Report of the Exploring Expedition to the Rocky Mountains in the year 1842, and to Oregon and North California in the years 1843-'44*
Courtesy University of Montana, Mansfield Library, K. Ross Toole Archives

Euro-American exploration of the Intermountain West began with President Jefferson's commission of the Lewis and Clark expedition from 1804 to 1806. Prompted by the American government's acquisition of the vast and uncharted Louisiana Purchase in 1803, the Corps of Discovery was commissioned to explore and map the newly-acquired territory. Lewis and Clark crossed the Continental Divide and entered present-day Idaho at Lemhi Pass in August of 1805.[20] Their interaction with Sacagawea and her Lemhi Shoshone People proved invaluable due to their knowledge of the Salmon River and the impassability of its canyon.

[18] Mark Plew, *The Archaeology of the Snake River Plain* (Boise: Boise State University, 2000).
[19] Parsons Brinckerhoff and Engineering and Industrial Heritage, *A Context for Common Historic Bridge Types*, NCHRP Project 25-25, Task 15 (Washington, D.C.: National Cooperative Highway Research Program, Transportation Research Board, 2005), 2-1.
[20] James H. Hawley, *History of Idaho* (Chicago: S.J. Clarke Publishing Company, 1920).

Wilson Price Hunt and his expedition in 1811 were the first non-natives to thoroughly explore the Snake River.[21] John Jacob Astor commissioned Hunt as the leader of one of two distinct parties that made their way to the mouth of the Columbia River to establish a trading post and American dominance of the North American fur trade. While a second party traveled by ship around the tip of South America, Hunt led a party overland from Missouri to the Pacific. He initially relied on information first gathered by the Corps of Discovery but later deviated from their route. Discovery of the Snake River defined the Hunt expedition. The party abandoned their horses to canoe downstream but after several days encountered rapids which killed one of their members. Hunt then split the party in two with each taking an opposite bank of the river. Their subsequent progress along the Snake River and through its canyons eventually allowed them to successfully reach the Columbia and the newly-established Fort Astor.

Three decades of fur trapping and exploration were built on the successes of these initial expeditions to and through Eastern Idaho. The European and American market for fur provided a lucrative incentive to a particularly hardy sub-set of early Western entrepreneurs. The trapper's motive led him to explore the West and the Snake River with its regional tributaries, which was frequently aided by native peoples who provided knowledge of the land and its resources that would otherwise be inaccessible. Aboriginal migratory routes and river crossings were exploited by the trapper for the quickest and most reliable access to rewarding locations with plentiful prey.

Trappers of French-Canadian origin working for the Hudson's Bay Company and others marked Eastern Idaho with their names and terminology, as did American trappers who left a lasting etymological legacy on the landscape; the Snake River was reportedly named when a native hand sign representing fish was misinterpreted by an early trapper to indicate a snake.[22] More straight-forward, if crude, origins are responsible for the naming of the Teton Range which defines the eastern boundary of Idaho and shelters the headwaters of the Snake. The Portneuf, Boise, and Payette rivers as well as innumerable smaller waterways and geologic features trace their names to French influences, while Americans named Bear Lake and its eponymous river despite their discovery by French-Canadians and the lake later served as the location of a rendezvous by American mountain men including Jedediah Smith and Jim Bridger.[23]

Henry's Fork of the Snake River is named for Andrew Henry of the Missouri Fur Company who discovered the upper Snake River in 1810 or 1811. John C. Fremont and Benjamin Louis Eulalie de Bonneville (an American of French birth) were both U.S. Army officers and explorers after whom Eastern Idaho counties were named.[24] Richard "Beaver Dick" Leigh who took his moniker from the animal he was known to trap was an early settler of what became Madison County and among the last of the region's trappers.[25] Like their native contemporaries, these rugged individuals made use of shallow crossings to ford regional waterways and seldom left permanent improvements.

It was the fur companies and their agents that established the first points of semi-permanent settlement in Eastern Idaho though occasionally without long term success. Andrew Henry founded "Fort Henry" near present-day St. Anthony in 1810 or 1811 but abandoned this

[21] Ibid.

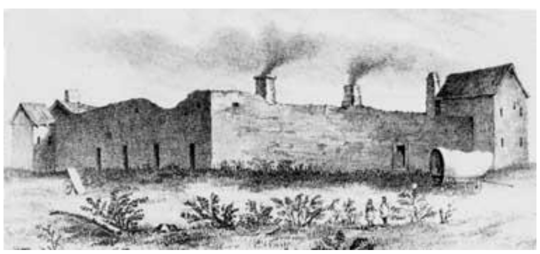
[22] Lalia Boone, *Idaho Place Names: A Geographical Dictionary* (Moscow, Idaho: University of Idaho Press, 1987).

[23] Fred R. Gowens, *Rocky Mountain Rendezvous* (Salt Lake City: Gibbs Smith, 1985).

[24] Boone.

[25] Samuel M. Beal, *The Snake River Fork Country* (Rexburg, Idaho: The Rexburg Journal, 1935).

location within a few months.[26] Of more lasting permanence was Fort Hall. Established in the summer of 1834 on the Snake River near the mouth of the Portneuf, its founder and builder Nathaniel Wyeth named it for one of his primary investors, Henry Hall.[27] Wyeth intended his fur-trading post to compete with the Hudson's Bay Company or similar American enterprises but was forced to sell Fort Hall to the British company in 1837.[28] As the profitability of the fur trade dwindled due to over-trapping and changing fashions, the Hudson's Bay Company maintained its ownership of the outpost.[29] In 1846, the Oregon Treaty resolved the long-standing boundary dispute between Great Britain and the United States and Fort Hall was returned to American control.[30]



Fort Hall, 1849
Courtesy Historyglobe.com

EURO-AMERICAN MIGRATION AND EARLY SETTLEMENT: 1840S TO 1890

As did all previous indigenous people, Idaho's early Euro-American settlers encountered watercourses and ravines obstructing transportation. As transportation networks took form and these routes facilitated more than just the occasional Euro-American explorer or trapper, newly arriving families settled into areas such as Eastern Idaho. Once an area maintained a sufficient population, establishment of bridges predictably followed.

By the time American dominance was reestablished at Fort Hall, the fur trade had ceded its importance at the post to a burgeoning westward expansionism from the Mississippi to the Pacific. In 1843, the missionary Marcus Whitman led a wagon train westward which stopped at Fort Hall.[31] Subsequent cultural and political pressures, and establishment of the Oregon and Washington territories in 1848 and 1853 respectively, spurred a great western migration which would last for more than two decades.

City of Rocks, well-known Idaho landmark on the route of the Oregon and California trails

Fort Hall was the western terminus for the common route of two of the three major emigrant trails. The Oregon and California trails occupied the same route from eastern points of origin to Fort Hall while the Mormon Trail diverged from the other two at Fort Bridger. Not long after leaving the Eastern Idaho post, the Oregon and California trails split to proceed separately to their individual destinations. Nearly 300,000 emigrants reached Fort Hall during their westward journey.[32]

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26 Hawley.
27 Ibid.
28 Ibid.
29 Richard Somerset Mackie, *Trading Beyond the Mountains: The British Fur Trade on the Pacific 1793-1843* (Vancouver: University of British Columbia Press. 1997).
30 Ibid.
31 Clifford Merrill Drury, *Marcus and Narcissa Whitman and the Opening of Old Oregon* (Norman, Oklahoma: A.H. Clark Company, 1973).
32 Merrill J. Mattes, *The Great Platte River Road* (Lincoln, Nebraska: Bison Books, 1987).

Few of those traveling across Eastern Idaho considered permanent settlement in its desolate desert. Oregon and California were the ultimate destinations with the promise of fertile farmland or mining wealth. Idaho was a geographic barrier to cross and its terrain presented significant obstacles. For those continuing to Oregon, the Snake River was the most intimidating impediment to progress through the region.

Few places along the Snake River's route through Southern Idaho allowed a crossing by wagon, as much of it is boxed in by steep canyon walls and the current too swift where access to the bank is possible. Two of the best fords were located near Fort Hall where travelers might opt to cross the river and take the North Side Alternate, also known as Goodale's Cutoff.[33] Many emigrants chose to cross the Snake River at Three Island Crossing near present-day Glenns Ferry. As the name implies, ferry service was eventually established at this location in 1863.[34] At any crossing, wagon trains were forced to ford the river – a challenging and dangerous task.

Initially, no lasting settlement in Eastern Idaho was spurred by the immigrant trails, and despite the passage of thousands of pioneers across the region, no permanent crossing of the Snake River or its tributaries was established because of their migration. However, in an eccentricity of history, it was the Mormons, whose route to Utah caused them to originally avoid passage through Eastern Idaho, who formed the first enduring Euro-American occupation of the territory.

Mormons

The Church of Jesus Christ of Latter-Day Saints (LDS or Mormon) was founded by Joseph Smith in upstate New York in 1830.[35] A sect of

Bear Lake Valley

Christianity, but with substantially different doctrines than the more common tenets of the traditional religion and its various denominations, Mormon believers encountered harsh and occasionally violent responses from the majority of non-Mormon Americans with whom they came in contact. These responses resulted in a series of en masse relocations of LDS practitioners seeking the geographic and cultural freedom to establish Zion – Smith's concept of a communalistic society based on the principles of Mormon faith.

The death of Joseph Smith at the hands of an angry mob in western Illinois in 1844 prompted his successor, Brigham Young, to command the largest and lasting westward migration of Mormons beginning in 1846.[36] Young established the permanent capital of Mormon Zion on the eastern shore of the Great Salt Lake. From his offices in Salt Lake City, Young directed the LDS settlement and colonization of the Great Basin and beyond.

Mormon occupation of Eastern Idaho began with the establishment of Fort Lemhi in 1855.[37] The name of the colony along the Salmon River near the present-day city of Salmon was derived from a figure in the Book of Mormon and was itself the origin of the name of both the neighboring

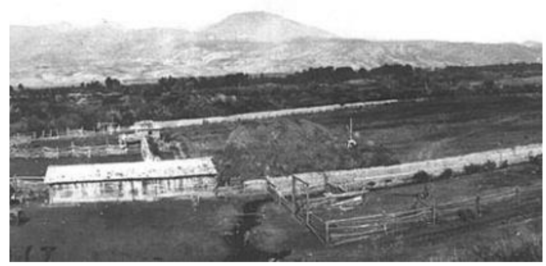
[33] James McGill, *Rediscovered Frontiersman Timothy Goodale* (Independence, Missouri: Oregon-California Trails Association, 2009).
[34] Larry R. Jones, *Idaho State Historical Society Reference Series: Snake River Ferries* (Boise: Idaho State Historical Society, 1982).
[35] Matthew Bowman, *The Mormon People: The Making of an American Faith* (New York: Random House, 2012).
[36] Ibid.
[37] *Centennial History of Lemhi County: Volume 1* (Salmon, Idaho: Lemhi County History Committee, 1992).

mountain range and the native people whose traditional homeland the Mormons settled. When interaction with the Lemhi Shoshone and their native allies turned violent, the LDS abandoned Fort Lemhi in the winter of 1858.[38]

The oldest town in Idaho, Franklin, was founded at the direction of Brigham Young to continue the Mormon colonization of the Cache Valley along the Bear River in the spring of 1860.[39] More deliberate expansion of LDS settlement into Eastern Idaho occurred with their occupation of the Bear Lake Valley. Beginning with the establishment of Paris on the west side of the lake in 1863 and reinforced by the building of Montpelier across the lake in 1864, Mormon pioneers cemented their commercial and religious dominance of the Bear River drainage and beyond.

Soda Springs, known for decades to trappers, explorers, and travelers on the Oregon Trail, was the site of a community of Morrisite dissenters from Mormonism beginning in 1863.[40] In 1870, Brigham Young directed Mormon colonizers to also establish an orthodox LDS community near the springs.[41] A cabin at Soda Springs was constructed for Young himself who took advantage of its shelter on journeys through the northern reaches of the Mormon-occupied Intermountain West.[42]

Mormon development throughout Eastern Idaho reached as far west as present-day central Cassia County where Mormons pioneered the Oakley area beginning in 1877.[43] The growth of LDS influence continued with their settlement of the Upper Snake River region and their founding of Rexburg and Rigby in the early 1880s.[44]



Ruins of Fort Lemhi, c.1900
Courtesy https://imnh.iri.isu.edu/DIGITALATLAS

Eastern Idaho history and culture is indelibly marked by its association with the territorial expansion of Mormonism. The purposeful permanence of LDS communities was dictated by Joseph Smith and his plan of the City of Zion. This prototype for Mormon towns was conceived in 1833 and specified the spatial arrangement, social and architectural hierarchy, and infrastructural dimensions of towns established under church direction.[45] This proscriptive planning was enhanced by a cultural tendency toward permanency and LDS colonies quickly prioritized building materials and commercial enterprise which allowed durability.

Despite these tendencies, like the less-permanent occupants of Eastern Idaho before them, the geographic difficulties of the region initially challenged Mormon pioneers. River crossings were first limited to shallow-water fords until the establishment of more dependable ferry locations. Eventually bridges were built to allow uninterrupted access to the region, but it was a commercial rather than religious incentive that first provided the impetus for their construction.

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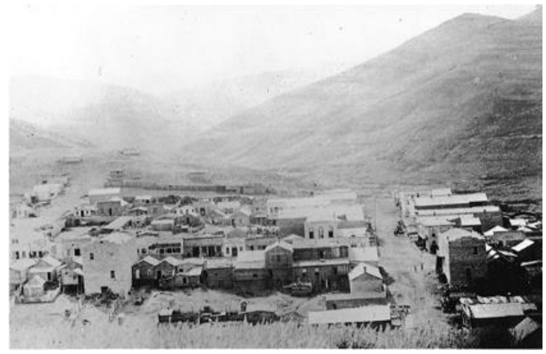
38 Ibid.
39 Hawley. The founders of Franklin mistakenly believed themselves to be in Utah Territory.
40 C. Leroy Anderson, *Joseph Morris and the Saga of the Morrisites* (Logan, Utah: Utah State University Press, 1988).
41 Ellen Carney, *Historic Soda Springs: Oasis on the Oregon Trail* (Traildust Publishing Company, 1998).
42 Ibid.
43 Kathleen Hedberg, *Cassia County, Idaho: The Foundation Years* (Burley, Idaho: Cassia County Commissioners, 2005).
44 Louis J. Clements and Harold S. Forbush. *Pioneering the Snake River Fork Country* (Rexburg, Idaho: Eastern Idaho Publishing Company, 1972).
45 Thomas Carter, *Building Zion: The Material World of Mormon Settlement* (Minneapolis, Minnesota: University of Minnesota Press, 2015).

MINING, THE ARRIVAL OF THE RAILROAD, AND IDAHO'S FIRST METAL BRIDGES: 1860S TO 1890

Euro-American exploration and interest in the western reaches of the continent were at first limited to a small, hardy population of trappers, adventurers, missionaries, and military men. Their limited reconnaissance of the American West was spurred into a massive, national migration by the discovery of mineral wealth west of the Rocky Mountains. Even among the thousands of pioneers who saw the fertile Willamette Valley of Oregon as their ultimate destination, it was not uncommon for even those with agricultural intent to be drawn by the lure of the California gold fields. In fact, it was the boom and bust cycles of gold, silver, and copper strikes that prompted so much of the reverse migration from the Pacific Coast that ultimately settled most of the Intermountain West.

The 1848 discovery of gold in California's Sacramento Valley was just the first of many that drew the interest of dreamers, investors, miners, and suppliers westward over the subsequent half-century. The California Gold Rush of 1849 was followed ten years later by the identification of the Comstock Lode in Western Nevada in 1859.[46] The next year, in 1860, gold was discovered near the Clearwater River in the Idaho Panhandle. Subsequent strikes in Southwestern Idaho's Boise Basin in 1862 only increased the region's lure. The discoveries spurred widespread prospecting in the region and by the end of 1861 a major gold rush was underway.[47]

Expansion of the mining activity reached stampede scale and by the end of 1861, the population influx convinced the Washington Territorial Legislature to establish three new counties in the region – Shoshone, Nez Perce, and Idaho.[48] The boundaries set for Idaho County



Virginia City, Montana, c.1865
Courtesy http://virginiacitymt.com/history

were enormous – spanning from Florence in the northwest corner to Franklin at the south boundary and including much of what later became western Wyoming. Bordering Oregon, Nevada, Utah, Nebraska, and Dakota, it comprised approximately the same land area as the present-day state of Idaho.[49]

The 1862 passage of the Homestead Act solidified the region's position as a destination point for prospectors, speculators, and settlers from nationwide and beyond. As a result, the Washington Territorial Legislature carved Boise County out of the south part of Idaho County in January 1863. Just a few months later the mining districts and surrounding vast wilderness and rugged terrain were all incorporated into the new Idaho Territory with its capital at Lewiston in March of 1863.

The discovery of gold elsewhere in Idaho Territory prompted another mining boom which dramatically increased Euro-American presence in Eastern Idaho. Those arriving to the area came by foot or horseback on overland trails, many of which were ancient aboriginal trading routes. From these, miners and freighters improved trails leading directly to mining districts. The influx of prospectors increased demand for necessary

[46] Grant H. Smith, *The History of the Comstock Lode* (Reno: University of Nevada Press, 1998).
[47] *An Illustrated History of North Idaho* (Spokane, Washington: Western Historical Publishing, 1903), 86.
[48] The area encompassing present-day Idaho was part of Washington Territory after the boundaries of the State of Oregon were established in 1859.
[49] "Early Idaho County," *Idaho State Historical Society Reference Series*, No. 324 (Boise, ID: September 1968).

agricultural goods and services, drawing non-miners to the area who established settlements along and at the intersections of these routes to provide services to the passing/area freighters and miners. During the territorial period population boomed, increasing by 117 percent from 1870 to 1880 (to 32,610) and another 171 percent by 1890 (to 88,548).

An 1862-1863 rush to present-day far southwestern Montana necessitated a complicated and lengthy supply route across Eastern Idaho – The Montana Trail.[50] The Montana Trail was a wagon road beginning in Salt Lake City and ending in the Montana gold fields of Bannack, Virginia City, and Helena. The trail traversed much of Eastern Idaho in a generally northerly direction and made use of the Portneuf River valley before crossing the Upper Snake River plain and cresting the Continental Divide at Monida Pass.[51]

It was the Montana Trail and its associated mineral wealth that drove the construction of the first bridge across the Snake River. J.M. "Matt" Taylor – like many other freighters on the trail – delivered supplies from Utah to Bannack. In June 1864, Taylor, W.F. Bartlett, and Edgar M. Morgan incorporated the Oneida Road, Bridge, and Ferry Company and bought the Eagle Rock Ferry which had been established in 1863.[52] In December of 1864 Taylor traveled 700 miles to Idaho's territorial capital at Lewiston to obtain a franchise to operate the ferry and build a bridge across the Black Rock Canyon. According to his franchise records, the bridge was to be operable within two years and the legislature established the toll rates as the same for both the bridge and the ferry. This exclusive right would remain in effect for twenty years and the territorial government retained a percentage of the tolls for educational funding.[53] Between 1863 and 1890, Idaho's Territorial Legislature granted toll franchises for eighty-two facilities including twenty-six ferries, thirteen bridges, and forty-three roads.[54]

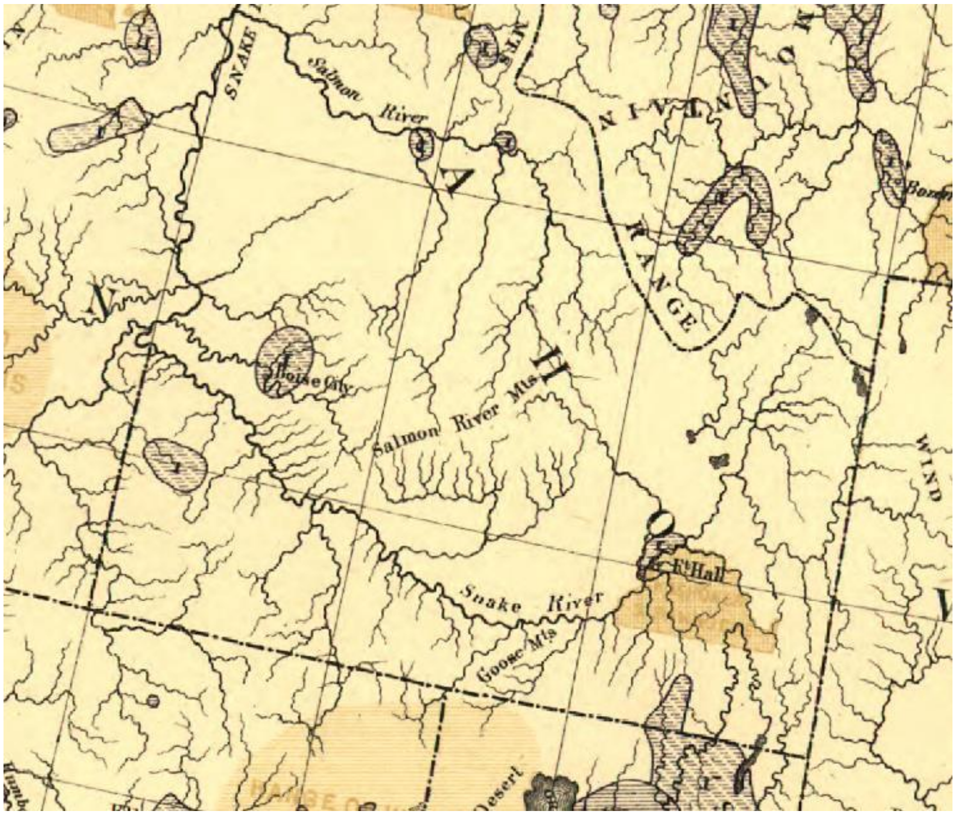
Taylor's Bridge was a timber structure built with twelve 45-foot timbers hauled from Beaver Creek eighty miles away. Executed in a modified Queen truss design, the necessary iron bolts and other hardware were salvaged from a wrecked steam boat near Fort Benton on the Missouri River and from old Fort Hall. Stringers for the bridge were put in place when the river was frozen solid in the winter of 1864-1865.[55] This pioneering piece of infrastructure formed the anchor for what later developed as the city of Idaho Falls.

1865 Eagle Rock Bridge, as drawn in 1884
Note railroad bridge in background
Courtesy Idaho State Historical Society #76-37.103

Mineral strikes across Eastern Idaho and beyond continued to prompt the exploration and exploitation of the region and its natural resources. Discoveries at Leesburg in 1866 spurred the settlement of Salmon as a supply

[50] Betty M. Madsen and Brigham D. Madsen, *North to Montana!: Jehus, Bullwhackers, and Mule Skinners on the Montana Trail* (Pocatello, Idaho: Utah State University Press, 1999).
[51] Ibid.
[52] Eagle Rock was renamed Idaho Falls in 1891. Alice Horton, Afton Bitton, and Patti Sherlock, *Beautiful Bonneville: County of Contrasts* (Logan, Utah: Herff Jones, 1989).
[53] Edith Haroldsen Lovell, *Captain Bonneville's County* (Idaho Falls, Idaho: Bonneville County Centennial and Historical Commission, Inc., 1963).
[54] Rebecca Herbst, *Idaho Bridge Inventory,* Volume 1 (Boise, Idaho: Idaho Transportation Department, 1983).
[55] Barzilla Clark, *Bonneville County in the Making* (Idaho Falls, Idaho: Barzilla Clark, 1941).

point for miners in nearby gold fields[56] and the mining of silver and lead near the Wood River Valley in the 1870s and 1880s necessitated the establishment of Ketchum, Hailey, and Bellevue.[57]



Walker's 1870 Constitutional Population Distribution Map, detail
Note: black shading denotes areas with 2 to 6 inhabitants per square mile and no shading is 'Unsettled'
Map courtesy of http://www.census.gov/history/pdf/1870_Population_Density.pdf

Despite the migration to and within Idaho Territory, analysis of population census records from this period conveys the sparseness of settlement in Eastern Idaho. The 1870 census tallied a total of 14,999 Idahoans, but in the area that became Eastern Idaho it documented only a single settlement with a density of at least two to six inhabitants – Eagle Rock.

While not always immediate, bridge construction, to access the remote geography typically home to mines and their resulting settlements, was inevitable. The Salmon River mines at Clayton and Bayhorse were in operation long before the construction of permanent river crossings. Timber structures were the initial choice when bridges were built. Finally, by the second decade of the twentieth century, development of the Sawtooth Park Highway prompted Custer County to have five steel bridges constructed in 1915.[58] All built by James H. Forbes, the "first Idaho-based bridge builder of merit," at least two, and possibly three, of them are still extant.[59]

[56] *Centennial History of Lemhi County*.
[57] Hawley.
[58] Herbst.
[59] Crossing the Salmon River between Clayton and Bayhorse, and of the same era, design, and method of construction, it is likely the Salmon River Pratt Truss Bridge (Lyon Creek) was one of the five built by Forbes in 1915. See IHSI Form 37-004918 for more detail.

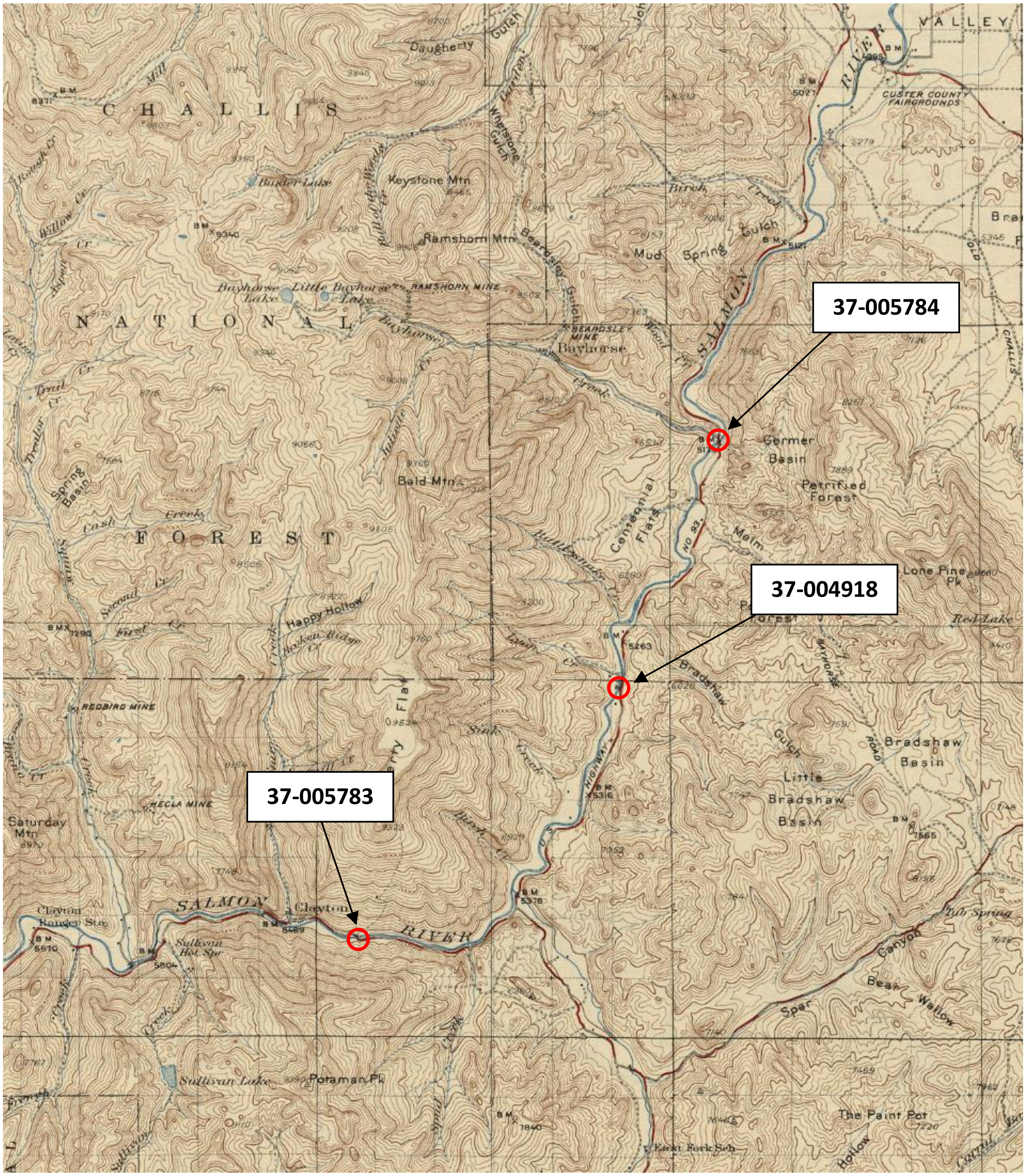
His use of at least two distinct truss types speaks to the dexterity with which he employed his expertise.

The mines near Central Idaho's Salmon River and dozens of similar examples across Eastern Idaho continued to stimulate permanent and temporary settlement well into the twentieth century. As at Eagle Rock, it was often the promise of a lucrative return on the not-insubstantial costs of bridge building that first allowed their construction. The financial incentive of easier access to the mines offered a justification for the cost and effort of bridging any number of the region's waterways but it was the advent of the railroad that frequently made their fabrication possible.

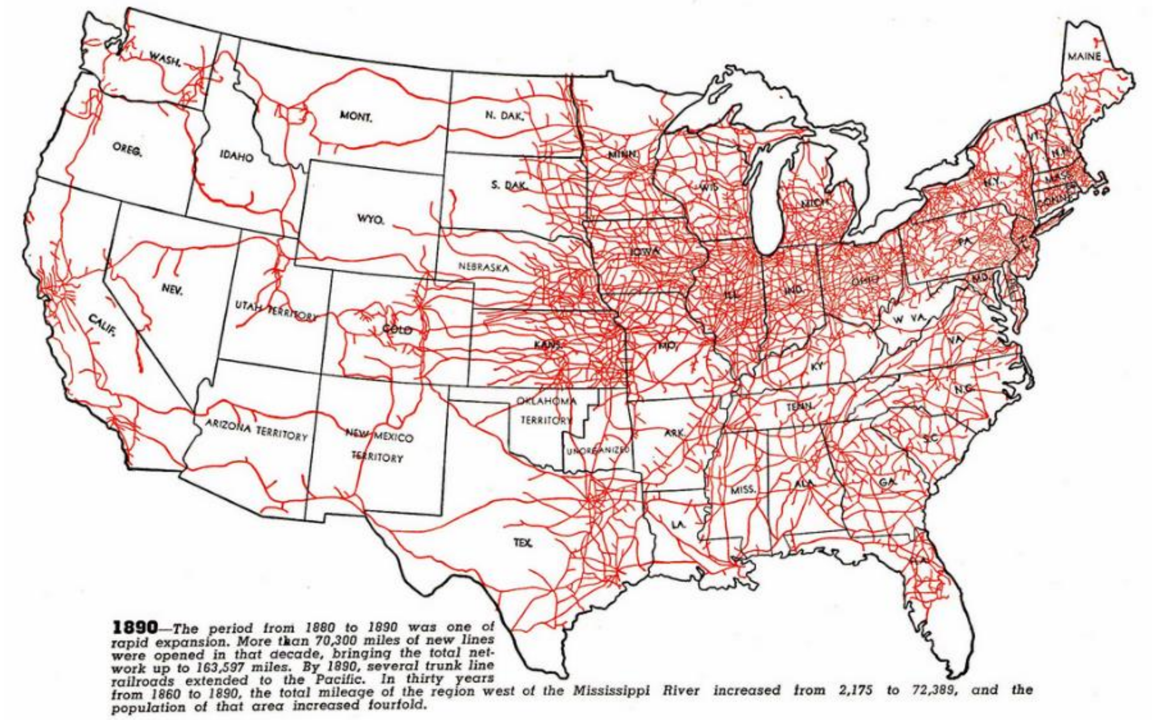
1915 Salmon River Pratt Truss Bridge at Bayhorse Creek Challis (vicinity) (37-005784; ITD Key# 31660)

c.1915 Salmon River Pratt Truss Bridge (Lyon Creek) Clayton (vicinity) (37-004918; Off-system/No Key#)

1915 Salmon River Parker Truss Bridge, 2017 Clayton (vicinity) (37-005783; ITD Key# 31650)



USGS Bayhorse Quadrangle, 1929
Note the three exant 1915 Salmon River bridges construted by J. Forbes



US Railroad Network, 1890

Map courtesy of http://users.humboldt.edu/ogayle/Hist%20111%20Images/RR1890.jpg

In the late nineteenth century, "railroad mania" swept the nation and railroad expansion revolutionized America by stimulating the growth of trade, settlement, and communication networks. Between 1880 and 1890, more than 70,300 miles of new lines opened, a 75 percent increase in track mileage nationwide.[60] At the same time, Idahoans welcomed two new railroads built across the territory – the Northern Pacific across the panhandle through Sandpoint and the Oregon Short Line across southern Idaho.

The railroad expansion into Eastern Idaho transformed the region by linking previously isolated trade, settlement, and communication networks. The promise of the railroad spurred the establishment of hamlets and towns along the route that became local trading centers providing access to regional and national markets.

The May 1869 meeting of the Union Pacific and Central Pacific railroads at Promontory Point, Utah, marked the completion of the world's first transcontinental railroad. This historic achievement was nationally significant and had specific and profound effects on the history and settlement of Eastern Idaho. The railroad not only eliminated the necessity of the wagon train as a means of western migration, it also facilitated the settlement and supply of mining communities across the Intermountain West. As the web of interdependent railways spread across the region it both necessitated the construction of towns to supply its growth and provided the materials and labor needed to make that development possible. Similarly, both the materials and impetus for the

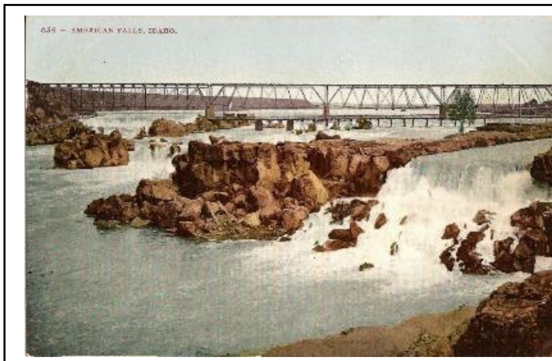
[60] Humboldt State University, "Industrialization, Urbanization, and Immigration in the Gilded Age," http://users.humboldt.edu/ogayle/hist111/industrial.html (accessed August 13, 2013).

construction of bridges throughout Eastern Idaho were spurred by the arrival of the railroad.

While the capital and demand for railroad service into Idaho Territory required time to mature, the transcontinental railroad immediately prompted infrastructural development. Freighting operations along the Kelton Road between Kelton, Utah, and Boise, Idaho, began by the summer of 1869. Founded in 1863, Boise quickly developed as the civic and commercial hub of Southwestern Idaho and replaced Lewiston as the territorial capital in 1866. The Kelton Road's route across Southern Idaho drove the development of stage stops along its length and soon prompted the establishment of the Glenn's Ferry crossing of the Snake River.[61]

By 1871, the Utah Northern Railroad into Idaho Territory was under construction.[62] Financed largely by Mormon interests, the planned route of the railroad from Ogden, Utah, to Soda Springs was intended to serve LDS settlements along its path.[63] Due to limited funding, the Cache Valley communities sustained by the railroad were primarily responsible for its construction. These volunteer efforts and the railroad itself ended short of their goal, terminating at Franklin in 1874.[64] Eastern investment revived the company in 1878 and the new terminus of the reorganized Utah *and* Northern Railroad was the Montana gold fields.[65] The railroad's route north of Franklin made use of the Portneuf River Valley before crossing the Snake River Plain. Towns with varying permanency sprang up along the railroad's right of way. Among them, Blackfoot was founded in the spring of 1879 and the Snake River was spanned with a new steel bridge at Eagle Rock.[66] In 1881 the Utah and Northern Railway began offering service from Ogden to Butte, Montana.[67]

The Oregon Short Line Railway (OSL) was incorporated in 1881 with the intention of providing the shortest route – or "Short Line" – across Southern Idaho between Wyoming and Eastern Oregon. Construction reached Montpelier, Idaho, in the summer of 1882 and resulted in the founding of Pocatello at the mouth of the Portneuf River Canyon that same year.[68] The OSL bridged the Snake River at American Falls and continued west along the north side of the canyon until it once again crossed the river at Huntington, Oregon, in November 1884.[69] Along the way, completion of the line to the newly-established town of Shoshone allowed the construction of a spur line north to access the booming mines of the Wood River Valley.[70]



1882 Oregon Short Line (OSL) Railroad bridge over the Snake River at American Falls, c.1915 (nonextant)

[61] Ibid.
[62] Merrill D. Beal, *The Utah and Northern Railroad: Narrow Gauge* (Pocatello, Idaho: Idaho State University Press, 1980).
[63] Ibid.
[64] Edith Haroldsen Lovell, *Captain Bonneville's County* (Idaho Falls, Idaho: Bonneville County Centennial and Historical Commission, Inc., 1963).
[65] Beal. *The Utah and Northern Railroad*.
[66] Lovell.
[67] Beal. *The Utah and Northern Railroad*.
[68] Ibid.
[69] Beal. *Intermountain Railroads*.
[70] Hawley.

Rail access to Eastern Idaho and its resources dramatically increased the region's population and its need for uninterrupted transportation corridors. The Utah and Northern Railroad and the Oregon Short Line, which were eventually consolidated under the Union Pacific Railroad, facilitated the construction of additional rail routes. The railroads also spurred construction of wagon roads accessing the new lines and the towns that developed to serve them. The first documented iron highway bridge in Idaho was built across the Snake River at Blackfoot in February of 1881.[71] Operated as a toll bridge for vehicular crossing, completion of the structure was possible only with the access provided to distant materials and professional expertise by the Utah and Northern Railway.

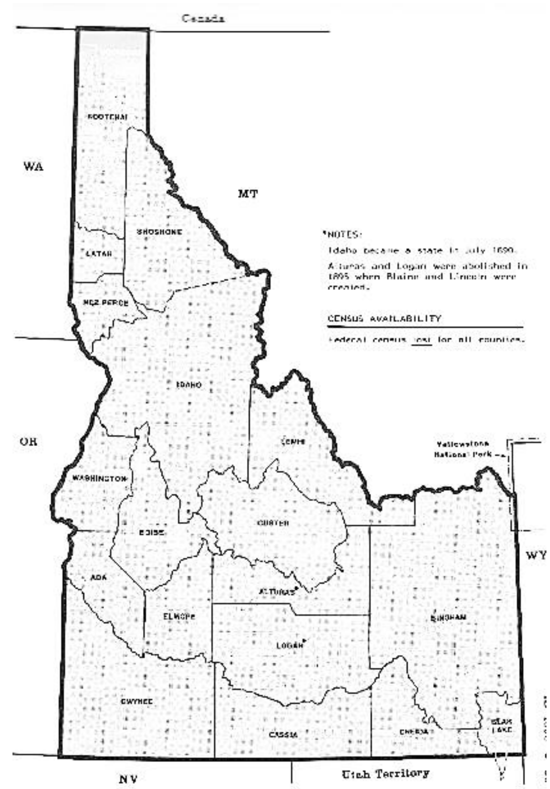
Bridge construction across difficult geographic obstacles was generally impossible until the arrival of railroad lines overcoming the previously limited materials and manpower. The train could deliver timber, steel, expertise, and manpower to allow bridge building throughout the region. Perhaps more importantly, the increase in population brought about by rail access was the impetus for accessible, direct transportation corridors to serve the ever-increasing cultural and commercial needs of a new state.

STATEHOOD AND EARLY TWENTIETH CENTURY DEVELOPMENT: 1890 to 1920s

The progression of the railroad across Idaho, coupled with the cyclical discovery and exploitation of mineral wealth, resulted in an influx of new residents to the territory. The promise of untapped virgin timber and other natural resources combined to warrant governmental recognition. A quick progression of six western states joined the union in 1889 and 1890, with Idaho statehood occurring on July 3, 1890.

Following the flourishing period of the 1880s, the Panic of 1893 led to a serious nationwide economic depression that lasted most of the decade. While some Idahoans suffered as a result of these economic conditions, the Panic put only a slight damper on the previous boom times and the new state of Idaho continued to draw rapid immigration. An additional 73,224 residents arrived between 1890 and 1900, an 83 percent increase.

With Boise as her capital, the Gem State's boundaries encompassed nearly 84,000 square miles from the Canadian border south to Utah and Nevada and stretching between Oregon to Wyoming. When created, the State of Idaho was composed of eighteen counties; eight of those were in the southern and eastern regions of the state. Since 1890, the state legislature has eliminated two counties (Alturas and Logan) and created twenty-eight more for a total of forty-four. The number of Eastern Idaho counties has tripled from eight to twenty-four.



1890 County map of Idaho
Courtesy IdahoGenealogy.org

[71] Herbst.

An explanation for the proliferation of counties across Idaho can be found in the 43rd state's sparse population at the time of admittance. Large expanses of the new state were still unsettled at the time of designation, but the incentive of cheap land, access to minerals, timber, and soon, water, as well as the permanence and visibility the designation afforded would soon entice an influx of new citizens.

With an increase in population came an increased demand for infrastructure to provide access to markets. The ever-expanding network of railroads demanded vehicular road access to deliver goods to shipping points, and increased population demanded roads to allow connections to communities where one could shop, learn, worship, and be entertained. As the expense of bridge construction along these routes was justified with greater numbers of people, those improvements in turn incentivized still more settlement.

As the residents of Eastern Idaho's eight counties grew in number, their rights as citizens spurred the creation of new counties and still more infrastructure. For example, in 1893, residents of what is now Jefferson County asked newly-created Fremont County for assistance in financing a bridge across the Snake River on the Market Lake-Menan Road route to facilitate the transport of local goods to the rail station at Market Lake.[72] A contract was let to B.J. Briggs to construct a bridge with "tubular iron piers at the center and stone abutments" for $8,975.[73] The bridge was opened to the public in the fall of 1894.

Need for public accessibility to/from elected officials demanded division of larger governmental units and the designation of new county seats. County officials promised better roads to their constituents and in return expected funding from the Idaho legislature. As early as 1881, all roads in Idaho Territory had been designated county roads by the Territorial Legislature's County Road Act.[74] As state government matured, responsibility for major cross-state routes and projects with extraordinary cost or importance reverted to legislative responsibility. In Eastern Idaho, an example was the March 1903 passage by the state legislature of a bill providing for construction of a timber and steel wagon bridge across the Snake River at American Falls.[75] The State Engineer supplied the plans and the bridge funded by State Treasury funds.

1903 American Falls Bridge over Snake River, c.1910
Courtesy Idaho State Historical Society 81-35.6

Irrigation

A major infrastructural investment that prompted yet more population growth was facilitated by the federal government and legislation allowing agricultural expansion into what had once been an inhospitable desert.

Despite increases in population, President Harrison's signature created a largely unpopulated 43rd state. Idaho's substantial size and rugged geography proved a disadvantage, particularly in the generally harsh landscape of the southern and eastern reaches of the state.

[72] Willard Adams, *100 Years of Jefferson County* (Rexburg, Idaho: Willard Adams, 1970).
[73] Ibid.

[74] W.P. Eaton, Edward Equals, L.F. Erickson, and Ellis L. Mathis, *Idaho's Highway History: 1863-1975* (Boise, Idaho: Idaho Transportation Department, 1985).
[75] Ibid.

The region's climate discouraged agricultural development which limited the commercial viability and its attractiveness to new settlers. The Snake River Plain in particular proved difficult to populate until legislative intervention.

Notwithstanding the incentive of free federal land to qualifying claimants offered by the 1862 Homestead Act, the arid southern Idaho desert remained sparsely settled. Even the railroad failed to attract new communities to the region except in specific and select instances. Without mineral wealth or timber, the flat, desolate topography appeared ill-suited to any productive use. Lacking sufficient annual rainfall, the plain's dry, volcanic soil would need to be irrigated if it were to be farmed. However, individual homesteaders could not afford the cost or undertake the effort of constructing the needed network of dams, canals, and ditches.


Typical sagebrush steppe of Eastern Idaho

Congress had attempted to resolve some of the hurdles to the settlement of the semi-arid West by means of the Desert Land Act of 1877. The act essentially amended the Homestead Act by removing the claimant occupancy requirement. Furthermore, by increasing the number of acres claimed from 160 to 640, the Desert Land Act encouraged widespread abuse and fraud and did little to address the fundamental question of funding for irrigation infrastructure.[76]

In 1892 Senator Joseph Carey of Wyoming introduced a bill to Congress which would do much to resolve the matter of desert lands irrigation. When finally passed in 1894, the Carey Act facilitated private, for-profit construction of irrigation infrastructure and provided a mechanism for individual settlers to access the harnessed water.[77] The Act authorized the General Land Office (GLO) to set aside suitable acreage in designated Desert Lands and the respective state was then responsible for selection of private corporations to finance and construct dams, canals, ditches, and so forth. While land distribution and pricing of public water remained under governmental control, the cost of infrastructure development and overall risk fell to private corporations and their investors who were compensated through the sale of public land and water.[78] The individual farmer was free to settle public land and invest his own capital in its improvement with the promise of access to the necessary irrigation that would otherwise be unavailable.

Among the Carey Act-triggered projects in Eastern Idaho, one such privately-funded endeavor that proved critical to the development of the region was the Milner Dam and its reservoir on the Snake River. Promoted by Ira Perrine, an early settler of the Snake River Canyon, he attracted the investment of Stanley Milner, Walter Filer, Frank Buhl, and Peter Kimberly.[79] Together

Milner Dam shortly after completion, c.1905

[76] Mark Fiege, *Irrigated Eden: The Making of an Agricultural Landscape in the American West* (Seattle: University of Washington Press, 2000).
[77] Ibid.
[78] Ibid.
[79] "Milner Dam," *Idaho State Historical Society Reference Series* (Boise, Idaho: Idaho State Historical Society, 1985).

they funded the construction of the Milner Dam and the Twin Falls Main Canal between 1902 and 1904.[80] With irrigation provided to 360,000 acres of Snake River desert, the project was a benchmark for privately-funded irrigation investment.[81]

Despite Perrine's success, difficulties in raising private capital for similar projects across the West convinced Congress to pass the Reclamation Act of 1902.[82] This Act essentially conceded the need for investment of federal funds in addition to federal land and water. Unlike the Carey Act, infrastructure developed under the Reclamation Act would be financed directly by the government and managed by the newly-formed United States Reclamation Service (later the United States Bureau of Reclamation).[83] With an initial investment by the federal government, it was intended that newly-irrigated lands would be sold to settlers and those proceeds would be reinvested in further reclamation projects. This conceptual revolving fund for irrigation would profoundly impact southern and eastern Idaho.

Idaho's first Reclamation Service project was the Minidoka Dam. Built upstream from the Milner Dam on the Snake River, the project and its resulting North Side and South Side canals would eventually supply irrigation waters to more than one million acres of Southern and Eastern Idaho. Construction commenced in 1904 and was substantially completed in 1906. In 1909 the dam began to produce hydroelectricity, the first federal project to do so in the Pacific Northwest. The project's success resulted in further federal investment throughout the state and justified the upstream construction of the dam at American Falls in 1927.[84]

The results of the Carey and Reclamation acts in Southern and Eastern Idaho was nothing short of astounding. In the course of two decades the Snake River Plain was transformed from an unpopulated volcanic desert to an irrigated agricultural region with cities and towns to serve the civic and commercial needs of a growing populace. The towns of Rupert, Burley, Jerome, Twin Falls, Buhl, and dozens of others were founded as a direct result of access to irrigation. Advertisements and promotion of the aptly-christened Magic Valley attracted settlers from across the nation seeking the opportunities promised by cheap land and the American dream. The need for transportation infrastructure naturally resulted and rails and roads soon crisscrossed the region. Bridges were a necessary component of this network. Crossings of the new man-made waterways proved essential.

1915 High Line Canal Warren Truss Bridge, 2017

Among them, the High Line Canal Warren Truss Bridge, one of a pair of short-span bridges installed by the Idaho State Highway Commission in 1915 to cross the High Line Canal in the vicinity of Buhl. The High Line Canal is part of the network of irrigation canals forming the large-scale Twin Falls Irrigation Tract constructed between 1905 and 1909, diverting water from the Snake River at Milner Dam. Bridges like the High

[80] Ibid.
[81] Ibid.
[82] Fiege.
[83] Ibid.
[84] "Minidoka Dam," *Idaho State Historical Society Reference Series* (Boise, Idaho: Idaho State Historical Society, 1974).

Line Canal Warren Truss Bridge that provided area farmers with access over new canals and to local markets were critical to the survival of the regional economy, particularly the small towns of arid Eastern Idaho that served as trading and shipping points for the surrounding nascent rural communities.

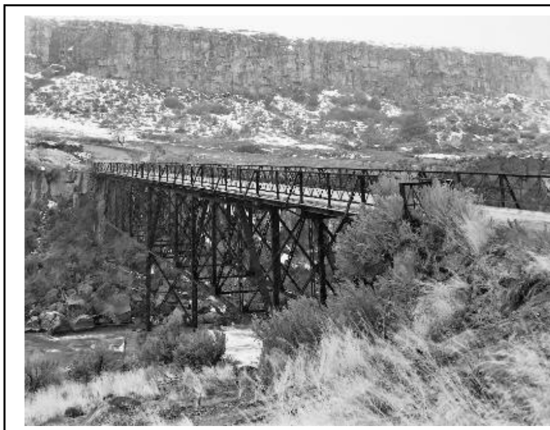
Until the advent of the region's agricultural revolution, ferry crossings had been sufficient to accommodate Southern Idaho's sparse traffic. The transformational increase in population on both sides of the river required more reliable infrastructure and the perennial problem of efficient routes across the Snake River and its canyon were soon debated.

The first generation of bridges across the Snake River required tortuous access roads to allow navigation down into the canyon and back up the other side. An extant example of this condition was the 1911 Blue Lakes Bridge. which was accessed by the steep switchback-laden road up/down both sides of the canyon.[85]

Another early solution to crossing the Snake River was Murtaugh Bridge constructed north of the town of Murtaugh to provide access to the relatively-isolated region irrigated by the Milner Dam north of the river canyon. The Hillsdale Highway District was formed to build the bridge in 1914.[86] C.H. Mull of Twin Falls was awarded the $7,975 bridge contract in December of 1915.[87] The steel structure was the first toll-free bridge in the canyon and remained in place until the mid-1980s.

1911 Blue Lakes Bridge, 1911
Courtesy Idaho State Historical Society

1911 Blue Lakes Bridge, 2017



1916 Murtaugh Bridge, c.1970
Courtesy Idaho State Historical Society 83-5.27/a

[85] This bridge is referred to as the Perrine Bridge in some early primary sources. Reportedly Ira Perrine designed and built it, hence the reference.

[86] Virginia Ricketts, *Then and Now in Southern Idaho* (Jerome, Idaho: Falls City Publishing, 1998).
[87] Ibid.

To eliminate the delay of a detour into and out of the Snake River Canyon, regional residents soon demanded routes that would span both the canyon and the river. The construction cost and difficulty of this concept were substantial and only two such crossings were ever built. The first was a $93,000 steel suspension bridge north of Hansen.[88] Completed in July 1919, public bonds approved by voters on either side of the river financed 80 percent of the structure, with the state legislature appropriating a little over 20 percent of the cost.[89]

1919 Hansen Bridge, c.1920 (nonextant)
Courtesy Idaho State Historical Society 63-132.12

Shortly after completion of the Hansen Bridge, the citizens of Twin Falls began to call for a canyon crossing of their own. In the fall of 1927 a privately-funded, cantilevered steel span opened to traffic. The $750,000 cost of the structure was partially met by its operation as a toll bridge until purchase by the State of Idaho in 1940.[90] Known as the Perrine Bridge in honor of Milner Dam's promoter, the new bridge surpassed the Hansen Bridge as the highest span in America at the time of its completion.

1927 Perrine Bridge under construction (nonextant)
Courtesy Idaho State Historical Society 74-118.6

Federal Lands

Successful construction of the Milner and Minidoka dams and their associated irrigation networks would have proven difficult, if not impossible, without the availability of millions of acres of public land. Like much of the West, federal land ownership dominated Idaho geography from its inception. Nearly 62 percent of the state, or 32,623,376 square acres are owned by the federal government – the third highest percentage nationwide.[91]

Sale or reservation of the nation's public domain was possible only with accurate measurement and mapping. GLO oversaw management of federal lands and their disposal or retention from 1812 until 1946.[92] Placed under the oversight of the Department of the Interior in 1849, the GLO was responsible for the survey, platting, and distribution or sale of public lands. In Idaho, the monumental task of surveying its remote and disparate geography began in Southwestern Idaho at Initial Point south of Meridian in 1867.[93]

Initial Point

[88] Eaton, Equals, Erickson, and Mathis.
[89] Ibid.
[90] Ibid.
[91] Carol Hardy Vincent, Laura A. Hanson, and Carla N. Argueta, *Federal Land Ownership: Overview and Data*. (Washington, D.C.: Library of Congress, Congressional Research Service, 2017).
[92] James R. Skillen, *The Nation's Largest Landlord: The Bureau of Land Management in the American West* (Lawrence, Kansas: University Press of Kansas, 2009).
[93] Hawley.

Once mapped, the land could be managed, and the GLO distributed Idaho's public lands under the enabling legislation of the Homestead Act, Desert Land Act, Carey Act, Reclamation Act, and a myriad of other congressional legislation. Public concern over the disposal of the nation's geographic wealth to private interests coincided with Idaho's admittance to the union. Progressives across the country argued that it was in the public's best interest to retain federal control of government lands to allow for preservation and recreation.

Beginning in 1891, the President was authorized to withdraw timbered lands or forest reserves from private claim.[94] The rapid exploitation of timber resources in the West prompted Roosevelt to establish the U.S. Forest Service in 1905, to which the management of these reserves was transferred under the Department of Agriculture. The agency's acquisition and management of the soon-designated National Forests would result in a particularly controversial public conversation in Idaho where the state's Senator Heyburn vehemently opposed their withdrawal and creation. Despite political protest, Idaho now boasts 20.5 million acres of National Forests, the highest percentage in the U.S.[95]

The retention of federal land for public benefit continued through the first decade of the twentieth century when the GLO began to lease land rather than sell it. The Pickett Act of 1910 gave the President the authority "at any time in his discretion, (to) temporarily withdraw from settlement, location, sale, or entry any of the public lands. . . and reserve the same for public purposes...".[96] Federally owned areas recognized for their scenic and natural beauty were protected when the National Park Service was created in 1916, and the Taylor Grazing Act of 1934, which also created the United States Grazing Service, effectively withdrew the remainder of public lands from private acquisition.[97]

In 1946, the General Land Office was merged with the United States Grazing Service to form the Bureau of Land Management (BLM) under the Department of the Interior.[98] Much of southern and eastern Idaho that had not previously been passed to state or private ownership or withdrawn by the Bureau of Reclamation or the U.S. Forest Service was consolidated for public use under the management of the new bureau. The BLM now manages nearly 12 million acres of Idaho land.[99]

Early oversight of Idaho's federal lands rarely resulted in the construction of infrastructure. The Forest Service made use of roads and bridges already in existence. However, as the agency matured it constructed administrative facilities including ranger stations, guard stations, and lookout sites, and built the roads, bridges, and communication framework needed to access and manage the land. The ready supply of inexpensive labor provided by President Franklin Roosevelt's New Deal facilitated an expansion of the agency's infrastructure.

Typical Forest Service log bridge, Valley County, 1923
Courtesy ITD Online Photo Collection

[94] Harold K. Steen, *The U.S. Forest Service: A Centennial History, Revised Edition* (Seattle: University of Washington Press, 2004).
[95] Vincent, Hanson, and Argueta.
[96] Skillen.
[97] Ibid.
[98] Ibid.
[99] Vincent, Hanson, and Argueta.

GOOD ROADS MOVEMENT AND ARRIVAL OF THE AUTOMOBILE: 1880S AND 1920S

The advent of the automobile was transformative to the nation, and Idaho was no less impacted. In fact, transportation possibilities allowed by automobile travel were arguably more important throughout the West than they were east of the Mississippi. The internal combustion engine permitted a traveler to cover greater distances in a shorter amount of time than a horse drawn conveyance and provided independence from the restrictions of rail. Idaho's varied topography was better suited to the freedom of car travel than regions served by a more expansive railroad network. While a personal car was initially cost prohibitive, the genius of Henry Ford's assembly line soon placed automobile ownership within reach of nearly every family.

American drivers quickly realized that existing infrastructure was unable to meet the growing demands of the autoing public. The "Good Roads" movement petitioned elected leaders to invest in the construction of highways which could accommodate recreation as well as commerce. In Idaho, motorists demanded access to the natural and scenic beauty offered by the state's unpopulated expanse.

Idaho's territorial government first provided for the public construction and maintenance of roads and bridges in the County Road Act of 1881.[100] In addition to declaring all roads to be county roads, the Act proscribed the mechanism for determining routes and obtaining needed funding and labor[101]. As an example, a bridge across the Snake River near the present Lorenzo Bridge was first proposed to Bingham County by regional residents in the fall of 1887.[102] They also asked for a bridge across the Dry Bed – due south of the first location. The county commissioners denied the request due to funding but promised construction when budgets allowed. In

Auto ownership quickly outpaced Idaho's highway infrastructure; here an early Ford and its passengers are forced to use a Snake River Ferry
Courtesy Idaho State Historical Society 66-104.1

September of 1889, the county issued a contract to Mr. R.E. Miller for $13,700 to construct both bridges.[103] This prompt action on the part of the county was an exception, and while the County Road Act provided a framework for road construction, it generally failed to address the systematic flaws which prevented its widespread implementation. Individual acts of the territorial legislature also funded specific road and bridge construction projects, but, with rare exception, those projects were built outside of southern and eastern Idaho.[104]

Soon after statehood, the legislature authorized the creation of a Wagon Road Commission and the issuance of bonds to fund its designated projects. Still, development approved by the commission was restricted to specific, legislature-approved routes. Like its territorial predecessor, the state legislature also continued to fund and approve the construction of specific transportation projects, each overseen by a uniquely-appointed commission.[105] State participation in many of these projects was only justified by either extraordinary cost or need, or the insistent demand of the voting public.

[100] Eaton, Equals, Erickson, and Mathis.
[101] Ibid.
[102] Adams.
[103] Ibid.
[104] Eaton, Equals, Erickson, and Mathis.
[105] Ibid.

Until 1905, when the newly-constructed railroad bridge provided a risky pedestrian crossing, the only way to traverse the Snake River at the burgeoning town of Burley was to use a ferry.[106] In 1906 Edward Verberg built a toll bridge between Heyburn and Burley using lumber salvaged from the construction of the Minidoka Dam.[107] By 1910, Burley boosters began to petition for a toll-free, state-funded bridge at the northern end of Overland Avenue with more direct access to the community of Paul.[108] This was opposed by residents of Heyburn who feared that a free crossing would attract commerce away from their town and the toll bridge. They demanded that the state purchase and repair the Verberg bridge rather than build a new facility. Surprisingly, the 1911 state legislature funded both the construction of a new bridge north of Burley (now State Highway 27) and the acquisition and rehabilitation of the Verberg Bridge.[109] The Paul-Burley bridge was a narrow timber and steel structure with a wider turn-out in the middle to allow vehicles to pass one another. It was built for $20,000, and like the repaired Verberg Bridge, was opened without toll to the public in 1911.[110]

The Wagon Road Commission also occasionally authorized roadway projects, and in 1911, $20,000 was approved to pave approximately five miles of state roadway between Pocatello and Blackfoot. This was the first state project to result in an asphalt road surface.[111] Legislation during this period also permitted the organization of county highway districts to fund and oversee local transportation improvements including both highways and railroads.[112]

1911 Paul-Burley Bridge, c.1915 (nonextant)
Courtesy Idaho State Historical Society 78-94.101

During this period, automobile ownership grew at a rapid pace statewide as a result of improved roads and the increasing affordability of vehicles. With the formation of the State Highway Commission, a spike in Idaho's road building ensued and over 2,000 vehicles were in operation statewide.[113]

In 1913, the State Legislature created a five-member permanent State Highway Commission which would allow Idaho to take advantage of federal transportation funding. The first Federal-Aid project contract in the state was awarded on October 11, 1917 by the State Highway Commission to the Missouri Bridge and Iron Company. The work consisted of constructing three steel bridges and 43 concrete bridges and culverts in Custer and Lemhi counties on what is now U.S. Highway 93.[114]

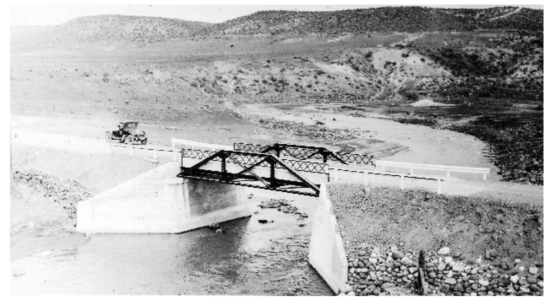
By 1918, Idaho's state highway system boasted 2,255 miles of roads, five of which were paved or oiled. In Eastern Idaho, state highway routes connected such distant communities as Montpelier, Ashton, Salmon, and Bliss to one another and the much larger markets of Boise and Salt Lake City and beyond. Though at the

106 Kathleen Hedberg, *Cassia County, Idaho: The Foundation Years* (Burley, Idaho: Cassia County Commissioners, 2005).
107 *A History of Minidoka County and Its People* (Rupert, Idaho: Minidoka County Historical Society, 1985).
108 Hedberg.
109 Ibid.
110 "Historic Bridge Over Snake River to be Dismantled" *The Idaho Daily Statesman* [Boise], October 10, 1927.
111 Eaton, Equals, Erickson, and Mathis.
112 Ibid.
113 2,083 license plates were issued in 1913. Rebecca Herbst, *Idaho Bridge Inventory,* Volume 1 (Boise, Idaho: Idaho Transportation Department, 1983), 25, and Idaho Transportation Department, "Idaho's Motor Vehicle History," http://itd.idaho.gov/dmv/dmvhistory.htm (accessed August 15, 2013).
114 Ibid.

time little to none of these routes was paved, about half were at least graded and much was improved with crushed rock. By 1922, the system had expanded greatly, though in Eastern Idaho much of the network was under construction or under not up to state standards.[115] Regardless, such graded, "all weather" crushed rock roads between area commercial centers further stimulated automobile use in Eastern Idaho.

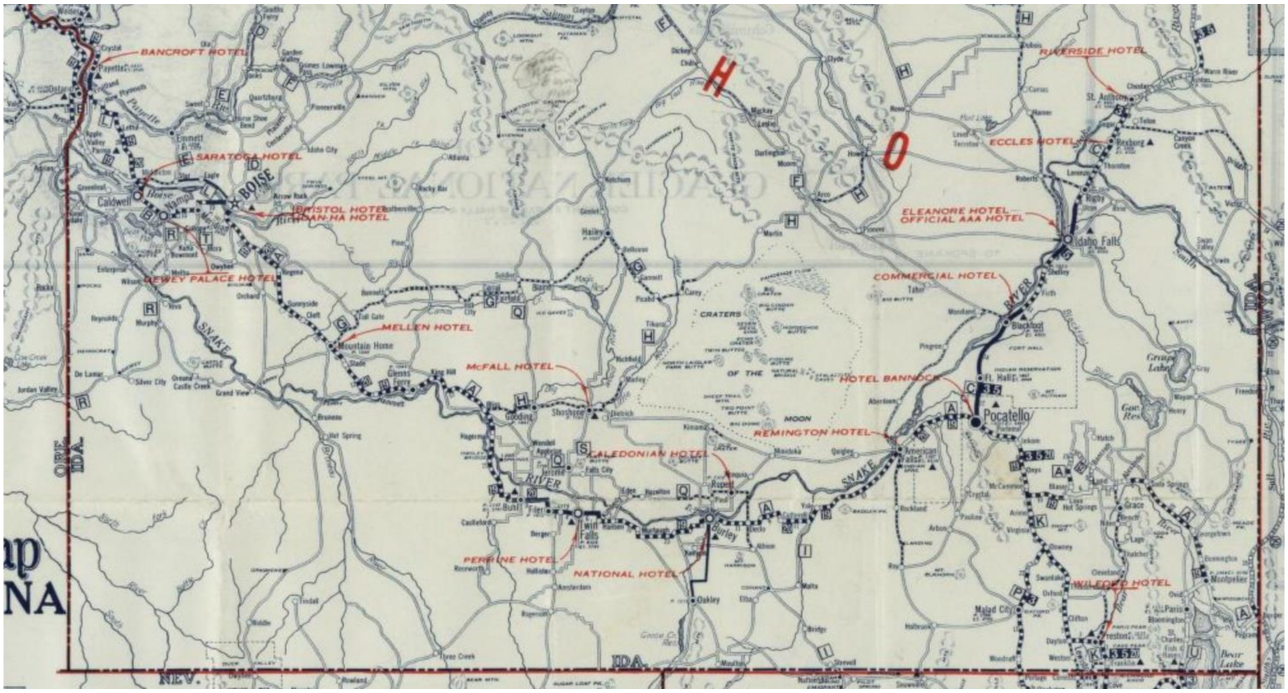
By this time, auto tourists were becoming important travelers across Idaho and the identification of regional and transcontinental auto routes became vital. To provide tourists with a documented network of roads linking states and identifying roadside necessities along the route, town boosters and national automobile clubs planned touring routes and published guidebooks directing "autoists" from state to state.[116] Among the trans-state highways developed in the 1910s, promoters laid out cross-country routes that traversed parts of Eastern Idaho. Among them were: the Utah-Idaho Yellowstone Highway, Banff-Grand Canyon Road, Old Oregon Trail Auto Route, and Evergreen National Highway. Also, no less than 10 separately designated Sampson Trails traversed sections of Eastern Idaho. With the coming of the U.S. Bureau of Roads numbering system in 1926, these auto trails received uniform highway numbers.

In 1919, the bureaucracy of the state's agencies was again reorganized. The result was the abolition of the State Highway Commission in favor of a Bureau of Highways under the Department of Public Works.[117] Creation of the new Bureau coincided with the advent of technological and material developments which would allow concrete construction to supersede the use of steel truss engineering in bridge building. Passage of the Federal Highway Act in 1921 promised federal monies to aid state road and forest highway construction. Due to increased funding, the Bureau of Highways capitalized on these developments in the inter-war era of the 1920s and 1930s and Idahoans enjoyed completion of several long-distance highways. Service stations and other roadside businesses went up along these routes and in communities along the way to serve not only tourists, but the increasing numbers of local automobile owners and commercial users.



Unidentified Bridge over Clover Creek, Elmore Co.
Courtesy ITD Online Photo Collection

[115] Herbst, 52.
[116] Elizabeth Rosin and Dale Nimz, National Register of Historic Places Multiple Property Documentation Form (Draft), "Roadside Kansas," (Kansas City, Missouri; Rosin Preservation, 2009), E-8.
[117] Ibid.



Rand McNally 1925 Auto Trails Map, detail of Southern and Eastern Idaho
Map courtesy of DavidRumsey.com

THE GREAT DEPRESSION AND WORLD WAR II: 1929 TO 1946

Though the onset of the Great Depression is typically defined as the October 1929 collapse of the stock market, a major agricultural recession was already underway throughout Idaho by the beginning of the 1920s. While the 'Roaring Twenties' took place in the general economy, Idaho farmers did not experience these conditions. Federal price supports during World War I caused famers nationwide to expand their production, however these supports were withdrawn at war's end and prices for farm products plummeted. Despite the organizing and political efforts of the Grange, the Farmer's Union, and the national American Farm Bureau Federation, many farmers were forced into bankruptcy. Many Idahoans tied to the agricultural sector left the state during the 1920s and Idaho experienced its lowest population growth to date, with an increase of only 3 percent between 1920 and 1930. The number of farms statewide dropped for the first time in Idaho's history.[118]

With the rest of the nation, Idaho's economy suffered also under the effects of the stock market crash of 1929. While the agricultural endeavors of many Idahoans allowed them to avoid food shortages experienced in urban centers, the prices of crops fell dramatically, crippling the state's rural economy. Despite the strained conditions during the Depression, Idaho saw a jump both in population growth and numbers of farms, indicating a pattern of return to farming and rural areas likely due to job scarcity in urban areas and as Dust Bowl refugees came

[118] University of Virginia, Historical Census Browser. Database online, http://mapserver.lib.virginia.edu/php/county.php (accessed August 11, 2013).

to Idaho in search of more promising agricultural and industrial employment opportunities.[119]

Little private development occurred during the Great Depression and the only significant construction nationwide took place through public building projects. Lower wage and labor costs coupled with high unemployment during the 1930s spurred President Franklin Roosevelt's make-work initiatives, known collectively as the New Deal, which funded the creation of a wide range of new agencies with the interconnected intent to put American's back to work. In Idaho, the Works Progress Administration (WPA), Public Works Administration (PWA), and the Civilian Conservation Corps (CCC) were perhaps the most impactful.

In Idaho, federal work programs spurred "the most active period of highway and bridge construction" to date."[120] Idaho ranked eighth nationwide in receipt of New Deal allocations through the PWA, WPA, and CCC programs that funded more than two hundred public buildings, including schools.[121] By 1940, the Idaho State Highway System had more than doubled its mileage since 1918, and the vast majority of its 4,857 miles of roads were graded with crushed rock, oiled, or paved thanks to New Deal money. Of singular significance in the development of Eastern Idaho infrastructure credited to the Corps was their construction of the Salmon River Road.[122] While ultimately abandoned, the effort to connect Salmon and Riggins with a road through the Salmon River Canyon was indicative of the optimism (or hubris) with which officials and engineers greeted the challenges of Idaho's forbidding terrain.

Federal highway appropriations to the individual states also dramatically increased during the New Deal decade and the Idaho Bureau of Highways took advantage of this opportunity to replace dozens of outdated structures which had been constructed of substandard materials and built to obsolete designs.[123] Additional funds administered by the federal Bureau of Public Roads and its partnering agencies were used to construct projects which would augment or compliment investment priorities of the state Bureau of Highways.

Two projects in particular illustrate the benefit of this cooperative coordination. Designed by the Forest Service and constructed by the Bureau of Public Roads on the Idaho-Montana Highway near Monida in 1934, the Pleasant Valley Creek Bridge is a massive, cantilevered, steel deck truss with concrete piers. Four years later, the Bureau of Public Roads completed the Pine Creek Bridge near Swan Valley on the Victor-Irwin Highway for $153,000.[124] The colossal steel arch employs a Pratt deck truss with concrete piers supporting the approach spans. Both bridges remain the only examples of their particular types in the state.

1934 Pleasant Valley Creek Bridge under construction
Courtesy Idaho State Historical Society MS281_03929

[119] "Dust Bowl Immigrants to Northwest Present Nation's Big Relief Problem," *Spokane Daily Chronicle*, April 8, 1937.
[120] Herbst, 33.
[121] Elizabeth Egleston, "Public School Buildings in Idaho," National Register of Historic Places Multiple Property Documentation Form, (Boise, Idaho: Idaho State Historical Society, 1991), E-2.
[122] Richa Wilson and Dan Everhart, *"Like Palaces to Us": Administrative Facilities of the Salmon-Challis National Forest, 1905-1960* (Ogden, Utah: USDA Forest Service, Intermountain Region, 2011).
[123] Herbst.
[124] Ibid.


1938 Pine Creek Bridge

The broad disruption of private construction resulting from the Great Depression continued after the United States entered World War II. As the nation refitted for wartime production, restrictions on construction materials and fuel led to a general cessation of private and public development. American engagement in World War II precipitated a halt to both state and federal investment in transportation with the exception of projects which would provide access to "war-essential" sites. Infrastructure improvements to reach mining operations critical to the national war effort comprised the majority of Idaho's roadway projects during the first half of the 1940s.[125]

POST-WAR PERIOD AND THE INTERSTATE SYSTEM: 1946-1970S

As the post-war economy stabilized around the country consumer demand increased, fueling production growth and contributing to a period of unprecedented economic prosperity. Wartime legislation, such as the GI Bill of Rights, provided subsidies for education, housing, and business endeavors, shifting the national economy away from its agricultural roots.

By the end of World War II, almost twenty years had passed during which the Great Depression and wartime restrictions had severely constrained construction, maintenance, and new development. Thus, there was a real and psychological need for new, clear symbols of progress. Deferred maintenance of the nation's infrastructure during World War II and improved economic conditions in the decade following the war led to road and building improvements nationwide. The auto industries refitted for automobile manufacturing, which had been ceased during the War, and consumer demand skyrocketed as Americans hit the road and the Baby Boom began. Statewide, Idaho experienced a 13 percent population increase during the 1950s.

Post-war America saw a short-lived recession as the workforce was glutted with returning GIs, but the national economy rebounded by the mid-1950s allowing generous federal funding of the country's highway system. Simultaneously, the decline of the railroad as a means of travel coupled with the rising dominance of American automobile culture led to exponential expansion and improvement of the Gem State's roadways.

After the war, management of the state's roads was revised yet again when the Bureau of Highways was removed from the administrative oversight of the Department of Public Works and reorganized as the State Department of Highways in 1949.[126]

Federal investment in infrastructure was further enhanced with the passage of the Interstate Highway Act in 1956.[127] Massive congressional appropriations under the Act permitted the development of a modern freeway system to allow for Cold War military readiness.

[125] Eaton, Equals, Erickson, and Mathis.
[126] Ibid.
[127] Ibid.

In Eastern Idaho, national expectations for efficiency in travel between the states resulted in the prioritization of routes through the region. The designation and construction of Interstate 15 facilitated travel between Salt Lake City and Helena, Montana while Interstate 84 connected Salt Lake to Portland, Oregon through Boise and across the Snake River Plain. Interstate 86 superseded U.S. Highway 30 and connected I-84 and I-15.

1966 Hansen Bridge

Across the state, Idaho's highway officials concentrated their freeway construction efforts on routes where the existing system was no longer adequate to meet the needs of ever-increasing traffic. Despite unprecedented investment in new construction during this era, roadway mileage managed by the Department of Highways remained relatively stable as older sections of highway replaced by the new interstate were either given to local jurisdictions or abandoned altogether. Substantial completion of the state's federally-funded and designated freeway system coincided with the legislature's abolition of the Department of Highways and creation of the Idaho Transportation Department in 1974.[128]

1976 Perrine Bridge

While advances in bridge engineering accelerated the use of concrete construction in favor of the steel truss, a few post-war projects relied heavily on steel. The replacements of both the Hansen and Perrine bridges across the Snake River Canyon in 1966 and 1976, respectively, employed steel to facilitate erection of structures expected to span the enormous chasm. The Hansen Bridge is a steel girder structure raised 350 feet above the river on telescoping concrete piers which received an Award of Merit from the American Institute of Steel Construction.[129] The main span of the Perrine Bridge's weathered steel truss arch is nearly 1,000 feet long. At 486 feet above the river, it is the eighth highest bridge in the nation.[130]

[128] Ibid.
[129] Ibid.
[130] Ruth Miller, "New Bridge Due to Span Snake Canyon by 1974" *The Twin Falls Times-News*, June 25, 1972, D-4.

MATERIALS AND TECHNOLOGY OVERVIEW

By 1910, 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.

Prior to 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. The pin-connected construction of the Salmon River Parker Truss 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, riveted technique rapidly surpassed pin-connected bridge construction during the first years of the twentieth century.

In addition, the contemporary development of economical cement production promoted the widespread combination of steel and concrete in bridge construction. By the 1920s, reinforced concrete was the standard material for abutments, piers, and decks of steel truss bridges. It was not uncommon for older metal truss bridges to receive new reinforced concrete decks or poured concrete reinforcements for older stone abutments.


Typical pin connection (bottom node)


Typical riveted connection (bottom node)

After World War II, standardization of materials, engineering, and design became widespread as agencies such as the Bureau of Public Roads (BPR), National Research Council, Highway Research Board, and the American Association of Highway Officials (AASHO) conducted cooperative research projects with the goal of utilizing a scientific approach toward highway and bridge construction.[131] BPR and AASHO published roadway and bridge standards based on traffic loads, speeds, spans, and so forth. In the post-World War II era, these publications, updated regularly to reflect technological advancements and materials testing, emphasized reinforced concrete and steel bridges. Innovations introduced in these specifications were adopted by the bridge construction industry and by the late twentieth century prestressed concrete and steel girder bridges became ubiquitous nationwide.

[131] *Utah Historic Bridge Inventory: Volume 1*, Mead & Hunt, Inc., 2011), 63-68.

BUILDERS, FABRICATORS, AND MANUFACTURERS

Brief biographies of the selected bridge builders, truss fabricators, and steel manufacturers identified as part of the current survey effort are in alphabetical order below.

Dan J. Cavanagh (1883-1971)

A native of Missouri, Dan Cavanagh was a bridge builder, road contractor, sheep rancher, and politician based out of Twin Falls. He also reportedly constructed a number of buildings throughout the Twin Falls region. Cavanagh represented the Twin Falls area in the Idaho legislature from 1933 to 1937, was one of Idaho's delegates to the Democratic National Convention in the 1940s and 1950s, and also served as a presidential elector for a number of years.[132]

Review of ITD records online show Cavanagh's name in relation to bridge and road work bids as early as 1919. Among the works known to have been associated with him include:

1919: Hansen Suspension Bridge

1922: Five bridges on the Idaho Central Hwy between Corral and Fairfield, Camas County

1923: Reinforced concrete bridge on the Yellowstone Park Hwy, north of Kimball, Bingham County

1923: resurfacing of the main canal bridge near Murtaugh, and the Malad Bridge near Hagerman

c.1931: Bear River Warren Truss Bridge (Riverdale Road; Preston Vicinity)

1936: West Bridge Street Bridge (Blackfoot)

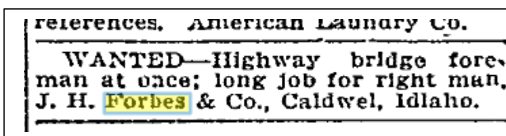
1943: Improvements on the Twin Buttes & Shelley-New Sweden Highway, Bonneville County

(no date) re-flooring of the 1927 Perrine Bridge (date unknown)

(no date) "a number of bridges across Rock Creek"[133]

J.H. Forbes and Company

Based in Caldwell, Idaho, the J.H. Forbes bridge-building endeavor was among the earliest, if not the first, Idaho based bridge-building companies. The firm started operations in Emmett and then Caldwell in 1903-1904 and remained in business until at least the 1930s. Among the completed projects were infrastructure improvements in the area, such as Canyon Canal Dam, Emmett electric light plant, and the water works at both Emmett and Parma. As road improvement activity peaked statewide in the 1910s, so did Forbes' bridge construction operation. Primarily based in southern Idaho, he is known to have been associated with about 25 bridges, most of which were of the pin-connected steel truss type.


references. American Laundry Co.

WANTED—Highway bridge foreman at once; long job for right man. J. H. Forbes & Co., Caldwel, Idlaho.

Idaho Statesman, September 24, 1913

Among the Eastern Idaho bridges known to be associated with Forbes are the Salmon River Pratt Truss Bridge (Lyon Creek), Salmon River Parker Truss Bridge (Clayton vicinity), and Salmon River Pratt Truss Bridge at Bayhorse Creek.

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132 "Cavanagh, Dan J.," Index to Politicians, 2015. Available from http://politicalgraveyard.com/geo/ID/farmer.html

133 *The Times News* (Twin Falls, Idaho), March 29, 1971. The historic record is not consistent as to the timing of his arrival to Twin Falls, with some sources suggesting 1922 and others suggesting much earlier.

Helmer & Mull

Helmer & Mull was a partnership between contractor, Charles H. Helmer, and civil engineer, Charles H. Mull, and based in Twin Falls. The historic record indicates they primarily worked separately but partnered on several projects in the mid-1910s. Individually they worked through southern Idaho during the first half of the twentieth century. Among their shared projects were: highway road work on the Idaho Pacific Highway from Owsley's Ferry to Cassia County (1913); road and bridge work along 50 miles of the "east-west highway" across Twin Falls County (1914); and the twin bridges over the Low Line and High Line canals (Buhl vicinity).

Max J. Kuney Company

Founded in 1930, this firm is still in business today as Kuney Construction and still based out of Spokane, Washington. The company's website states they are "one of the longest tenured General Contractors in the Northwest."[134]

Prior to founding his own business, Max Kuney was in the partnership, Crick & Kuney as early as 1928, at which time they bid on road and bridge projects in northern Idaho, including locations in Bonner, Nez Perce, and Kootenai counties. In July 1928 they were awarded a $54,048 contract for work on 5.8 miles of the North-South highway in Kootenai County.

In 1930, Kuney created his own firm and was involved in transportation and infrastructure projects throughout the Northwest over the next several decades. The company reportedly completed public works projects for the U.S. Army Corps, Navy, and Departments of Transportation in Washington, Oregon, Idaho, Montana, and Alaska. Notable projects included involvement on the 1960s completion of Dworshak Dam near Orofino, Idaho, and Spokane's elevated freeway. Among the company's known road construction projects contracted through the State of Idaho are:

1935: 15.5 miles of road improvement (bitumous paving and rock shoulders) in Lewis and Nez Perce counties

1935: 16.5miles of road improvement in Idaho County

1936: OSL Parker Truss Overpass Bridge (Spencer vicinity)

1948: Road improvement in Benewah and Kootenai counties

1949: Road improvement on Hwy 10 in Shoshone County

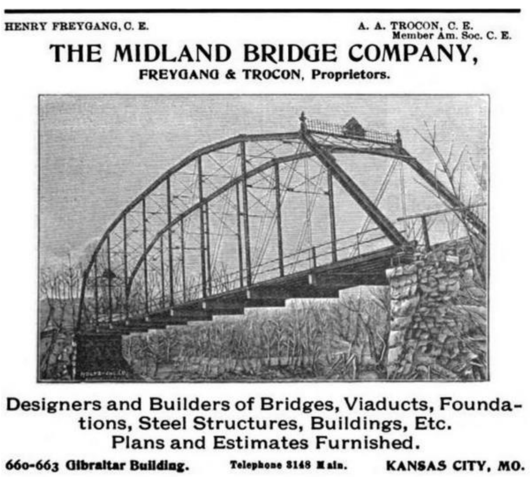
1950: Road construction/improvement along 8+ miles of US Hwy 95 in Latah County

A native of Oregon, Max Kuney (1894-1981) began his career as a surveyor in Portland in the 1910s. By 1917 he was working as an engineer for A.E. Comm in Salem, Oregon. He later worked as a railroad construction engineer in Newport, Oregon, around 1920. In the late 1920s he partnered with James T. Crick on road projects in the region, including Idaho. In 1930, Kuney formed his own company and was listed in the census and city directories for the next several decades as a road/railroad contractor or 'heavy construction' contractor. He passed away in 1981 in Alameda, California, and yet his name is still attached to the successful construction company in Spokane.

[134] "Company History," (Spokane, Washington: Max J. Kuney Company, no date). Available from http://maxkuney.com/about.

Midland Bridge Company

Albert Alexander Trocon (b. 1864), a native of Leavenworth, Kansas, worked his way up through the ranks at Missouri Valley Bridge & Iron Works in the 1880s and 1890s to become their chief engineer. Around 1900 he partnered with Henry Freygang, an 1880 mechanical engineering graduate of Stevens Institute of Technology (Hoboken, New Jersey), to form the Midland Bridge Company.[135] Polk's 1904 Kansas State Gazetteer and Business Directory listed the company as "consulting engineers, Designers and Builders of Bridges, Viaducts, Foundations, Steel Structures, Buildings, Etc."



Courtesy Polk's 1904 Business Gazetteer

The company remained in operation through at least the 1920s, during which time both Trocon and Freygang were members of the American Society of Engineers. The Kansas City, Missouri-based firm completed many notable projects including major river crossings along railroads and newly established highways, and fabrication of ocean ships and barges, as well as countless small projects throughout the West and Midwest.

Among the Eastern Idaho bridges known to be associated with Midland Bridge Company are the Bear River Warren Truss Bridge (Oneida Narrows Road).

Missouri Valley Bridge and Iron Company

The Missouri Valley Bridge and Iron Company, of Leavenworth, Kansas, was a prolific bridge builder from the late nineteenth century through the twentieth century. Formed in 1874 by Edwin I. Farnsworth and D.W. Eaves of Wrought Iron Bridge Company (Canton, Ohio), the Missouri Valley Bridge Company was their endeavor to manufacture and sell bridges locally rather than import them from eastern firms. Among their early contracts was the completion of a number of bridges along the Leavenworth, Topeka & Southwestern Railroad. By 1904, the company incorporated as the Missouri Valley Bridge and Iron Company and built everything from boats to bridges. The company completed bridge construction projects nationwide and in some parts of Mexico, while also manufacturing general iron work for jails and courthouses. Early twentieth century issues of *Engineering News* indicate Missouri Valley Bridge and Iron was a major contractor/fabricator of vehicular bridges in Kansas, Oklahoma, New Mexico, Louisiana, and other states in west, south, and southwest.[136]

Bear River Warren Truss Bridge (Riverdale Road, Preston vicinity), construction plaque, 2017

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[135] Sources vary, with some suggesting the firm was in existence by 1895 and other sources indicating it was not formed until closer to 1900.

[136] Larry Jochims, *Metal Truss Bridges in Kansas 1861-1939,* National Register of Historic Places Multiple Property Documentation Form (Topeka: Kansas State Historical Society, 1989), E3.

During World War I and into the 1940s, the company completed significant ship and floating dock projects, as well as deep underwater foundation projects. Among their most notable projects was the completion of the piers for the 1936 San Francisco Bay Bridge.

After World War II, as steel bridges became more obsolete, the company's bridge division was phased out. In the late 1970s, the company was liquidated and reorganized into the more generic Missouri Valley Fabricators.[137].

Known examples of their work in Idaho include the 1911 8th Street Bridge in Boise and the c.1931: Bear River Warren Truss Bridge (Riverdale Road, Preston vicinity).

Omaha Structural Steel Works

Originally founded by John W. Towle and Fred K. Smith in 1906 as Omaha Steel Works, this company (also known as Omaha Structural Steel Bridge Company), fabricated steel stock for bridges, buildings, railroad infrastructure, and automobiles. They produced the steel for the Nebraska State Capitol building and produced artillery shells and landing craft tanks during World War II. The company transitioned into various subsidiaries and changed its name to Omsteel Industries in the 1960s. It is still in operation today as Omaha Steel with headquarters in Wahoo, Nebraska.

Little Wood River Warren Truss Bridge (North Birch Street, Shoshone), construction plaque, 2017

Among the Eastern Idaho bridges known to be associated with Omaha Structural Steel are the Little Wood River Warren Truss Bridge (North Birch Street, Shoshone).

Perham and Harris

Active from around 1905 through around 1920, the partnership of H.W. Perham and A.D. Harris was responsible for the construction of numerous resources in southeastern Idaho and neighboring states during a period of remarkable growth in the region. Based in St. Anthony,[138] the partnership completed various bridges, buildings, and infrastructure projects throughout southeastern Idaho, Montana, and Wyoming during the first decades of the twentieth century. In 1923, both Perham and Harris were still living and working in St. Anthony as bridge builders, but by this time the city directory no longer lists the partnership as extant. By 1930 Harris had left Idaho, while Perham continued bidding on projects in the region, either on his own or with a partner by the surname of Coffin.

Hugh Worth Perham (1862-1951), a native of Oregon, came to St. Anthony between 1900 and 1907 from Butte, Montana, where he had worked as a contractor. Census records from 1910 through 1930 show him living in St. Anthony and working as a bridge and building contractor. ITD minute books from the 1910s through early 1930s show he bid upon and was awarded projects submitted either on his own, or in the partnerships of Perham & Harris or Perham & Coffin. According to the Ashton, Idaho, centennial history, "Hugh Perham built many of the first buildings" and was "possibly" the first builder in town.

[137] "Missouri Valley Bridge and Iron Company Records," Kansas State Historical Society Collections Summary. Available from www.kshs.org/archives/40167. Accessed May 8, 2018.

[138] The MPDF *Metal Truss Highway Bridges of Idaho* states Perham and Harris were of Rexburg but no other source corroborated this information.

Austin D. Harris (1873-1960), a native of Ohio, came to St. Anthony between 1900 and 1907. In 1910 he was living as a lodger in H.W. Perham's house in St. Anthony, at which time his occupation was listed as 'bridge contractor.' He worked in partnership with H.W. Perham, as well as on his own, until the mid-to-late 1920s when he moved back to Munroe Falls, Ohio, where he worked as a general contractor and remained until his death in 1960.

Among the Idaho projects known to have been awarded and/or attributed to Perham and Harris are:

c.1900 Vernon School, Fremont County[139]

1907: Henry's Fork Pratt Truss Bridge (Chester vicinity)

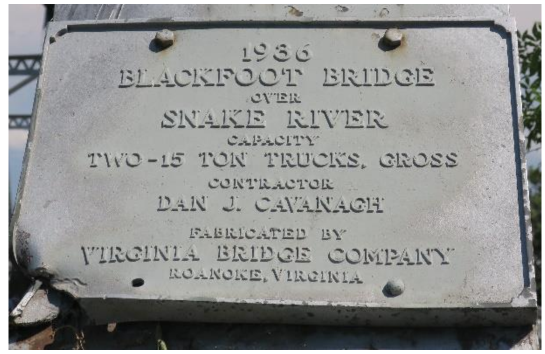
1909: Fremont County Courthouse (designed by Wayland and Fennel; NRHP listed)

1920: Multiple unspecified bridges on the Yellowstone Highway in Jefferson County

1920: A concrete dam at the "source of the outlet to Henry's lake" for irrigation purposes; contract amount $34,000

Virginia Bridge Company

Established in 1888 as American Bridge Works, the company was reorganized as Virginia Bridge and Iron Company in 1895. Manufacturing iron and steel products, as well as fabricating trusses for delivery nationwide, the company grew to become the largest of bridge manufacturer in the South. In addition to bridge components, they produced steel rail cars, tanks, power houses, and stadiums.[140] During the early twentieth century the company expanded to include branch operations in Charlotte, North Carolina, Atlanta, Georgia, and Memphis, Tennessee, New York, New York, and Los Angeles, California.



West Bridge Street Bridge (Blackfoot), construction plaque, 2017

By the early 1930s, the company was the third largest steel fabricating company nationwide. In 1936, the Tennessee Coal, Iron and Railroad Company of Birmingham, Alabama, (a subsidiary of U.S. Steel Corporation), acquired Virginia Bridge and Iron Company and reorganized the Roanoke operations as the Virginia Bridge Company. During World War II, the company shifted to the manufacture of products for the war effort (e.g. ships, barges, dry docks, portable military bridges). Acquisition by American Steel Company and subsequent labor disputes contributed to the company's closing in the mid-twentieth century.

Though the majority of bridges associated with Virginia Bridge Company were constructed east of the Mississippi, the company was also considerably active in the West, with extant examples in California, Oregon, Washington, and Idaho. Known examples of their work in Idaho include the 1926 Oldtown Bridge in Bonner County (nonextant)[141] and the 1936 West Bridge Street Bridge in Blackfoot.

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[139] A secondary source states the building was built in 1900 by Perham and Harris, however neither man was living in Idaho yet, so this attribution is unconfirmed. *Ashton, Idaho: The Centennial History, 1906-2006.*

[140] Kirsten Peeler and Kathryn Kuranda, "Fort Belvoir Railroad Bridge (Facility No. 1433)," Historic American Engineering Record, HAER No. VA-141, (R. Christopher Goodwin & Associates, 2012), 16.

[141] The Old Town Bridge was replaced in 1988, at which time it was documented into the HAER. http://bridgehunter.com/id/bonner/oldtown/

STEEL MANUFACTURES

Carnegie Steel Company

Carnegie Steel Marking
(Henry's Fork Pratt Truss Bridge (aka Fun Farm Bridge))

Originally founded in 1874 as the Thompson Steel Works in Braddock, Pennsylvania, Carnegie Steel Company later reorganized as Carnegie Steel in 1892 with headquarters in Pittsburgh. Known for the persistent drive to lower costs, Andrew Carnegie's steel company often undersold the competition, making stock steel affordable to a fast-developing nation. Considered one of, if not the, most productive steel operations in the world, Carnegie Steel became a model in the industry. In 1901, J.P. Morgan bought Carnegie Steel as one of U.S. Steel's subsidiaries after which it kept the Carnegie name until 1936, when it was renamed Carnegie-Illinois Steel Company. Among the Eastern Idaho bridges made from Carnegie stock steel are the Henry's Fork Pratt Truss Bridge (aka Fun Farm Bridge).

Illinois Steel

Illinois Steel formed in 1889 from a consolidation of several existing, smaller steel companies in Illinois and Wisconsin that had been founded in the 1850s through 1870s. With controlling interests in railways, coal mines, iron mines, and limestone mines throughout the Midwest and Mid-Atlantic regions, the company grew to become one of the largest steel manufacturers nationwide. Various mergers at the turn of the twentieth century resulted in its consolidation into the newly formed Federal Steel Company and then U.S. Steel, the process of which included such prominent players as J.P. Morgan and Andrew Carnegie.

Illinois Steel Marking
(Salmon River Warren Truss Bridge (Rattlesnake Creek)

Among the Eastern Idaho bridges known to have Illinois Steel stock parts are the OSL Parker Truss Overpass (Spencer vicinity), West Whitman Street Warren Truss Bridge (Pocatello), Bear River Warren Truss Bridge (Oneida Narrows Road), Owsley Bridge (Hagerman vicinity), and Salmon River Warren Truss Bridge at Rattlesnake Creek (Salmon vicinity).

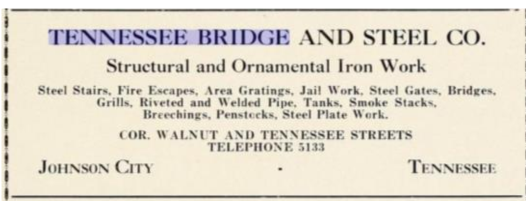
Cambria Iron Works

Cambria Iron Works Marking
(Little Wood River Warren Truss Bridge (E. 3rd St.)

Originally founded in the mid-nineteenth century in Pennsylvania, it became one of the largest steel manufacturers nationwide before it was eventually absorbed by Bethlehem Steel in 1923.

Among the bridges known to have Cambria Iron Works stock steel are the Camas Creek Truss Leg Bedstead (Fairfield vicinity), Salmon River Parker Truss Bridge (Clayton vicinity), Salmon River Pratt Truss Bridge at Bayhorse Creek, and Little Wood River Warren Truss Bridge (East 3rd Street, Shoshone),

Tennessee Bridge & Steel


TENNESSEE BRIDGE AND STEEL CO.

Structural and Ornamental Iron Work

Steel Stairs, Fire Escapes, Area Gratings, Jail Work, Steel Gates, Bridges, Grills, Riveted and Welded Pipe, Tanks, Smoke Stacks, Breechings, Penstocks, Steel Plate Work.

COR. WALNUT AND TENNESSEE STREETS
TELEPHONE 5133

JOHNSON CITY · TENNESSEE

1928 advertisement, *The Buffalo,* Milligan College, TN

Founded in 1926 as the structural steel division of the Johnson City Foundry and Machine works, Tennessee Bridge and Steel operated until at least the mid-1960s.[142] Based in Johnson City, Tennessee, the company was primarily active east of the Mississippi. The company is known to have fabricated the stock steel for at least one Eastern Idaho bridge – the West Bridge Street Bridge (Blackfoot).

Tennessee Steel Marking
(W. Bridge Street Bridge, Blackfoot)

Lackawanna Steel

Lackawanna Steel Marking
(Little Wood River Warren Truss Bridge (Bellevue vicin.)

Founded in 1840 by George and Seldon Scranton, in Scranton, Pennsylvania, the Lackawanna Steel Company grew to become the second largest steel manufacturer in the world. The headquarters moved to an area on the outskirts of Buffalo, New York, in 1902, resulting in the founding of the town of Lackawanna, New York. The company was absorbed into Bethlehem Steel in 1922, after which time steel stock had letters in relief that read, "BSC Lackawanna" or "B.S.Co. Lackawanna."

Among the bridges known to have Lackawanna Steel stock parts are the Camas Creek Pratt Truss Bridge (Fairfield vicinity), Big Wood River Warren Truss Bridge (Gooding vicinity), Blue Lake Bridge (Twin Falls), Little Wood River Warren Truss Bridge (North Birch Street, Shoshone), and Little Wood River Warren Truss Bridge (Bellevue vicinity).

[142] *The Buffalo,* (Elizabethton, Tennessee: Milligan College, 1928,) 132; and "Johnson City Foundry Supplied Steel for Kingsport Industries," *Kingsport Times-News* (Kingsport, Tennessee), September 25, 1949, 60.

Inland Steel

Formed in 1893 from bankrupt and liquidated Chicago Steel Works, Inland Steel operated near Lake Michigan in the Indiana suburbs of Chicago. The company experienced major growth in the first years of the twentieth century, and continued successfully through the Great Depression, with only a single year (1932) showing a loss. Despite a variety of downturns and upswings over the decades, Inland Steel remained strong until the late twentieth century, at which time it was finally absorbed into Ispat International in 1998.

Inland Steel Marking
(Bear River Warren Truss Bridge (Riverdale Road)

Among the bridges known to have Inland Steel stock parts are the Camas Creek Pratt Truss Bridge (Fairfield vicinity), Bear River Warren Truss Bridge (Riverdale Road), and Lemhi River Warren Truss Bridge (Salmon vicinity),

CONCLUSION

Eastern Idaho's historic steel bridges communicate some of the earliest and ongoing patterns of transportation and development in the region. These structures represent effective responses to the need for all-weather crossings of rivers, streams, canyons, and canals that corresponded to the growth of the market economy across Eastern Idaho during the late nineteenth century and through the mid-to-late twentieth century. Bridges providing reliable access to markets could make the difference between growth and stagnation for the region's many small, fledgling communities.

Once very common and now increasingly rare, historic steel bridges illustrate trends in settlement, technological advancements, and solutions to geographic obstacles. Often meeting National Register of Historic Places criteria for significance – typically under Criterion A for Transportation and/or Criterion C for Engineering – historic steel bridge documentation and eligibility assessment is warranted not only to facilitate compliance with federal preservation regulations affecting their management, but also as a means of recording key underlying themes in Eastern Idaho history.

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NRHP Evaluation Criteria

The physical characteristics and historic significance of a resource provide the basis for evaluating NRHP eligibility. A property or district must be associated with an important historic context and meet a combination of the criteria outlined below. Opinions of potential eligibility should be approved by the Idaho SHPO prior to proceeding with nomination to the National Register of Historic Places.

Age Requirements

To allow sufficient time to gain historical perspective, the National Register of Historic Places uses a minimum age guideline of fifty years before a resource is considered eligible. However, it should be noted that it also allows for the evaluation of resources that have achieved significance in the past fifty (50) years if they are of exceptional importance.

Significance Requirements

In addition to integrity, properties listed in the NRHP must meet certain criteria of historic significance. Historic significance is the importance of a property to the history, architecture, archaeology, engineering, or culture of a community, a state, or the nation. To be listed, properties must have significance in at least one of the following areas:

Criterion A: Association with events, activities, or broad patterns of history.

Criterion B: Association with the lives of persons significant in our past.

Criterion C: Embody distinctive characteristics of construction, or represent the work of a master, or possess high artistic values; or represent a significant and distinguishable entity whose components may lack individual distinction.

Criterion D: Have yielded, or be likely to yield information important in prehistory or history.

Integrity Requirements

A property's level of integrity — the degree to which it retains its physical and historic character-defining features and is able to communicate its significance — is a key factor in determining whether it may be eligible for NRHP listing. The National Register of Historic Places defines seven physical aspects of integrity against which a property or district must be evaluated:

- Location
- Design
- Setting
- Materials
- Workmanship
- Feeling
- Association

To maintain integrity, a property must possess at least several of these aspects, enough so that the essential physical features that enable it to convey its historic significance remain intact. Determining which aspects are important to integrity requires knowledge of why, when, and where the property is significant. For additional information about the National Register of Historic Places, visit http://www.nps.gov/nr/.

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: West Whitman Street Warren Truss Bridge
FIELD#: 05-005178
STREET: W. Whitman Street, between Grant and Hayes
RESTRICT: ☐
CITY: Pocatello
VICINITY: ☐
COUNTY CD: 5
COUNTY NAME: Bannock
SUBNAME:
BLOCK:
SUBLOT:
ACRES: 1
LESS THAN: ☑
TAX PARCEL:
UTMZ: 12
EASTING: 381421
NORTHING: 4746039
TOWNSHIP: 6
N_S: S
RANGE: 34
E_W: E
SECTION: 35
SE ¼, ¼ NW ¼
QUADRANGLE: Pocatello South
OTHERMAP:
SANBORN MAP: Pocatello 1948
SANBORN MAP#: 17
PHOTO#: Digital

PROPERTY TYPE: Structure
CONST/ACT1: Original Construction
ACTDATE1: 1924
CIRCA1: ☑
CONST/ACT2:
ACTDATE2:
CIRCA2: ☐
ASSOCIATED FEATURES:
TOTAL # FEATURES:
ORIGINAL USE: Transportation
ORIGSUBUSE: Road-related
CURRENT USE: Vacant/Not in Use
CURSUBUSE:
WALL MATERIAL:
FOUND. MATERIAL: CONCRETE
ROOF MATERIAL:
OTHER MATERIAL: METAL:Steel
ARCHSTYLE: Other:Warren Pony Truss
PLAN: Rectangular
CONDITION: Poor

NR REF #:
NPS CERT:
ACTIONDATE:
FUTURE ELIG DATE:
DIST/MPLNAME1: Metal Truss Highway Bridges of Idaho
DIST/MPLNAME2:

Individually Eligible ☑
Contributing in a potential district ☐
Noncontributing ☐
Future eligibility ☐
Not Eligible ☐
Multiple Property Study ☑
Not evaluated ☐

CRITERIA: A ☑ B ☐ C ☑ D ☐
CRITERIA CONSIDERATION: A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G ☐
AREA OF SIGNIF: Transportation
AREA OF SIGNIF: Engineering

COMMENTS: The 1921 Sanborn indicates a "wooden bridge" at this location. The 1948 Sanborn indicates a "steel bridge" at this location. This abbreviated IHSI documentation is provided merely as supplemental documentation. The bridge has been abandoned and is closed to all vehicular and pedestrian traffic. Though the deck is deteriorated, field survey verified this bridge retains all seven aspects of integrity and is individually eligible per the statewide MPDF registration requirements for Metal Truss Highway

PROJ/RPT TITLE: Steel Bridges of Eastern Idaho Survey (ITD Key No. 12479 - Mitigation)
SVY DATE: 7/8/17
SVY LEVEL: Reconnaissance
RECORDED BY: Kerry Davis, PSLLC
PH: 816-225-5605
ADDRESS: 1007 E. Jefferson Street, Boise, ID 83712
SUBMITTED PHOTOS ☑ NEGS ☐ SLIDES ☐ SKETCH MAP ☑

SVY RPT #:
******** FOR ISHPO USE ONLY ********
IHSI#: 05-005178
MS RPT #:
SITS#:
IHPR #:
HABS NO. ID-:
HAER NO. ID-:
REV#:

CS #:
IHSI# REF:
NR REF# 2:
REV# REF:
SVY RPT# 1:
SVY RPT# 2:
SVY RPT# 3:
MS RPT# 1:
MS RPT# 2:
ADD'L NOTES: District 5. Last surveyed 1982. Though ITD records indicate no Key#, it appears to have had an ITD structure name in 1982 of X991030 and a milepost reference of 200.17
MORE DATA ☑
ATTACH ☑

REV#
SITS#
IHSI#

OF PHOTOS:
NEGBOX#:
OF SLIDES:
SHPO DETER:
DETER DATE:
INITIALED:
ENTRY DATE:
REVISE1:
REVISE2:
REVISE3:

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: West Whitman Street Warren Truss Bridge
IHSI#: 05-005178
FIELD#: 05-005178
COUNTY NAME: Bannock

OTHER NAME: No ITD Key#
COUNTY CD: 5
CITY: Pocatello
VICINITY: ☐
UTM REF2:
UTM REF3:
UTM REF4:

OTHER MATERIAL2: ASPHALT
CULTAFFIL:
AGENCYCERT: Local
SIGNIFDATE:
SIGNIFPERIOD:
SIGNIFPERSON:
ARCH/BUILD:
ARCHPLANS: ☐
TAXEASE: ☐
TAXCERT: ☐
OWNERSHIP: Public-Local
PROPOWN: City of Pocatello
MORE DATA: ☑
ATTACH: ☑

DOCSOURCE: ITD records; SHPO records; USGS Quads; Sanborn maps

ADD'L NOTES: District 5. Last surveyed 1982. Though ITD records indicate no Key#, it appears to have had an ITD structure name in 1982 of X991030 and a milepost reference of 200.17

COMMENTS: The 1921 Sanborn indicates a "wooden bridge" at this location. The 1948 Sanborn indicates a "steel bridge" at this location. This abbreviated IHSI documentation is provided merely as supplemental documentation. The bridge has been abandoned and is closed to all vehicular and pedestrian traffic. Though the deck is deteriorated, field survey verified this bridge retains all seven aspects of integrity and is individually eligible per the statewide MPDF registration requirements for Metal Truss Highway Bridges of Idaho.

PHOTO LOG: ☐
IHSI# REF:
INITIALED:
DATEENTERED:

SKETCH: ☑

IHSI# ________

SITS# ________

REV# ________

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: West Whitman Street Warren Truss Bridge

IHSI#: 05-005178

FIELD#: 05-005178

COUNTY NAME: Bannock

COMMENTS:

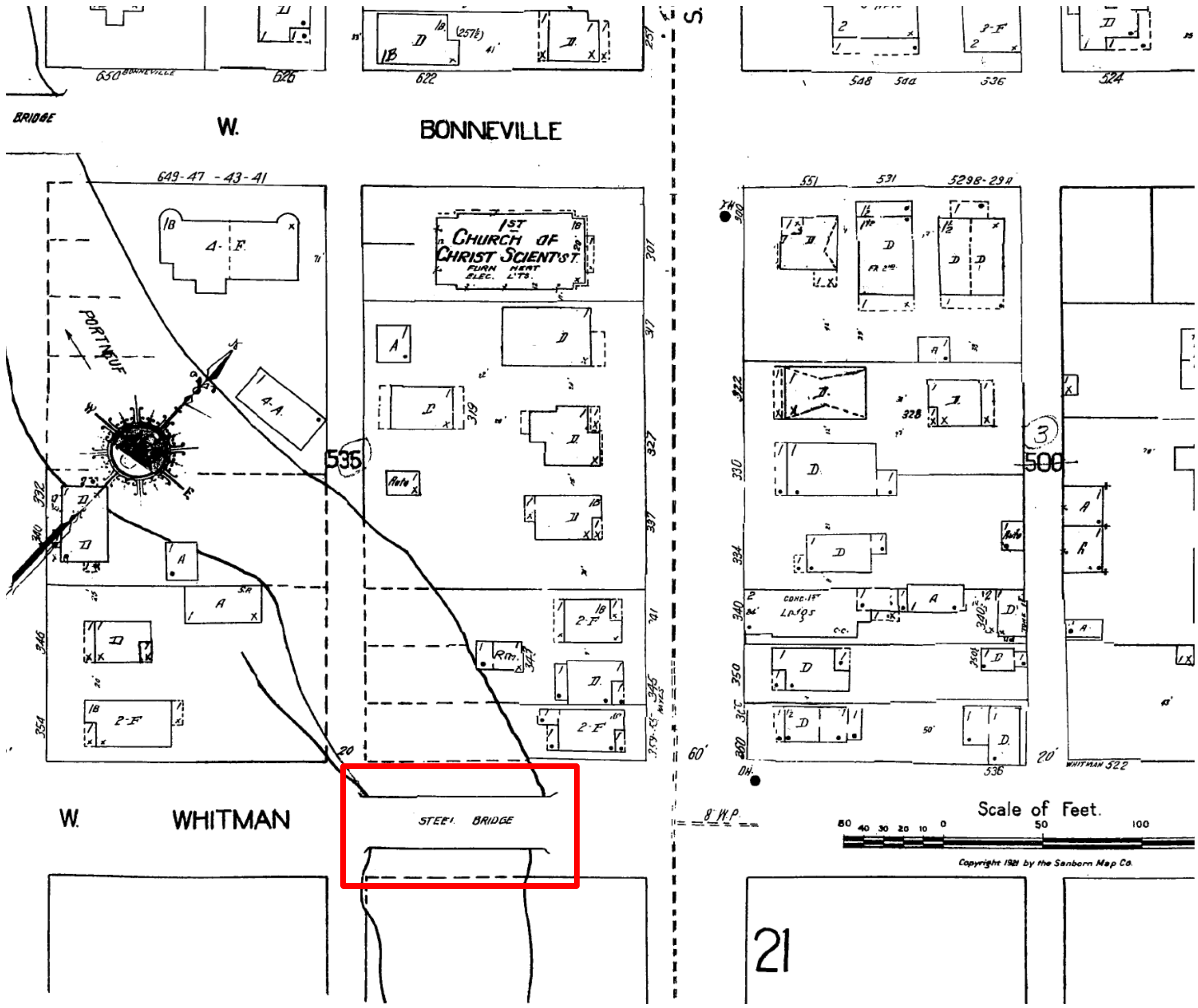
The 1921 Sanborn indicates a "wooden bridge" at this location. The 1948 Sanborn indicates a "steel bridge" at this location. This abbreviated IHSI documentation is provided merely as supplemental documentation. The bridge has been abandoned and is closed to all vehicular and pedestrian traffic. Though the deck is deteriorated, field survey verified this bridge retains all seven aspects of integrity and is individually eligible per the statewide MPDF registration requirements for Metal Truss Highway Bridges of Idaho.

ATTACH ☑

IHSI# ________

SITS# ________

REV# ________



Sanborn Fire Insurance Map of Pocatello, 1948

05-005178 (ITD Key #No ITD Key#), July 2017
View SW

05-005178 (ITD Key #No ITD Key#), July 2017
View E

05-005178 (ITD Key #No ITD Key#), July 2017
View N-NW

05-005178 (ITD Key #No ITD Key#), July 2017
View NW

05-005178 (ITD Key #No ITD Key#), July 2017
View SW

05-005178 (ITD Key #No ITD Key#), July 2017
View of steel manufacturer's mark – "ILLINOIS – S – USA"

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Fall River Pratt Deck Truss Bridge
FIELD#: 10FM287
STREET: (Old) Reclamation Road; 0.8 S, 4.7E of Ashton
RESTRICT: ☐
CITY: Ashton
VICINITY: ☑
COUNTY CD: 43
COUNTY NAME: Fremont
SUBNAME:
BLOCK:
SUBLOT:
ACRES: 1
LESS THAN: ☑
TAX PARCEL: RP09N43E356153
UTMZ: 12
EASTING: 471821
NORTHING: 4878572
TOWNSHIP: 9
N_S: N
RANGE: 43
E_W: E
SECTION: 35
SW ¼, ¼ SW ¼
QUADRANGLE: Warm River
OTHERMAP:
SANBORN MAP:
SANBORN MAP#:
PHOTO#: Digital

PROPERTY TYPE: Structure
CONST/ACT1: Original Construction
ACTDATE1: 1920
CIRCA1: ☑
CONST/ACT2:
ACTDATE2:
CIRCA2: ☐
ASSOCIATED FEATURES: bridge
TOTAL # FEATURES: 1
ORIGINAL USE: Transportation
WALL MATERIAL:
ORIGSUBUSE: Road-related
FOUND. MATERIAL:
CURRENT USE: Agriculture/Subsistence
ROOF MATERIAL:
CURSUBUSE: Irrigation facility
OTHER MATERIAL: METAL:Steel
ARCHSTYLE: Other:Pratt Deck Truss
PLAN: Rectangular
CONDITION: Poor

NR REF #:
NPS CERT:
ACTIONDATE:
FUTURE ELIG DATE:
DIST/MPLNAME1: Metal Truss Highway Bridges of Idaho
DIST/MPLNAME2:

Individually Eligible ☑ | Contributing in a potential district ☐ | Noncontributing ☐ | Future eligibility ☐
Not Eligible ☐ | Multiple Property Study ☑ | Not evaluated ☐

CRITERIA: A ☑ B ☐ C ☑ D ☐
CRITERIA CONSIDERATION: A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G ☐
AREA OF SIGNIF: Transportation
AREA OF SIGNIF: Engineering

COMMENTS: See continuation sheets for elaborated description, history, significance, and eligibility.
PROJ/RPT TITLE: Steel Bridges of Eastern Idaho Survey (ITD Key No. 12479 - Mitigation)
SVY DATE: 7/9/17
SVY LEVEL: Intensive
RECORDED BY: Kerry Davis, PSLLC
PH: 816-225-5605
ADDRESS: 1007 E. Jefferson Street, Boise, ID 83712
SUBMITTED PHOTOS ☑ NEGS ☐ SLIDES ☐ SKETCH MAP ☑

SVY RPT #:
******** FOR ISHPO USE ONLY ********
IHSI#: 10FM287
MS RPT #:
SITS#:
IHPR #:
HABS NO. ID-:
HAER NO. ID-:
REV#:
CS #:
IHSI# REF:
NR REF# 2:
REV# REF:
SVY RPT# 1:
SVY RPT# 2:
SVY RPT# 3:
MS RPT# 1:
MS RPT# 2:
ADD'L NOTES: District 6. Last surveyed 1987.
MORE DATA: ☑
ATTACH: ☑
OF PHOTOS:
NEGBOX#:
OF SLIDES:
SHPO DETER:
DETER DATE:
INITIALED:
ENTRY DATE:
REVISE1:
REVISE2:
REVISE3:

REV#
SITS#
IHSI#

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Fall River Pratt Deck Truss Bridge
IHSI#: 10FM287
FIELD#: 10FM287
COUNTY NAME: Fremont

OTHER NAME: Kirkham Bridge; No ITD Key#; SHPO ASI# 10FM287
COUNTY CD: 43
CITY: Ashton
VICINITY: ☑
UTM REF2:
UTM REF3:
UTM REF4:

OTHER MATERIAL2: WOOD
CULTAFFIL:
AGENCYCERT: Local
SIGNIFDATE:
SIGNIFPERIOD:
SIGNIFPERSON:
ARCH/BUILD:
ARCHPLANS: ☐
TAXEASE: ☐
TAXCERT: ☐
OWNERSHIP: Private
PROPOWN: BURT GAROLD H TRUST, M/T SNYDER, KATHY 5115 LEESBURG PL, CHUBBUCK, ID 83202
MORE DATA: ☑
ATTACH: ☑

DOCSOURCE: SHPO records; USGS Quads; Metsker Maps; historic aerials; BLM GLO

ADD'L NOTES: District 6. Last surveyed 1987.

COMMENTS: See continuation sheets for elaborated description, history, significance, and eligibility.

PHOTO LOG: ☐
IHSI# REF:
INITIALED:
DATEENTERED:

SKETCH: ☑

IHSI# ______
SITS# ______
REV# ______

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Fall River Pratt Deck Truss Bridge

IHSI#: 10FM287

FIELD#: 10FM287

COUNTY NAME: Fremont

COMMENTS:

See continuation sheets for elaborated description, history, significance, and eligibility.

ATTACH ☑

IHSI# __________

SITS# __________

REV# __________

DESCRIPTION

LOCATION and SETTING

The Fall River Pratt Deck Truss Bridge is located 0.8 miles south and 4.7 miles east of the town of Ashton in southeast Idaho, in the southwest quarter of Section 35, Township 9N, Range 43E. The region is characterized by irrigated farmland. The Fall River Pratt Deck Truss Bridge carries old Reclamation Road across the Fall River, a large, rocky, tributary of the Snake River. The dirt-gravel roadway, flanked by fenced pasture and cultivated fields on each side, aligns in an S-curve with the single-lane Fall River Pratt Deck Truss Bridge; the roadway has been abandoned and is overgrown on the south side of the bridge. The bridge is barred to traffic by a large boulder at the north end of the deck. According to the Fremont County Assessor, this bridge stands on a 153-acre privately owned parcel. The Farmers Own Canal (43-16350) runs parallel to the Fall River adjacent to the northwest end of the bridge.

TRUSS TYPE

The Fall River Pratt Deck Truss Bridge is a single-span, riveted deck truss bridge measuring about 200 feet in length and approximately 18 feet in width. The rocky outcropping of the canyon walls forms natural abutments, and the bottom node of the vertical and inclined end posts rests directly on a seat within the rock.

The vertical end posts rise from the bottom chords to meet the horizontal top chords to form an overall rectangular shape in elevation. The top chords and inclined end posts consist of two channels, a cover plate, and lacing bars; the bottom chords consist of two angles with stay plates. The web members include vertical posts forming 8 equivalent panels. The vertical posts are composed of two channels with lacing bars. Diagonal members are formed with two angles and stay plates.

The timber deck is about 18 feet wide with no curbs. The sub-deck is comprised of a layer of ~3”-x-12” planks laid flat over large timber stringers below. A central, raised wearing surface consisting of ~3”-x-12” planks laid lengthwise distinguishes the vehicular travel path. The deck rises approximately 30 feet above the river bed on timber stringers. Large, steel floor I-beams are at the top of each vertical post. Lateral bracing crosses within each panel between the two bottom chords, as well as between each vertical post.

Full-length guardrails span the length of each side of the deck, comprised of parallel upper and lower angle stock rails with lacing bars in an X-pattern between. Triangular sway braces outside every other vertical guardrail and atop each floor beam post provide lateral support. No plaques or stock steel markings were identified; the ruinous condition of the deck prevented the safe possibility of more thorough inspection.

INTEGRITY

The Fall River Pratt Deck Truss Bridge is an excellent example of this bridge type, a rare example of a Pratt Truss executed in deck form in Idaho. Though the deck is in ruin, the Fall River Pratt Deck Truss Bridge retains a good degree of integrity, with no apparent nonhistoric alterations to the original design or materials. The original workmanship, setting, and feeling of the structure are also readily apparent. Furthermore, the potential for preservation of the bridge structure is high. Closed to traffic, it is unlikely that traffic requirements will necessitate alteration or replacement.

This structure possesses the following aspects of integrity: location, setting, design, materials, workmanship, feeling, and association. It retains sufficient integrity to be National Register of Historic Places (NRHP)-eligible individually.

Location: This structure has not been moved, and thus retains integrity of location.

Setting: The historic rural setting is intact.

Design: Integrity of design is intact, visible primarily by means of the original steel truss members assembled and executed in the Pratt deck truss design.

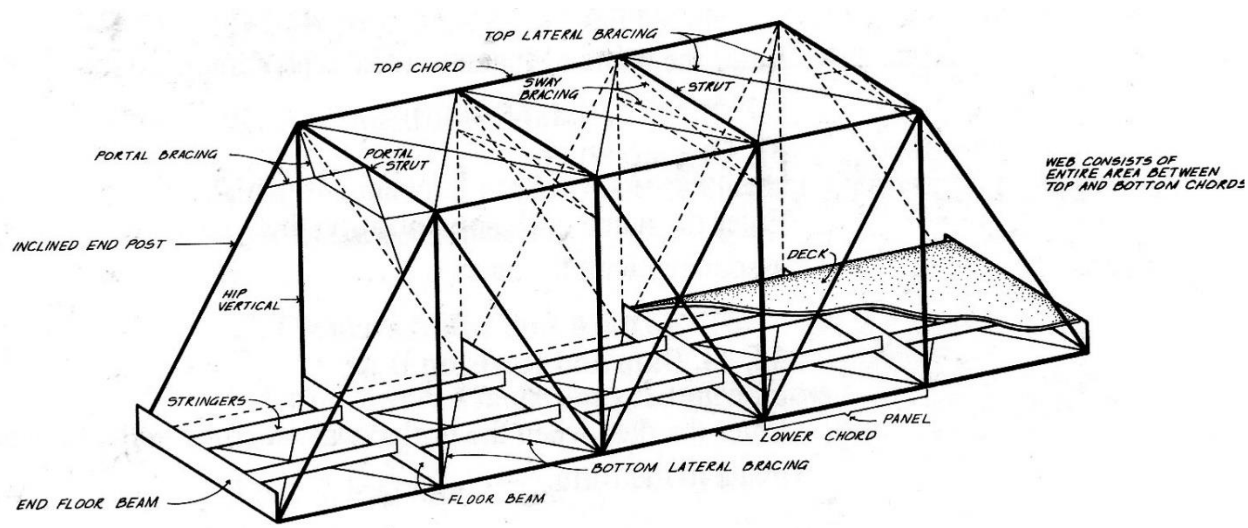
Materials: The property retains its integrity of materials, particularly by means of the original steel structural members and deck.

Workmanship: Elements of workmanship are evident.

Feeling: The property's integrity of feeling is apparent through its retention of integrity of setting, design, materials, and workmanship, which combined, clearly convey a sense of past time and place.

Association: The association between this structure with the surrounding river and rural area is present.

Bridge-Specific Terminology Diagram[1]



Courtesy Historic American Engineering Record

[1] This diagram is included for the reader's reference as to bridge-specific terminology used in the description above. It should not be misinterpreted as an illustration of the Fall River Pratt Deck Truss Bridge.

STATEMENT OF SIGNIFICANCE

The Fall River Pratt Deck Truss Bridge is significant under National Register Criterion A in the area of Transportation and Criterion C in the area of Engineering. As defined by the Multiple Property Documentation Form for *Metal Truss Highway Bridges of Idaho,* it is an excellent example of the Pratt deck truss bridge type yet executed in the rare deck form. Built around 1920, the Fall River Pratt Deck Truss Bridge is an example of an uncommon bridge solution for a relatively long span. Its riveted construction illustrates the standardization of this construction technique and materials during the period of significance.[2] Previous reconnaissance-level survey in 1987 assigned the name Kirkham Bridge to this structure; aside from a 1939 map showing a nearby property owner by the last name of Kirkham, no other corroborating sources have substantiated the appropriateness of this name. As such, using NRHP guidelines of resource naming, the preferred name "Fall River Pratt Deck Truss Bridge has been assigned. This describes and identifies the location, design, and function of the structure.[3]

ELIGIBILITY

The Fall River Pratt Deck Truss Bridge is individually eligible for listing in the National Register of Historic Places under Criteria A and C. This structure is associated with significant trends in local history (Criterion A) and it retains sufficient integrity to communicate its historic engineering associations (Criterion C). At the same time, it is not known to be associated with a person significant in history and it has little potential to yield data in the future, and is thus not eligible under Criteria B or D.

ELABORATION

The need for all-weather crossings of rivers and streams corresponded to the growth of the market economy across Idaho during the late nineteenth and early twentieth centuries. Bridge crossings like the Fall River Pratt Deck Truss Bridge provided farmers easy access to markets and could make the difference between growth and stagnation for the many small, young communities across the state.

By 1910, 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.

Advancements in pneumatic riveting techniques by this time greatly improved rivet installation quality, enabling more reliable panel point connections than earlier pin-connected trusses. With the increased portability of this construction technology, the more rigid, riveted technique rapidly surpassed pin-connected bridge construction during the first years of the twentieth century. The riveted construction of the Fall River Pratt Deck Truss Bridge illustrates the standardization of this technique.

The Fall River Pratt Deck Truss Bridge is a relatively uncommon deck format (which carries its traffic load level with the top chords) example of this truss design. Patented in 1844, the Pratt truss incorporates vertical members in compression and diagonal members in tension, a design that reduces the required

---

[2] Development of the immediate local area's history and development sufficient to establish and justify an accurate period of significance was outside the scope of this project. For the purposes of this project, as a placeholder the period of significance is given as beginning in c.1920, the date of construction of the bridge, and ending in 1968, the 'fifty-year cut-off' established by the National Park Service as representing the span of time generally necessary to have passed before significance can be established.

[3] It should be noted that some sources (e.g. some USGS quadrangle maps) refer to the river as the Falls River, while others call it the Fall River.

length of compression members, helping to prevent bending or buckling. The Pratt truss became the most common bridge type of the late nineteenth and early twentieth centuries and spawned numerous variations including Parker, Camelback, Baltimore, Truss Leg Bedstead, Lenticular, and Pennsylvania trusses.

In Idaho, Pratt trusses were constructed well into the early twentieth century, suggesting the ongoing appeal of the design. A 1982 survey of steel truss bridges statewide identified seventy-seven Pratt truss bridges as in existence throughout Idaho at the time, which did not include the Fall River Pratt Deck Truss Bridge.

STRUCTURE HISTORY

The riveted construction and development history of the area suggest a construction date of circa 1920. With no stock steel markings identified, no maker's plaque, and no ITD records readily available, research provided only circumstantial information on this bridge.[4] Previous survey named this bridge Kirkham Bridge; the only primary source indirectly corroborating this is the 1940 Metsker map which shows a nearby landowner by the name of Johanna Kirkham. (Interestingly, the name Kirkham is stencil painted on the one of the concrete guardrail barriers of the nearby 1969 Fall River Steel Rigid Frame Bridge (Temp. No. ITD-21105).)

With the 1969 construction of the Fall River Steel Rigid Frame Bridge nearby (Temp. No. ITD-21105), Reclamation Road was realigned and the Fall River Pratt Deck Truss Bridge abandoned. Survey in 1987 indicated the bridge only served to carry pedestrian traffic and irrigation pipe. Around 1989 the nearby hydroelectric plant was introduced. This bridge is not on the ITD system and thus no inspection reports or drawings are available for this structure.

Ashton-Marysville Vicinity

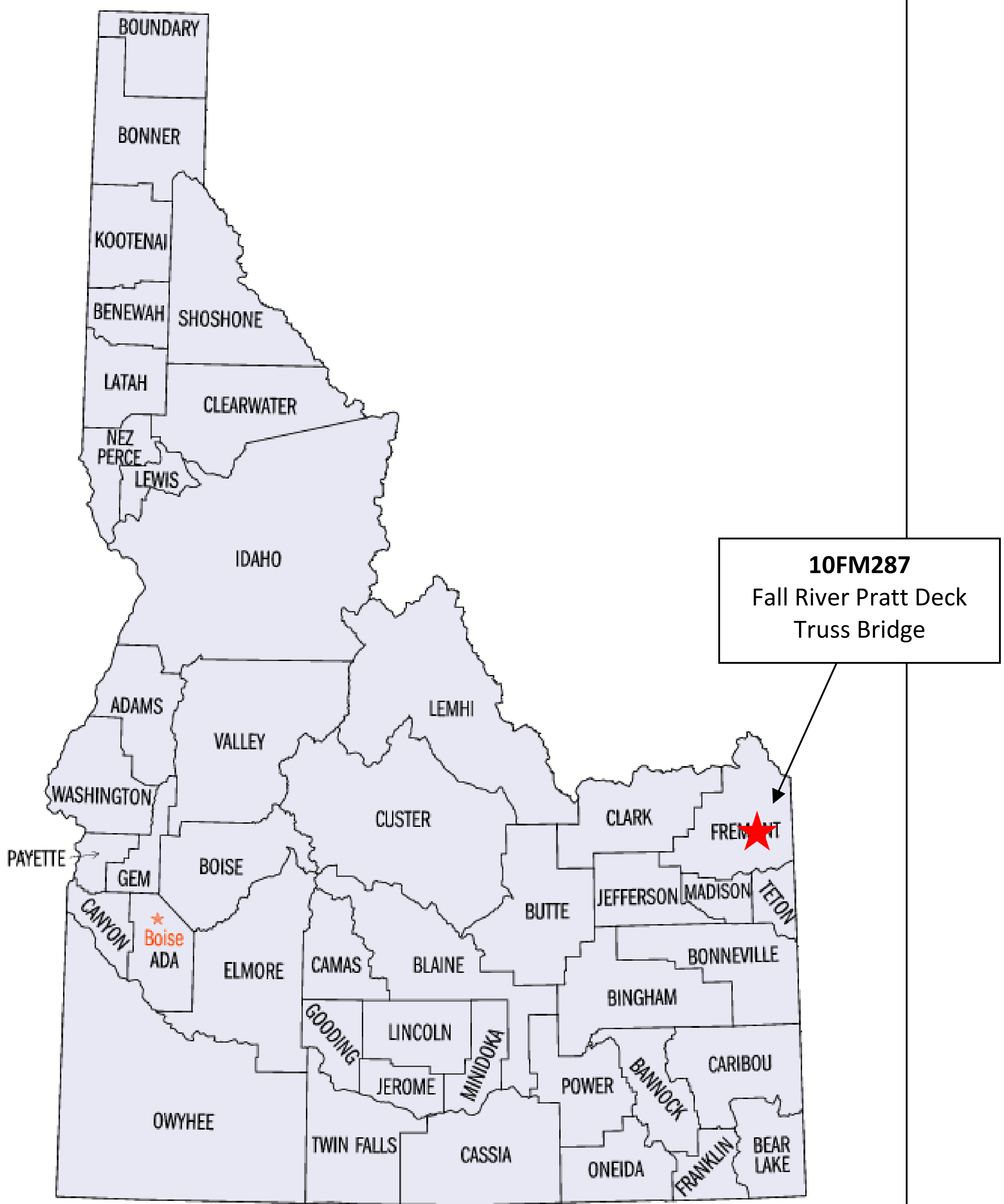
After passage of the Carey Act in 1893, the promise of large-scale irrigation of the area drew settlers and sufficient settlement took place to warrant creation of Fremont County from Bingham County. Among the reclamation projects in the area was the Farmers Own Canal (43-16350), started in 1896 and completed in 1902.

By 1899 the railroad had reached St. Anthony from Idaho Falls and by 1900, Fremont County's population was one of the top three most populous counties statewide with 12,821 residents. With the Yellowstone Park Railway's 1906 completion of a railroad from St. Anthony to West Yellowstone, Wyoming, a railroad station was introduced at Ashton and the village soon served as a trading and shipping point for the growing surrounding agricultural community and continues to do so today. Bridges like Fall River Pratt Deck Truss Bridge that provided area farmers with access over the Fall River and to local markets like Ashton were critical to the survival of the regional economy.

As transportation and irrigation projects came to the area, by 1910 Fremont County's population almost doubled to 24,606. After this boom, the population stabilized and has remained between about 8,700 and 10,900 since 1920. By 1925, two long-distance auto routes passed through Ashton – the Utah-Idaho Yellowstone Highway (#3) and the Banff-Grand Canyon Road (#5) – the alignments of which were

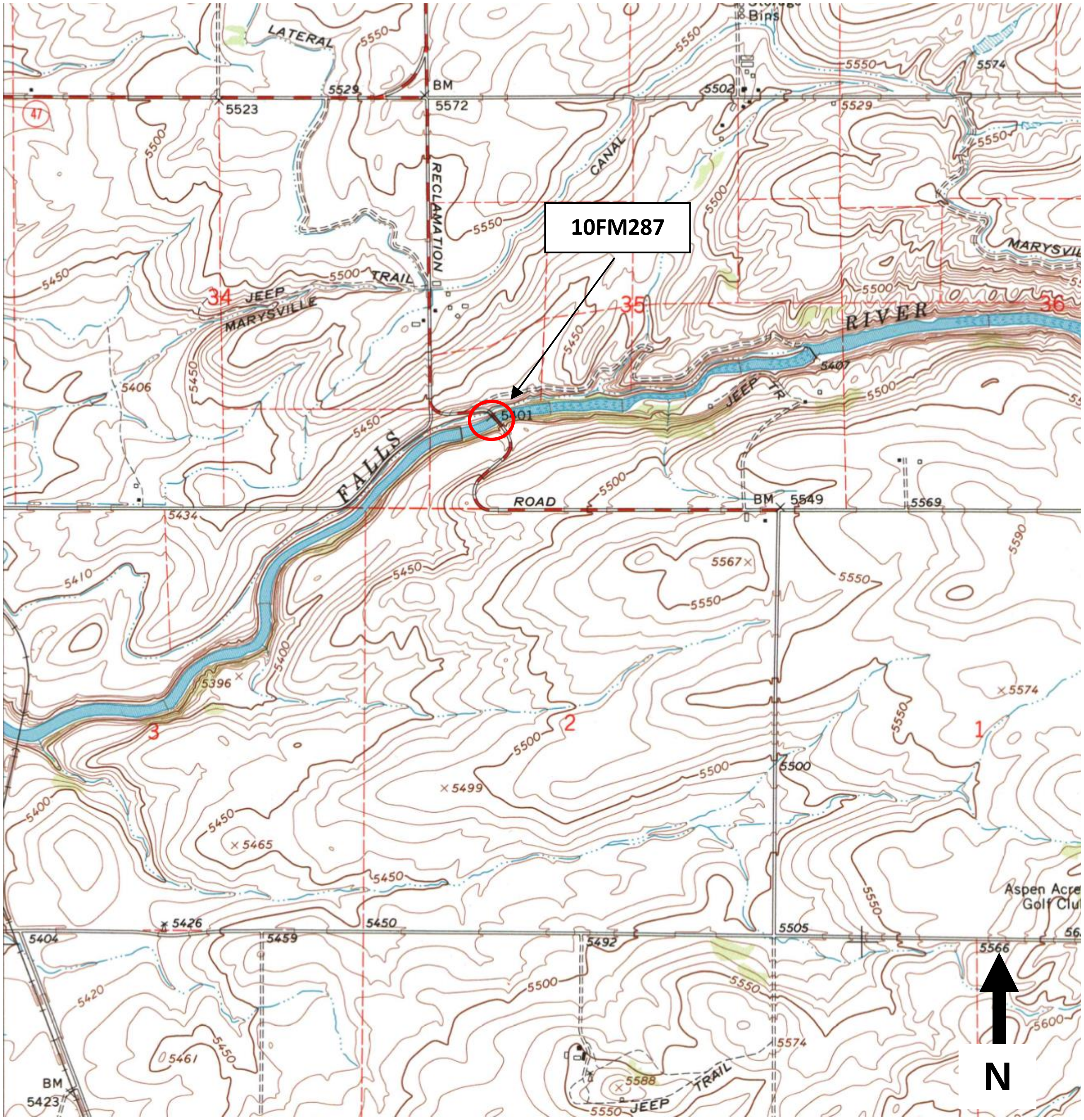
[4] Review of ITD online archives indicated bridge and roadwork in the Ashton vicinity, but no records were identified that provided sufficient locational information to accurately associate specifically with this bridge. Though outside the scope of this project, future recommended additional research would include investigation of county commission minute books from the period, if available.

graded/improved and yet, unpaved. At the time, Ashton boasted 1,022 residents. Indications of settlement in the immediate vicinity of the Fall River Pratt Deck Truss Bridge are shown on the 1940 Metsker map, which shows a school less than a mile north of the bridge and a church about 1.5 miles east, both indications of sufficient settlement to warrant these institutions.

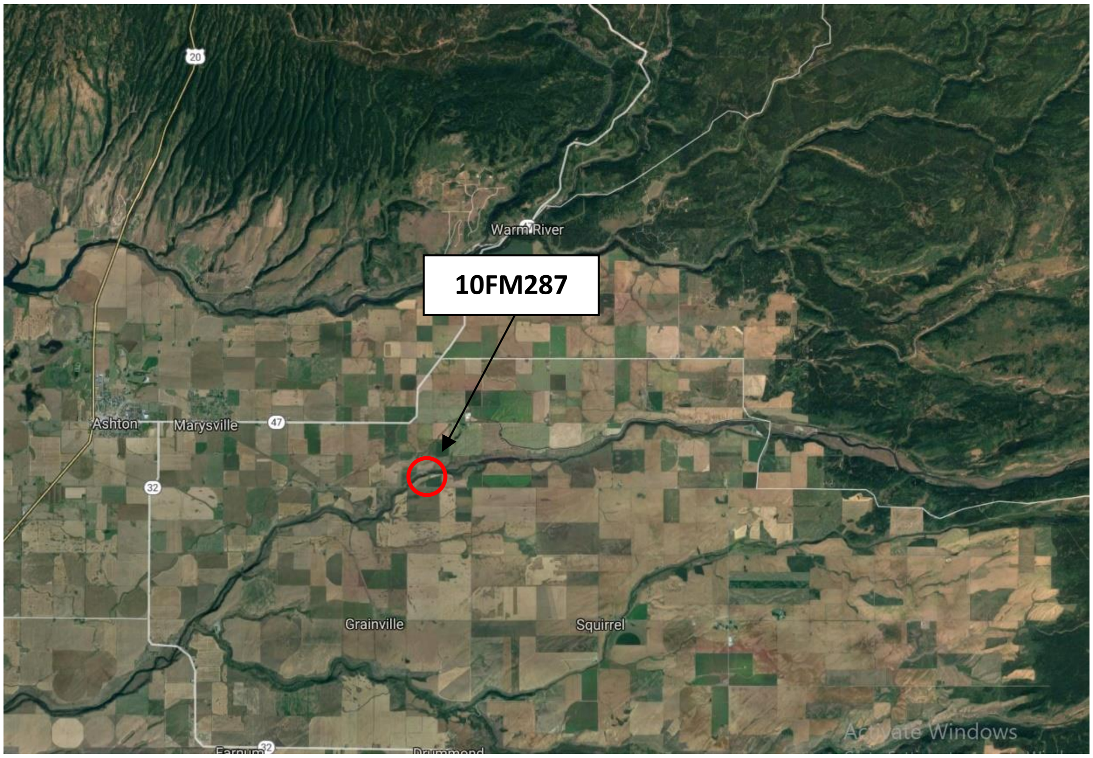


Idaho Counties

Map courtesy of http://www.censusfinder.com/mapid.htm



USGS, WARM RIVER QUADRANGLE, 1965, 7.5' Series
T9N R43E Section 35 – FREMONT COUNTY, IDAHO



Aerial View of Vicinity
Courtesy Google Earth, Imagery 2018

10FM287, July 2017
View E-SE

10FM287, July 2017
View SE

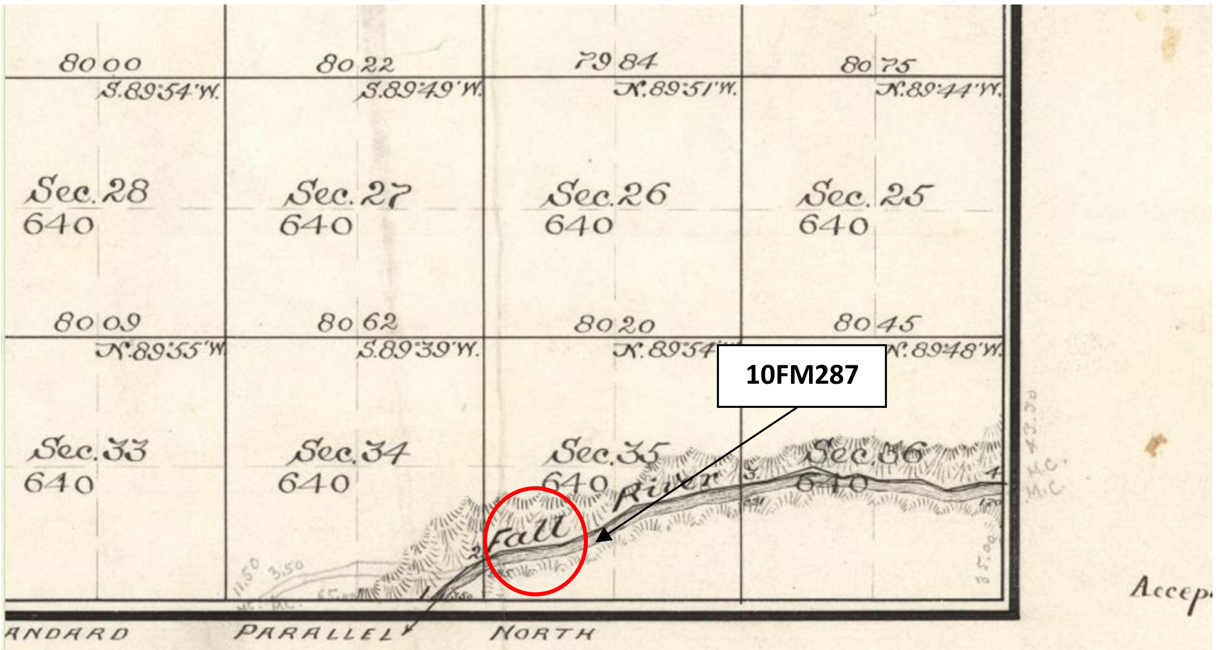
10FM287, July 2017
View NE

10FM287, July 2017
View SE

10FM287, July 2017
View SE

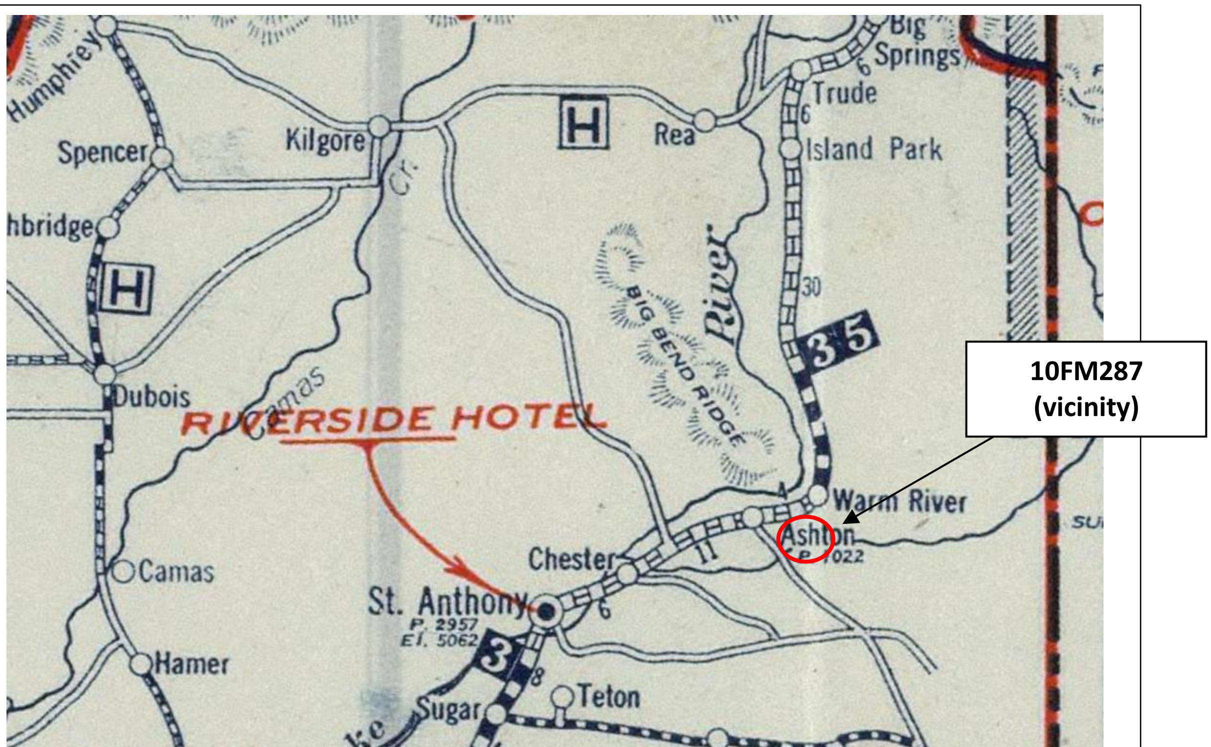
10FM287, July 2017
View SE

10FM287, July 2017
View SE

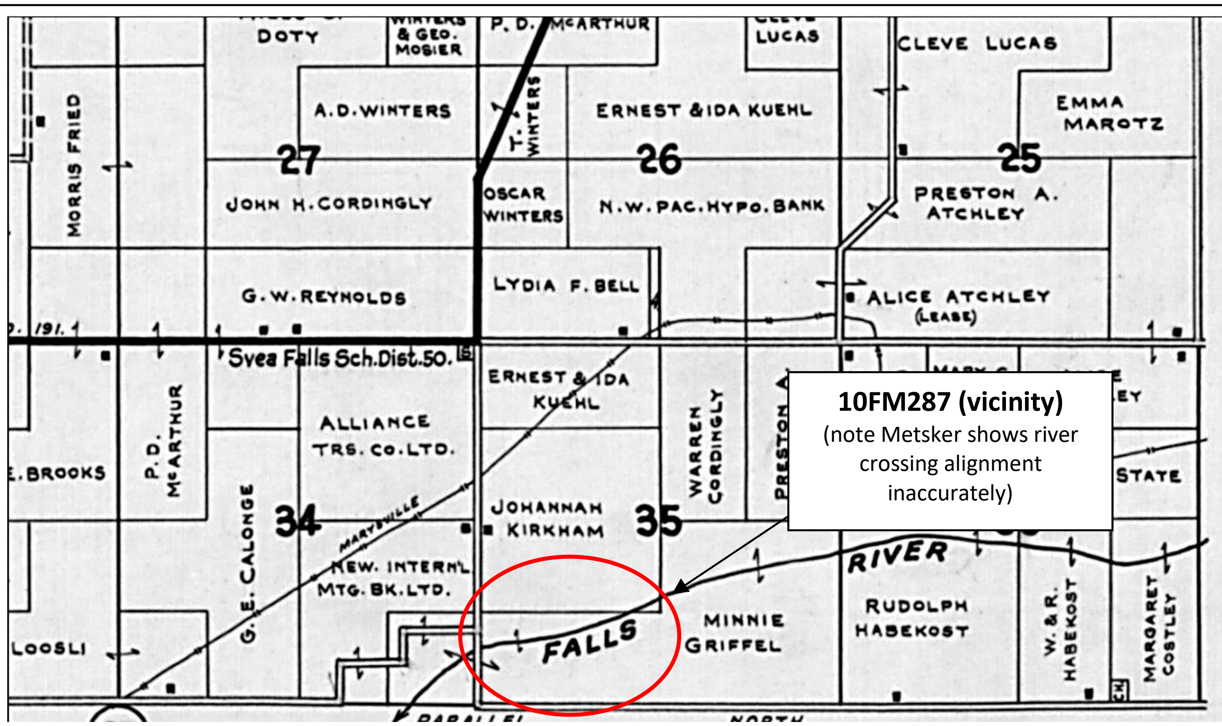


Original 1883 Subdivisional Survey, 1883, detail
Courtesy glorecords.blm.gov

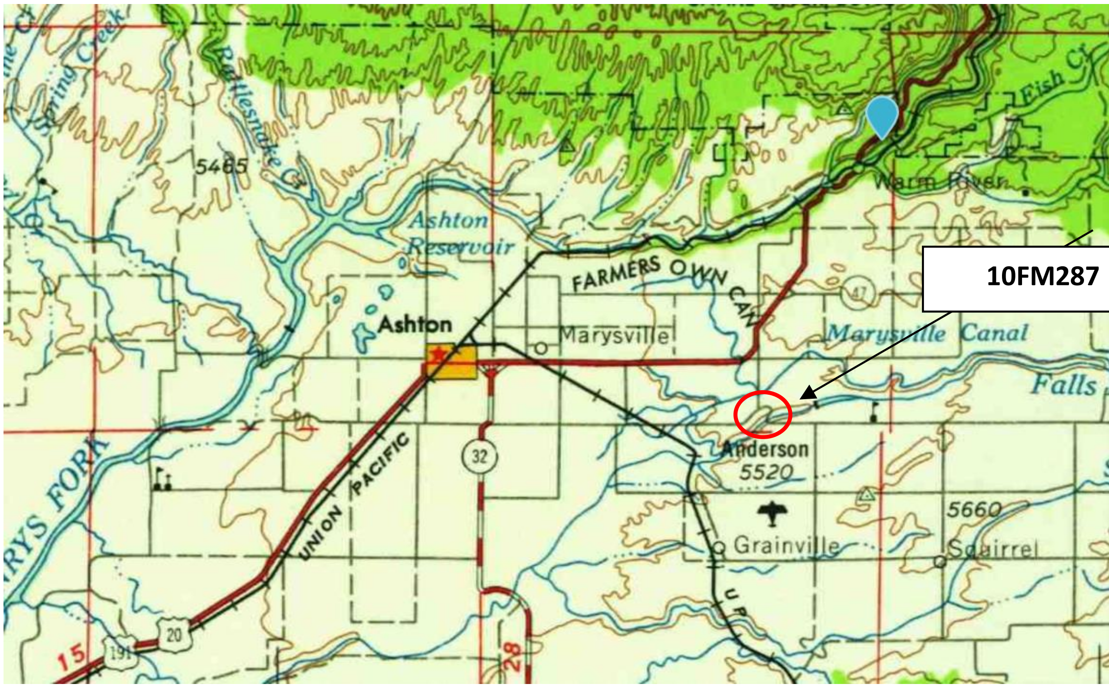
Rand McNally & Co.'s Pocket Map of Idaho, 1909
Note: red shading indicates land irrigated under Carey Act reclamation projects
Courtesy David Rumsey Map Collection online, www.davidrumsey.com



1925 Rand McNally Auto Trails Map Idaho-Montana-Wyoming, detail
Courtesy David Rumsey Map Collection online



Metsker's Atlas of Fremont County, 1940
Courtesy HistoricMapWorks.com



USGS Ashton 1:125,000 Quadrangle, 1958
Courtesy USGS.gov

Aerial view, 1963
Courtesy HistoricAerials.com

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: West Bridge Street Bridge
FIELD#: 11-005190
STREET: W. Bridge St. (aka W. Collins Rd., aka SMA 7611) over Snake River
RESTRICT: ☐
CITY: Blackfoot
VICINITY: ☐
COUNTY CD: 11
COUNTY NAME: Bingham
SUBNAME:
BLOCK:
SUBLOT:
ACRES: 1
LESS THAN: ☑
TAX PARCEL:
UTMZ: 12
EASTING: 388693
NORTHING: 4783682
TOWNSHIP: 2
N_S: S
RANGE: 35
E_W: E
SECTION: 33
SE ¼, ¼ SW ¼
QUADRANGLE: Blackfoot
OTHERMAP:
SANBORN MAP:
SANBORN MAP#:
PHOTO#: Digital

PROPERTY TYPE: Structure
CONST/ACT1: Original Construction
ACTDATE1: 1936
CIRCA1: ☑
CONST/ACT2: Alteration
ACTDATE2: 2011
CIRCA2: ☐
ASSOCIATED FEATURES: bridge
TOTAL # FEATURES: 1
ORIGINAL USE: Transportation
WALL MATERIAL:
ORIGSUBUSE: Road-related
FOUND. MATERIAL: CONCRETE
CURRENT USE: Transportation
ROOF MATERIAL:
CURSUBUSE: Road-related
OTHER MATERIAL: METAL:Steel
ARCHSTYLE: Other:Warren Through Truss, Polygonal Top Ch
PLAN: Rectangular
CONDITION: Excellent

NR REF #:
NPS CERT:
ACTIONDATE:
FUTURE ELIG DATE:
DIST/MPLNAME1: Metal Truss Highway Bridges of Idaho
DIST/MPLNAME2:

Individually Eligible ☑
Contributing in a potential district ☐
Noncontributing ☐
Future eligibility ☐
Not Eligible ☐
Multiple Property Study ☑
Not evaluated ☐

CRITERIA: A ☑ B ☐ C ☑ D ☐
CRITERIA CONSIDERATION: A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G ☐
AREA OF SIGNIF: Transportation
AREA OF SIGNIF: Engineering

COMMENTS: This abbreviated IHSI documentation is provided merely as supplemental documentation. The bridge's west approach span was replaced in 2010-2011. Field survey verified this bridge retains all seven aspects of integrity and is individually eligible per the statewide MPDF registration requirements for Metal Truss Highway Bridges of Idaho.

PROJ/RPT TITLE: Steel Bridges of Eastern Idaho Survey (ITD Key No. 12479 - Mitigation)
SVY DATE: 7/10/17
SVY LEVEL: Reconnaissance
RECORDED BY: Kerry Davis, PSLLC
PH: 816-225-5605
ADDRESS: 1007 E. Jefferson Street, Boise, ID 83712
SUBMITTED PHOTOS ☑ NEGS ☐ SLIDES ☐ SKETCH MAP ☑

SVY RPT #:
******** FOR ISHPO USE ONLY ********
IHSI#: 11-005190
MS RPT #:
SITS#:
IHPR #:
HABS NO. ID-:
HAER NO. ID-:
REV#:
CS #:
IHSI# REF:
NR REF# 2:
REV# REF:
SVY RPT# 1:
SVY RPT# 2:
SVY RPT# 3:
MS RPT# 1:
MS RPT# 2:
ADD'L NOTES: District 5. Last surveyed 2005. ITD Milepost reference: 000.611
MORE DATA ☑
ATTACH ☑
OF PHOTOS:
NEGBOX#:
OF SLIDES:
SHPO DETER:
DETER DATE:
INITIALED:
ENTRY DATE:
REVISE1:
REVISE2:
REVISE3:

REV# ____
SITS# ____
IHSI# ____

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: West Bridge Street Bridge
IHSI#: 11-005190
FIELD#: 11-005190
COUNTY NAME: Bingham

OTHER NAME: ITD Key#23120; ITD Structure Name 97611A 0.64
COUNTY CD: 11
CITY: Blackfoot
VICINITY: ☐
UTM REF2:
UTM REF3:
UTM REF4:

OTHER MATERIAL2: ASPHALT
CULTAFFIL:
AGENCYCERT: Local
SIGNIFDATE:
SIGNIFPERIOD:
SIGNIFPERSON:
ARCH/BUILD: Cavanagh, D.J.; Virginia Bridge Co.
ARCHPLANS: ☐
TAXEASE: ☐
TAXCERT: ☐
OWNERSHIP: Public-Local
PROPOWN: City of Blackfoot
MORE DATA: ☑
ATTACH: ☑

DOCSOURCE: ITD records; SHPO records; USGS Quads

ADD'L NOTES: District 5. Last surveyed 2005. ITD Milepost reference: 000.611

COMMENTS: This abbreviated IHSI documentation is provided merely as supplemental documentation. The bridge's west approach span was replaced in 2010-2011. Field survey verified this bridge retains all seven aspects of integrity and is individually eligible per the statewide MPDF registration requirements for Metal Truss Highway Bridges of Idaho.

PHOTO LOG: ☐
IHSI# REF:
INITIALED:
DATEENTERED:

SKETCH: ☑

IHSI# ____
SITS# ____
REV# ____

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME	West Bridge Street Bridge	IHSI#	11-005190
FIELD#	11-005190	COUNTY NAME	Bingham

COMMENTS:

This abbreviated IHSI documentation is provided merely as supplemental documentation. The bridge's west approach span was replaced in 2010-2011. Field survey verified this bridge retains all seven aspects of integrity and is individually eligible per the statewide MPDF registration requirements for Metal Truss Highway Bridges of Idaho.

ATTACH ☑

IHSI# ____________

SITS# ____________

REV# ____________

11-005190 (ITD Key #23120), July 2017
View NW

11-005190 (ITD Key #23120), July 2017
View N

11-005190 (ITD Key #23120), July 2017
View E

11-005190 (ITD Key #23120), July 2017
View NW of integrated sidewalk

11-005190 (ITD Key #23120), July 2017
View SE of plaque on NW inclined end post

11-005190 (ITD Key #23120), July 2017
View E-NE of typical stock steel marking

11-005190 (ITD Key #23120), July 2017
View S-SE from NW abutment

11-005190 (ITD Key #23120), July 2017
View NW of NW abutment

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Camas Creek Truss Leg Bedstead Bridge
FIELD#: 25-005156
STREET: 200 South Road at Camas Creek; 1.9 S 6.8 E of Fairfield
RESTRICT: ☐
CITY: Fairfield
VICINITY: ☑
COUNTY CD: 25
COUNTY NAME: Camas
SUBNAME:
BLOCK:
SUBLOT:
ACRES: 1
LESS THAN: ☑
TAX PARCEL:
UTMZ: 11
EASTING: 689976
NORTHING: 4798355
TOWNSHIP: 1
N_S: S
RANGE: 15
E_W: E
SECTION: 22 SE ¼, ¼ SE ¼
QUADRANGLE: Spring Creek Resevoir
OTHERMAP:
SANBORN MAP:
SANBORN MAP#:
PHOTO#: Digital

PROPERTY TYPE: Structure
CONST/ACT1: Original Construction
ACTDATE1: 1915
CIRCA1: ☑
CONST/ACT2: Alteration
ACTDATE2: 1950
CIRCA2: ☑
ASSOCIATED FEATURES: bridge
TOTAL # FEATURES: 1
ORIGINAL USE: Transportation
WALL MATERIAL:
ORIGSUBUSE: Road-related
FOUND. MATERIAL: CONCRETE
CURRENT USE: Transportation
ROOF MATERIAL:
CURSUBUSE: Road-related
OTHER MATERIAL: METAL:Steel
ARCHSTYLE: Other:Truss Leg Bedstead Pony Truss
PLAN: Rectangular
CONDITION: Good

NR REF #:
NPS CERT:
ACTIONDATE:
FUTURE ELIG DATE:
DIST/MPLNAME1: Metal Truss Highway Bridges of Idaho
DIST/MPLNAME2:

Individually Eligible ☑ Contributing in a potential district ☐ Noncontributing ☐ Future eligibility ☐
Not Eligible ☐ Multiple Property Study ☑ Not evaluated ☐

CRITERIA: A ☑ B ☐ C ☑ D ☐
CRITERIA CONSIDERATION: A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G ☐
AREA OF SIGNIF: Transportation
AREA OF SIGNIF: Engineering

COMMENTS: See continuation sheets for elaborated description, history, significance, and eligibility.

PROJ/RPT TITLE: Steel Bridges of Eastern Idaho Survey (ITD Key No. 12479 - Mitigation)
SVY DATE: 5/20/17
SVY LEVEL: Intensive
RECORDED BY: Kerry Davis, PSLLC
PH: 816-225-5605
ADDRESS: 1007 E. Jefferson Street, Boise, ID 83712
SUBMITTED PHOTOS ☑ NEGS ☐ SLIDES ☐ SKETCH MAP ☑

SVY RPT #:
MS RPT #:
IHPR #:

******** FOR ISHPO USE ONLY ********

IHSI#: 25-005156
SITS#:
REV#:
HABS NO. ID-:
HAER NO. ID-:

CS #:
IHSI# REF:
NR REF# 2:
REV# REF:
SVY RPT# 1:
SVY RPT# 2:
SVY RPT# 3:
MS RPT# 1:
MS RPT# 2:

ADD'L NOTES: District 4. Last surveyed 1982. ITD Milepost reference: 100.055
MORE DATA ☑
ATTACH ☑

OF PHOTOS:
NEGBOX#:
OF SLIDES:
SHPO DETER:
DETER DATE:
INITIALED:
ENTRY DATE:
REVISE1:
REVISE2:
REVISE3:

REV#
SITS#
IHSI#

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Camas Creek Truss Leg Bedstead Bridge
IHSI#: 25-005156
FIELD#: 25-005156
COUNTY NAME: Camas

OTHER NAME: ITD Key #23800; ITD Structure Name X992130 0.06
COUNTY CD: 25
CITY: Fairfield
VICINITY: ☑
UTM REF2:
UTM REF3:
UTM REF4:

OTHER MATERIAL2: WOOD
CULTAFFIL:
AGENCYCERT: Local
SIGNIFDATE:
SIGNIFPERIOD:
SIGNIFPERSON:
ARCH/BUILD:
ARCHPLANS: ☐
TAXEASE: ☐
TAXCERT: ☐
OWNERSHIP: Public-Local
PROPOWN: Camas County
MORE DATA: ☑
ATTACH: ☑

DOCSOURCE: ITD records; SHPO records; USGS Quads

ADD'L NOTES: District 4. Last surveyed 1982. ITD Milepost reference: 100.055

COMMENTS: See continuation sheets for elaborated description, history, significance, and eligibility.

PHOTO LOG ☐ IHSI# REF
INITIALED
DATEENTERED

SKETCH ☑

IHSI# ____
SITS# ____
REV# ____

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Camas Creek Truss Leg Bedstead Bridge

IHSI#: 25-005156

FIELD#: 25-005156

COUNTY NAME: Camas

COMMENTS:

See continuation sheets for elaborated description, history, significance, and eligibility.

ATTACH ☑

IHSI# ____

SITS# ____

REV# ____

DESCRIPTION

LOCATION and SETTING

The Camas Creek Truss Leg Bedstead Bridge is located 1.9 miles south and 6.8 miles east of the town of Fairfield in east-central Idaho, at the southeast edge of Section 22, Township 1S, Range 15E. The region is defined by irrigated flat bottom lands with lava fields and steep mountains beyond. The Camas Creek Truss Leg Bedstead Bridge carries 200 South Road (aka Bahr Ranch Road) over Camas Creek. The sand and gravel roadway aligns in a distinct northwest-southeast angle between section-line roads to the creek crossing carried by the single-lane Camas Creek Truss Leg Bedstead Bridge.

TRUSS TYPE

The Camas Creek Truss Leg Bedstead Bridge is comprised of a pin-connected pony truss measuring about 60 feet in length with a flat girder approach span on each end. The approach spans each measure about 26.5’ in length. The deck is 16 feet wide. A combination of dry laid stone, natural stone outcropping, poured concrete abutment seat, and timbers form the abutments supporting the outer ends of each approach span. Historic, poured concrete pier walls, each with a slightly battered profile, support the center of each approach span. Concrete-filled cylindrical sheet metal pedestals support the truss bearings (submerged during high water). Two 8-inch pipe columns dating to c.1950 provide vertical support under the center of the truss (both embedded in an at-grade rectangular poured concrete pad) and four 8-inch pipe columns (two on each side of the bridge) provide angled bracing at each vertical end posts.

The vertical end posts rise from the poured concrete foundation pads and meet the horizontal top chords to form an overall rectangular shape in elevation. The top chords and end posts consist of two channels and a cover plate with stay plates on the underside; the bottom chords consist of paired flat eye bars.

The web members consist of vertical posts forming four equivalent panels and diagonal ties that intersect within the two central panels. Butting angle stock and stay plates form the vertical posts. Paired flat eye bars and tension rods compose the diagonal ties.

The deck dates to late 2016 or early 2017 and is comprised of corrugated metal laid below a sand and gravel wear surface. The deck is about 16 feet wide with no curbs and rises approximately 15 feet above the creek bed on 3”-x-12” timber stringers. Steel floor I-beams are at the base of each vertical post, with tension rods lateral bracing between. Letters in relief read “CAMBRIA” on several structural components.

INTEGRITY

The Camas Creek Truss Leg Bedstead Bridge is an excellent example of this bridge type, historically rare in Idaho. The Camas Creek Truss Leg Bedstead Bridge retains a good degree of integrity, with the original truss design intact. Alterations are limited to typical modifications made to early twentieth century steel truss bridges having undergone over a century of wear and tear (i.e. new deck, added bracing, abutment repair).[1] The original workmanship, setting, and feeling of the structure are also readily apparent. Located on a lightly traveled rural road, it is unlikely that traffic requirements will necessitate alteration or replacement.

This structure possesses the following aspects of integrity: location, setting, design, materials, workmanship, feeling, and association. It retains sufficient integrity to be NRHP eligible individually.

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[1] Previous survey in 1982 assessed this bridge as ineligible due to the c.1950 introduction of the 8-inch pipe bracing. Due to the rarity of this bridge type in Idaho, the reversibility of bracing that didn’t cause the loss of any historic material, and the retention of all aspects of integrity, current survey reassesses this structure as individually eligible.

Location: This structure has not been moved, and thus retains integrity of location.

Setting: The historic rural setting is intact.

Design: Integrity of design is intact, visible primarily by means of the original steel truss members assembled and executed in the Truss Leg Bedstead design.

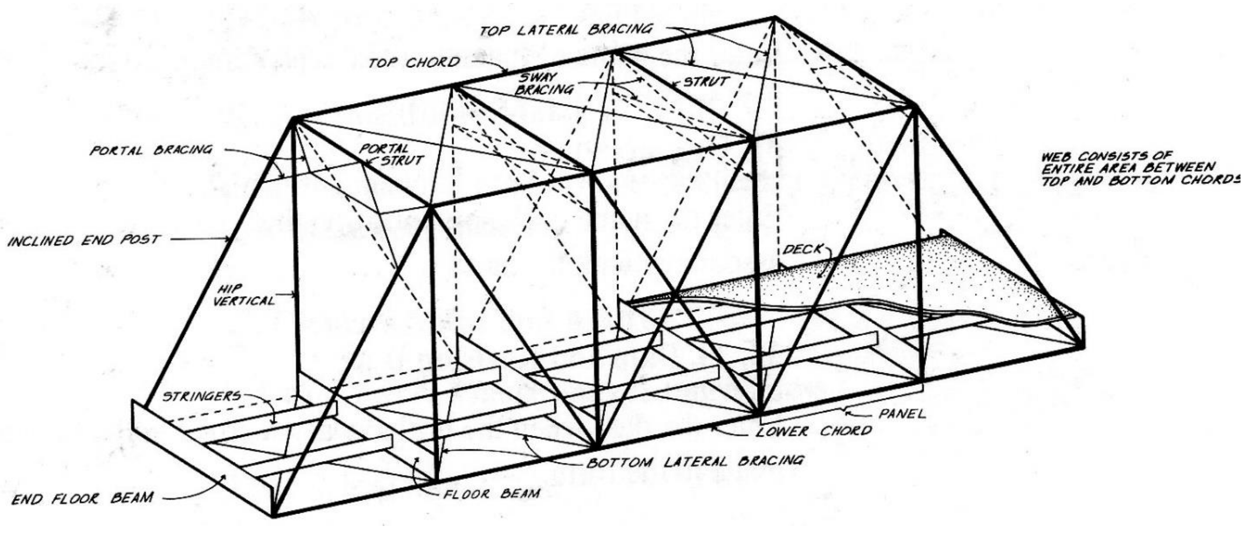
Materials: The property retains its integrity of materials, particularly by means of the original steel structural members.

Workmanship: Elements of workmanship are evident.

Feeling: The property's integrity of feeling is apparent through its retention of integrity of setting, design, materials, and workmanship, which combined, clearly convey a sense of past time and place.

Association: The association between this structure with the surrounding river and rural area is present.

Bridge-Specific Terminology Diagram[2]



Courtesy Historic American Engineering Record

[2] This diagram is included for the reader's reference as to bridge-specific terminology used in the description above. It should not be misinterpreted as an illustration of the Camas Creek Truss Leg Bedstead Bridge.

STATEMENT OF SIGNIFICANCE

The Camas Creek Truss Leg Bedstead Bridge is significant under National Register Criterion A in the area of Transportation and Criterion C in the area of Engineering. As defined by the Multiple Property Documentation Form for *Metal Truss Highway Bridges of Idaho,* it is an excellent example of the Truss Leg Bedstead truss bridge type. Built in circa 1915, the Camas Creek Truss Leg Bedstead Bridge is an example of a common, economical bridge solution for a relatively short span. Its pin-connected steel structure illustrates the standardization of this construction technique and material during the period of significance.[3] As no historic name identifies this bridge, using NRHP guidelines of resource naming, the preferred name "Camas Creek Truss Leg Bedstead Bridge" has been assigned. This describes and identifies the location, design, and function of the structure.

ELIGIBILITY

The Camas Creek Truss Leg Bedstead Bridge is individually eligible for listing in the National Register of Historic Places under Criteria A and C. This structure is associated with significant trends in local history (Criterion A) and it retains sufficient integrity to communicate its historic engineering associations (Criterion C). At the same time, it is not known to be associated with a person significant in history and it has little potential to yield data in the future, and is thus not eligible under Criteria B or D.

ELABORATION

With the arrival of the railroad and increased settlement in what became Camas County came an increased need to eliminate impediments to travel. Bridge crossings like the Camas Creek Truss Leg Bedstead Bridge provided area ranchers and farmers easy access to markets.

By 1910, 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. Letters in relief on the larger structural members indicate the bridge builder purchased the stock steel from Cambria Iron Works.

Prior to 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. The pin-connected construction of the Camas 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, riveted 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. By the 1920s, reinforced concrete was the standard material for abutments, piers, and decks of steel truss bridges. It was not uncommon for older

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[3] Development of the immediate local area's history and development sufficient to establish and justify an accurate period of significance was outside the scope of this project. For the purposes of this project, as a placeholder the period of significance is given as beginning in c.1915, the date of construction of the bridge, and ending in 1968, the 'fifty-year cut-off' established by the National Park Service as representing the span of time generally necessary to have passed before significance can be established.

metal truss bridges to receive new reinforced concrete decks or poured concrete reinforcements for older stone abutments. The poured concrete piers and partial abutment seats of the Camas Creek Truss Leg Bedstead Bridge are typical of steel truss bridges built during the early twentieth century.

The Camas 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.[4] It became the most common bridge type of the late nineteenth and early twentieth centuries and spawned numerous variations including Parker, Camelback, Baltimore, Truss Leg Bedstead, 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.

In Idaho, while Pratt trusses were very popular, the Truss Leg Bedstead subtype was rare. A 1982 survey of steel truss bridges statewide identified only two as extant, including the Camas Creek Truss Leg Bedstead Bridge.

STRUCTURE HISTORY

Previous survey dates this bridge to 1910. ITD inspection records state the bridge was built in 1920 and reconstructed in 1950. Per patterns of the agency's use of the word 'rebuilt' it is most likely this bridge merely received the new 8" pipe column supports in 1950. Review of ITD's online archives revealed bridge and road activity at and in the vicinity of Camas Creek, but no records were specific enough to connect construction information with this particular crossing. Structural members indicate the bridge builder purchased the stock steel from Cambria Iron Works of Pennsylvania prior to the company's acquisition into the Bethlehem Steel in 1923. At some point in late 2016 or early 2017, the bridge received the existing deck.

Cambria Iron Works

Originally founded in the mid-nineteenth century in Pennsylvania, it became one of the largest steel manufacturers nationwide before it was eventually absorbed by Bethlehem Steel in 1923.

Fairfield and Vicinity

Though some ranching agriculture and lava mining took place in the vicinity of present-day Fairfield as early as the 1880s, the arrival of the Oregon Short Line Railroad in 1911 was the major influence in drawing settlement to the area. With the arrival of the railroad, Fairfield was founded as a station stop and drew settlement away from nearby Soldier.

Originally part of Blaine County, sufficient settlement had occurred to warrant formation of Camas County as its own entity in 1917. The 1920 census documented Camas County's population peaked at 1,730 (it has not been above that number of residents since). At the time, Fairfield boasted 280 in-town residents. By 1925, Rand McNally's Auto Trails Map of the region showed Sampson Trails G and Q passing through Fairfield on their way between Hailey, Mountain Home, and Gooding.

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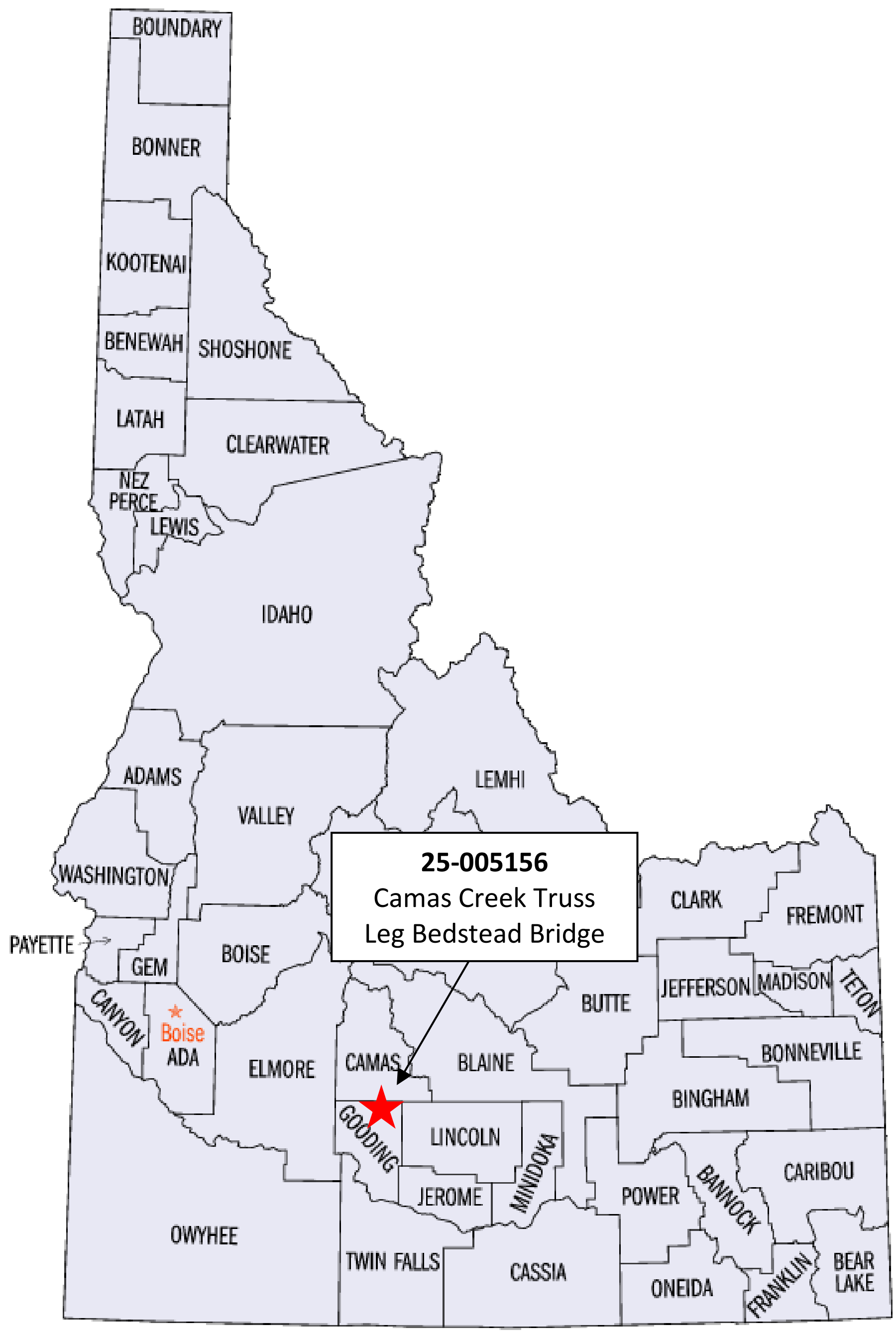
[4] T. Allan Comp and Donald Jackson, *Bridge Truss Types: A Guide to Dating and Identifying.* (Nashville, Tennessee: American Association for State and Local History, Technical Leaflet 95), 8.

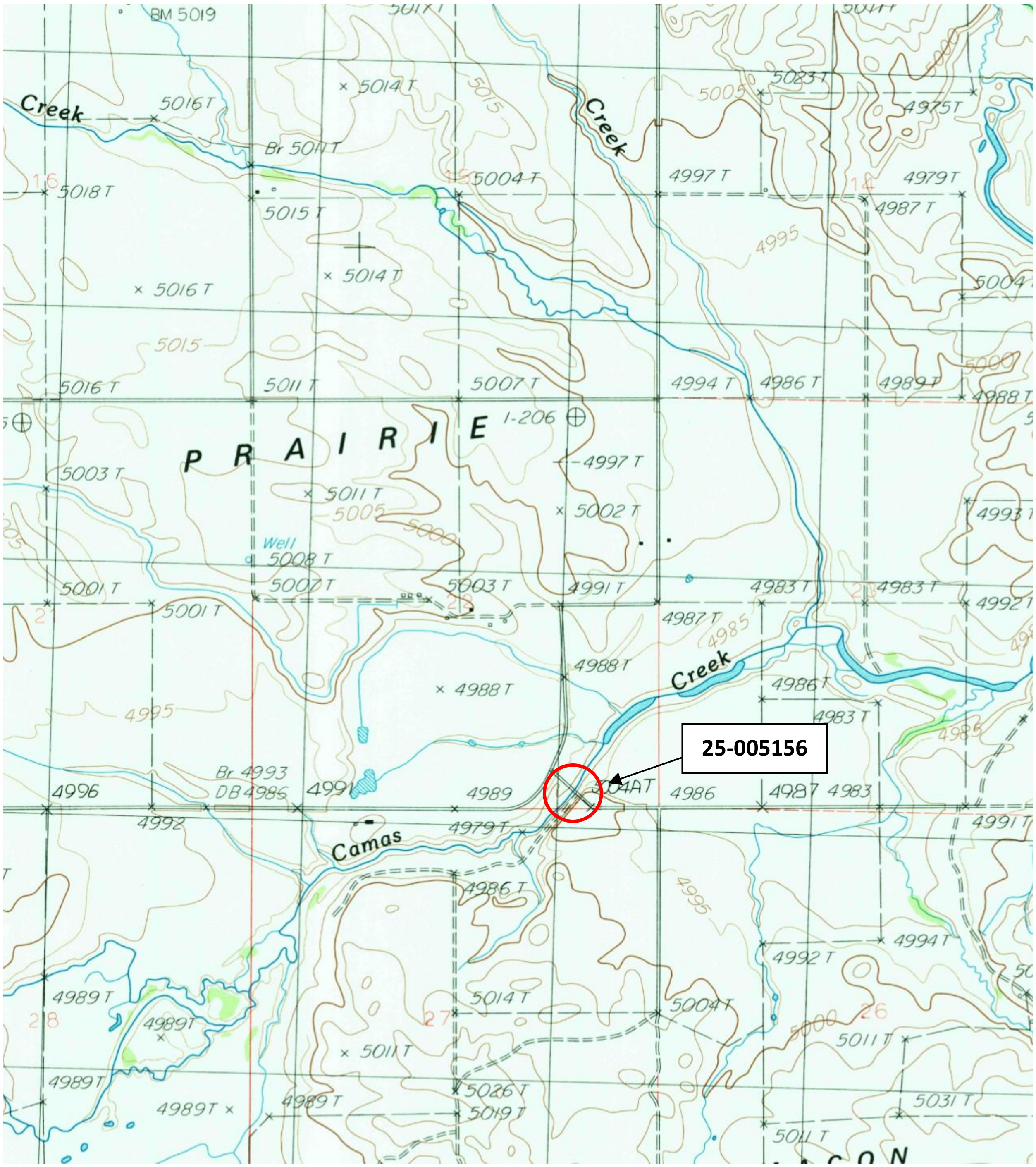
[5] Ibid.

Typical of small towns throughout Idaho, Fairfield served as a trading and shipping point for the surrounding rural community. As a result, bridges like Camas Creek Truss Leg Bedstead Bridge that provided area ranchers and residents with access over waterways more reliably than unpredictable fords and to local markets were critical to the survival of the regional economy.



Idaho Counties

Map courtesy of http://www.censusfinder.com/mapid.htm



USGS, SPRING CREEK RESEVOIR QUADRANGLE, 1986, 7.5' Series
T1S R15E S22 – CAMAS COUNTY, IDAHO

N

Aerial View of Vicinity
Courtesy Google Earth, Imagery 2018

25-005156, May 2017
View NW

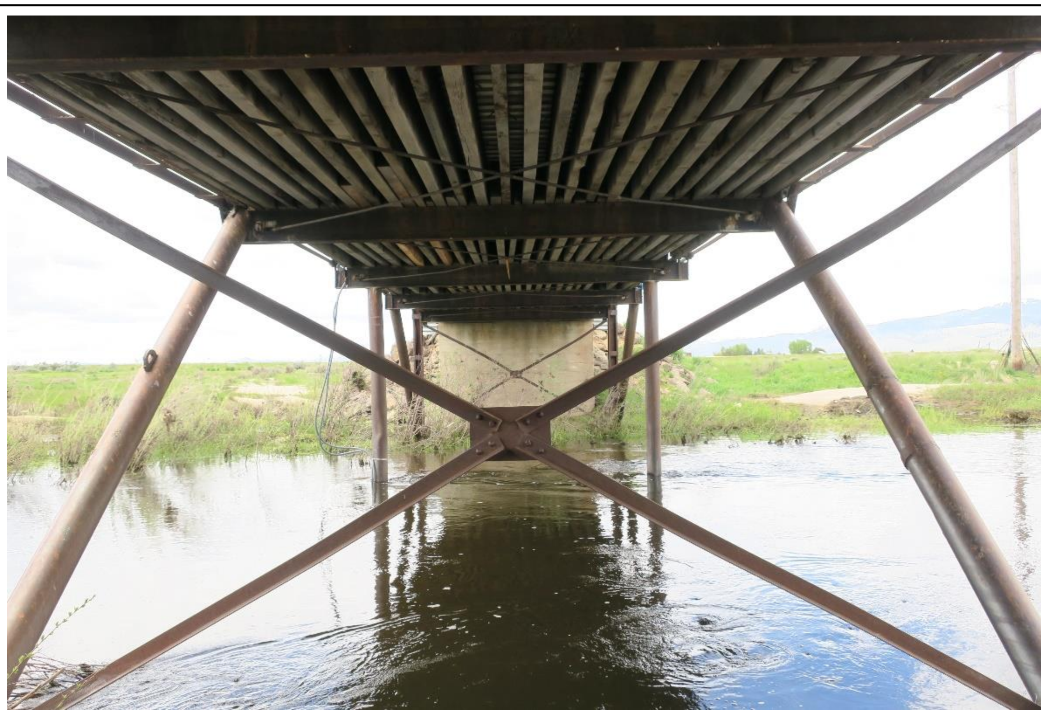
25-005156, May 2017
View N

25-005156, September 2013
View SW
Courtesy ITD inspection records

25-005156, May 2017
View W

25-005156, May 2017
Detail view of typical pin at upper node

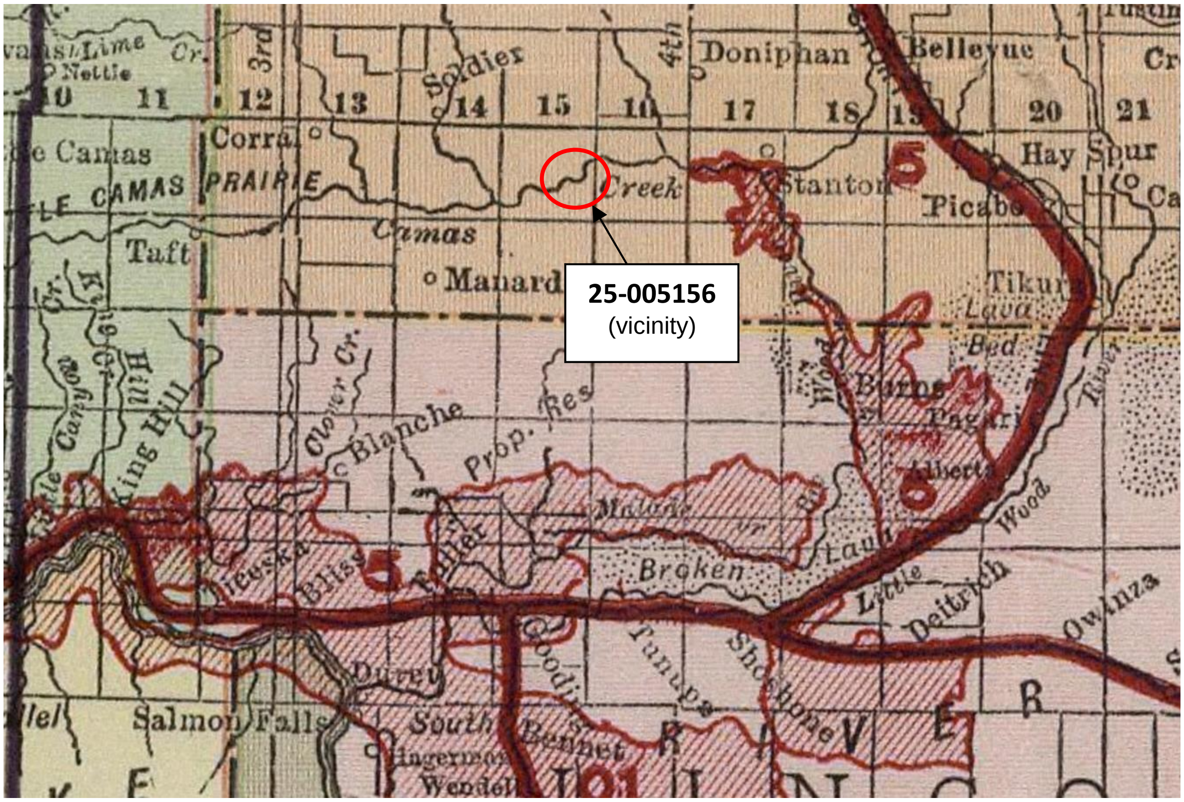
25-005156 May 2017
View E-NE of SE abutment and approach span



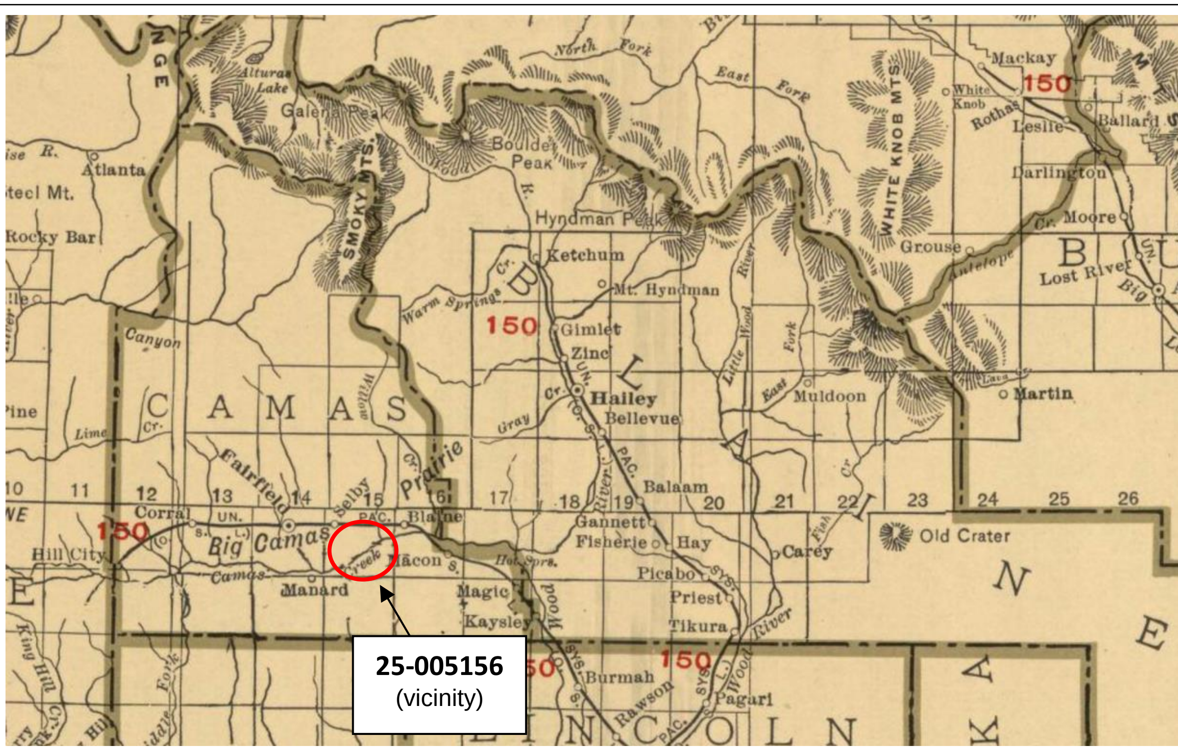
25-005156, May 2017
View towad NW abutment

25-005156, May 2017
View of NE corner, upper node

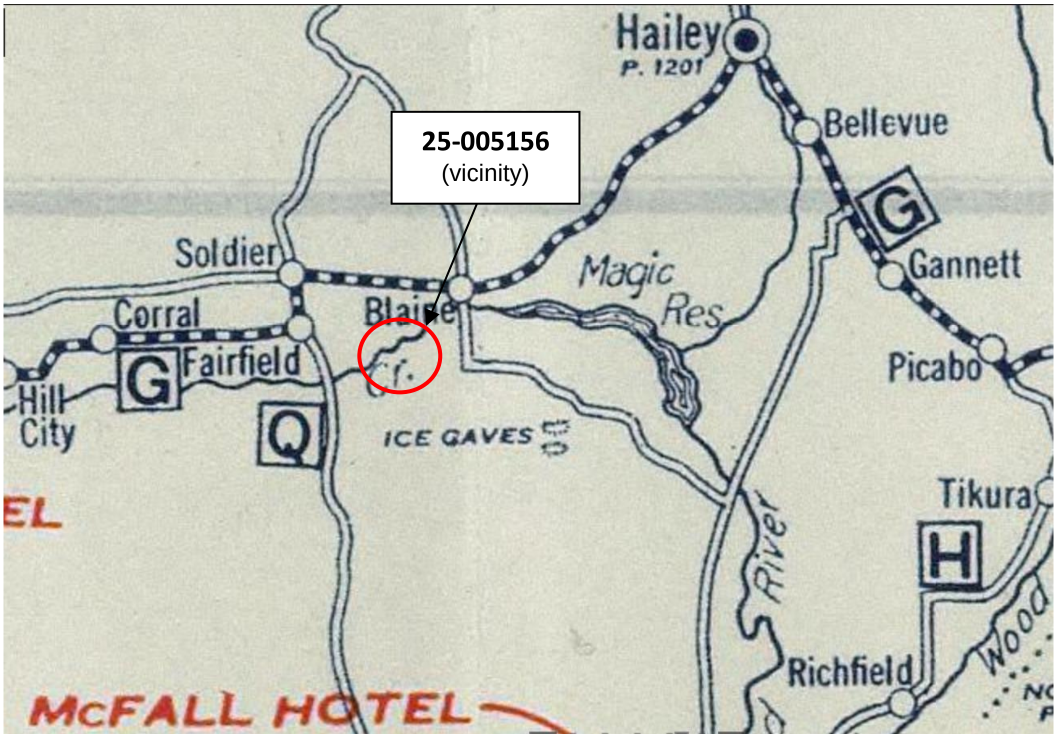
25-005156, May 2017
Detail view of one of several original stock steel markings



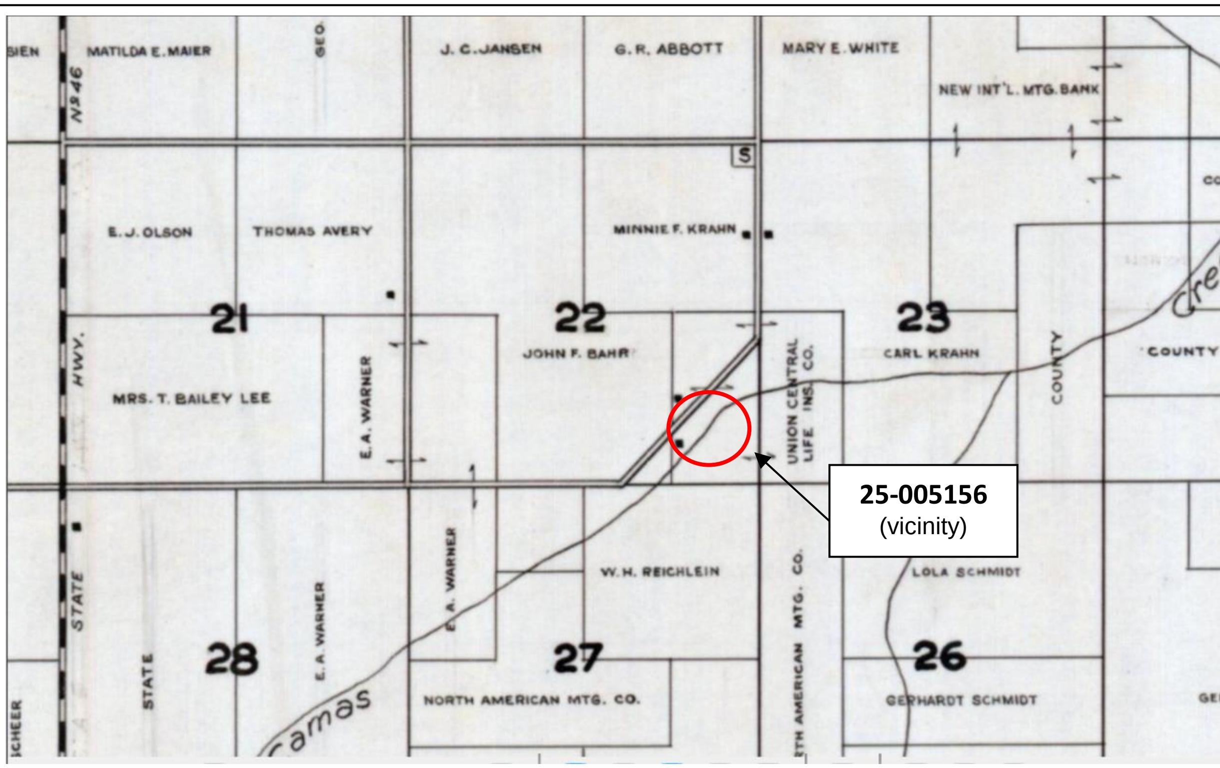
Rand McNally & Co.'s Pocket Map of Idaho, 1909
Note: red shading indicates land irrigated under Carey Act reclamation projects
Courtesy David Rumsey Map Collection online, www.davidrumsey.com



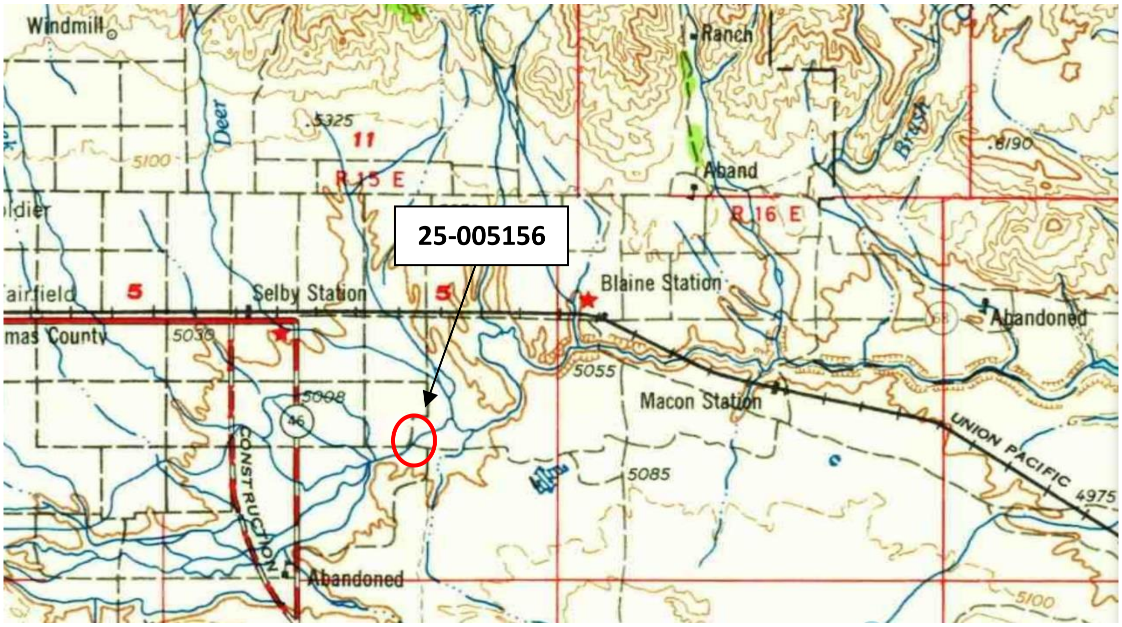
Rand McNally Standard Map of Idaho, 1924
Courtesy David Rumsey Map Collection online, www.davidrumsey.com



Rand McNally Auto Trails Map of Idaho-Montana-Wyoming, 1925
Courtesy David Rumsey Map Collection online, www.davidrumsey.com



Metsker's Atlas of Camas County, 1939 (detail)
Courtesy www.HistoricMapWorks.com



USGS Hailey 1:125,000 Quadrangle, 1959
Courtesy USGS.gov

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Camas Creek Pratt Truss Bridge | FIELD#: 25-005157
STREET: MACON FLAT ROAD; 0.3 S. 9.5 E. FAIRFIELD | RESTRICT: [ ]
CITY: Fairfield | VICINITY: [x] | COUNTY CD: 25 | COUNTY NAME: Camas
SUBNAME: | BLOCK: | SUBLOT: | ACRES: 1 | LESS THAN: [x]
TAX PARCEL: | UTMZ: 11 | EASTING: 694598 | NORTHING: 4801056
TOWNSHIP: 1 | N_S: S | RANGE: 16 | E_W: E | SECTION: 18 | ¼, ¼: NE ¼
QUADRANGLE: Macon | OTHERMAP:
SANBORN MAP: | SANBORN MAP#: | PHOTO#: Digital

PROPERTY TYPE: Structure | CONST/ACT1: Original Construction | ACTDATE1: 1911 | CIRCA1: [x]
CONST/ACT2: Alteration | ACTDATE2: 1945 | CIRCA2: [ ]
ASSOCIATED FEATURES: bridge | TOTAL # FEATURES: 1
ORIGINAL USE: Transportation | WALL MATERIAL:
ORIGSUBUSE: Road-related | FOUND. MATERIAL: CONCRETE
CURRENT USE: Transportation | ROOF MATERIAL:
CURSUBUSE: Road-related | OTHER MATERIAL: METAL:Steel
ARCHSTYLE: Other:Pratt Pony Truss | PLAN: Rectangular | CONDITION: Good

NR REF #: | NPS CERT: | ACTIONDATE: | FUTURE ELIG DATE:
DIST/MPLNAME1: Metal Truss Highway Bridges of Idaho | DIST/MPLNAME2:

Individually Eligible [x] | Contributing in a potential district [ ] | Noncontributing [ ] | Future eligibility [ ]
Not Eligible [ ] | Multiple Property Study [x] | Not evaluated [ ]

CRITERIA: A [x] B [ ] C [x] D [ ] | CRITERIA CONSIDERATION: A [ ] B [ ] C [ ] D [ ] E [ ] F [ ] G [ ]
AREA OF SIGNIF: Transportation | AREA OF SIGNIF: Engineering

COMMENTS: See continuation sheets for elaborated description, history, significance, and eligibility.

PROJ/RPT TITLE: Steel Bridges of Eastern Idaho Survey (ITD Key No. 12479 - Mitigation) | SVY DATE: 5/20/17 | SVY LEVEL: Intensive
RECORDED BY: Kerry Davis, PSLLC | PH: 816-225-5605 | ADDRESS: 1007 E. Jefferson Street, Boise, ID 83712
SUBMITTED: PHOTOS [x] NEGS [ ] SLIDES [ ] SKETCH MAP [x]

SVY RPT #: | ******** FOR ISHPO USE ONLY ******** | IHSI#: 25-005157
MS RPT #: | SITS#:
IHPR #: | HABS NO. ID-: | HAER NO. ID-: | REV#:

CS #: | IHSI# REF: | NR REF# 2: | REV# REF:
SVY RPT# 1: | SVY RPT# 2: | SVY RPT# 3: | MS RPT# 1: | MS RPT# 2:

ADD'L NOTES: District 4. Last surveyed 1982. ITD Milepost reference: 100.450
MORE DATA [x]
ATTACH [x]

REV# | SITS# | IHSI#

OF PHOTOS: | NEGBOX#: | # OF SLIDES: | SHPO DETER: | DETER DATE:
INITIALED: | ENTRY DATE: | REVISE1: | REVISE2: | REVISE3:

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Camas Creek Pratt Truss Bridge
IHSI#: 25-005157
FIELD#: 25-005157
COUNTY NAME: Camas

OTHER NAME: ITD Key #23825; ITD Structure Name X992130 0.45
COUNTY CD: 25
CITY: Fairfield
VICINITY: ☑
UTM REF2:
UTM REF3:
UTM REF4:

OTHER MATERIAL2: WOOD
CULTAFFIL:
AGENCYCERT: Local
SIGNIFDATE:
SIGNIFPERIOD:
SIGNIFPERSON:
ARCH/BUILD:
ARCHPLANS: ☐
TAXEASE: ☐
TAXCERT: ☐
OWNERSHIP: Public-Local
PROPOWN: Camas County
MORE DATA: ☑
ATTACH: ☑

DOCSOURCE: ITD records; SHPO records; USGS Quads

ADD'L NOTES: District 4. Last surveyed 1982. ITD Milepost reference: 100.450

COMMENTS: See continuation sheets for elaborated description, history, significance, and eligibility.

PHOTO LOG: ☐
IHSI# REF:
INITIALED:
DATEENTERED:

SKETCH: ☑

IHSI#

SITS#

REV#

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Camas Creek Pratt Truss Bridge

IHSI#: 25-005157

FIELD#: 25-005157

COUNTY NAME: Camas

COMMENTS:

See continuation sheets for elaborated description, history, significance, and eligibility.

ATTACH ☑

IHSI# ______

SITS# ______

REV# ______

DESCRIPTION

LOCATION and SETTING

The Camas Creek Pratt Truss Bridge is located 0.3 miles south and 9.5 miles east of the town of Fairfield in east-central Idaho, at the northeast quarter of Section 18, Township 1S, Range 16E. The region is defined by irrigated flat bottom lands with lava fields and steep mountains beyond. The Camas Creek Pratt Truss Bridge carries Macon Flat Road over Camas Creek. The sand and gravel roadway aligns in a C-curve with the single-lane Camas Creek Pratt Truss Bridge.

TRUSS TYPE

The Camas Creek Pratt Truss Bridge is comprised of a pin-connected pony truss measuring approximately 60 feet in length and a timber girder approach span at the northeast end measuring 22 feet in length, both of which are about 15.8 feet in width. Standard concrete retaining wall abutments support the southwest end floor beam of the truss and the northeast end of the approach span. The angled wingwalls of the abutments extend approximately 10 feet out away from the pedestal along the approach grades. A concrete pier wall supports the northeast end floor beam of the truss and the southwest end of the approach span. Concrete-filled cylindrical sheet metal pedestals support four 12" pipe columns likely added around 1945 (submerged during high water).

The inclined end posts rise from the bottom chords to meet the horizontal top chords to form an overall trapezoidal shape in elevation. The top chords and inclined end posts consist of two channels and a cover plate with stay plates and lacing bars on the underside; the bottom chords consist of paired flat eye bars.

The web members consist of vertical posts forming 4 equivalent panels and diagonal ties that intersect within the two central panels. Butting angle stock and lacing bars form the vertical posts. Flat eye bars and tension rods compose the diagonal ties, which intersect in the two central panels.

The deck dates to 2013 and is comprised of corrugated metal laid below and sand and gravel wear surface. The deck is 15.8 feet wide with no curbs and rises approximately 15 feet above the creek bed on I-beam steel stringers. Large, steel floor I-beams are at the base of each vertical post and the base of each diagonal node, with tension rods lateral bracing between.

A simple angle stock guardrail spans the full length of the inside of each side of the truss bridge, but not along the length of the approach span. Letters in relief read "LACKAWANNA" as well as "INLAND" on several structural components.

INTEGRITY

The Camas Creek Pratt Truss Bridge is an excellent example of this bridge type, historically popular and increasingly rare in Idaho.

The Camas Creek Pratt Truss Bridge retains a good degree of integrity, with no substantial nonhistoric alterations to the original design or materials. The original workmanship, setting, and feeling of the structure are also readily apparent. Located on a lightly traveled surface street, it is unlikely that traffic requirements will necessitate alteration or replacement.

This structure possesses the following aspects of integrity: location, setting, design, materials, workmanship, feeling, and association. It retains sufficient integrity to be NRHP eligible individually.

Location: This structure has not been moved, and thus retains integrity of location.

Setting: The historic rural setting is intact.

Design: Integrity of design is intact, visible primarily by means of the original steel truss members assembled and executed in the Pratt truss design.

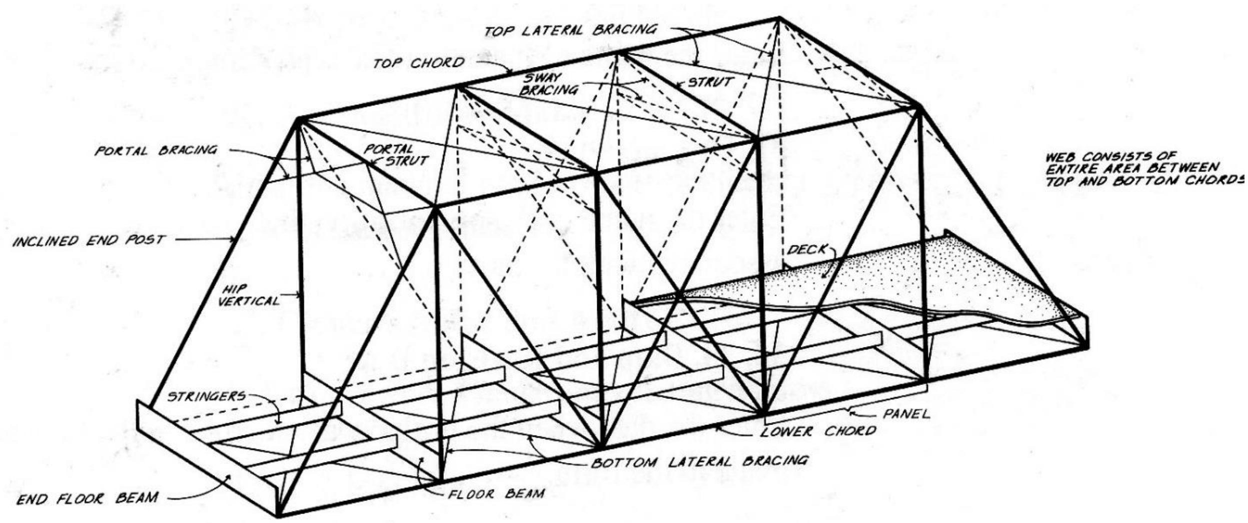
Materials: The property retains its integrity of materials, particularly by means of the original steel structural members.

Workmanship: Elements of workmanship are evident.

Feeling: The property's integrity of feeling is apparent through its retention of integrity of setting, design, materials, and workmanship, which combined, clearly convey a sense of past time and place.

Association: The association between this structure with the surrounding river and rural area is present.

Bridge-Specific Terminology Diagram[1]



Courtesy Historic American Engineering Record

[1] This diagram is included for the reader's reference as to bridge-specific terminology used in the description above. It should not be misinterpreted as an illustration of the Camas Creek Pratt Truss Bridge.

STATEMENT OF SIGNIFICANCE

The Camas Creek Pratt Truss Bridge is significant under National Register Criterion A in the area of Transportation and Criterion C in the area of Engineering. As defined by the Multiple Property Documentation Form for *Metal Truss Highway Bridges of Idaho,* it is an excellent example of the Pratt truss bridge type. Built circa 1911, the Camas Creek Pratt Truss Bridge is an example of a common, economical bridge solution for a relatively short span. Its pin-connected structure and concrete abutments illustrate the standardization of these construction techniques and materials during the period of significance.[2] As no historic name identifies this bridge, using NRHP guidelines of resource naming, the preferred name "Camas Creek Pratt Truss Bridge" has been assigned. This describes and identifies the location, design, and function of the structure.

ELIGIBILITY

The Camas Creek Pratt Truss Bridge is individually eligible for listing in the National Register of Historic Places under Criteria A and C. This structure is associated with significant trends in local history (Criterion A) and it retains sufficient integrity to communicate its historic engineering associations (Criterion C). At the same time, it is not known to be associated with a person significant in history and it has little potential to yield data in the future, and is thus not eligible under Criteria B or D.

ELABORATION

With the arrival of the railroad and increased settlement in what became Camas County came an increased need to eliminate impediments to travel. Bridge crossings like the Camas Creek Pratt Truss Bridge provided area ranchers and farmers easy access to markets.

By 1910, 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. Letters in relief on the larger structural members indicate the bridge builder purchased the stock steel from Lackawanna Steel Company.

Prior to 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. The pin-connected construction of the Camas Creek Pratt Truss 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, riveted 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. By the 1920s, reinforced concrete was the standard material for abutments, piers, and decks of steel truss bridges. It was not uncommon for older

[2] Development of the immediate local area's history and development sufficient to establish and justify an accurate period of significance was outside the scope of this project. For the purposes of this project, as a placeholder the period of significance is given as beginning in c.1911, the date of construction of the bridge, and ending in 1968, the 'fifty-year cut-off' established by the National Park Service as representing the span of time generally necessary to have passed before significance can be established.

metal truss bridges to receive new reinforced concrete decks or poured concrete reinforcements for older stone abutments. Though not original, the poured concrete abutments of the Camas Creek Pratt Truss Bridge are compatible and typical of bridges built during the early twentieth century.

The Camas Creek Pratt Truss Bridge is a classic example of this truss design. 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.[3] The Pratt truss became the most common bridge type of the late nineteenth and early twentieth centuries and spawned numerous variations including Parker, Camelback, Baltimore, Truss Leg Bedstead, Lenticular, and Pennsylvania trusses.[4]

In Idaho, Pratt trusses were constructed into the twentieth century, suggesting the appeal of the design's strength and economical construction costs. A 1982 survey of steel truss bridges statewide identified seventy-seven Pratt truss bridges statewide, including the Camas Creek Pratt Truss Bridge.

STRUCTURE HISTORY

Previous survey dates this bridge to 1910 and states it was 'rebuilt' in 1945, citing ITD records as the source of this information. Per patterns of the agency's use of the word 'rebuilt' it is likely this bridge merely received new abutments, the added 12" pipe column supports, and possibly the approach span at that time.[5] Review of ITD's online archives revealed bridge and road activity at and in the vicinity of Camas Creek, but no records were specific enough to connect construction information with this particular crossing. Based on the development patterns of the area, a construction date of circa 1911 has been assigned. Structural members indicate the bridge builder purchased the stock steel from Lackawanna Steel Company of Lackawanna, New York, prior to the company's acquisition into the Bethlehem Steel in 1922. Rand McNally showed a crossing of Camas Creek in this vicinity on their 1925 auto trails map of the region. In 2013, the bridge received the existing deck.

Lackawanna Steel

Founded in 1840 by George and Seldon Scranton, in Scranton, Pennsylvania, the Lackawanna Steel Company grew to become the second largest steel manufacturer in the world. The headquarters moved to an area on the outskirts of Buffalo, New York, in 1902, resulting in the founding of the town of Lackawanna, New York. The company was absorbed into Bethlehem Steel in 1922, after which time steel stock had letters in relief that read, "BSC Lackawanna."

Inland Steel

Formed in 1893 from bankrupt and liquidated Chicago Steel Works, Inland Steel operated near Lake Michigan in the Indiana suburbs of Chicago.[6] The company experienced major growth in the first years of the twentieth century, and continued successfully through the Great Depression, with only a single year (1932) showing a loss. Despite a variety of downturns and upswings over the decades, Inland Steel

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[3] 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.

[4] Ibid.

[5] Review of a variety of maps from the 1920s through 1950s revealed a variety of road alignments and creek crossing locations in Section 18. It is unclear if the road and crossing actually shifted over time, or if the mapping of such a sparsely populated and little-traveled area was not accurately shown. Though outside the scope of this project, further recommended research into county commission minute books if they are available.

[6] Northwest Indiana Steel Heritage Project, "The Modern History of Inland Steel," 2009. Website. Available from http://www.nwisteelheritagemuseum.org/inland-history.htm.

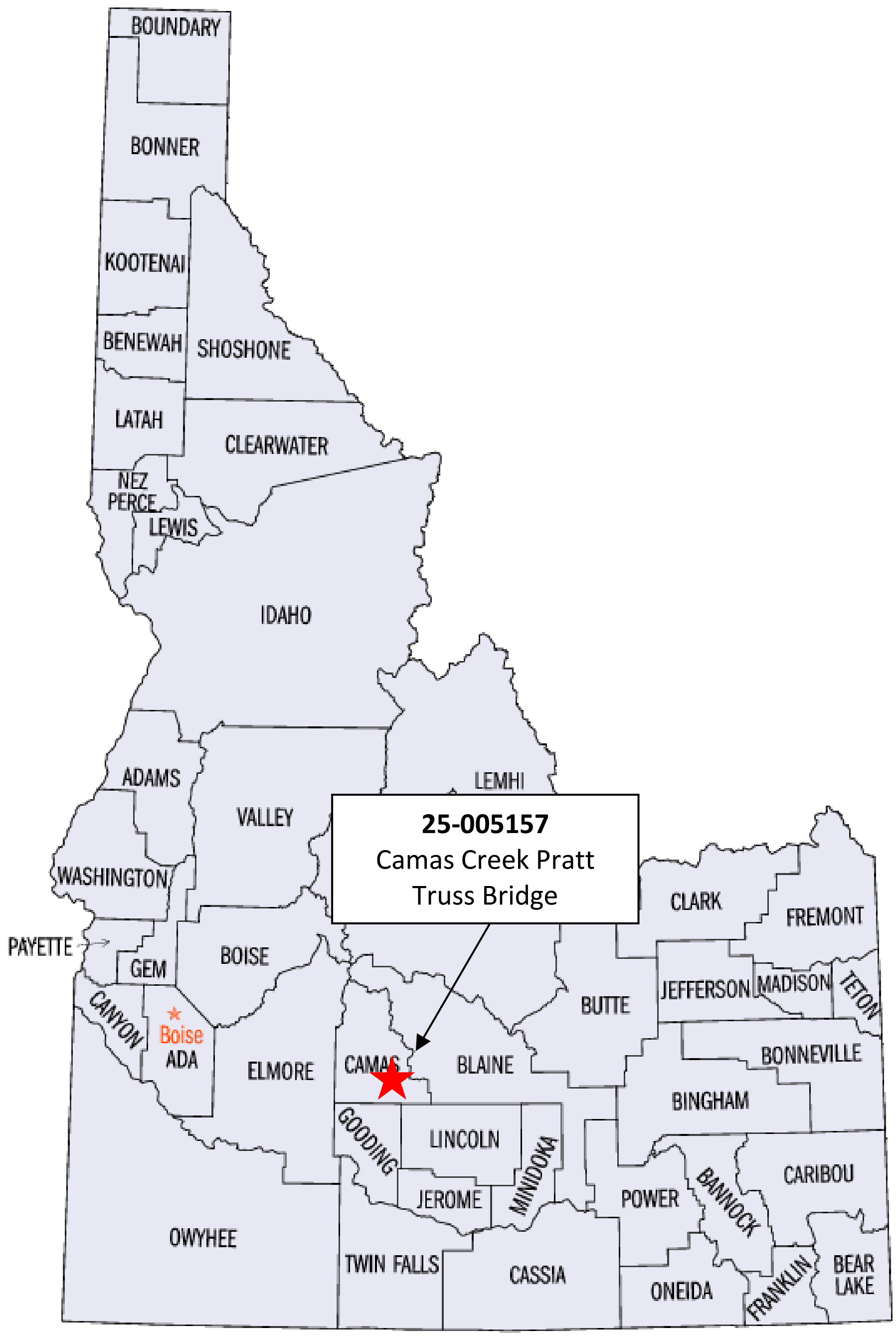
remained strong until the late twentieth century, at which time it was finally absorbed into Ispat International in 1998.

Fairfield and Vicinity

Though some ranching agriculture and lava mining took place in the vicinity of present-day Fairfield as early as the 1880s, the arrival of the Oregon Short Line Railroad in 1911 was the major influence in drawing settlement to the area. With the arrival of the railroad, Fairfield was founded as a station stop and drew settlement away from nearby Soldier.

Originally part of Blaine County, sufficient settlement had occurred to warrant formation of Camas County as its own entity in 1917. The 1920 census documented Camas County's population peaked at 1,730 (it has not been above that number of residents since). At the time, Fairfield boasted 280 in-town residents. By 1925, Rand McNally's Auto Trails Map of the region showed Sampson Trails G and Q passing through Fairfield on their way between Hailey, Mountain Home, and Gooding.

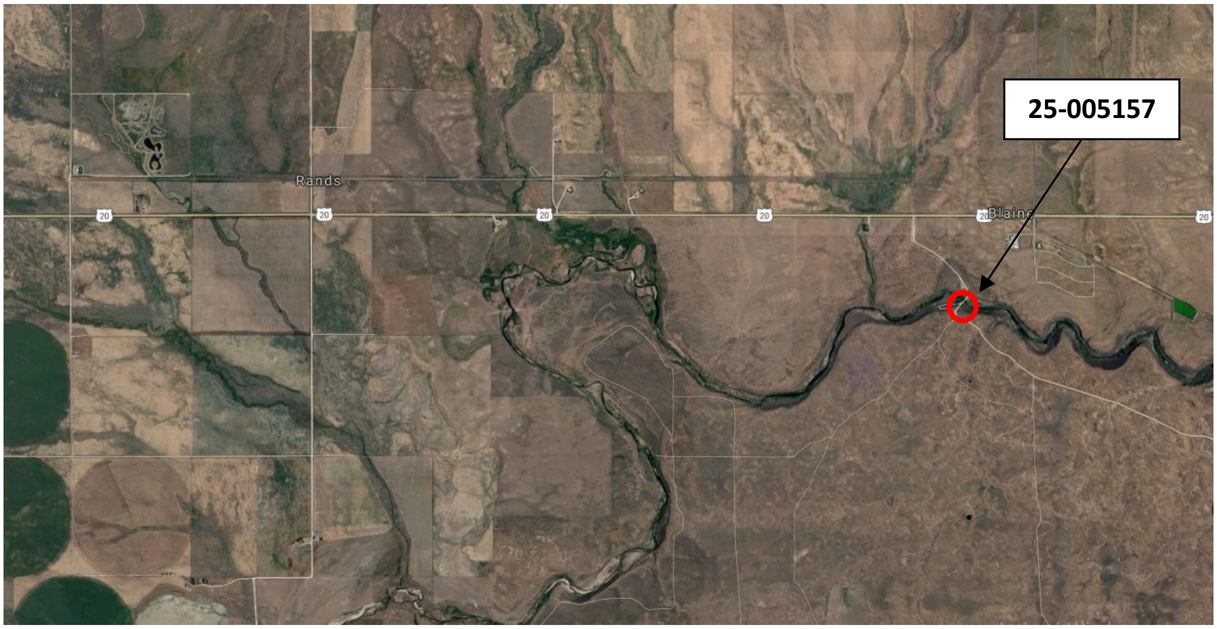
Typical of small towns throughout Idaho, Fairfield served as a trading and shipping point for the surrounding rural community. As a result, bridges like Camas Creek Pratt Truss Bridge that provided area ranchers and residents with access over waterways more reliably than unpredictable fords and to local markets were critical to the survival of the regional economy.



Idaho Counties

Map courtesy of http://www.censusfinder.com/mapid.htm

USGS, MACON QUADRANGLE, 1986, 7.5' Series
T1S R16E Section 18 – CAMAS COUNTY, IDAHO



Aerial View of Vicinity
Courtesy Google Earth, Imagery 2018

25-005157, May 2017
View S-SE

25-005157, May 2017
View W-SW

25-005157, September 2013
View NW
Courtesy ITD inspection records

25-005157, May 2017
Detail view of NW upper node

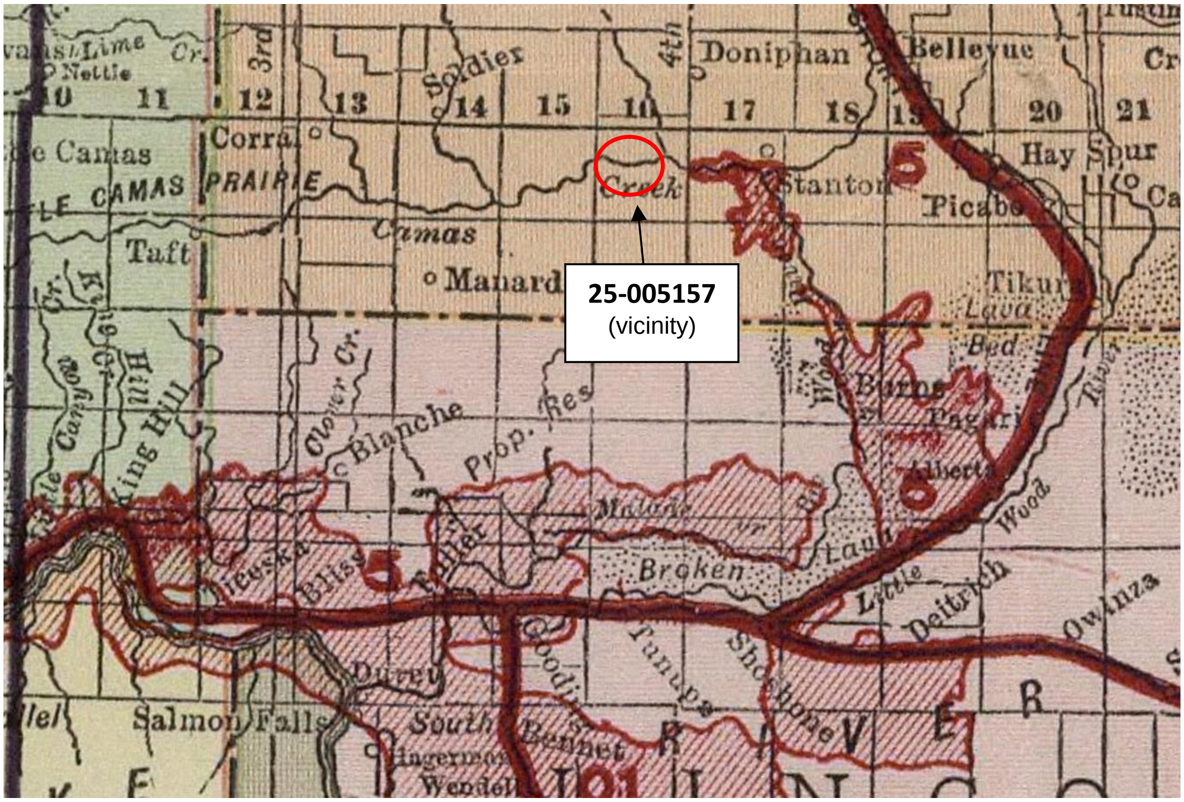
25-005157, May 2017
View of typical bottom node

25-005157 September 2013
View SW toward SW abutment
Courtesy ITD inspection records

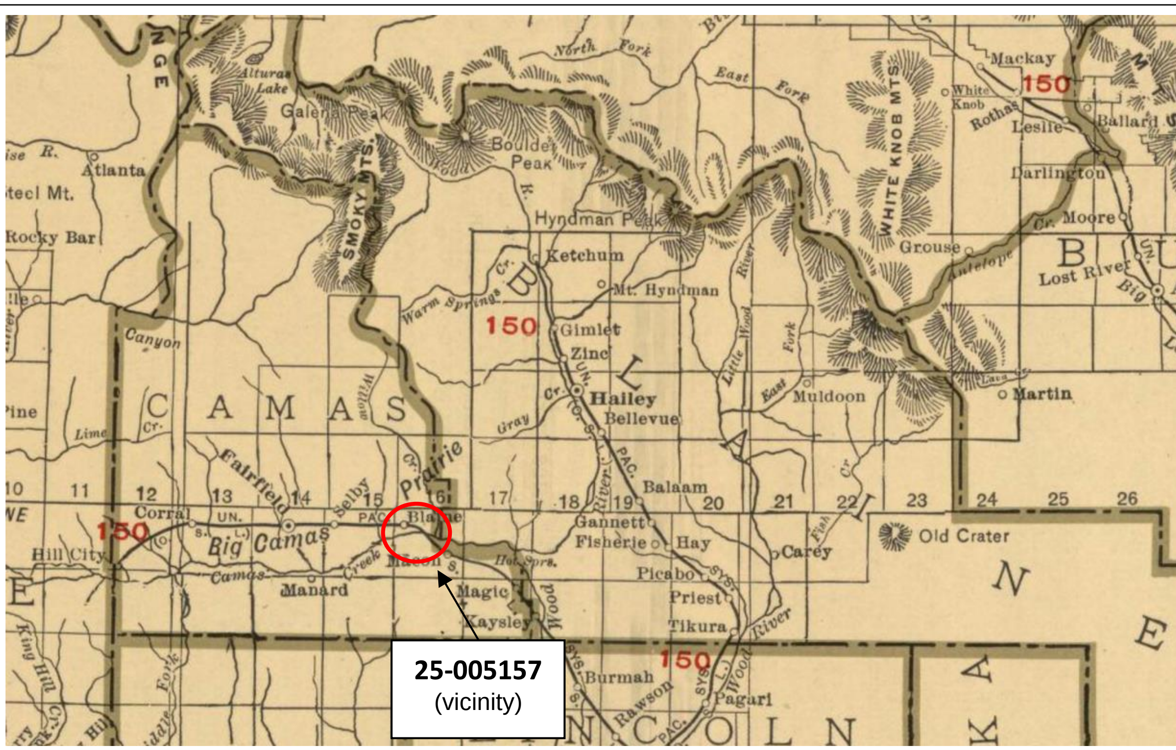
25-005157, September 2013
View NE of pier
Courtesy ITD inspection records

25-005157, September 2013
Detail view of one of the original stock steel markings
Courtesy ITD inspection records

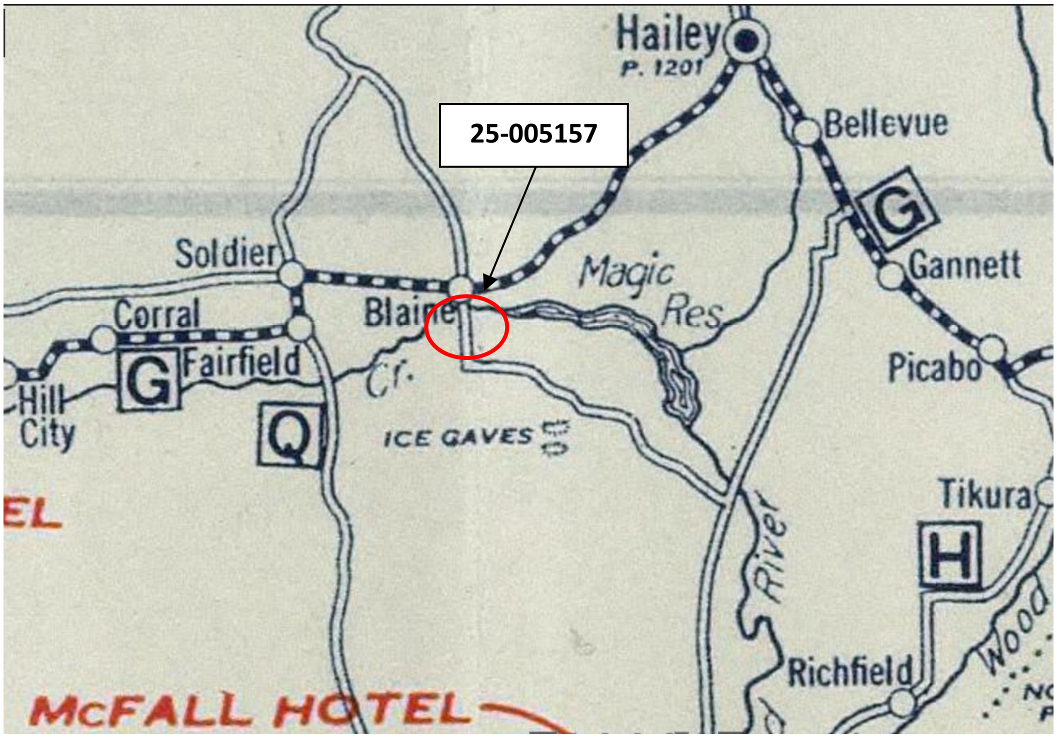
25-005157, May 2017
Detail view of one of several original stock steel markings



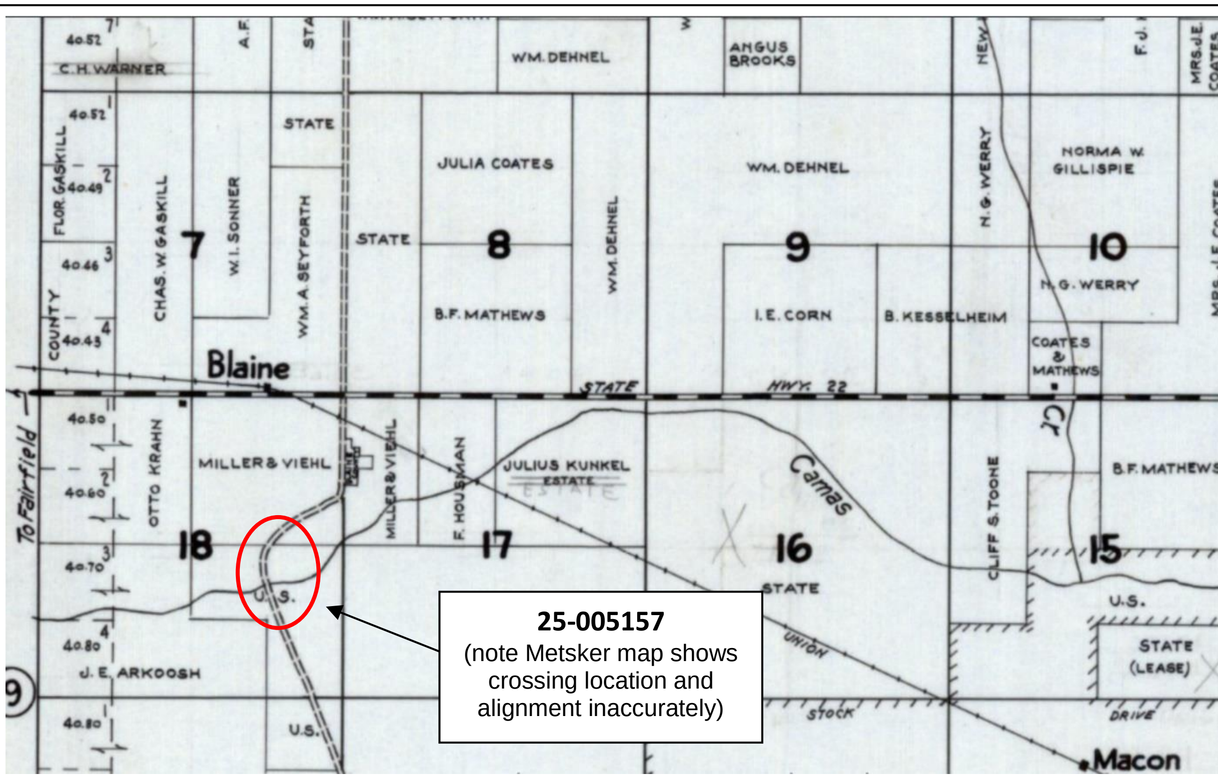
Rand McNally & Co.'s Pocket Map of Idaho, 1909
Note: red shading indicates land irrigated under Carey Act reclamation projects
Courtesy David Rumsey Map Collection online, www.davidrumsey.com



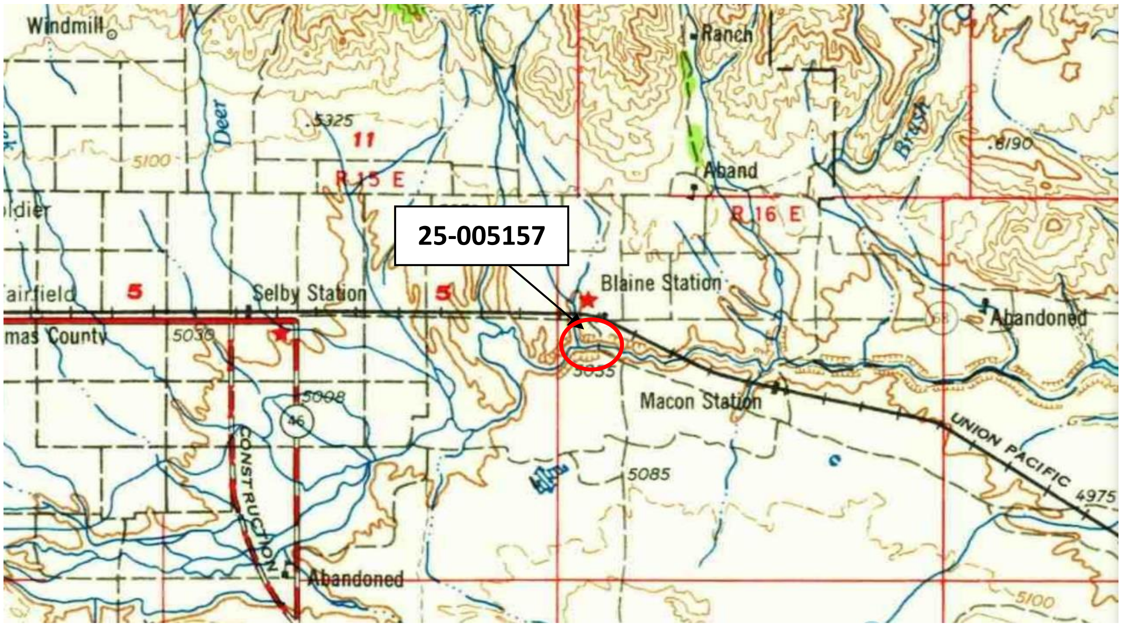
Rand McNally Standard Map of Idaho, 1924
Courtesy David Rumsey Map Collection online, www.davidrumsey.com



Rand McNally Auto Trails Map of Idaho-Montana-Wyoming, 1925
Courtesy David Rumsey Map Collection online, www.davidrumsey.com



Metsker's Atlas of Camas County, 1939 (detail)
Courtesy www.HistoricMapWorks.com



USGS Hailey 1:125,000 Quadrangle, 1959
Courtesy USGS.gov

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: OSL Railroad Parker Truss Overpass
FIELD#: 33-005776
STREET: Old Hwy 91; 13.1 N, 5.2 W of Spencer
RESTRICT: [ ]
CITY: Spencer
VICINITY: ☑
COUNTY CD: 33
COUNTY NAME: Clark
SUBNAME:
BLOCK:
SUBLOT:
ACRES: 1
LESS THAN: ☑
TAX PARCEL:
UTMZ: 12
EASTING: 397019
NORTHING: 4933728
TOWNSHIP: 14
N_S: N
RANGE: 35
E_W: E
SECTION: 12
SW ¼, ¼ SW ¼
QUADRANGLE: Monida
OTHERMAP:
SANBORN MAP:
SANBORN MAP#:
PHOTO#: Digital

PROPERTY TYPE: Structure
CONST/ACT1: Original Construction
ACTDATE1: 1936
CIRCA1: [ ]
CONST/ACT2:
ACTDATE2:
CIRCA2: [ ]
ASSOCIATED FEATURES: bridge
TOTAL # FEATURES: 1
ORIGINAL USE: Transportation
WALL MATERIAL:
ORIGSUBUSE: Road-related
FOUND. MATERIAL: CONCRETE
CURRENT USE: Transportation
ROOF MATERIAL:
CURSUBUSE: Road-related
OTHER MATERIAL: METAL:Steel
ARCHSTYLE: Other:Parker Through Truss
PLAN: Rectangular
CONDITION: Good

NR REF #:
NPS CERT:
ACTIONDATE:
FUTURE ELIG DATE:
DIST/MPLNAME1: Metal Truss Highway Bridges of Idaho
DIST/MPLNAME2:

Individually Eligible ☑
Contributing in a potential district [ ]
Noncontributing [ ]
Future eligibility [ ]
Not Eligible [ ]
Multiple Property Study ☑
Not evaluated [ ]

CRITERIA: A ☑ B [ ] C ☑ D [ ]
CRITERIA CONSIDERATION: A [ ] B [ ] C [ ] D [ ] E [ ] F [ ] G [ ]
AREA OF SIGNIF: Transportation
AREA OF SIGNIF: Engineering

COMMENTS: See continuation sheets for elaborated description, history, significance, and eligibility.

PROJ/RPT TITLE: Steel Bridges of Eastern Idaho Survey (ITD Key No. 12479 - Mitigation)
SVY DATE: 7/9/17
SVY LEVEL: Intensive
RECORDED BY: Kerry Davis, PSLLC
PH: 816-225-5605
ADDRESS: 1007 E. Jefferson Street, Boise, ID 83712
SUBMITTED PHOTOS ☑ NEGS [ ] SLIDES [ ] SKETCH MAP ☑

SVY RPT #:
MS RPT #:
IHPR #:
******** FOR ISHPO USE ONLY ********
IHSI#: 33-005776
SITS#:
REV#:
HABS NO. ID-:
HAER NO. ID-:

CS #:
IHSI# REF:
NR REF# 2:
REV# REF:
SVY RPT# 1:
SVY RPT# 2:
SVY RPT# 3:
MS RPT# 1:
MS RPT# 2:

ADD'L NOTES: District 4. Last surveyed 1982. ITD Milepost reference: 015.356. Original plans on file with ITD. Previous survey and ITD records include the following additional names for this bridge: N Spencer RR Overpass; Monida Overhead.

MORE DATA ☑
ATTACH ☑

OF PHOTOS:
NEGBOX#:
OF SLIDES:
SHPO DETER:
DETER DATE:
INITIALED:
ENTRY DATE:
REVISE1:
REVISE2:
REVISE3:

REV#
SITS#
IHSI#

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: OSL Railroad Parker Truss Overpass
IHSI#: 33-005776
FIELD#: 33-005776
COUNTY NAME: Clark

OTHER NAME: ITD Key #31565; ITD Structure Name X996170 0.64
COUNTY CD: 33
CITY: Spencer
VICINITY: ☑
UTM REF2:
UTM REF3:
UTM REF4:

OTHER MATERIAL2: STONE
CULTAFFIL:
AGENCYCERT: Local
SIGNIFDATE:
SIGNIFPERIOD:
SIGNIFPERSON:
ARCH/BUILD: Kuney, Max
ARCHPLANS: ☑
TAXEASE: ☐
TAXCERT: ☐
OWNERSHIP: Public-Local
PROPOWN: Clark County
MORE DATA: ☑
ATTACH: ☑

DOCSOURCE: ITD records; SHPO records; USGS Quads

ADD'L NOTES: District 4. Last surveyed 1982. ITD Milepost reference: 015.356. Original plans on file with ITD. Previous survey and ITD records include the following additional names for this bridge: N Spencer RR Overpass; Monida Overhead.

COMMENTS: See continuation sheets for elaborated description, history, significance, and eligibility.

PHOTO LOG ☐ IHSI# REF: INITIALED: DATEENTERED:

SKETCH ☑

IHSI#

SITS#

REV#

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: OSL Railroad Parker Truss Overpass

IHSI#: 33-005776

FIELD#: 33-005776

COUNTY NAME: Clark

COMMENTS:

See continuation sheets for elaborated description, history, significance, and eligibility.

ATTACH ☑

IHSI# ________

SITS# ________

REV# ________

DESCRIPTION

LOCATION and SETTING

The OSL Railroad Parker Truss Overpass is located 13.1 miles north and 5.2 miles west of the town of Spencer in eastern Idaho, in the SW ¼ of Section 12, Township 14N, Range 35E. The region is defined by treeless, rolling pasturelands. The OSL Railroad Parker Truss Overpass carries Old U.S. Highway 91 (originally Idaho-Montana Highway) over the Union Pacific Railroad (originally Oregon Short Line (OSL) Railroad). The dirt-gravel roadway aligns straight on at a northwest-southeast alignment with the narrow two-lane OSL Railroad Parker Truss Overpass.

TRUSS TYPE

The OSL Railroad Parker Truss Overpass is a polygonal top chord, rivetted through truss measuring approximately 161 feet in length and approximately 25 feet in width. Flanking each end of the truss is a 66-feet-long reinforced concrete girder approach span and an approach grade of about 340' in-length. Irregular coursed basalt stone forms retaining wall abutments on each end, wherein a concrete seat supports the outer end of each approach span. Concrete piers standing approximately 34 feet in-height support both the inner end of each approach span as well as the end floor beams of the truss. Each pier has a battered profile in both width and length and features a full-height engaged smooth column on each end. Distinctive cast concrete approach railings, executed in an arcaded balustrade motif, flank each side of each approach span.

Seven slopes form the polygonal top chord creating an overall arched shape in elevation. (The reader is asked to note that while some commonly refer to any arched truss as a Camelback truss, technically the term Camelback only applies to a Parker Truss with a top chord of exactly five slopes). The top chord segments all consist of two channels and a cover plate with lacing bars and stay plates below; the bottom chords consist of two channels with stay plates.

The web members consist of vertical posts forming seven equivalent panels and diagonal ties that intersect within the center panel. Channel stock and lacing bars form the central vertical posts, while pairs of channel stock and stay plats form the outermost vertical posts. Pairs of channel stock and angle stock with stay plates compose the diagonal ties.

A system of abutting angle stock with lacing bars and gusset plates forms the portal and upper lateral bracing, as well as the upper sway struts connecting the top chords at each vertical post, leaving a vehicular clearance of 14.6 feet. A system of diagonally intersecting angle stock with gusset plates provides additional rigidity between upper sway struts.

The reinforced concrete deck is 24 feet wide between concrete curbs and rises approximately 24 feet above the railroad grade on four steel I-beam stringers. Floor beams located at the base of each vertical web member are connected by lower lateral bracing angle stock.

Two parallel rails of angle stock form guardrails along the full length of each side of the truss. Letters in relief read "*ILLINOIS-S-USA*" on several structural components.

INTEGRITY

The OSL Railroad Parker Truss Overpass is an excellent example of this bridge type, historically uncommon and increasingly rare in Idaho.

The OSL Railroad Parker Truss Overpass retains a good degree of integrity, with no substantial alterations to the original design or materials. The original workmanship, setting, and feeling of the structure are also 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.

This structure possesses the following aspects of integrity: location, setting, design, materials, workmanship, feeling, and association. It retains sufficient integrity to be NRHP eligible individually.

Location: This structure has not been moved, and thus retains integrity of location.

Setting: The historic rural setting is intact.

Design: Integrity of design is intact, visible primarily by means of the original steel truss members assembled and executed in the Parker truss design.

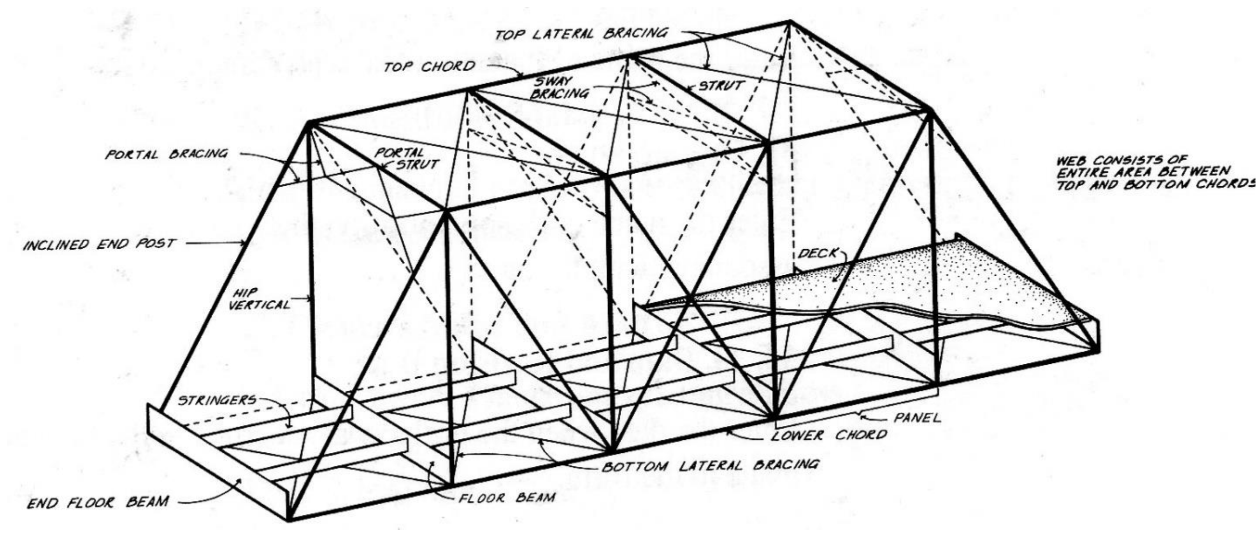
Materials: The property retains its integrity of materials, particularly by means of the original steel structural members.

Workmanship: Elements of workmanship are evident.

Feeling: The property's integrity of feeling is apparent through its retention of integrity of setting, design, materials, and workmanship, which combined, clearly convey a sense of past time and place.

Association: The association between this structure with the surrounding railroad and rural area is present.

Bridge-Specific Terminology Diagram[1]



Courtesy Historic American Engineering Record

[1] This diagram is included for the reader's reference as to bridge-specific terminology used in the description above. It should not be misinterpreted as an illustration of the OSL Railroad Parker Truss Overpass.

STATEMENT OF SIGNIFICANCE

The OSL Railroad Parker Truss Overpass is significant under National Register Criterion A in the area of Transportation and Criterion C in the area of Engineering. As defined by the Multiple Property Documentation Form for *Metal Truss Highway Bridges of Idaho,* it is an excellent example of the Parker truss bridge type. Built in 1936, the OSL Railroad Parker Truss Overpass is an example of an uncommon, bridge solution for a relatively long overpass span. Its riveted structure, as well as the concrete deck, piers, and abutment seats illustrate the technological advancements present during the period of significance.[2] As no historic name identifies this bridge, and previous survey used the name North Spencer Railroad Overpass, which does not describe the bridge truss type nor the specific feature crossed, using NRHP guidelines of resource naming, the more descriptive preferred name "OSL Railroad Parker Truss Overpass" has been assigned. This describes and identifies the location, design, and function of the structure.

ELIGIBILITY

The OSL Railroad Parker Truss Overpass is individually eligible for listing in the National Register of Historic Places under Criteria A and C. This structure is associated with significant trends in local history (Criterion A) and it retains sufficient integrity to communicate its historic engineering associations (Criterion C). At the same time, it is not known to be associated with a person significant in history and it has little potential to yield data in the future, and is thus not eligible under Criteria B or D.

ELABORATION

By 1910, 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.

Prior to 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, riveted technique rapidly surpassed pin-connected bridge construction during the first years of the twentieth century. The riveted construction of the OSL Railroad Parker Truss Overpass illustrates the standardization of this technique.

In addition, the contemporary development of economic cement production promoted the widespread combination of steel and concrete in bridge construction. By the 1920s, reinforced concrete was the standard material for abutments, piers, and decks of steel truss bridges. It was not uncommon for older metal truss bridges to receive new reinforced concrete decks or poured concrete reinforcements for older stone abutments. Interestingly, the OSL Railroad Parker Truss Overpass features basalt stone retaining wall abutments around the concrete abutment seat, an uncommon feature for a bridge built this far into the twentieth century.

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[2] Development of the immediate local area's history and development sufficient to establish and justify an accurate period of significance was outside the scope of this project. For the purposes of this project, as a placeholder the period of significance is given as beginning in 1936, the date of construction of the bridge, and ending in 1968, the 'fifty-year cut-off' established by the National Park Service as representing the span of time generally necessary to have passed before significance can be established.

The OSL Railroad Parker Truss Overpass is a classic example of this truss design. Patented in 1870, the Parker truss is a variation of the Pratt truss wherein the bottom and top chords are *not* parallel. The top chord of a Parker truss is segmented, with each segment connecting to each respective vertical post, which vary in height. The result is an overall arched shape when viewed in elevation. As with the Pratt truss, the Parker 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.[3] The benefit of the Parker truss design is that it used less material than the Pratt truss. However, the drawback was that the Parker truss assembly was more complex. A relatively uncommon bridge type of the late nineteenth and early twentieth centuries, the Parker truss bridge is most commonly executed as a through truss.[4]

In Idaho, Parker trusses were uncommon historically. A 1982 survey of steel truss bridges statewide identified only four Parker truss bridges statewide, including the OSL Railroad Parker Truss Overpass.

STRUCTURE HISTORY

Previous survey states Max Kuney built the OSL Railroad Parker Truss Overpass in 1936. Notice of the award is given in the Idaho State Department of Public Works minute books, wherein Max J. Kuney Company is listed as the "lowest and best bidder;" Kuney's successful bid was $90,321. Though the contract was awarded in February 1936, the historic record is as yet unclear if the bridge was in fact completed the same year. Original plans show a "J J B – C W "as the original bridge designer(s).

Max J. Kuney Company

Founded in 1930, this firm is still in business today as Kuney Construction and still based out of Spokane, Washington. The company's website states they are "one of the longest tenured General Contractors in the Northwest."

A native of Oregon, Max Kuney **(**1894-1981) began his career as a surveyor in Portland in the 1910s. By 1917 he was working as an engineer for A.E. Comm in Salem, Oregon. He later worked as a railroad construction engineer in Newport, Oregon, around 1920. Prior to founding his own business, Max Kuney was in the partnership, Crick & Kuney as early as 1928, at which time they bid on road and bridge projects in northern Idaho, including locations in Bonner, Nez Perce, and Kootenai counties. In July 1928 they were awarded a $54,048 contract for work on 5.8 miles of the North-South highway in Kootenai County.

In 1930, Kuney formed his own company and was listed in the census and city directories for the next several decades as a road/railroad contractor or 'heavy construction' contractor. Kuney's firm was involved in transportation and infrastructure projects throughout the Northwest over the next several decades. The company reportedly completed public works projects for the U.S. Army Corps, Navy, and Departments of Transportation in Washington, Oregon, Idaho, Montana, and Alaska. Notable projects included involvement on the 1960s completion of Dworshak Dam near Orofino, Idaho, and Spokane's elevated freeway. Kuney passed away in 1981 in Alameda, California, and yet his name is still attached to the successful construction company in Spokane.

Among the Kuney Company's known road construction projects contracted through the State of Idaho are the following:

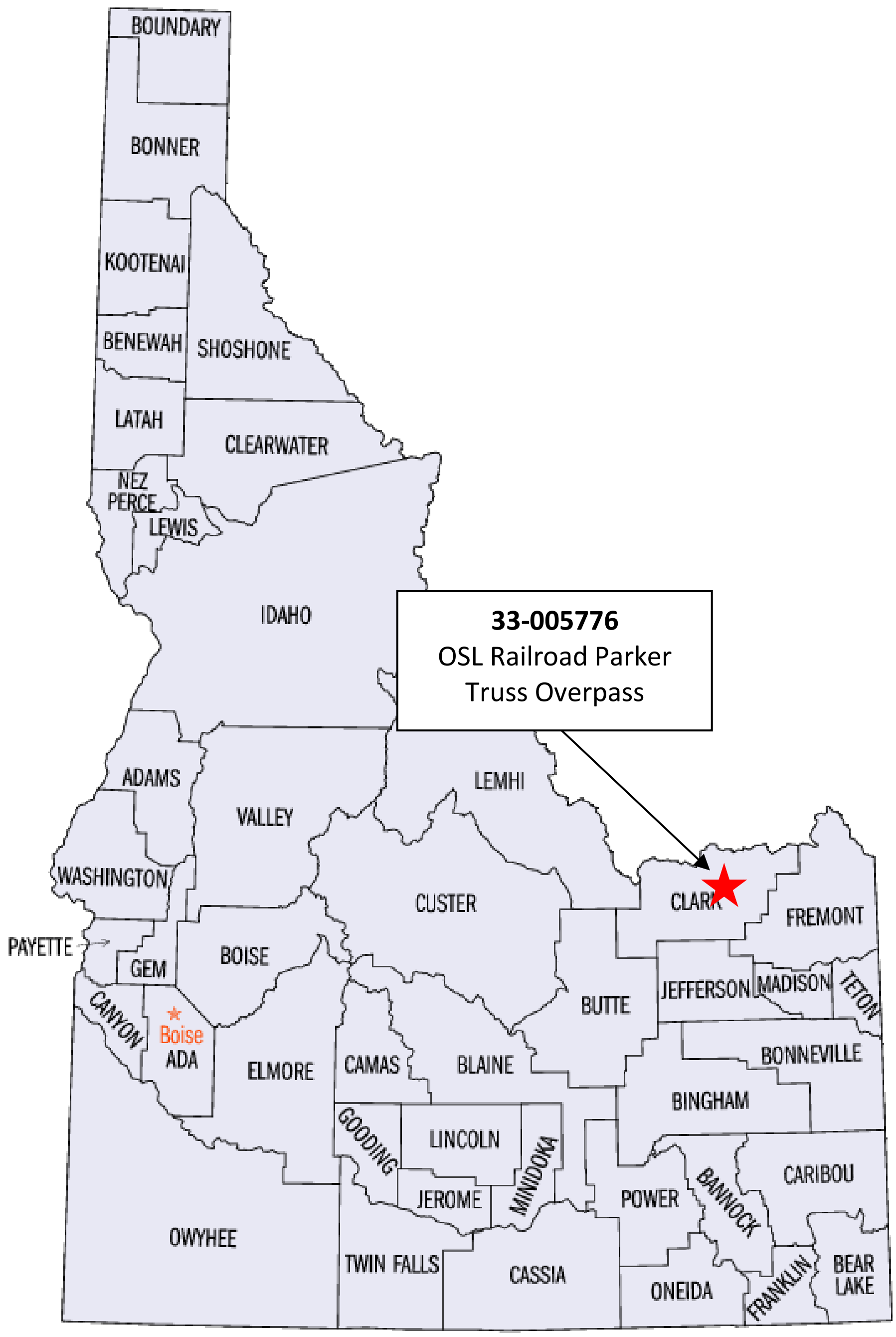
[3] T. Allan Comp and Donald Jackson, *Bridge Truss Types: A Guide to Dating and Identifying.* (Nashville, Tennessee: American Association for State and Local History, Technical Leaflet 95), 8.
[4] Ibid.

1935 – 15.5mi of road improvement (bituminous paving and rock shoulders) in Lewis and Nez Perce counties
1935 – 16.5mi of road improvement in Idaho County
1948 – Unspecified road improvement in Benewah and Kootenai counties
1949 – road improvement on Hwy 10 in Shoshone County
1950 – road construction/improvement along 8+ miles of US Hwy 95 in Latah County

Illinois Steel
Illinois Steel formed in 1889 from a consolidation of several existing, smaller steel companies in Illinois and Wisconsin that had been founded in the 1850s through 1870s. With controlling interests in railways, coal mines, iron mines, and limestone mines throughout the Midwest and Mid-Atlantic regions, the company grew to become one of the largest steel manufacturers nationwide. Various mergers at the turn of the twentieth century resulted in its consolidation into the newly formed Federal Steel Company and then U.S. Steel, the process of which included such prominent players as J.P. Morgan and Andrew Carnegie.

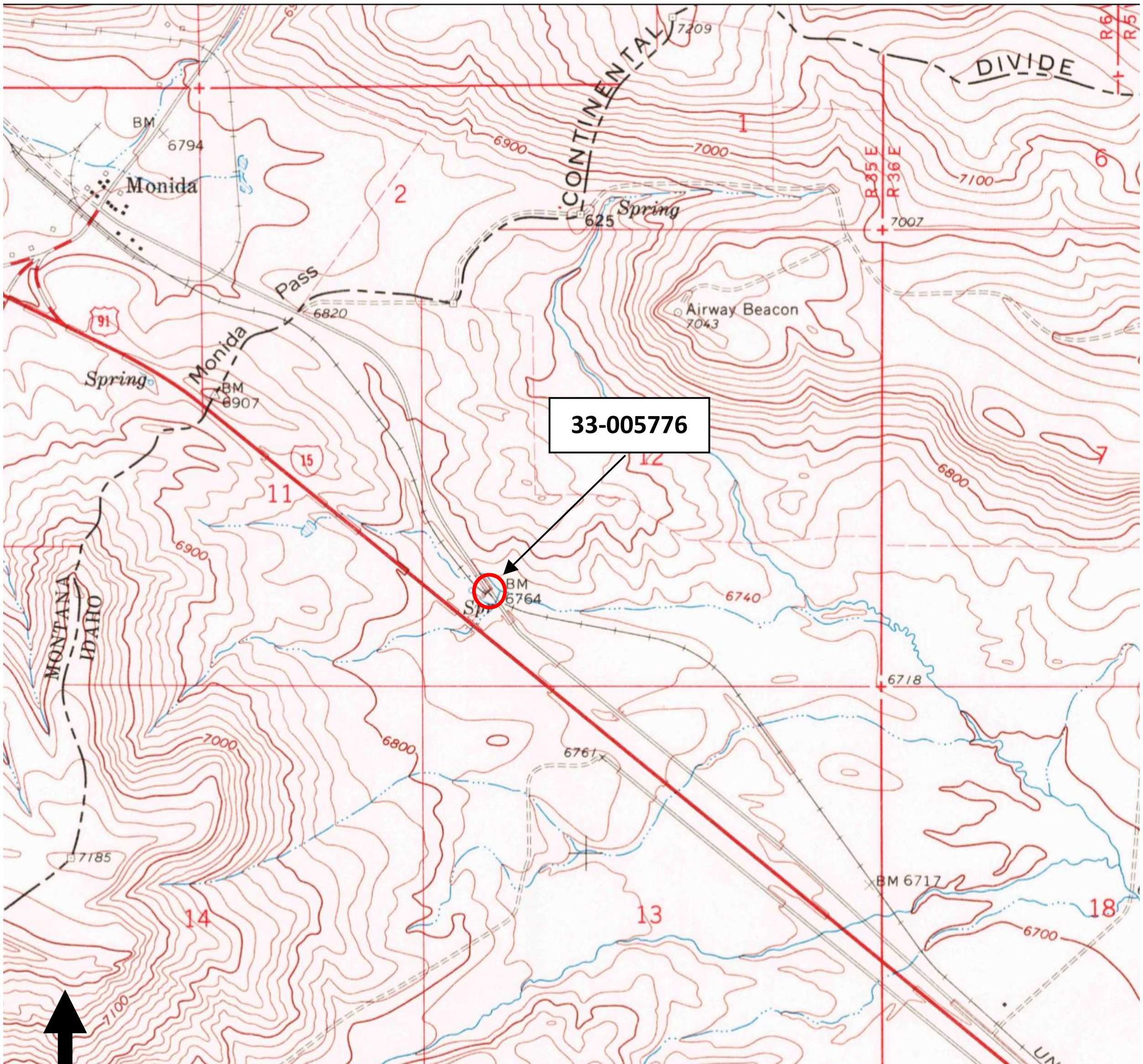
Spencer and vicinity
The village of Spencer dates to the arrival of the Utah and Northern Railroad in 1879, at which time it was named for Hiram H. Spencer, an area freighter. Population in the area finally reached sufficient numbers to warrant creation of Clark County (from Fremont County) in 1919.

Rand McNally's 1925 *Auto Trails Map of Idaho, Montana, and Wyoming*, shows Sampson Trail 'H' along (or close to) the route currently carried by the OSL Parker Truss Overpass Bridge; however, at the time the route (originally Idaho-Montana Highway) was an unpaved, graded vehicular track that would have had at-grade crossings of the railroad grade at the time. The following year, the route was designated U.S. Highway 91, which extended from Long Beach, California, to Coutts, Alberta, Canada; Spencer, and the nearby hamlet of Monida, Montana, both became roadside stops along the way. Peak usage on the route was after World War II and up to about 1965 when nearby Interstate 15 was introduced.



Idaho Counties

Map courtesy of http://www.censusfinder.com/mapid.htm



N

USGS, MONIDA QUADRANGLE, 1968, 7.5' Series
T14N R35E Section 12 – CLARK COUNTY, IDAHO

Aerial View of Vicinity
Courtesy Google Earth, Imagery 2018

33-005776, July 2017
View W-NW

33-005776, July 2017
View SE

33-005776, August 2013
View NE
Courtesy ITD Inspection Records

33-005776, August 2013
View N-NW

33-005776, July 2017
View SE

33-005776, July 2017
View NE, detail of aproach guardrail

33-005776, July 2017
View N of NW abutment

33-005776, July 2017
View N-NW of SE abutment

33-005776, July 2017
View of typical upper node

33-005776, July 2017
Detail view of manufacturer's mark

33-005776, July 2017
View of typical upper node

IDAHO-MONTANA HIGHWAY
Clark County
Idaho U.S.W.P. Grade Crossing Project W.P.G.H. 199

Bids for the construction of a 295.7' concrete overhead structure over the Oregon Short Line Railroad and grading and draining and surfacing the approaches on 0.488 miles of the Idaho-Montana Highway at Monida, known as U.S.W.P. Grade Crossing Project W.P.G.H. 199 in Clark County, were received at the office of the Department of Public Works until 2:00 P.M., January 31, 1936, and were publicly opened and read by J. H. Stemmer, acting for the Commissioner. The Bureau of Public Roads was represented by E. E. Kidder, Senior Highway Engineer.

The following bids were received:

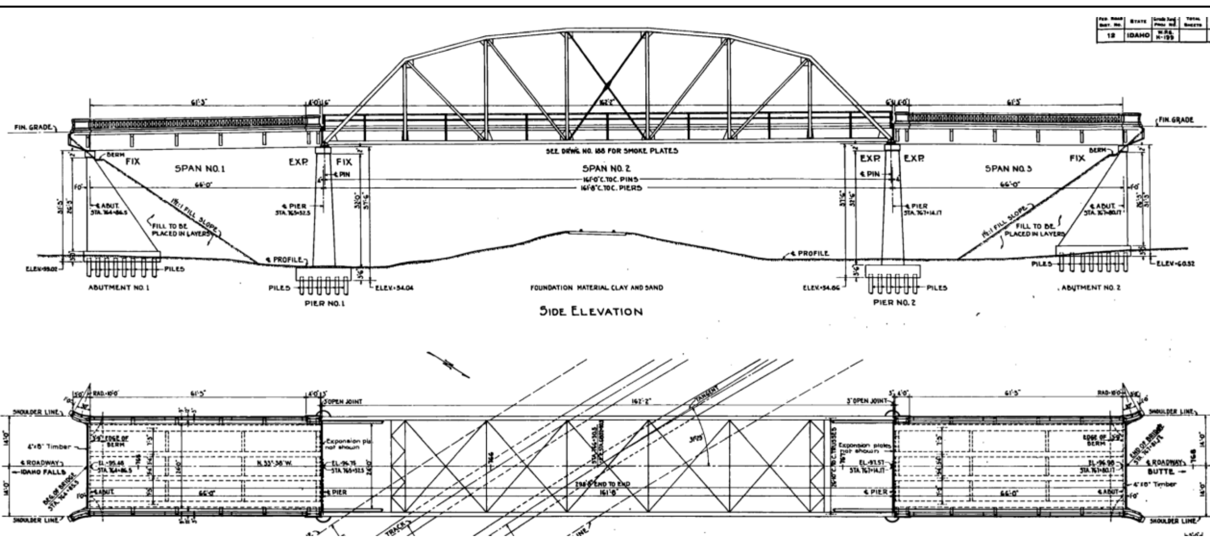
	Resiliflex	Tuthill
Max J. Kuney Company	$90,321.00	$90,451.00
Nick Burggraf & J.W.Brennan	93,523.00	93,653.00
Moser & Hill	95,036.00	95,036.00
James Crick	96,248.00	96.508.00
Olof Nelson	97,736.00	97,866.00
Gibbons & Reed	97,921.50	97,921.50
J. C. Maguire & Company	112,237.00	
ENGINEER'S ESTIMATE	85,911.50	

The contract is hereby declared awarded to Max J. Kuney Company of Spokane, Washington, the lowest and best bidder, on their low bid covering the use of "Resiliflex" guard rail.

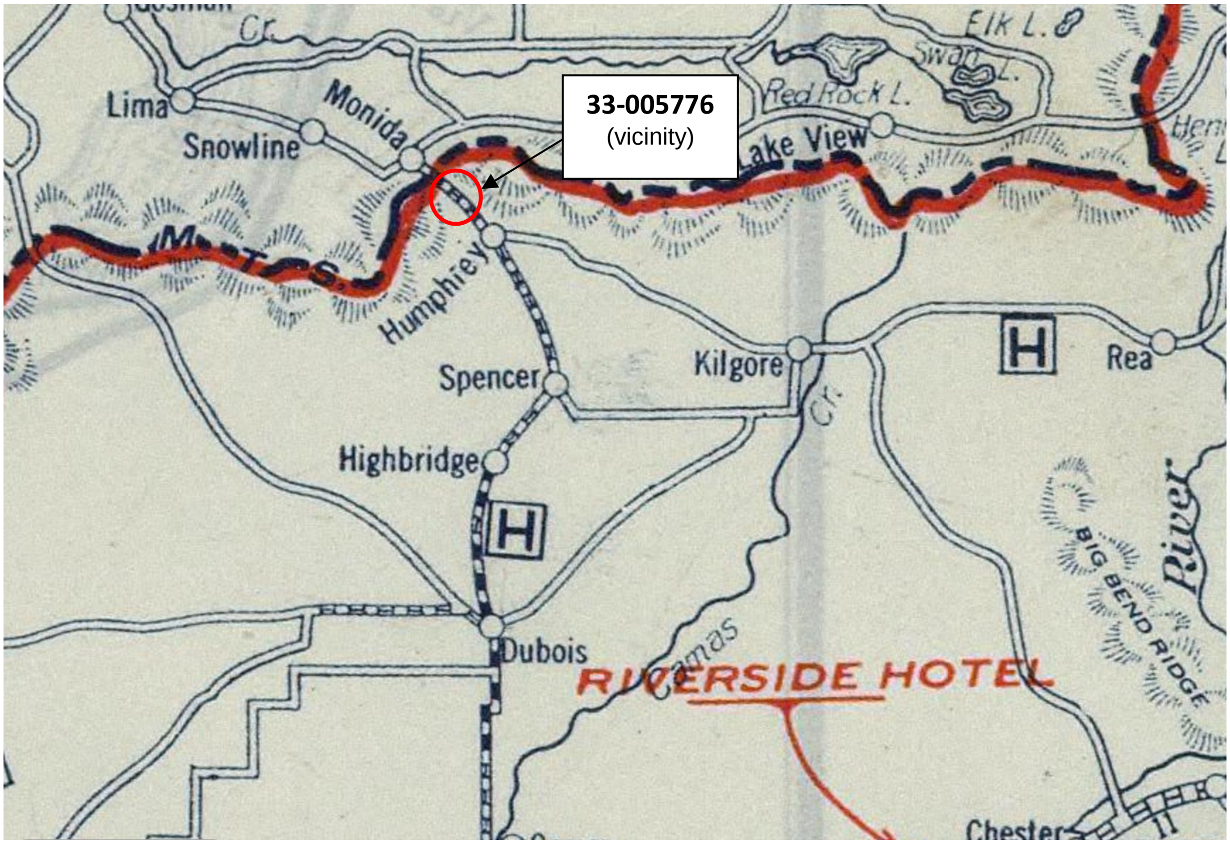
COMMISSIONER OF PUBLIC WORKS

Done at Boise, Idaho
February 1, 1936

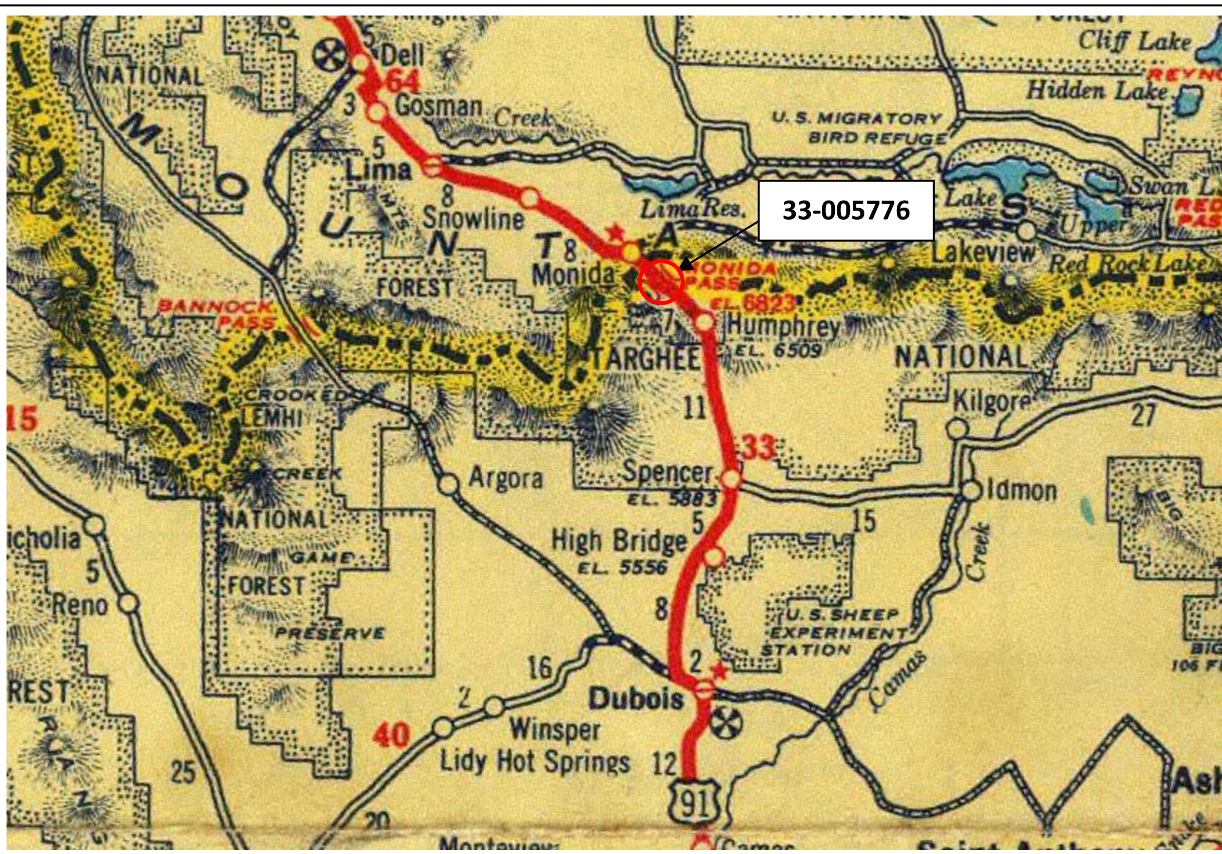
Idaho State Department of Public Works Minute Book, 1935-1936. Detail of bid review and award to Kuney
Courtesy ITD Photograph Collection Onlin http://cdm16876.contentdm.oclc.org/cdm/



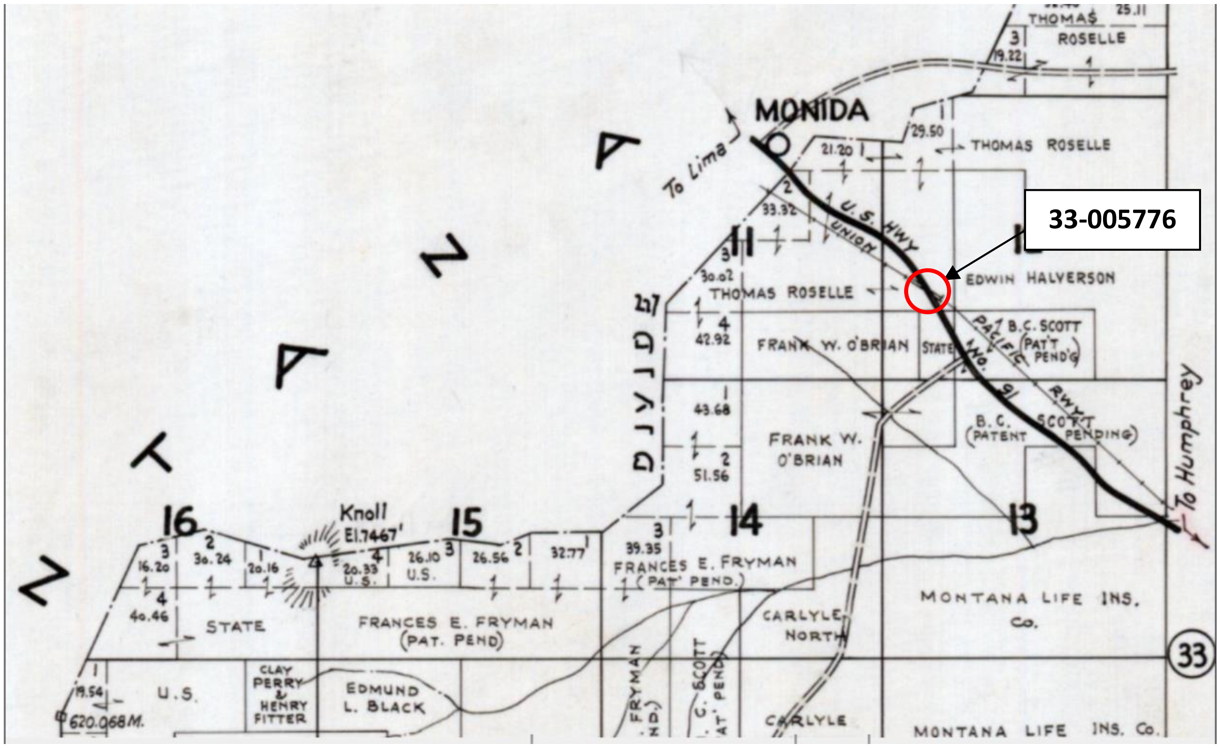
Detail of original plans.
Courtesy ITD Archives



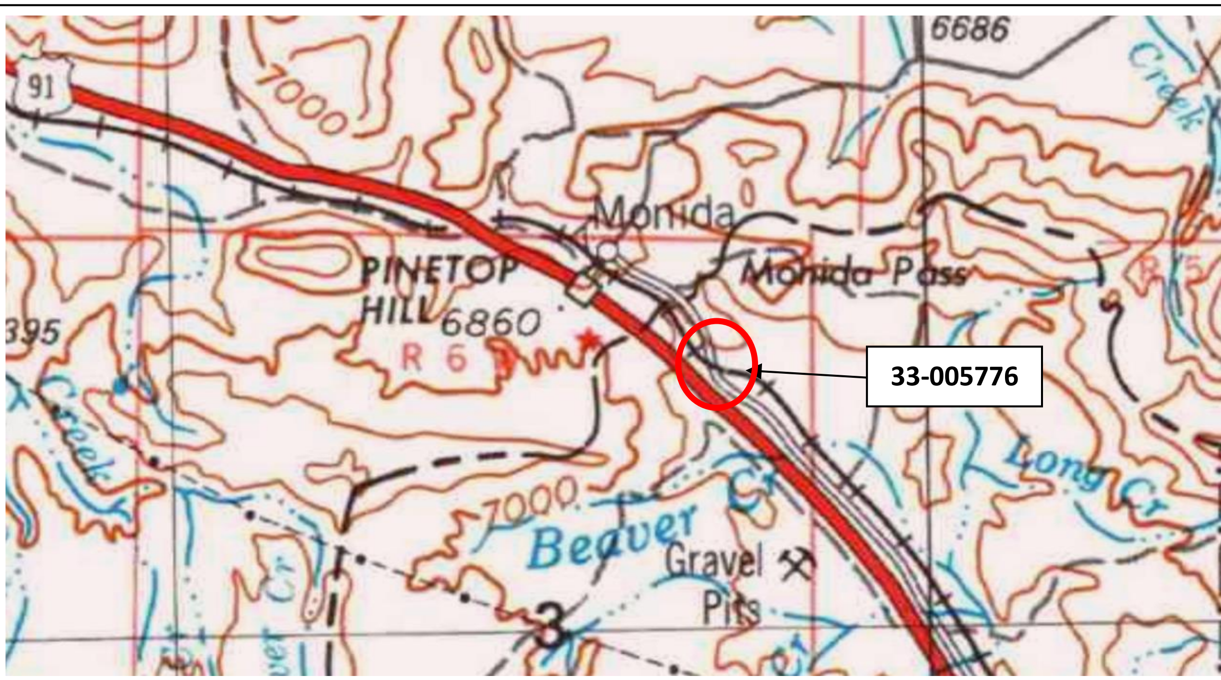
Rand McNally's Auto Trails of Idaho-Montana-Wyoming, 1925
Courtesy DavidRumsey.com



Rand McNally's Auto Trails of Idaho-Montana-Wyoming, 1937
Courtesy DavidRumsey.com



Metsker's Atlas of Clark County, 1940
Courtesy HistoricMapWorks.com



USGS Dubois, Idaho Quadrangle, 1:25,000 1955
Courtesy USGS.gov

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Pleasant Valley Creek Steel Arch Truss Bridge
FIELD#: 33-005777
STREET: Old Hwy 91; 6.9 N, 1.5 W of Spencer
RESTRICT: ☐

CITY: Spencer | VICINITY: ☑ | COUNTY CD: 33 | COUNTY NAME: Clark
SUBNAME: | BLOCK: | SUBLOT: | ACRES: 1 | LESS THAN: ☑
TAX PARCEL: | UTMZ: 12 | EASTING: 402956 | NORTHING: 4923442
TOWNSHIP: 13 | N_S: N | RANGE: 36 | E_W: E | SECTION: 16 | NE ¼, ¼ | NE ¼
QUADRANGLE: Spencer North | OTHERMAP:
SANBORN MAP: | SANBORN MAP#: | PHOTO#: Digital

PROPERTY TYPE: Structure
CONST/ACT1: Original Construction | ACTDATE1: 1934 | CIRCA1: ☐
CONST/ACT2: Alteration | ACTDATE2: 2016 | CIRCA2: ☐
ASSOCIATED FEATURES: | TOTAL # FEATURES:

ORIGINAL USE: Transportation | WALL MATERIAL:
ORIGSUBUSE: Road-related | FOUND. MATERIAL: CONCRETE
CURRENT USE: Transportation | ROOF MATERIAL:
CURSUBUSE: Road-related | OTHER MATERIAL: METAL:Steel
ARCHSTYLE: Other:Pratt Cantilevered "Arch" Deck Truss | PLAN: Rectangular | CONDITION: Excellent

NR REF #: | NPS CERT: | ACTIONDATE: | FUTURE ELIG DATE:
DIST/MPLNAME1: Metal Truss Highway Bridges of Idaho | DIST/MPLNAME2:

Individually Eligible ☑ | Contributing in a potential district ☐ | Noncontributing ☐ | Future eligibility ☐
Not Eligible ☐ | Multiple Property Study ☑ | Not evaluated ☐

CRITERIA: A ☑ B ☐ C ☑ D ☐
CRITERIA CONSIDERATION: A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G ☐
AREA OF SIGNIF: Transportation | AREA OF SIGNIF: Engineering

COMMENTS: Previously surveyed in 2008, this abbreviated IHSI documentation is provided merely as supplemental documentation. The bridge received a new deck and guard rail balustrade in 2016. Field survey verified this bridge retains all seven aspects of integrity and remains individually eligible.

PROJ/RPT TITLE: Steel Bridges of Eastern Idaho Survey (ITD Key No. 12479 - Mitigation) | SVY DATE: 7/9/17 | SVY LEVEL: Reconnaissance
RECORDED BY: Kerry Davis, PSLLC | PH: 816-225-5605 | ADDRESS: 1007 E. Jefferson Street, Boise, ID 83712
SUBMITTED PHOTOS ☑ NEGS ☐ SLIDES ☐ SKETCH MAP ☑

SVY RPT #: | ******** FOR ISHPO USE ONLY ******** | IHSI#: 33-005777
MS RPT #: | SITS#:
IHPR #: | HABS NO. ID-: | HAER NO. ID-: | REV#:

CS #: | IHSI# REF: | NR REF# 2: | REV# REF:
SVY RPT# 1: | SVY RPT# 2: | SVY RPT# 3: | MS RPT# 1: | MS RPT# 2:

ADD'L NOTES: District 6. Last surveyed 2008. ITD Milepost reference: 007.536.
MORE DATA ☑
ATTACH ☑

REV# | SITS# | IHSI#

OF PHOTOS: | NEGBOX#: | # OF SLIDES: | SHPO DETER: | DETER DATE:
INITIALED: | ENTRY DATE: | REVISE1: | REVISE2: | REVISE3:

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Pleasant Valley Creek Steel Arch Truss Bridge
IHSI#: 33-005777
FIELD#: 33-005777
COUNTY NAME: Clark
OTHER NAME: ITD Key #31610; ITD Structure Name X996170 8.43
COUNTY CD: 33
CITY: Spencer
VICINITY: ☑
UTM REF2:
UTM REF3:
UTM REF4:

OTHER MATERIAL2: CONCRETE
CULTAFFIL:
AGENCYCERT: Local
SIGNIFDATE:
SIGNIFPERIOD:
SIGNIFPERSON:
ARCH/BUILD: Idaho Bureau of Public Roads
ARCHPLANS: ☑
TAXEASE: ☐
TAXCERT: ☐
OWNERSHIP: Public-Local
PROPOWN: Clark County
MORE DATA: ☑
ATTACH: ☑

DOCSOURCE: ITD records; SHPO records; USGS Quads

ADD'L NOTES: District 6. Last surveyed 2008. ITD Milepost reference: 007.536.

COMMENTS: Previously surveyed in 2008, this abbreviated IHSI documentation is provided merely as supplemental documentation. The bridge received a new deck and guard rail balustrade in 2016. Field survey verified this bridge retains all seven aspects of integrity and remains individually eligible.

PHOTO LOG: ☐
IHSI# REF:
INITIALED:
DATEENTERED:

SKETCH: ☑

IHSI# ______
SITS# ______
REV# ______

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Pleasant Valley Creek Steel Arch Truss Bridge

IHSI#: 33-005777

FIELD#: 33-005777

COUNTY NAME: Clark

COMMENTS:

Previously surveyed in 2008, this abbreviated IHSI documentation is provided merely as supplemental documentation. The bridge received a new deck and guard rail balustrade in 2016. Field survey verified this bridge retains all seven aspects of integrity and remains individually eligible.

ATTACH ☑

IHSI# ____________

SITS# ____________

REV# ____________

33-005777 (ITD Key #31610), July 2017
View SE

33-005777 (ITD Key #31610), July 2017
View N-NE

33-005777 (ITD Key #31610), July 2017
View S-SW

33-005777 (ITD Key #31610), July 2017
View N from SW corner of bridge deck

33-005777 (ITD Key #31610), July 2017
View of bench mark within new concrete guard rail (SW corner of bridge deck)

33-005777 (ITD Key #31610), July 2017
View N-NE from south abutment

33-005777 (ITD Key #31610), July 2017
View S-SW at south abutment

33-005777 (ITD Key #31610), July 2017
View N-NE at north abutment

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Salmon River Pratt Truss Bridge (Lyon Creek) | FIELD#: 37-004918

STREET: Broken Wing Ranch Road at Salmon River; 23112 HIGHWAY 75 | RESTRICT: ☐

CITY: Clayton | VICINITY: ☑ | COUNTY CD: 37 | COUNTY NAME: Custer

SUBNAME: | BLOCK: | SUBLOT: | ACRES: 1 | LESS THAN: ☑

TAX PARCEL: | UTMZ: 11 | EASTING: 716093 | NORTHING: 4910724

TOWNSHIP: 11 | N_S: N | RANGE: 18 | E_W: E | SECTION: 1 | NW ¼, ¼ NW ¼

QUADRANGLE: Bald Mountain | OTHERMAP:

SANBORN MAP: | SANBORN MAP#: | PHOTO#: Digital

PROPERTY TYPE: Structure | CONST/ACT1: Original Construction | ACTDATE1: 1915 | CIRCA1: ☑

CONST/ACT2: | ACTDATE2: | CIRCA2: ☐

ASSOCIATED FEATURES: bridge | TOTAL # FEATURES: 1

ORIGINAL USE: Transportation | WALL MATERIAL:

ORIGSUBUSE: Road-related | FOUND. MATERIAL: CONCRETE

CURRENT USE: Transportation | ROOF MATERIAL:

CURSUBUSE: Road-related | OTHER MATERIAL: METAL:Steel

ARCHSTYLE: Other:Pratt Through Truss | PLAN: Rectangular | CONDITION: Good

---

NR REF #: | NPS CERT: | ACTIONDATE: | FUTURE ELIG DATE:

DIST/MPLNAME1: Metal Truss Highway Bridges of Idaho | DIST/MPLNAME2:

Individually Eligible ☑ | Contributing in a potential district ☐ | Noncontributing ☐ | Future eligibility ☐

Not Eligible ☐ | Multiple Property Study ☑ | Not evaluated ☐

CRITERIA: A ☑ B ☐ C ☑ D ☐ | CRITERIA CONSIDERATION: A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G ☐

AREA OF SIGNIF: Transportation | AREA OF SIGNIF: Engineering

COMMENTS: This bridge accesses Broken Wing Ranch on the left (west) bank of the Salmon River from State Highway 75 on the right (east) bank. Custer County Assessor records indicate the ranch property upon which the west abutment stands is owned by Thompson Creek Mining Co., PO Box 600, Challis, Idaho, 83226; the same records show the east abutment rests upon BLM land within the ROW of SH75

PROJ/RPT TITLE: Steel Bridges of Eastern Idaho Survey (ITD Key No. 12479 - Mitigation) | SVY DATE: 9/16/17 | SVY LEVEL: Reconnaissance

RECORDED BY: Kerry Davis, PSLLC | PH: 816-225-5605 | ADDRESS: 1007 E. Jefferson Street, Boise, ID 83712

SUBMITTED PHOTOS ☑ NEGS ☐ SLIDES ☐ SKETCH MAP ☑

SVY RPT #: | ******** FOR ISHPO USE ONLY ******** | IHSI#: 37-004918

MS RPT #: | SITS#:

IHPR #: | HABS NO. ID-: | HAER NO. ID-: | REV#:

CS #: | IHSI# REF: | NR REF# 2: | REV# REF:

SVY RPT# 1: | SVY RPT# 2: | SVY RPT# 3: | MS RPT# 1: | MS RPT# 2:

ADD'L NOTES: District 6. Last surveyed 1982.

MORE DATA ☑

ATTACH ☑

OF PHOTOS: | NEGBOX#: | # OF SLIDES: | SHPO DETER: | DETER DATE:

INITIALED: | ENTRY DATE: | REVISE1: | REVISE2: | REVISE3:

REV# | SITS# | IHSI#

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Salmon River Pratt Truss Bridge (Lyon Creek)

IHSI#: 37-004918

FIELD#: 37-004918

COUNTY NAME: Custer

OTHER NAME: Broken Wing Ranch Bridge; No ITD Bridge Key#

COUNTY CD: 37

CITY: Clayton

VICINITY: ☑

UTM REF2:

UTM REF3:

UTM REF4:

OTHER MATERIAL2: WOOD

CULTAFFIL:

AGENCYCERT: Local

SIGNIFDATE:

SIGNIFPERIOD:

SIGNIFPERSON:

ARCH/BUILD:

ARCHPLANS ☐ TAXEASE ☐ TAXCERT ☐

OWNERSHIP: Private

PROPOWN:

MORE DATA ☑ ATTACH ☑

DOCSOURCE: ITD records; SHPO records; USGS Quads

ADD'L NOTES: District 6. Last surveyed 1982.

COMMENTS: This bridge accesses Broken Wing Ranch on the left (west) bank of the Salmon River from State Highway 75 on the right (east) bank. Custer County Assessor records indicate the ranch property upon which the west abutment stands is owned by Thompson Creek Mining Co., PO Box 600, Challis, Idaho, 83226; the same records show the east abutment rests upon BLM land within the ROW of SH75.

Though previous survey referred to this bridge's name as Broken Wing Ranch Bridge, it is undetermined if the ranch is historically associated with the bridge. As such, current survey defaults to NRHP resource naming guidelines in the absence of a documented historic name, which dictate the preferred name should decribe and identify the location, design, and function of the structure, hence the name "Salmon River Pratt Truss Bridge (Lyon Creek)."

PHOTO LOG ☐ IHSI# REF: INITIALED: DATEENTERED:

SKETCH ☑

IHSI# ______

SITS# ______

REV# ______

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Salmon River Pratt Truss Bridge (Lyon Creek)

IHSI#: 37-004918

FIELD#: 37-004918

COUNTY NAME: Custer

COMMENTS:

This bridge accesses Broken Wing Ranch on the left (west) bank of the Salmon River from State Highway 75 on the right (east) bank. Custer County Assessor records indicate the ranch property upon which the west abutment stands is owned by Thompson Creek Mining Co., PO Box 600, Challis, Idaho, 83226; the same records show the east abutment rests upon BLM land within the ROW of SH75.

Though previous survey referred to this bridge's name as Broken Wing Ranch Bridge, it is undetermined if the ranch is historically associated with the bridge. As such, current survey defaults to NRHP resource naming guidelines in the absence of a documented historic name, which dictate the preferred name should decribe and identify the location, design, and function of the structure, hence the name "Salmon River Pratt Truss Bridge (Lyon Creek)."

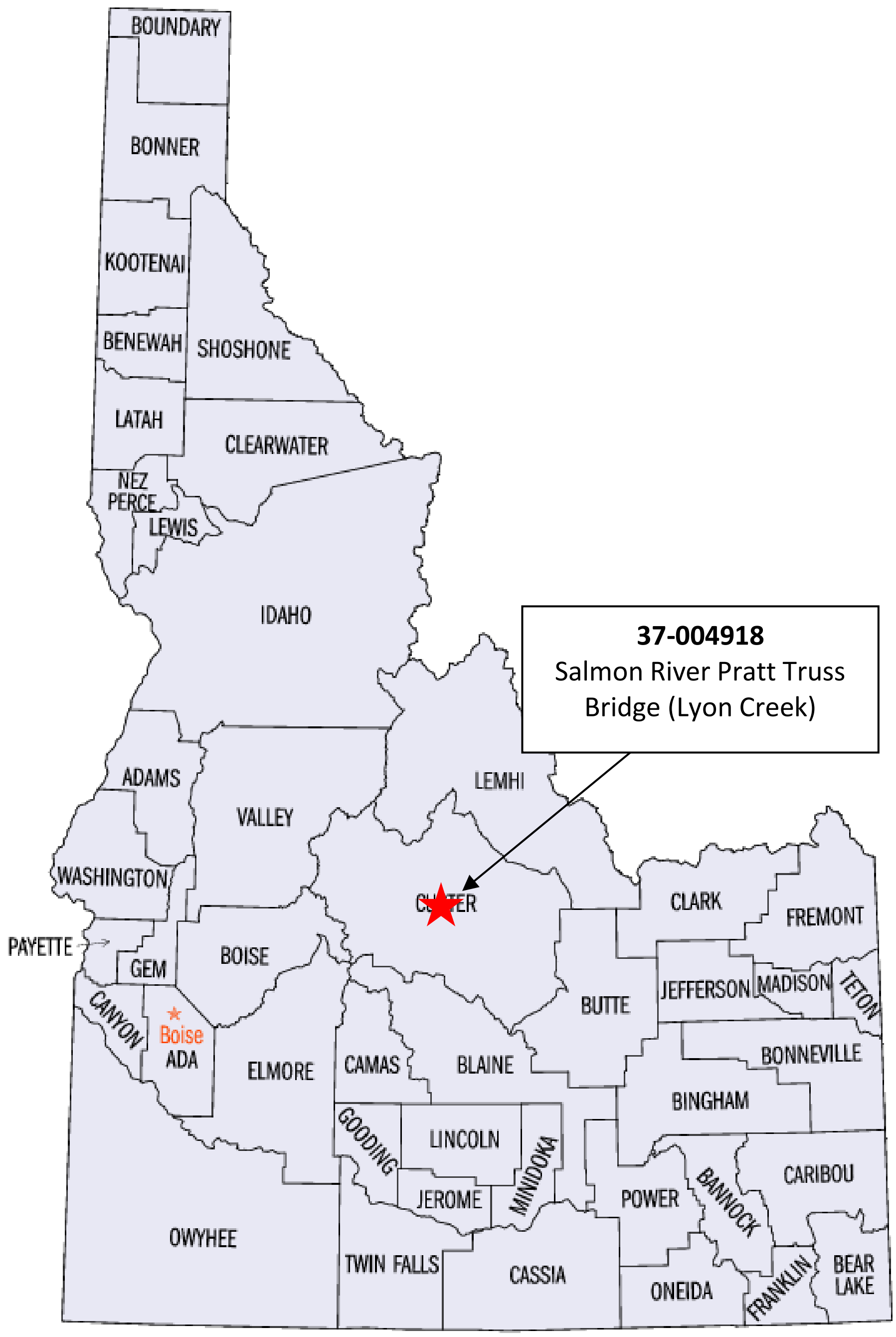
Previous survey dated this bridge to c.1910 but provided no citations or sources. Located between the Salmon River Pratt Truss Bridge at Bayhorse Creek (37-005784; ITD Key #31660) and the Salmon River Parker Truss Bridge (37-005783; ITD Key 31650) and of the same era and similar construction techniques, it is very possible this bridge is one of five built over the Salmon River in Custer County in 1915. That year, the Custer County Commission secured a $35,000 bond to fund the endeavor and the Idaho State Highway Commission allocated funds as part of their development of the Sawtooth Park Highway. Each of the five bridges were to be of steel construction and replace existing timber bridges at each location. Though each bridge project was let under separate contracts, J.H. Forbes reportedly secured all of them.

According to previous survey, in 1982, the Salmon River Parker Truss Bridge (37-005783; ITD Key 31650) and the Salmon River Pratt Truss Bridge at Bayhorse Creek (37-005784; ITD Key #31660) are the only two of the original five bridges still standing from that construction endeavor. However, it is very possible the c.1915 pin-connected Salmon River Pratt Truss Bridge (Lyon Creek) is one of the original five. (Additional field access (bridge is on private property and clearly posted) and research beyond the scope of this project would be necessary to corroborate this possibility.)

This abbreviated IHSI documentation is provided merely as supplemental documentation. Field survey verified this bridge retains all seven aspects of integrity and is individually eligible per the statewide MPDF registration requirements for Metal Truss Highway Bridges of Idaho.

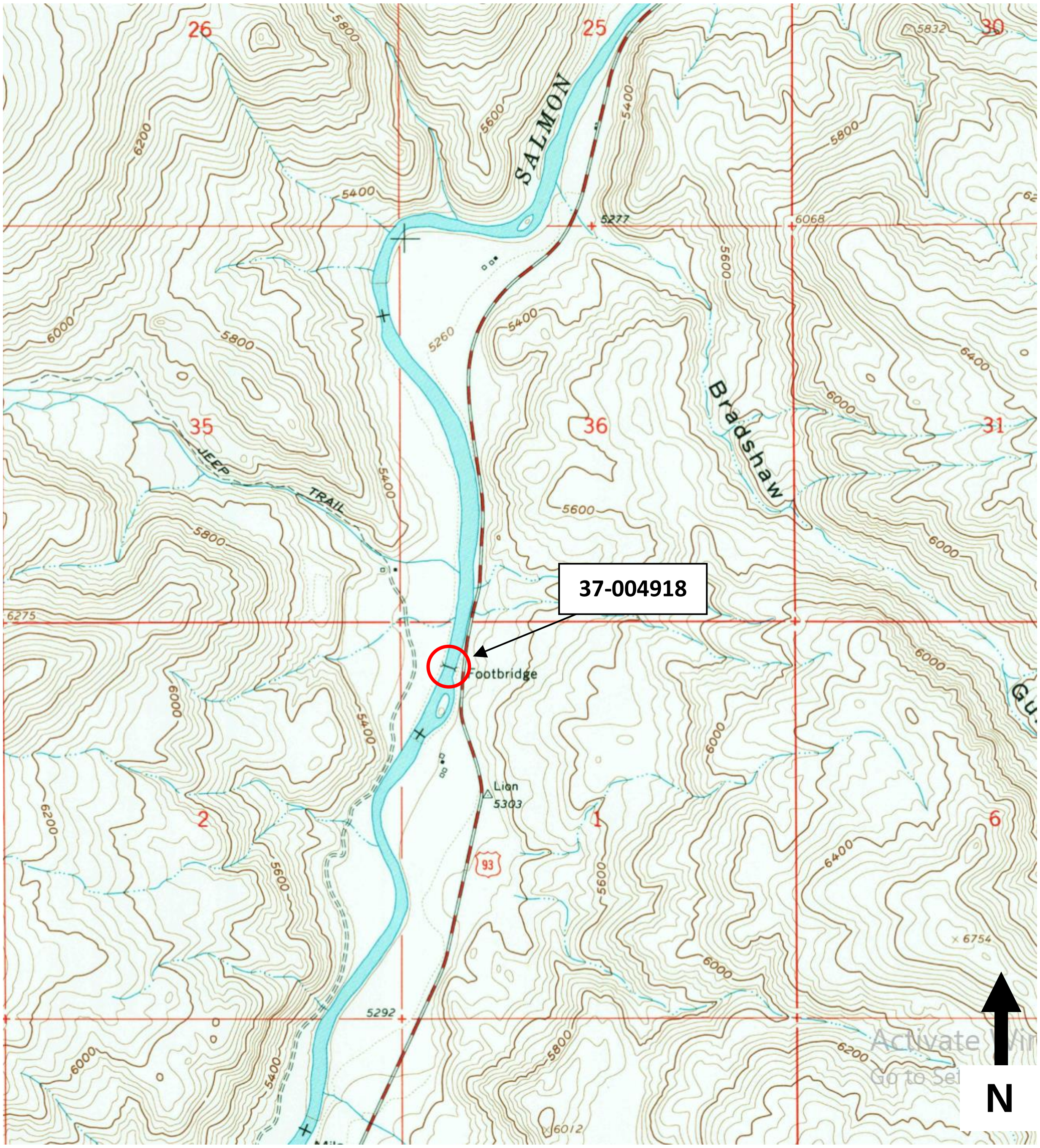
ATTACH ☑

IHSI# ______
SITS# ______
REV# ______

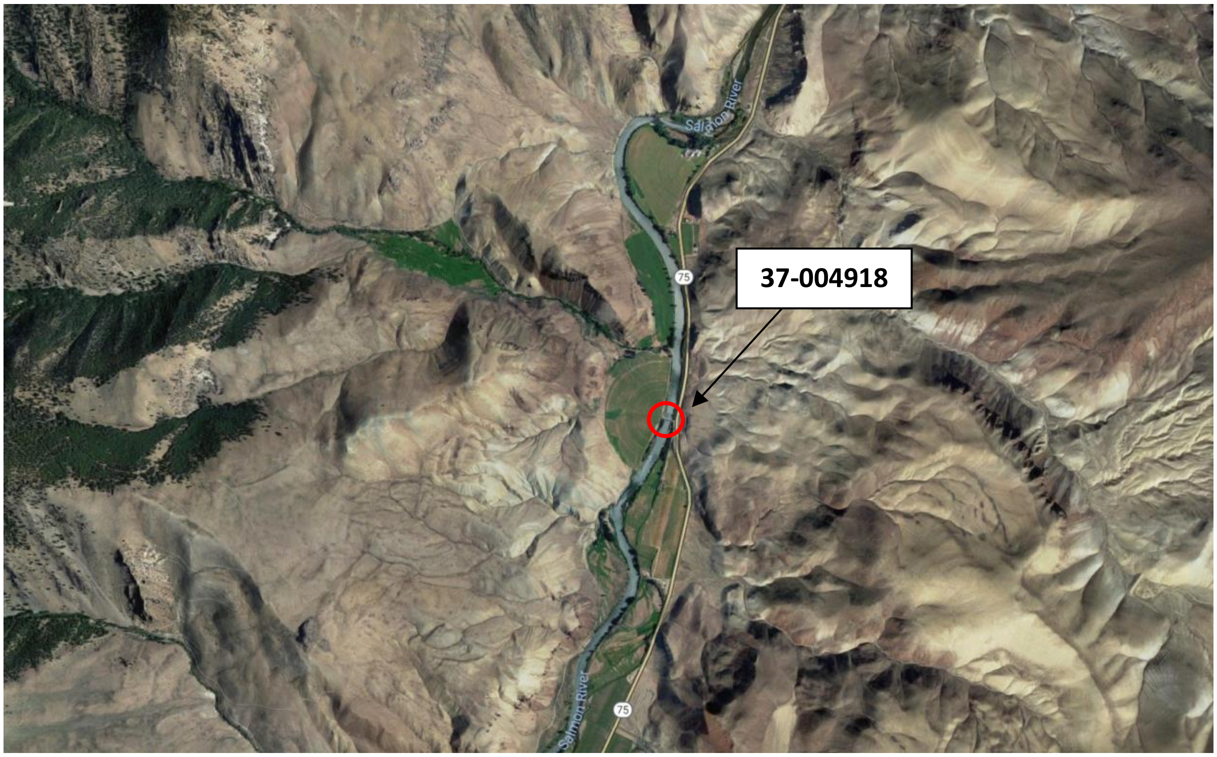


Idaho Counties

Map courtesy of http://www.censusfinder.com/mapid.htm



USGS, BALD MOUNTAIN QUADRANGLE, 1963, 7.5’ Series
T11N R18E Section 1 – CUSTER COUNTY, IDAHO



Aerial View of Vicinity
Courtesy Google Earth, Imagery 2018

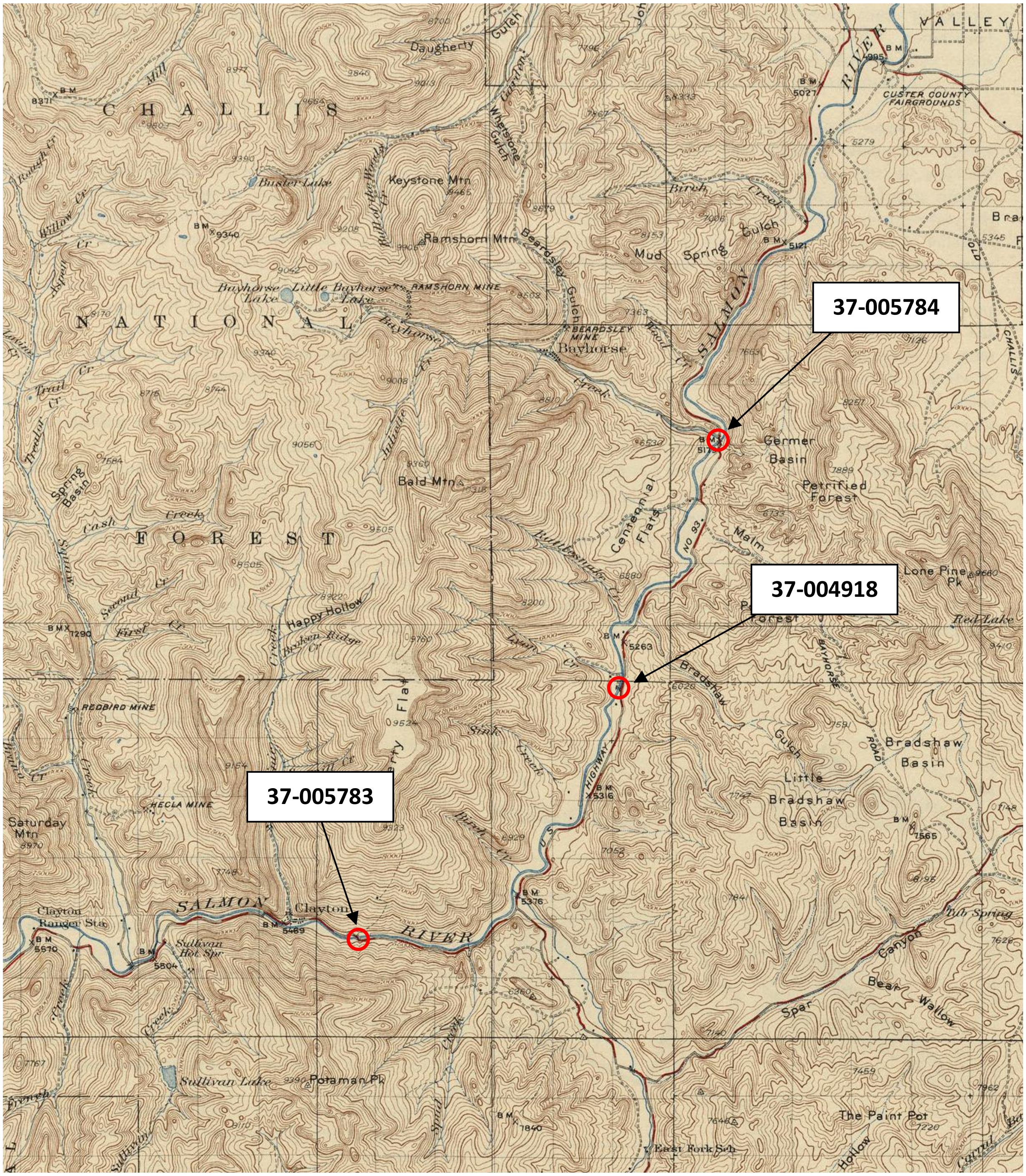
37-004918, September 2017
View N-NW

37-004918, September 2017
View W-NW

37-004918, September 2017
View SW

37-004918, September 2017
View SW, typical bottom node

37-004918, September 2017
View W-SW, norteast upper node detail



USGS Bayhorse Quadrangle, 1929

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Salmon River Parker Truss Bridge
FIELD#: 37-005783
STREET: Mule Shoe Mine Rd. off Old US 93 (SH 75); 0.3 S, 0.9 E of Clayton
RESTRICT: ☐
CITY: Clayton | VICINITY: ☑ | COUNTY CD: 37 | COUNTY NAME: Custer
SUBNAME: | BLOCK: | SUBLOT: | ACRES: 1 | LESS THAN: ☑
TAX PARCEL: | UTMZ: 11 | EASTING: 709171 | NORTHING: 4903645
TOWNSHIP: 11 | N_S: N | RANGE: 18 | E_W: E | SECTION: 30 | SW ¼, ¼ NE ¼
QUADRANGLE: Clayton | OTHERMAP:
SANBORN MAP: | SANBORN MAP#: | PHOTO#: Digital

PROPERTY TYPE: Structure
CONST/ACT1: Original Construction | ACTDATE1: 1915 | CIRCA1: ☑
CONST/ACT2: Alteration | ACTDATE2: 1930 | CIRCA2: ☑
ASSOCIATED FEATURES: bridge
TOTAL # FEATURES: 1
ORIGINAL USE: Transportation | WALL MATERIAL:
ORIGSUBUSE: Road-related | FOUND. MATERIAL: CONCRETE
CURRENT USE: Transportation | ROOF MATERIAL:
CURSUBUSE: Road-related | OTHER MATERIAL: METAL:Steel
ARCHSTYLE: Other:Parker Through Truss | PLAN: Rectangular | CONDITION: Good

NR REF #: | NPS CERT: | ACTIONDATE: | FUTURE ELIG DATE:
DIST/MPLNAME1: Metal Truss Highway Bridges of Idaho
DIST/MPLNAME2:

Individually Eligible ☑ | Contributing in a potential district ☐ | Noncontributing ☐ | Future eligibility ☐
Not Eligible ☐ | Multiple Property Study ☑ | Not evaluated ☐

CRITERIA: A ☑ B ☐ C ☑ D ☐
CRITERIA CONSIDERATION: A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G ☐
AREA OF SIGNIF: Transportation | AREA OF SIGNIF: Engineering

COMMENTS: See continuation sheets for elaborated description, history, significance, and eligibility.

PROJ/RPT TITLE: Steel Bridges of Eastern Idaho Survey (ITD Key No. 12479 - Mitigation)
SVY DATE: 9/16/17 | SVY LEVEL: Intensive
RECORDED BY: Kerry Davis, PSLLC | PH: 816-225-5605 | ADDRESS: 1007 E. Jefferson Street, Boise, ID 83712
SUBMITTED PHOTOS ☑ NEGS ☐ SLIDES ☐ SKETCH MAP ☑

******** FOR ISHPO USE ONLY ********

SVY RPT #: | IHSI#: 37-005783
MS RPT #: | SITS#:
IHPR #: | HABS NO. ID-: | HAER NO. ID-: | REV#:
CS #: | IHSI# REF: | NR REF# 2: | REV# REF:
SVY RPT# 1: | SVY RPT# 2: | SVY RPT# 3: | MS RPT# 1: | MS RPT# 2:
ADD'L NOTES: District 6. Last surveyed 1982. ITD Milepost reference: 100.022
MORE DATA ☑
ATTACH ☑
OF PHOTOS: | NEGBOX#: | # OF SLIDES: | SHPO DETER: | DETER DATE:
INITIALED: | ENTRY DATE: | REVISE: | REVISE: | REVISE:

REV# | SITS# | IHSI#

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Salmon River Parker Truss Bridge
IHSI#: 37-005783
FIELD#: 37-005783
COUNTY NAME: Custer
OTHER NAME: ITD Key#31650; ITD Structure Name X996190 0.02
COUNTY CD: 37
CITY: Clayton
VICINITY: ☑
UTM REF2:
UTM REF3:
UTM REF4:

OTHER MATERIAL2: WOOD
CULTAFFIL:
AGENCYCERT: Local
SIGNIFDATE:
SIGNIFPERIOD:
SIGNIFPERSON:
ARCH/BUILD:
ARCHPLANS: ☐
TAXEASE: ☐
TAXCERT: ☐
OWNERSHIP: Public-Local
PROPOWN: Custer County
MORE DATA: ☑
ATTACH: ☑

DOCSOURCE: ITD records; SHPO records; USGS Quads; Bridgehunter.com

ADD'L NOTES: District 6. Last surveyed 1982. ITD Milepost reference: 100.022

COMMENTS: See continuation sheets for elaborated description, history, significance, and eligibility.

PHOTO LOG ☐ IHSI# REF: INITIALED: DATEENTERED:

SKETCH ☑

IHSI#
SITS#
REV#

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Salmon River Parker Truss Bridge

IHSI#: 37-005783

FIELD#: 37-005783

COUNTY NAME: Custer

COMMENTS:

See continuation sheets for elaborated description, history, significance, and eligibility.

ATTACH ☑

IHSI# ______

SITS# ______

REV# ______

DESCRIPTION

LOCATION and SETTING

The Salmon River Parker Truss Bridge is located just off State Highway 75 about 0.3 miles south and 0.9 miles west of the hamlet of Clayton in south central Idaho, in the NE ¼ of Section 30, Township 11N, Range 18E. The region is defined by bare, rocky, steep slopes and relatively narrow sections of flat bottom lands occupied by ranching and irrigated farming operations. The Salmon River Parker Truss Bridge carries Mule Shoe Mine Road over the Salmon River, a long, undammed tributary of the Snake River. The dirt-gravel roadway of the single-lane bridge aligns at a diagonal with its feeder roads, forming an overall slanted-H-shaped road network configuration.

TRUSS TYPE

The Salmon River Parker Truss Bridge is a single span, polygonal top chord, pin-connected through truss measuring approximately 150 feet in length and approximately 16 feet in width. Standard, poured concrete retaining wall abutments support the end floor beams of the truss, which rest directly on the abutment seat. The angled wingwalls of the abutments extend approximately 10 feet out away from the pedestal along the approach grades.

Eight slopes form the polygonal top chord creating an overall arched shape in elevation. (The reader is asked to note that while some commonly refer to any arched truss as a Camelback truss, technically the term Camelback only applies to a Parker Truss with a top chord of exactly five slopes). The top chord segments all consist of two channels and a cover plate with lacing bars and stay plates below; the bottom chords consist of paired flat eye bars.

The web members consist of vertical posts forming eight equivalent panels and diagonal ties that intersect within the four central panels. Channel stock and lacing bars form the central vertical posts, while abutting angle stock and stay plats form the outermost vertical posts. Flat eye bars and tension rods compose the diagonal ties.

A system of intersecting angle stock forms the portal. Angle stock and gusset plates form the upper sway struts connecting the top chords at each vertical post, leaving a vehicular clearance of 13.2 feet. Upper lateral bracing rods intersect diagonally between the top chords and sway struts.

The timber deck is 16 feet wide with no curbs and rises approximately 15-18 feet above the river bed on steel I-beam stringers. Floor beams located at the base of each vertical web member are connected by lower lateral bracing rods.

Four parallel rails of angle stock form guardrails along the full length of the inside of each truss. Letters in relief read “CAMBRIA” on several structural components.

INTEGRITY

The Salmon River Parker Truss Bridge is an excellent example of this bridge type, historically uncommon and increasingly rare in Idaho.

The Salmon River Parker Truss Bridge retains a good degree of integrity, with no substantial alterations to the original design or materials. The original workmanship, setting, and feeling of the structure are also 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.

This structure possesses the following aspects of integrity: location, setting, design, materials, workmanship, feeling, and association. It retains sufficient integrity to be NRHP eligible individually.

Location: This structure has not been moved, and thus retains integrity of location.

Setting: The historic rural setting is intact.

Design: Integrity of design is intact, visible primarily by means of the original steel truss members assembled and executed in the Parker truss design.

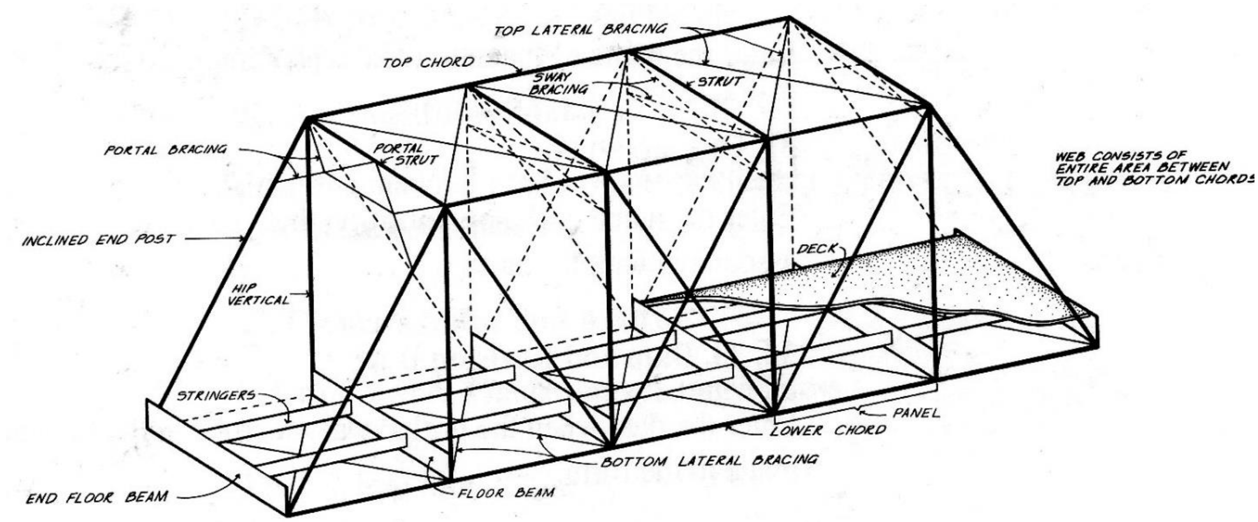
Materials: The property retains its integrity of materials, particularly by means of the original steel structural members.

Workmanship: Elements of workmanship are evident.

Feeling: The property's integrity of feeling is apparent through its retention of integrity of setting, design, materials, and workmanship, which combined, clearly convey a sense of past time and place.

Association: The association between this structure with the surrounding river and rural area is present.

Bridge-Specific Terminology Diagram[1]



Courtesy Historic American Engineering Record

[1] This diagram is included for the reader's reference as to bridge-specific terminology used in the description above. It should not be misinterpreted as an illustration of the Salmon River Parker Truss Bridge.

STATEMENT OF SIGNIFICANCE

The Salmon River Parker Truss Bridge is significant under National Register Criterion A in the area of Transportation and Criterion C in the area of Engineering. As defined by the Multiple Property Documentation Form for *Metal Truss Highway Bridges of Idaho,* it is an excellent example of the Parker truss bridge type. Built in 1915, the Salmon River Parker Truss Bridge is an example of an uncommon, economical bridge solution for a relatively long span. Its pin-connected structure, timber deck, and concrete abutments illustrate the technological transitions that took place during the period of significance.[2] As no historic name identifies this bridge, using NRHP guidelines of resource naming, the preferred name "Salmon River Parker Truss Bridge" has been assigned. This describes and identifies the location, design, and function of the structure.

ELIGIBILITY

The Salmon River Parker Truss Bridge is individually eligible for listing in the National Register of Historic Places under Criteria A and C. This structure is associated with significant trends in local history (Criterion A) and it retains sufficient integrity to communicate its historic engineering associations (Criterion C). At the same time, it is not known to be associated with a person significant in history and it has little potential to yield data in the future, and is thus not eligible under Criteria B or D.

ELABORATION

With the arrival of mining to Custer County in the 1870s came an increased need to eliminate impediments to travel. The village of Clayton boomed as silver mining veins were initially exploited in the immediate vicinity in the 1880s. Clayton followed the boom-bust cycle typical of small mining towns but also remained relevant throughout the twentieth century as silver mines remained active up nearby drainages such as Kinnikinic Creek, which received a new shaft as recently as 1979. Bridge crossings like the Salmon River Parker Truss Bridge provided area miners, ranchers, and farmers easy access to markets.

Silver Bars at Clayton, c.1912
Courtesy Clayton Idaho Historical Society Website

By 1910, 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.

Prior to 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. The pin-connected construction of the Salmon River Parker Truss Bridge illustrates the standardization of this technique.

[2] Development of the immediate local area's history and development sufficient to establish and justify an accurate period of significance was outside the scope of this project. For the purposes of this project, as a placeholder the period of significance is given as beginning in 1915, the date of construction of the bridge, and ending in 1968, the 'fifty-year cut-off' established by the National Park Service as representing the span of time generally necessary to have passed before significance can be established.

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, riveted 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. By the 1920s, reinforced concrete was the standard material for abutments, piers, and decks of steel truss bridges. It was not uncommon for older metal truss bridges to receive new reinforced concrete decks or poured concrete reinforcements for older stone abutments. The poured concrete abutments of the Salmon River Parker Truss Bridge are typical of bridges built during the early twentieth century.

The Salmon River Parker Truss Bridge is a classic example of this truss design. Patented in 1870, the Parker truss is a variation of the Pratt truss wherein the bottom and top chords are *not* parallel. The top chord of a Parker truss is segmented, with each segment connecting to each respective vertical post, which vary in height. The result is an overall arched shape when viewed in elevation. As with the Pratt truss, the Parker 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.[3] The benefit of the Parker truss design is that it used less material than the Pratt truss. However, the drawback was that the Parker truss assembly was more complex. A relatively uncommon bridge type of the late nineteenth and early twentieth centuries, the Parker truss bridge is most commonly executed as a through truss.[4]

In Idaho, Parker trusses were relatively uncommon. A 1982 survey of steel truss bridges statewide identified only four Parker truss bridges statewide, including the Salmon River Parker Truss Bridge.

STRUCTURE HISTORY

Previous survey states the Salmon River Parker Truss Bridge was one of five built over the Salmon River in Custer County in 1915. The Custer County Commission secured a $35,000 bond to fund the endeavor and the Idaho State Highway Commission allocated funds as part of their development of the Sawtooth Park Highway. Each of the five bridges were to be of steel construction and replace existing timber bridges at each location.

Though each bridge project was let under separate contracts, J.H. Forbes reportedly secured all of them. The contract for the Salmon River Parker Truss Bridge went to J.H. Forbes, who had submitted the low bid of $6,593. (Review of the State Highway Commission minute books from the period confirm Forbes completed a good number of bridges for the State Highway Commission, however it could not be confirmed he completed this exact bridge.) According to previous survey, in 1982, the Salmon River Parker Truss Bridge and the Salmon River Pratt Truss Bridge at Bayhorse Creek (37-005784; ITD Key #31660) are the only two of the original five bridges still standing from that construction endeavor. However, it is very possible the c.1915 pin-connected Pratt through truss about 8 miles downstream – the Salmon River Pratt Truss Bridge (Lyon Creek; 37-004918) is one of the original five.[5]

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[3] 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.

[4] Ibid.

[5] Additional field access (bridge is on private property and clearly posted) and research beyond the scope of this project would be necessary to corroborate this possibility.

ITD records give the construction date as 1930. Based on patterns of agency terminology usage, review of primary resources, and the bridge itself, it is most likely this year is when the existing concrete abutments were installed.

J.H. Forbes and Company

Based in Caldwell, Idaho, the J.H. Forbes bridge-building endeavor was among the earliest, if not the first, Idaho-based bridge-building companies. The firm started operations in Emmett and then Caldwell in 1903-1904 and remained in business until at least the 1930s. Among the completed projects were infrastructure improvements in the area, such as Canyon Canal Dam, Emmett electric light plant, and the water works at both Emmett and Parma. As road improvement activity peaked statewide in the 1910s, so did Forbes' bridge construction operation. Primarily based in southern Idaho, he is known to have been associated with about 25 bridges, most of which were of the pin-connected steel truss type.

references. American Laundry Co.

WANTED—Highway bridge foreman at once; long job for right man. J. H. Forbes & Co., Caldwel, Idlaho.

Idaho Statesman, September 24, 1913

Cambria Iron Works

Originally founded in the mid-nineteenth century in Pennsylvania, it became one of the largest steel manufacturers nationwide before it was eventually absorbed by Bethlehem Steel in 1923.

ADDITIONAL SOURCES

Clayton Idaho Historical Society, "Clayton Idaho's Amazing History," http://www.claytonidaho.org/history.html

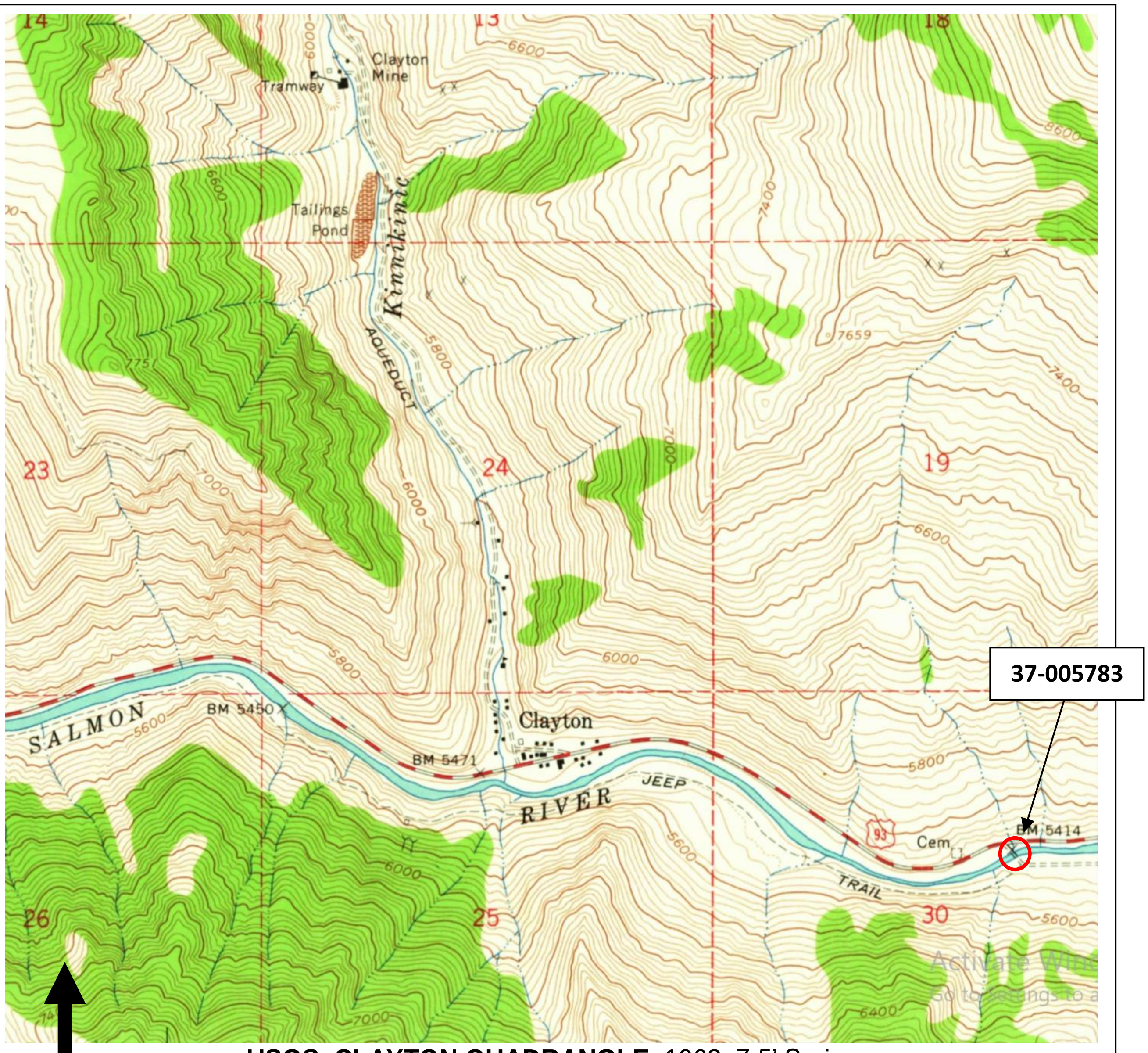
Conley, Curt. *Idaho for the Curious A Guide.* Cambridge, Idaho: BackEddy Books, 1982.

Idaho State Historical Society Reference Series, Number 168: Site Report – Challis-Clayton Area

Idaho State Historical Society Reference Series, Number 169: Bay Horse and Clayton

Idaho Counties

Map courtesy of http://www.censusfinder.com/mapid.htm



N

USGS, CLAYTON QUADRANGLE, 1963, 7.5' Series
T11N R18E Section 30 – CUSTER COUNTY, IDAHO

Aerial View of Vicinity
Courtesy Google Earth, Imagery 2018

37-005783, September 2017
View S

37-005783, September 2017
View SW

37-005783, September 2017
View W

37-005783, September 2017
View N

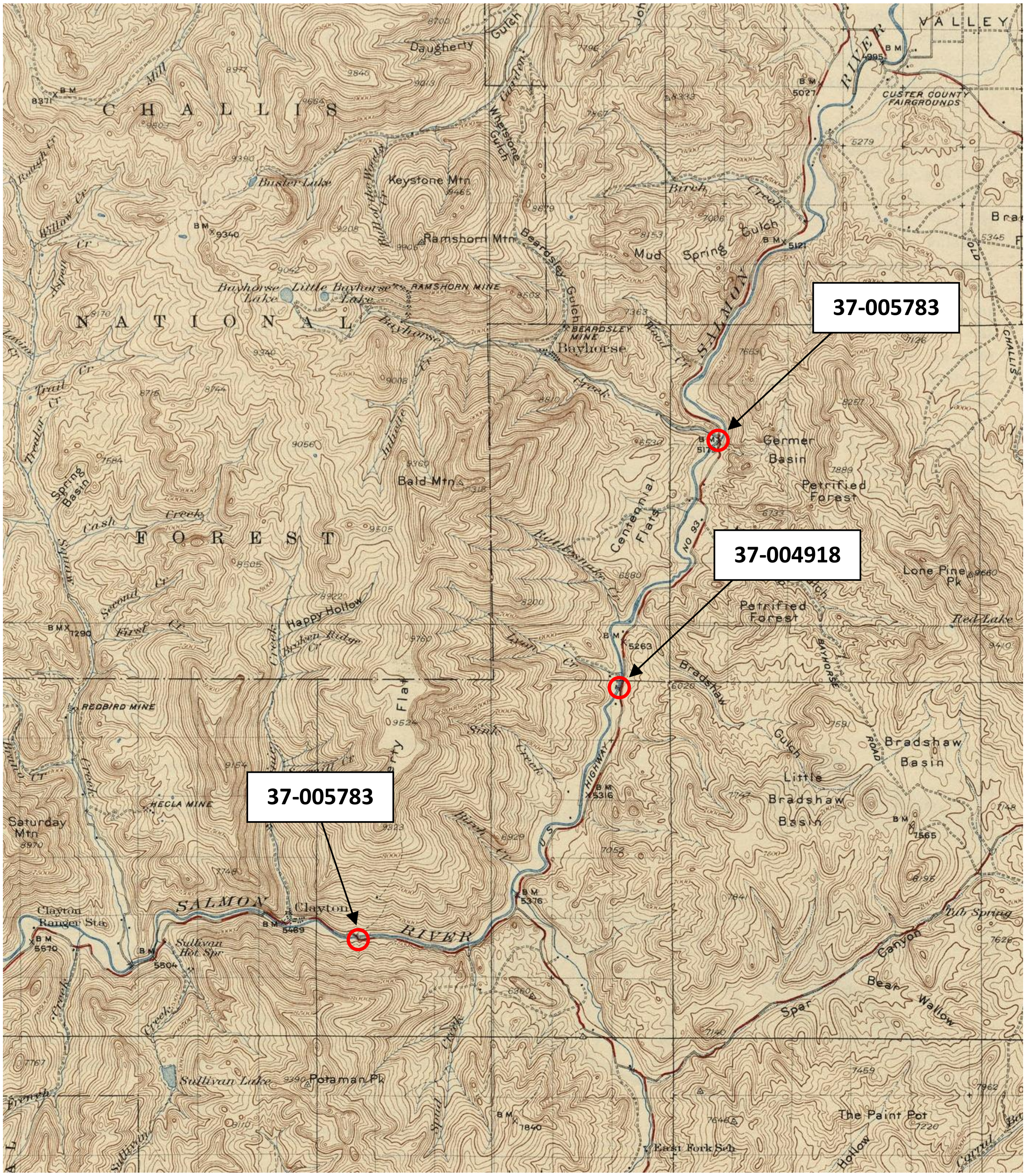
37-005783, September 2017
View NW

37-005783, September 2017, View NW

37-005783, September 2017
View SE toward SE abutment

37-005783, September 2017
Detail view of manufacturer's mark – "CAMBRIA"

37-005783, September 2017
View SW, detail view of SE abutment



USGS Bayhorse Quadrangle, 1929

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Salmon River Pratt Truss Bridge at Bayhorse Creek
FIELD#: 37-005784
STREET: Bayhorse Creek Rd; 8.5 S, 1.2 W of CHALLIS
RESTRICT: ☐

CITY: Bayhorse | VICINITY: ☑ | COUNTY CD: 37 | COUNTY NAME: Custer
SUBNAME: | BLOCK: | SUBLOT: | ACRES: 1 | LESS THAN: ☑
TAX PARCEL: | UTMZ: 11 | EASTING: 718572 | NORTHING: 4917532
TOWNSHIP: 12 | N_S: N | RANGE: 19 | E_W: E | SECTION: 7 | SE ¼, ¼ SE ¼
QUADRANGLE: Bayhorse | OTHERMAP:
SANBORN MAP: | SANBORN MAP#: | PHOTO#: Digital

PROPERTY TYPE: Structure
CONST/ACT1: Original Construction | ACTDATE1: 1915 | CIRCA1: ☐
CONST/ACT2: | ACTDATE2: | CIRCA2: ☐
ASSOCIATED FEATURES: bridge
TOTAL # FEATURES: 1

ORIGINAL USE: Transportation | WALL MATERIAL:
ORIGSUBUSE: Road-related | FOUND. MATERIAL: CONCRETE
CURRENT USE: Transportation | ROOF MATERIAL:
CURSUBUSE: Road-related | OTHER MATERIAL: METAL:Steel
ARCHSTYLE: Other:Pratt Through Truss | PLAN: Rectangular | CONDITION: Good

NR REF #: | NPS CERT: | ACTIONDATE: | FUTURE ELIG DATE:
DIST/MPLNAME1: Metal Truss Highway Bridges of Idaho
DIST/MPLNAME2:

Individually Eligible ☑ | Contributing in a potential district ☐ | Noncontributing ☐ | Future eligibility ☐
Not Eligible ☐ | Multiple Property Study ☑ | Not evaluated ☐

CRITERIA: A ☑ B ☐ C ☑ D ☐
CRITERIA CONSIDERATION: A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G ☐
AREA OF SIGNIF: Transportation | AREA OF SIGNIF: Engineering

COMMENTS: See continuation sheets for elaborated description, history, significance, and eligibility.

PROJ/RPT TITLE: Steel Bridges of Eastern Idaho Survey (ITD Key No. 12479 - Mitigation)
SVY DATE: 9/16/17 | SVY LEVEL: Intensive
RECORDED BY: Kerry Davis, PSLLC | PH: 816-225-5605 | ADDRESS: 1007 E. Jefferson Street, Boise, ID 83712
SUBMITTED PHOTOS ☑ | NEGS ☐ | SLIDES ☐ | SKETCH MAP ☑

SVY RPT #: | ******** FOR ISHPO USE ONLY ******** | IHSI#: 37-005784
MS RPT #: | SITS#:
IHPR #: | HABS NO. ID-: | HAER NO. ID-: | REV#:

CS #: | IHSI# REF: | NR REF# 2: | REV# REF:
SVY RPT# 1: | SVY RPT# 2: | SVY RPT# 3: | MS RPT# 1: | MS RPT# 2:

ADD'L NOTES: District 6. Last surveyed 1982. ITD Milepost reference: 100.029. Also known as Bayhorse Creek Bridge.

MORE DATA ☑
ATTACH ☑

OF PHOTOS: | NEGBOX#: | # OF SLIDES: | SHPO DETER: | DETER DATE:
INITIALED: | ENTRY DATE: | REVISE: | REVISE: | REVISE:

REV# | SITS# | IHSI#

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Salmon River Pratt Truss Bridge at Bayhorse Creek
IHSI#: 37-005784
FIELD#: 37-005784
COUNTY NAME: Custer

OTHER NAME: ITD Key#31660; ITD Structure Name X996190 0.04
COUNTY CD: 37
CITY: Bayhorse
VICINITY: ☑
UTM REF2:
UTM REF3:
UTM REF4:

OTHER MATERIAL2: WOOD
CULTAFFIL:
AGENCYCERT: Local
SIGNIFDATE:
SIGNIFPERIOD:
SIGNIFPERSON:
ARCH/BUILD: Forbes, J.H. (B)
ARCHPLANS: ☐
TAXEASE: ☐
TAXCERT: ☐
OWNERSHIP: Public-Local
PROPOWN: Custer County
MORE DATA: ☑
ATTACH: ☑

DOCSOURCE: ITD records; SHPO records; USGS Quads

ADD'L NOTES: District 6. Last surveyed 1982. ITD Milepost reference: 100.029. Also known as Bayhorse Creek Bridge.

COMMENTS: See continuation sheets for elaborated description, history, significance, and eligibility.

PHOTO LOG: ☐
IHSI# REF:
INITIALED:
DATEENTERED:

SKETCH: ☑

IHSI# _____
SITS# _____
REV# _____

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Salmon River Pratt Truss Bridge at Bayhorse Creek

IHSI#: 37-005784

FIELD#: 37-005784

COUNTY NAME: Custer

COMMENTS:

See continuation sheets for elaborated description, history, significance, and eligibility.

ATTACH ☑

IHSI# __________

SITS# __________

REV# __________

DESCRIPTION

LOCATION and SETTING

The Salmon River Pratt Truss Bridge at Bayhorse Creek is located 8.5 miles south and 1.2 miles west of the town of Challis in south central Idaho, in the SE ¼ of the SE ¼ of Section 7, Township 12N, Range 19E. The region is defined by bare, rocky, steep slopes and relatively narrow sections of flat bottom lands occupied by ranching and irrigated farming operations. The Salmon River Pratt Truss Bridge at Bayhorse Creek carries Bayhorse Creek Road (aka Centennial Flat Road) across the Salmon River. The dirt-gravel roadway aligns at an angle with the single-lane Salmon River Pratt Truss Bridge at Bayhorse Creek to connect with SH 75 on the right (east) bank.

TRUSS TYPE

The Salmon River Pratt Truss Bridge at Bayhorse Creek is a single span, pin-connected through truss measuring approximately 120 feet in length and approximately 16 feet in width. Standard, poured concrete retaining wall abutments support the end floor beams of the truss, which rest directly on the abutment seat. The angled wingwalls of the abutments extend approximately 5 feet out away from the pedestal along the river bank. The inclined end posts rise from the bottom chords to meet the horizontal top chords to form a trapezoidal shape. The top chords and inclined end posts consist of two channels, a cover plate, and lacing bars; the bottom chords consist of paired flat eye bars.

The web members consist of vertical posts forming six equivalent panels and diagonal ties that intersect within the central panel. Channel stock and lacing bars form the vertical posts. Flat eye bars and tension rods compose the diagonal ties.

A system of intersecting angle stock forms the portal. Angle stock and lacing bars form the upper sway struts connecting the top chords at each vertical post, leaving a vehicular clearance of 13.75 feet. Upper lateral bracing rods intersect diagonally between the top chords and sway struts.

The timber deck is 16 feet wide with no curbs and rises approximately 16-20 feet above the river bed on steel I-beam stringers. Floor beams located at the base of each vertical web member are connected by lower lateral bracing rods.

Four parallel rails of angle stock form guardrails along the full length of each side of the bridge. Letters in relief read “CAMBRIA” on several structural components. In several locations on larger structural members (e.g. inclined end posts, floor beams) remnants of original shipping and/or assembly markings are present (see photo below). A USGS benchmark survey marker indicating an elevation of 5,179 feet above sea level is on the southeast abutment.

INTEGRITY

The Salmon River Pratt Truss Bridge at Bayhorse Creek is an excellent example of this bridge type, historically popular and increasingly rare in Idaho.

The Salmon River Pratt Truss Bridge at Bayhorse Creek retains a good degree of integrity, with no significant alterations to the original design or materials. The original workmanship, setting, and feeling of the structure are also 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.

This structure possesses the following aspects of integrity: location, setting, design, materials, workmanship, feeling, and association. It retains sufficient integrity to be NRHP eligible individually.

Location: This structure has not been moved, and thus retains integrity of location.

Setting: The historic rural setting is intact.

Design: Integrity of design is intact, visible primarily by means of the original steel truss members assembled and executed in the Pratt truss design.

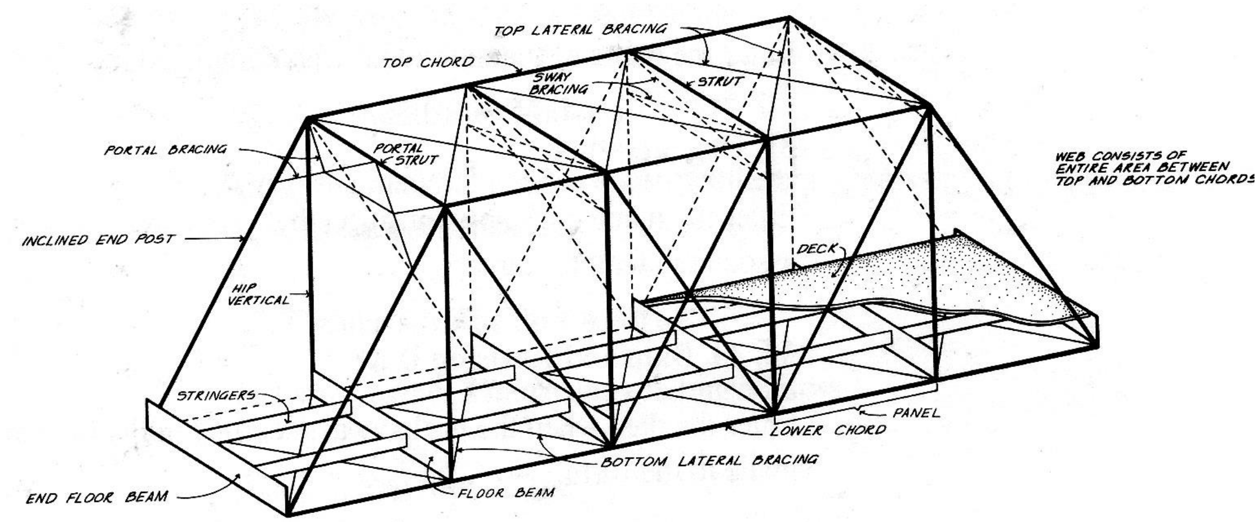
Materials: The property retains its integrity of materials, particularly by means of the original steel structural members.

Workmanship: Elements of workmanship are evident.

Feeling: The property's integrity of feeling is apparent through its retention of integrity of setting, design, materials, and workmanship, which combined, clearly convey a sense of past time and place.

Association: The association between this structure with the surrounding river and rural area is present.

Bridge-Specific Terminology Diagram[1]



Courtesy Historic American Engineering Record

[1] This diagram is included for the reader's reference as to bridge-specific terminology used in the description above. It should not be misinterpreted as an illustration of the Salmon River Pratt Truss Bridge at Bayhorse Creek.

STATEMENT OF SIGNIFICANCE

The Salmon River Pratt Truss Bridge at Bayhorse Creek is significant under National Register Criterion A in the area of Transportation and Criterion C in the area of Engineering. As defined by the Multiple Property Documentation Form for *Metal Truss Highway Bridges of Idaho,* it is an excellent example of the Pratt truss bridge type. Built in 1915, the Salmon River Pratt Truss Bridge at Bayhorse Creek is an example of a common, economical bridge solution for a relatively long span. Its pin-connected structure, timber deck, and concrete abutments illustrate the technological transitions that took place during the period of significance.[2] As no historic name identifies this bridge, using NRHP guidelines of resource naming, the preferred name "Salmon River Pratt Truss Bridge at Bayhorse Creek" has been assigned. This describes and identifies the location, design, and function of the structure.

ELIGIBILITY

The Salmon River Pratt Truss Bridge at Bayhorse Creek is individually eligible for listing in the National Register of Historic Places under Criteria A and C. This structure is associated with significant trends in local history (Criterion A) and it retains sufficient integrity to communicate its historic engineering associations (Criterion C). At the same time, it is not known to be associated with a person significant in history and it has little potential to yield data in the future, and is thus not eligible under Criteria B or D.

ELABORATION

With the arrival of mining to Custer County in the 1870s came an increased need to eliminate impediments to travel. Bridge crossings like the Salmon River Pratt Truss Bridge at Bayhorse Creek provided area miners, ranchers, and farmers easy access to markets.

By 1910, 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.

Prior to 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. The pin-connected construction of the Salmon River Pratt Truss Bridge at Bayhorse Creek 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, riveted 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. By the 1920s, reinforced concrete was the standard material for abutments, piers, and decks of steel truss bridges. It was not uncommon for older metal truss bridges to receive new reinforced concrete decks or poured concrete reinforcements for older

[2] Development of the immediate local area's history and development sufficient to establish and justify an accurate period of significance was outside the scope of this project. For the purposes of this project, as a placeholder the period of significance is given as beginning in 1915, the date of construction of the bridge, and ending in 1968, the 'fifty-year cut-off' established by the National Park Service as representing the span of time generally necessary to have passed before significance can be established.

stone abutments. The poured concrete abutments of the Salmon River Pratt Truss Bridge at Bayhorse Creek are typical of bridges built during the early twentieth century.

The Salmon River Pratt Truss Bridge at Bayhorse Creek is a classic example of this truss design. 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.[3] The Pratt truss became the most common bridge type of the late nineteenth and early twentieth centuries and spawned numerous variations including Parker, Camelback, Baltimore, Truss Leg Bedstead, Lenticular, and Pennsylvania trusses.[4]

In Idaho, Pratt trusses were constructed into the twentieth century, suggesting the appeal of the design's strength and economical construction costs. A 1982 survey of steel truss bridges statewide identified seventy-seven Pratt truss bridges statewide, including the Salmon River Pratt Truss Bridge at Bayhorse Creek.

STRUCTURE HISTORY

Previous survey states the Salmon River Pratt Truss Bridge at Bayhorse Creek was one of five built over the Salmon River in Custer County in 1915. The Custer County Commission secured a $35,000 bond to fund the endeavor and the Idaho State Highway Commission allocated funds as part of their development of the Sawtooth Park Highway. Each of the five bridges were to be of steel construction and replace existing timber bridges at each location.

Though each bridge project was let under separate contracts, J.H. Forbes reportedly secured all of them. The contract for the Salmon River Pratt Truss Bridge at Bayhorse Creek went to J.H. Forbes, who had submitted the low bid of $6,647. (Review of the State Highway Commission minute books from the period confirm Forbes completed a good number of bridges for the State Highway Commission, however it could not be confirmed he completed this exact bridge.) According to previous survey, in 1982, the Salmon River Pratt Truss Bridge at Bayhorse Creek and the Salmon River Parker Truss Bridge (aka 'Southeast Clayton Bridge'; 37-005783; ITD Key #31650) are the only two of the original five bridges still standing from that construction endeavor. However, it is very possible the c.1915 pin-connected Pratt through truss about 8 miles downstream – the Salmon River Pratt Truss Bridge (Lyon Creek; 37-004918) – is one of the original five.[5]

J.H. Forbes and Company

Based in Caldwell, Idaho, the J.H. Forbes bridge-building endeavor was among the earliest, if not the first, Idaho-based bridge-building companies. The firm started operations in Emmett and then Caldwell in 1903-1904 and remained in business until at least the 1930s. Among the completed projects were infrastructure improvements in the area, such as Canyon Canal Dam, Emmett electric light plant, and the water works at both Emmett and Parma. As road improvement activity peaked statewide in the 1910s, so did Forbes' bridge construction operation. Primarily based in southern Idaho,

references. American Laundry Co.

WANTED—Highway bridge foreman at once; long job for right man. J. H. Forbes & Co., Caldwel, Idlaho.

Idaho Statesman, September 24, 1913

[3] 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.
[4] Ibid.
[5] Additional field access (bridge is on private property and clearly posted) and research beyond the scope of this project would be necessary to corroborate this possibility.

he is known to have been associated with about 25 bridges, most of which were of the pin-connected steel truss type.

Cambria Iron Works
Originally founded in the mid-nineteenth century in Pennsylvania, it became one of the largest steel manufacturers nationwide before it was eventually absorbed by Bethlehem Steel in 1923.

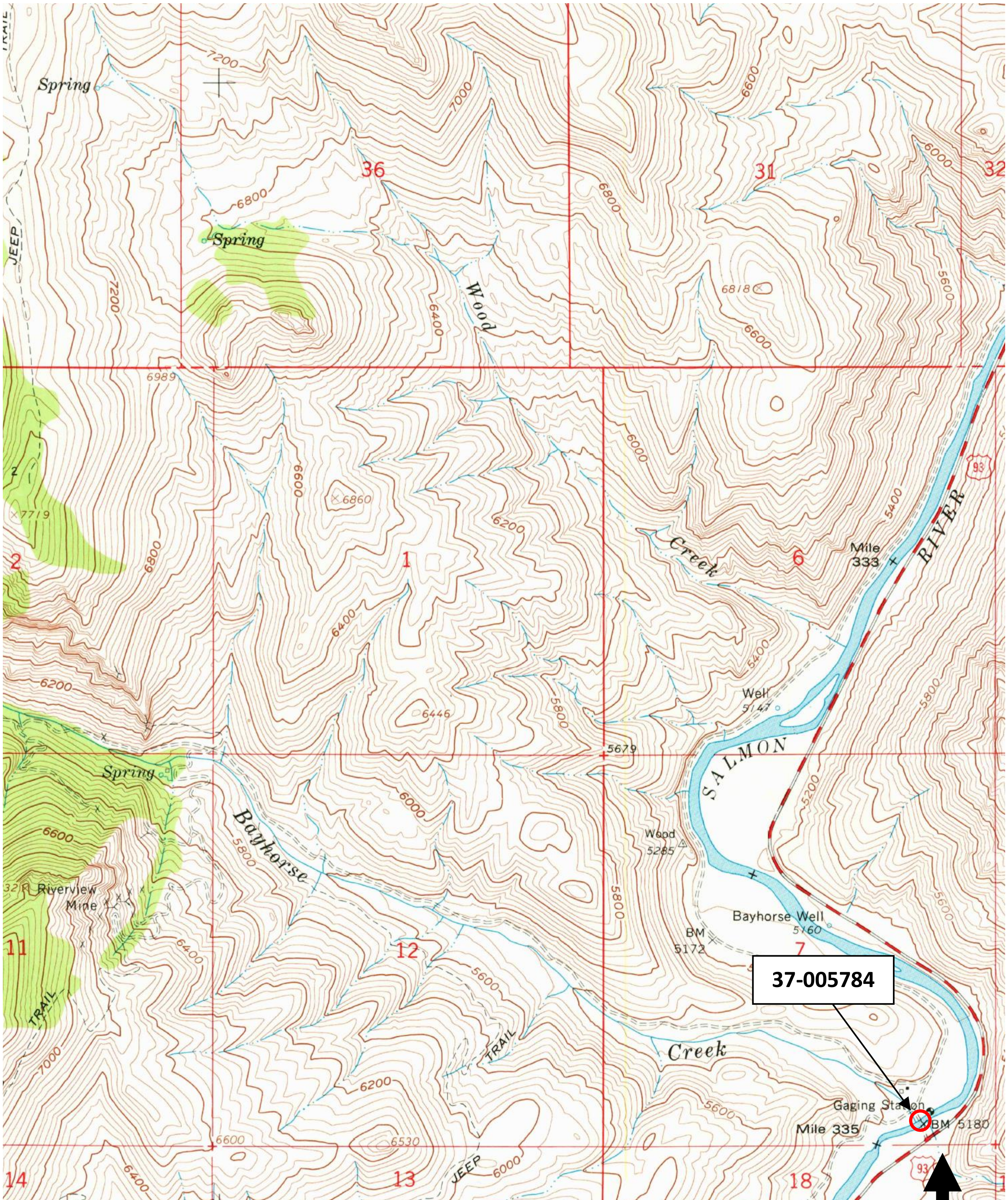
Bayhorse
The village of Bayhorse boomed as lead-silver mining veins were initially exploited in the 1870s. Bayhorse's capacity for production was chiefly restricted by transportation limitations and being so remote. Fording of the Salmon River and later use of timber bridges were necessary to haul equipment and supplies in, and ore and smelted silver out. The population and extraction activities up Bayhorse Creek generally ended in the late 1880s, though mining operations were revived periodically off and on for several decades and even into the 1960s, making it one of the longest running silver and lead producers statewide. Now a ghost town, the area was listed in the National Register in 1976 and became a State Historic Park, in 2009 became part of Idaho State Park System.

ADDITIONAL SOURCES

Idaho State Historical Society Reference Series, Number 168: Site Report – Challis-Clayton Area
Idaho State Historical Society Reference Series, Number 169: Bay Horse and Clayton

Idaho Counties

Map courtesy of http://www.censusfinder.com/mapid.htm



USGS, BAYHORSE QUADRANGLE, 1963, 7.5' Series
T12n R19E Section 7 – CUSTER COUNTY, IDAHO

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Aerial View of Vicinity
Courtesy Google Earth, Imagery 2017

37-005784, August 2013
View NE (photo courtesy of ITD inspection files)

37-005784, September 2017
View NE

37-005784, September 2017
View SE

37-005784, September 2017
Detail view of typical lower node

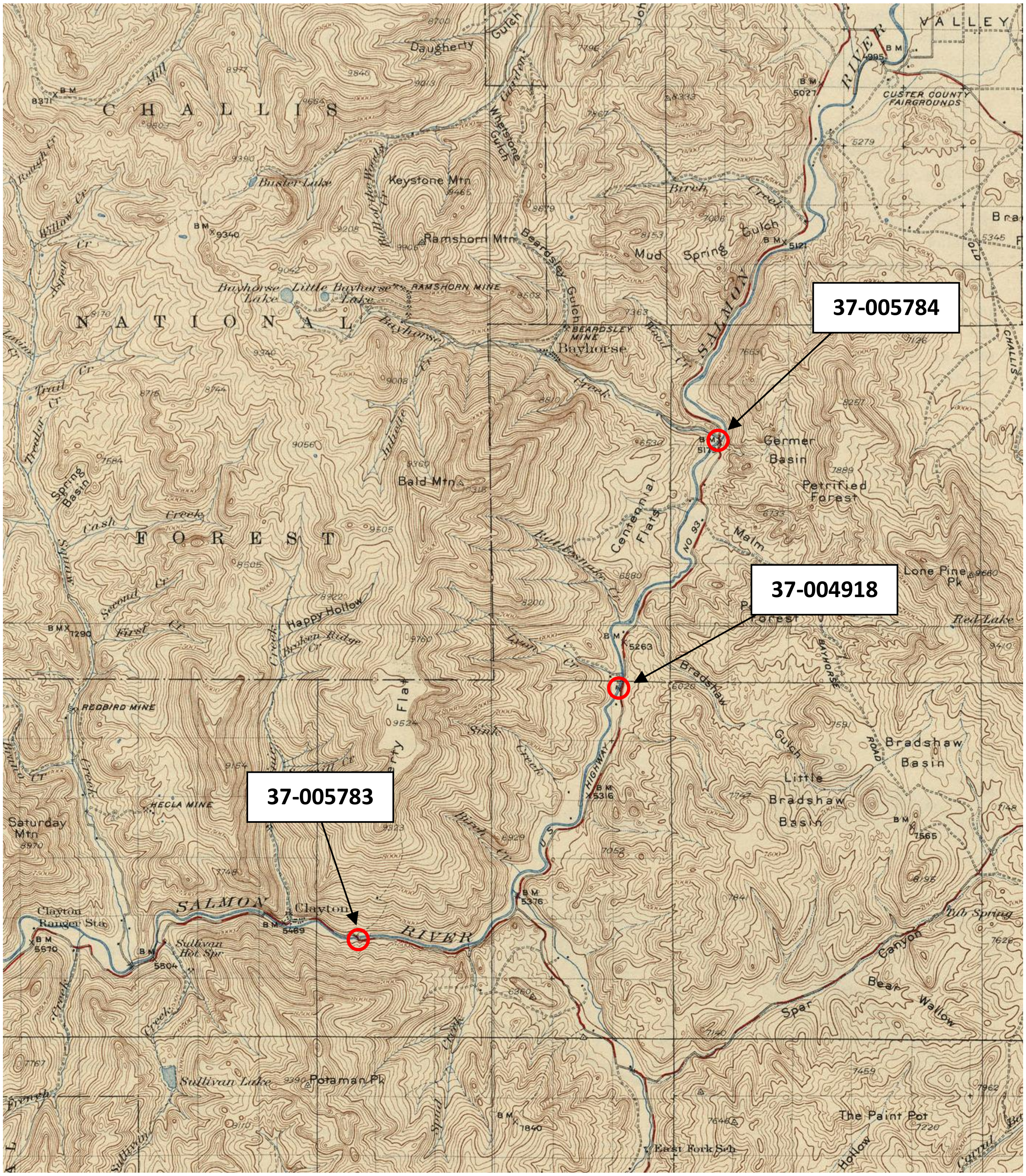
37-005784, September 2017
View W-NW

37-005784, September 2017
View NW from east abutment

37-005784, September 2017
Detail view of bench mark on east abutment

37-005784, September 2017
Detail view of manufacturer's mark – "CAMBRIA"

37-005784, September 2017
Detail view of one of several original construction markings present on floor beams and end posts



USGS Bayhorse Quadrangle, 1929

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Bear River Warren Truss Bridge (Oneida Narrows Road)
FIELD#: 41-005191
STREET: ONEIDA NARROWS RD; 6.3 N 4.6 E PRESTON
RESTRICT: ☐
CITY: Preston
VICINITY: ☑
COUNTY CD: 41
COUNTY NAME: Franklin
SUBNAME:
BLOCK:
SUBLOT:
ACRES: 1
LESS THAN: ☑
TAX PARCEL:
UTMZ: 12
EASTING: 435085
NORTHING: 4670910
TOWNSHIP: 14
N_S: S
RANGE: 40
E_W: E
SECTION: 21 SW ¼, ¼ SE ¼
QUADRANGLE: Riverdale
OTHERMAP:
SANBORN MAP:
SANBORN MAP#:
PHOTO#: Digital

PROPERTY TYPE: Structure
CONST/ACT1: Original Construction
ACTDATE1: 1911
CIRCA1: ☐
CONST/ACT2: Alteration
ACTDATE2: 1939
CIRCA2: ☑
ASSOCIATED FEATURES: bridge
TOTAL # FEATURES: 1

ORIGINAL USE: Transportation
WALL MATERIAL:
ORIGSUBUSE: Road-related
FOUND. MATERIAL: CONCRETE
CURRENT USE: Transportation
ROOF MATERIAL:
CURSUBUSE: pedestrian-related
OTHER MATERIAL: METAL:Steel
ARCHSTYLE: Other:Warren Pony Truss
PLAN: Rectangular
CONDITION: Good

NR REF #:
NPS CERT:
ACTIONDATE:
FUTURE ELIG DATE:
DIST/MPLNAME1: Metal Truss Highway Bridges of Idaho
DIST/MPLNAME2:

Individually Eligible ☑
Contributing in a potential district ☐
Noncontributing ☐
Future eligibility ☐
Not Eligible ☐
Multiple Property Study ☑
Not evaluated ☐

CRITERIA: A ☑ B ☐ C ☑ D ☐
CRITERIA CONSIDERATION: A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G ☐
AREA OF SIGNIF: Transportation
AREA OF SIGNIF: Engineering

COMMENTS: See continuation sheets for elaborated description, history, significance, and eligibility.

PROJ/RPT TITLE: Steel Bridges of Eastern Idaho Survey (ITD Key No. 12479 - Mitigation)
SVY DATE: 11/18/17
SVY LEVEL: Intensive
RECORDED BY: Kerry Davis, PSLLC
PH: 816-225-5605
ADDRESS: 1007 E. Jefferson Street, Boise, ID 83712
SUBMITTED: PHOTOS ☑ NEGS ☐ SLIDES ☐ SKETCH MAP ☑

SVY RPT #:
******** FOR ISHPO USE ONLY ********
IHSI#: 41-005191
MS RPT #:
SITS#:
IHPR #:
HABS NO. ID-
HAER NO. ID-
REV#:

CS #:
IHSI# REF:
NR REF# 2:
REV# REF:
SVY RPT# 1:
SVY RPT# 2:
SVY RPT# 3:
MS RPT# 1:
MS RPT# 2:
ADD'L NOTES: District 5. Last surveyed 1998. ITD Milepost reference: 99.998
MORE DATA ☑
ATTACH ☑

OF PHOTOS:
NEGBOX#:
OF SLIDES:
SHPO DETER:
DETER DATE:
INITIALED:
ENTRY DATE:
REVISE1:
REVISE2:
REVISE3:

REV#
SITS#
IHSI#

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Bear River Warren Truss Bridge (Oneida Narrows Road)
IHSI#: 41-005191
FIELD#: 41-005191
COUNTY NAME: Franklin

OTHER NAME: ITD Key#23340; ITD Structure Name X991210 0.15
COUNTY CD: 41
CITY: Preston
VICINITY: ☑
UTM REF2:
UTM REF3:
UTM REF4:

OTHER MATERIAL2: WOOD
CULTAFFIL:
AGENCYCERT: Local
SIGNIFDATE: 1939
SIGNIFPERIOD:
SIGNIFPERSON:
ARCH/BUILD: Midland Bridge Company; WPA
ARCHPLANS: ☐
TAXEASE: ☐
TAXCERT: ☐
OWNERSHIP: Public-Local
PROPOWN: Franklin County
MORE DATA: ☑
ATTACH: ☑

DOCSOURCE: ITD records; SHPO records; USGS Quads

ADD'L NOTES: District 5. Last surveyed 1998. ITD Milepost reference: 99.998

COMMENTS: See continuation sheets for elaborated description, history, significance, and eligibility.

PHOTO LOG ☐ IHSI# REF: INITIALED: DATEENTERED:

SKETCH ☑

IHSI# ____
SITS# ____
REV# ____

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME Bear River Warren Truss Bridge (Oneida Narrows Road) IHSI# 41-005191

FIELD# 41-005191 COUNTY NAME Franklin

COMMENTS:

See continuation sheets for elaborated description, history, significance, and eligibility.

ATTACH ☑

IHSI# ____
SITS# ____
REV# ____

DESCRIPTION

Note: The reader is cautioned to not confuse this bridge with the single-span Warren truss bridge with a polygonal top chord about 3.75 miles downstream (Bear River Warren Truss Bridge (Riverdale Road) IHSI#41-005762 Key#23350).

LOCATION and SETTING

The Bear River Warren Truss Bridge (Oneida Narrows Road) is located 6.3 miles north and 4.6 miles east of the town of Preston in southeast Idaho, in the southeast quarter of section 21, Township 14S, Range 40E. The region is characterized by irrigated farmland amongst steep mountain foothills. The Bear River Warren Truss Bridge carries Oneida Narrows Road (aka Bear River Road) across the Bear River, a large, wide, tributary of the Great Salt Lake. The dirt-gravel roadway, flanked by fenced pasture and cultivated fields on each side, aligns in a shallow C-curve with the single-lane Bear River Warren Truss Bridge (Oneida Narrows Road). The bridge is barred to traffic by concrete barriers at each end of the deck.

TRUSS TYPE

The Bear River Warren Truss Bridge (Oneida Narrows Road) is a two-span, riveted pony truss bridge measuring 150 feet in length (75 feet per span) and approximately 16 feet in width. Concrete retaining wall abutments support the end floor beams of the truss, which rest directly on the abutment seat. The angled wingwalls of the abutments extend approximately 8 to 10 feet out away from the pedestal along the river banks. The inner, end floor beams of each span rest upon and share a central concrete pier. The inclined end posts rise from the bottom chords to meet the horizontal top chords to form an overall trapezoidal shape in elevation. The top chords and inclined end posts consist of two angles, a cover plate, and gusset plates; the bottom chords consist of two angles with stay plates.

The web members include vertical posts forming 10 equivalent panels (5 per span) and diagonal members forming the system of alternating equilateral triangles distinctive to a Warren truss. The vertical posts are composed of angle stock and stay plates, while the diagonal members are formed with two angles, lacing bars, and stay plates.

The timber deck is about 16 feet wide with no curbs. The sub-deck is comprised of a layer of ~2.5"-x-11" planks laid flat over I-beam steel stringers below (some of which have timber sisters). A central, raised wearing surface consisting of ~2.5"-x-11" planks laid lengthwise distinguishes the vehicular travel path. The deck rises approximately 10 feet above the river bed on 9 I-beam steel stringers per span. Large, steel floor I-beams are at the base of each vertical post with bottom lateral tie rod bracing between.

Identical cast-iron plaques, one each affixed to the southwest and southeast inclined end posts of the north span and south span respectively, have letters in relief that read "1911 / THE MIDLAND BRIDGE CO. / FREYGANG & / TROCON / PROPRIETORS / KANSAS CITY MO." Ghost lines of now-missing plaques are clearly visible on the northwest inclined end post of the north span and the southeast inclined end post of the south span. The 1982 survey photos show these were WPA plaques with letters in relief that read "BUILT / BY / WORK PROJECTS / ADMINISTRATION / 1939." In addition, the larger structural steel components have letters in relief at regular intervals that read, "*ILLINOIS*."

INTEGRITY

The Bear River Warren Truss Bridge (Oneida Narrows Road) is an excellent example of this bridge type, historically very popular and increasingly rare in Idaho.

Although the abutments and pier may not be original, they are historic, compatible replacements representing a common physical upgrade to bridges of this type.[1] The Bear River Warren Truss Bridge (Oneida Narrows Road) retains a good degree of integrity, with no substantial nonhistoric alterations to the original design or materials. The original workmanship, setting, and feeling of the structure are also readily apparent. Furthermore, the potential for preservation of the bridge is high. Closed to traffic, it is unlikely that traffic requirements will necessitate alteration or replacement.

This structure possesses the following aspects of integrity: location, setting, design, materials, workmanship, feeling, and association. It retains sufficient integrity to be National Register of Historic Places (NRHP)-eligible individually.

Location: This structure has not been moved, and thus retains integrity of location.

Setting: The historic rural setting is intact.

Design: Integrity of design is intact, visible primarily by means of the original steel truss members assembled and executed in the Warren truss design.

Materials: The property retains its integrity of materials, particularly by means of the original steel structural members and the sign plaques.

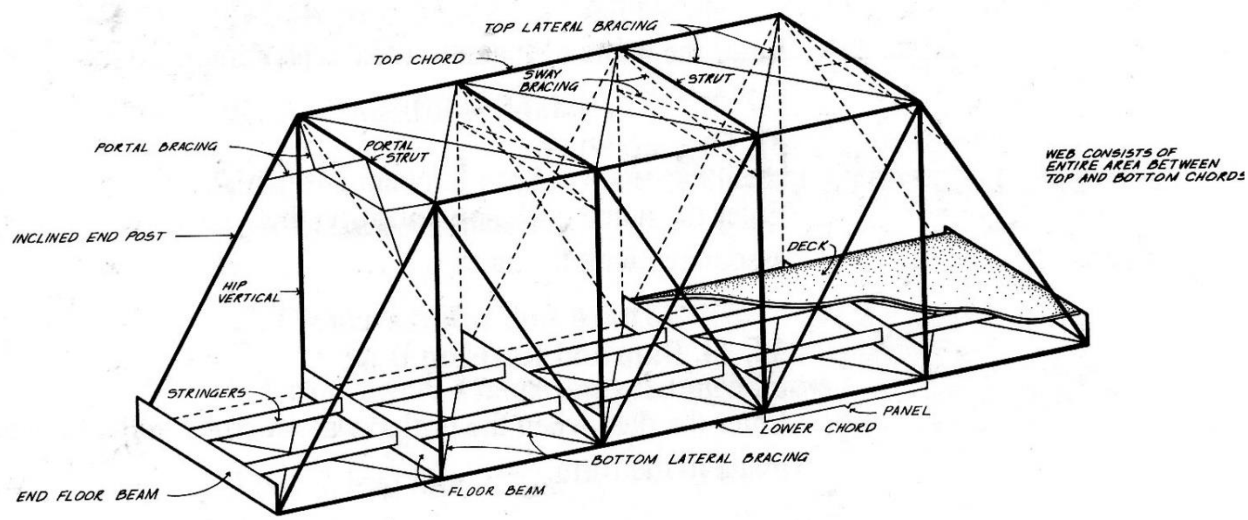
Workmanship: Elements of workmanship are evident.

Feeling: The property's integrity of feeling is apparent through its retention of integrity of setting, design, materials, and workmanship, which combined, clearly convey a sense of past time and place.

Association: The association between this structure with the surrounding river and rural area is present.

[1] As discussed below, the historic record and patterns of ITD terminology suggest the abutments, pier, and/or deck date to 1939.

Bridge-Specific Terminology Diagram[2]



Courtesy Historic American Engineering Record

STATEMENT OF SIGNIFICANCE

The Bear River Warren Truss Bridge (Oneida Narrows Road) is significant under National Register Criterion A in the area of Transportation and Criterion C in the area of Engineering. As defined by the Multiple Property Documentation Form for *Metal Truss Highway Bridges of Idaho,* it is an excellent example of the Warren truss bridge type. Built in 1911, the Bear River Warren Truss Bridge is an example of a common, economical bridge solution for a relatively long span. Its riveted construction and concrete abutments and pier illustrate the standardization of these construction techniques and materials during the period of significance.[3] As no historic name identifies this bridge, using NRHP guidelines of resource naming, the preferred name "Bear River Warren Truss Bridge (Oneida Narrows Road)" has been assigned. This describes and identifies the location, design, and function of the structure.

ELIGIBILITY

The Bear River Warren Truss Bridge is individually eligible for listing in the National Register of Historic Places under Criteria A and C. This structure is associated with significant trends in local history (Criterion A) and it retains sufficient integrity to communicate its historic engineering associations (Criterion C). At the same time, it is not known to be associated with a person significant in history and it has little potential to yield data in the future, and is thus not eligible under Criteria B or D.

[2] This diagram is included for the reader's reference as to bridge-specific terminology used in the description above. It should not be misinterpreted as an illustration of the Bear River Warren Truss Bridge (Oneida Narrows Road).

[3] Development of the immediate local area's history and development sufficient to establish and justify an accurate period of significance was outside the scope of this project. For the purposes of this project, as a placeholder the period of significance is given as beginning in 1911, the date of construction of the bridge, and ending in 1968, the 'fifty-year cut-off' established by the National Park Service as representing the span of time generally necessary to have passed before significance can be established.

ELABORATION

The need for all-weather crossings of rivers and streams corresponded to the growth of the market economy across Idaho during the late nineteenth and early twentieth centuries. Bridge crossings like the Bear River Warren Truss Bridge (Oneida Narrows Road) provided farmers easy access to markets and could make the difference between growth and stagnation for the many small, young communities across the state.

By 1910, 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. At the Bear River Warren Truss Bridge (Oneida Narrows Road), plaques and structural components identify Midland Bridge Company as having purchased the stock steel from Illinois Steel in order to assemble the trusses.

Advancements in pneumatic riveting techniques by this time greatly improved rivet installation quality, enabling more reliable panel point connections than earlier pin-connected trusses. With the increased portability of this construction technology, the more rigid, riveted technique rapidly surpassed pin-connected bridge construction during the first years of the twentieth century. The riveted construction of the Bear River Warren Truss Bridge illustrates the standardization of this technique.

In addition, the contemporary development of economic cement production promoted the widespread combination of steel and concrete in bridge construction. By the 1920s, reinforced concrete was the standard material for abutments, piers, and decks of steel truss bridges. It was not uncommon for older metal truss bridges to receive new reinforced concrete decks or poured concrete reinforcements for older stone abutments. Though nonoriginal replacements, the poured concrete abutments of the Bear River Warren Truss Bridge (Oneida Narrows Road) most likely date to a 1939 WPA project. Not only are they compatible and typical of bridges built during the early twentieth century, they have gained significance in their own right.

The Bear River Warren Truss Bridge (Oneida Narrows Road) is a classic example of this truss design. Patented in 1848, the Warren truss has diagonal members that are alternately placed in either tension or compression, resulting in a visually distinctive system of alternating equilateral or isosceles triangles. Vertical members are often incorporated to further strengthen the truss, as in the Bear River Warren Truss Bridge (Oneida Narrows Road).

While the straightforward design of the Warren truss was desirable, the lack of counters and sometimes verticals subjected the center pins to extensive wear, making it less durable and therefore less popular than the Pratt truss during the nineteenth century. The later standardization of riveted construction techniques eliminated these issues and the Warren truss gained popularity. In Idaho, Warren trusses were constructed into the middle of the twentieth century, suggesting the appeal of the design's strength, simplicity, and economical construction costs. A 1982 survey of steel truss bridges statewide identified fifty-two Warren truss bridges, including the Bear River Warren Truss Bridge (Oneida Narrows Road), as in existence throughout Idaho at the time.

STRUCTURE HISTORY

Though previous survey stated this bridge was relocated to its current site in 1939, additional research suggests this bridge was originally constructed at this location in 1911 and merely received major upgrades (i.e. abutments, pier, deck) in 1939.[4] ITD records indicate the bridge had a 1936 'reconstruction'[5] date; based on ITD patterns of usage of the term 'reconstruction' this corroborates the likelihood the bridge is original to its site and only received new abutments and/or a deck in the 1930s.

The Midland Bridge Company of Kansas City, Missouri, built the Bear River Warren Truss Bridge (Oneida Narrows) in 1911. Markings on the structural members indicate that Midland Bridge Company purchased the stock metal from Illinois Steel of Chicago (vicinity), Illinois. An active out-of-state bridge builder in Idaho, the Midland Bridge Company heavily marketed truss bridges of all lengths and designs, including the Warren Truss design, throughout the West and Midwest in the early twentieth century. (Review of Idaho State Highway Commission minute books from the period confirm that Midland Bridge Company was actively bidding on steel bridge construction projects in Idaho at this time. Unfortunately, the minute books do not specify bridge locational information sufficient to confirm information to any bridge in particular.)

The 1915 USGS Quadrangle map of this area shows a crossing of the Bear River at this location, as does the 1940 Metsker atlas of Franklin County. Between 1982 and 1998, the WPA plaques were lost. The bridge was closed to traffic at some point after 1998. Though inspection reports are available, ITD has no architectural/engineering plans on file for this bridge.

Preston-Area

This part of Idaho was the first to see nonnative permanent settlement, which took place in the mid-nineteenth century. By 1890 there were about 1,500 residents in the area around Preston, which was described by a recorder for the Mormon Church as containing, "106 families belong to the church, most of whom live in a scattered condition on their farms and ranches…[in] perhaps as beautiful a townsite as can be found in Southern Idaho. It is being build [sic] up quite fast…There is room and land for a large number of Saints yet…"[6] In the early 1900s, the area saw rapid growth as population grew and new L.D.S. wards created to accommodate. By this time a vast network of canals irrigated the entire region. Among them and in the immediate vicinity of the Bear River Warren Truss Bridge (Oneida Narrows Road) were the Preston Canal, running generally east-west south of the Bear River, and the Oneida Canal, running generally east-west north of Bear River.

Typical of small towns throughout Idaho, Preston served as a trading and shipping point for the surrounding rural community. Bridges like the Bear River Warren Truss Bridge (Oneida Narrows Road) provided area farmers and ranchers, such as those from Mink Creek upstream and Riverdale downstream, with all-weather access over waterways and to local markets and were critical to the survival of the regional economy.

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[4] Additional research beyond the scope of this project would be required to corroborate the specific scope of work completed by the WPA at this bridge.

[5] ITD records do not indicate the source of their 'reconstruction' date of 1936. No other records or sources mention that year as it relates to this bridge.

[6] Clarence G. Judy, *A History of Preston, Idaho,* (Brigham Young University: Provo, Utah, 1961).

Midland Bridge Company

Courtesy Polk's 1904 Business Gazetteer

Albert Alexander Trocon (b. 1864), a native of Leavenworth, Kansas, worked his way up through the ranks at Missouri Valley Bridge & Iron Works in the 1880s and 1890s to become their chief engineer. Around 1900 he partnered with Henry Freygang, an 1880 mechanical engineering graduate of Stevens Institute of Technology (Hoboken, New Jersey), to form the Midland Bridge Company.[7] Polk's 1904 Kansas State Gazetteer and Business Directory listed the company as "consulting engineers, Designers and Builders of Bridges, Viaducts, Foundations, Steel Structures, Buildings, Etc." The company remained in operation through at least the 1920s, during which time both Trocon and Freygang were members of the American Society of Engineers. The Kansas City, Missouri-based firm completed many notable projects including major river crossings along railroads and newly established highways, and fabrication of ocean ships and barges, as well as countless small projects throughout the West and Midwest, among them the Bear River Warren Truss Bridge (Oneida Narrows Road).

Illinois Steel

Illinois Steel formed in 1889 from a consolidation of several existing, smaller steel companies in Illinois and Wisconsin that had been founded in the 1850s through 1870s. With controlling interests in railways, coal mines, iron mines, and limestone mines throughout the Midwest and Mid-Atlantic regions, the company grew to become one of the largest steel manufacturers nationwide. Various mergers at the turn of the twentieth century resulted in its consolidation into the newly formed Federal Steel Company and then U.S. Steel, the process of which included such prominent players as J.P. Morgan and Andrew Carnegie.

WPA

The 1929 stock market crash forced nearly half of the nation's banks to insolvency and the resulting drastic reductions in spending led to a sharp rise in unemployment nationwide. By 1933, approximately one fourth of Americans were unemployed. Businesses shut down, factories closed their doors, and farm income dropped by half. Little private commercial development occurred during the Great Depression and the only significant construction nationwide took place through public building projects.

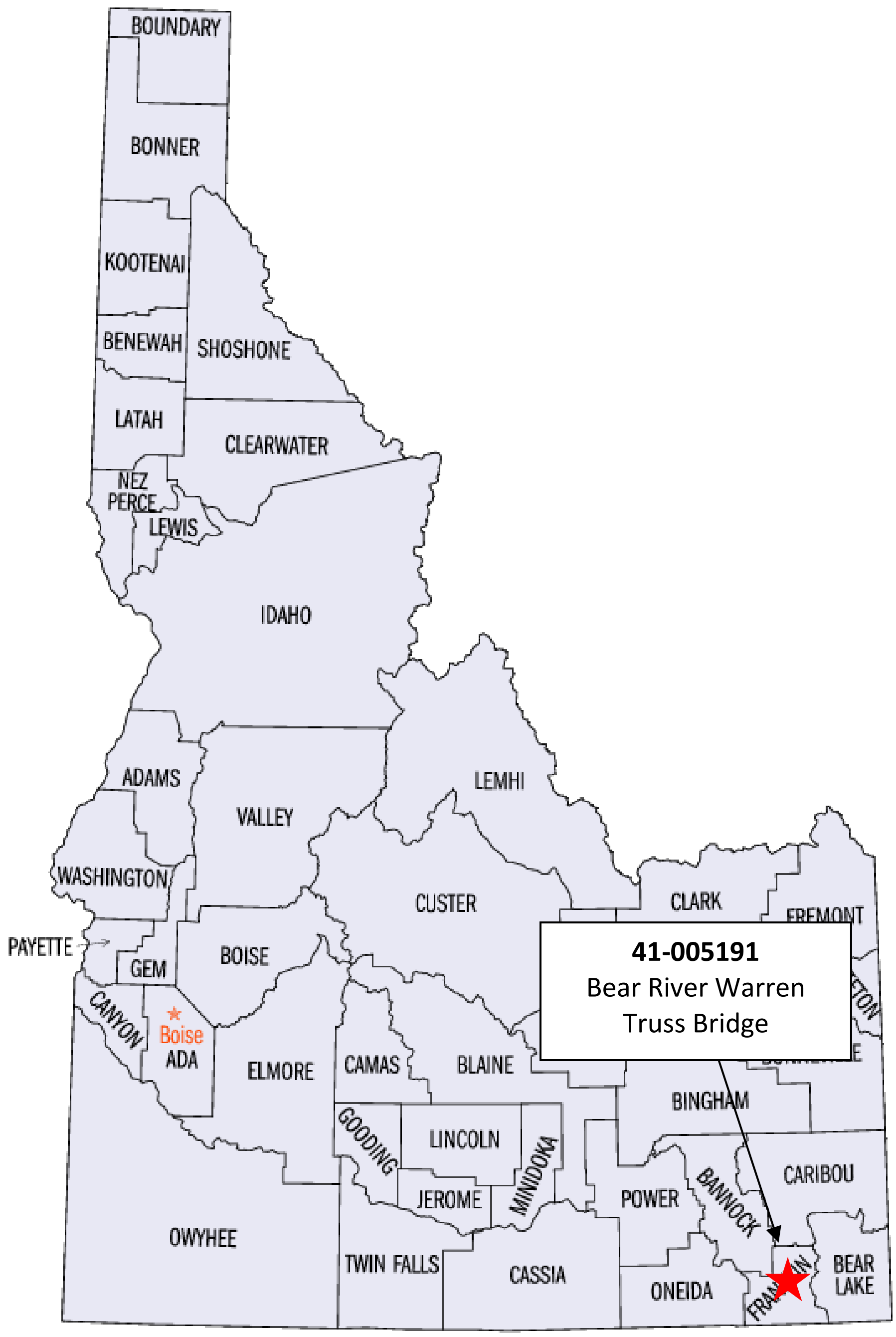
[7] Sources vary, with some suggesting the firm was in existence by 1895 and other sources indicating it wasn't formed until closer to 1900.

The programs of the Works Progress Administration (WPA; renamed Work Projects Administration in 1939), the Public Works Administration (PWA), and the Civilian Conservation Corps (CCC) significantly impacted not only the state's economic conditions, but also the Idaho landscape. These programs provided funding and manpower to state and local governments, as well as federal agencies, for the construction of public improvements, such as buildings, roads, bridges, and dams in order to provide jobs and stimulate local economies. Thousands of Idaho citizens found work through the WPA and CCC, and the state ranked eighth nationwide in receipt of New Deal allocations. In Idaho, federal work programs spurred the most active period of highway and bridge construction to date. By 1940, the Idaho State Highway System had more than doubled its mileage since 1918, and the vast majority of its 4,857 miles of roads were graded with crushed rock, oiled, or paved thanks to New Deal money. Among the WPA-associated improvements during this period were those at the Bear River Warren Truss Bridge (Oneida Narrows Road).

ADDITIONAL SOURCES

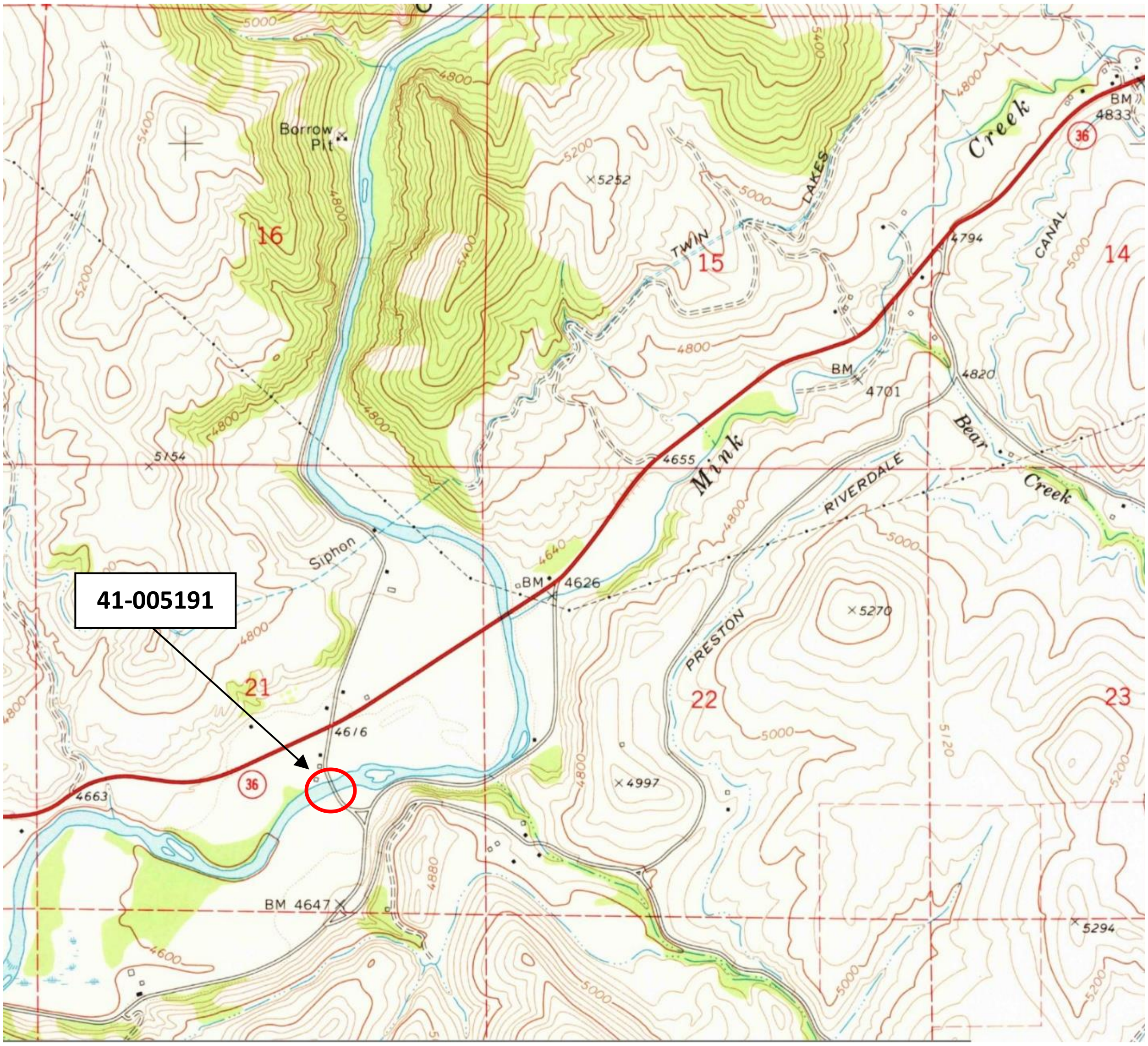
Leonard, John William. *Who's Who in Engineering A Biographical Dictionary of Contemporaries, 1922-1923.* New York, New York: John W. Leonard Corporation, 1922.

R.L Polk & Co.'s Kansas State Gazetteer and Business Directory. Volume 10. R.L. Polk & Co.: Kansas City, Missouri, 1904.



Idaho Counties

Map courtesy of http://www.censusfinder.com/mapid.htm



USGS, RIVERDALE QUADRANGLE, 1969, 7.5' Series
T14S R40E Section 21 – FRANKLIN COUNTY, IDAHO

N

Aerial View of Vicinity
Courtesy Google Earth, Imagery 2017

41-005191, November 2017
View SE

41-005191, November 2017
View SE

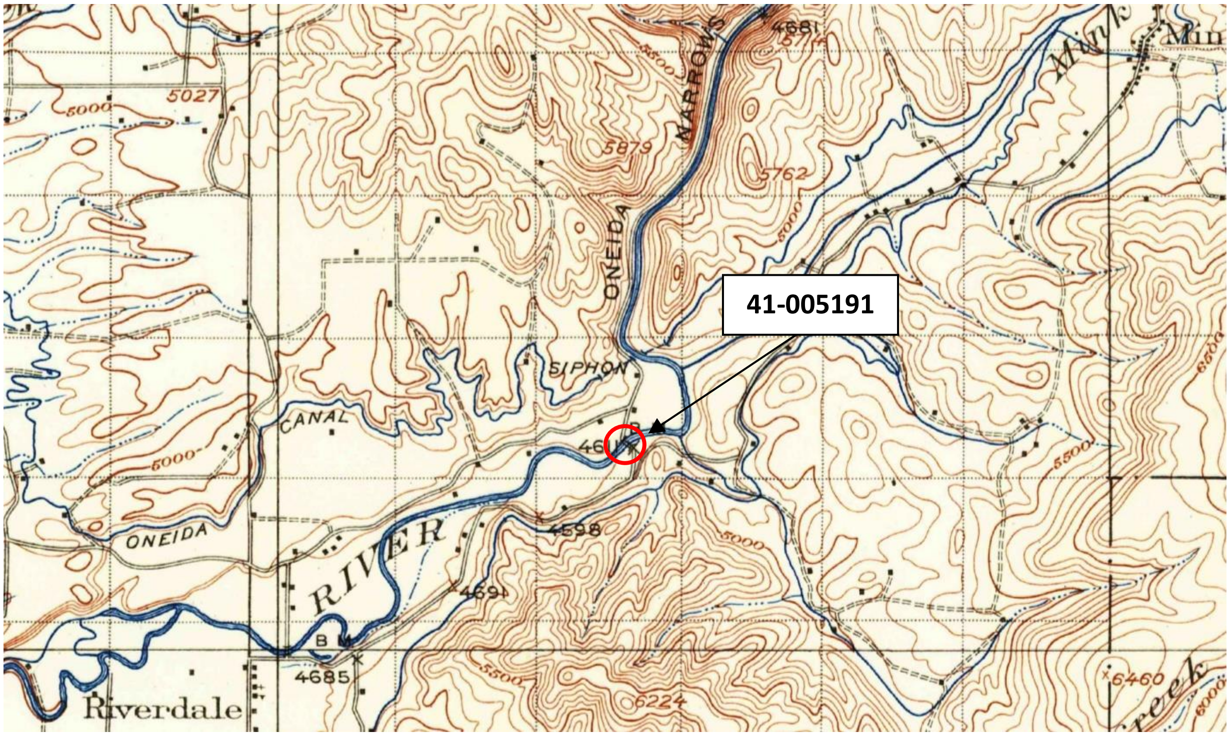
41-005191, November 2013
View SW (photo courtesy of ITD inspection files)

41-005191, November 2013
View SW (photo courtesy of ITD inspection files)

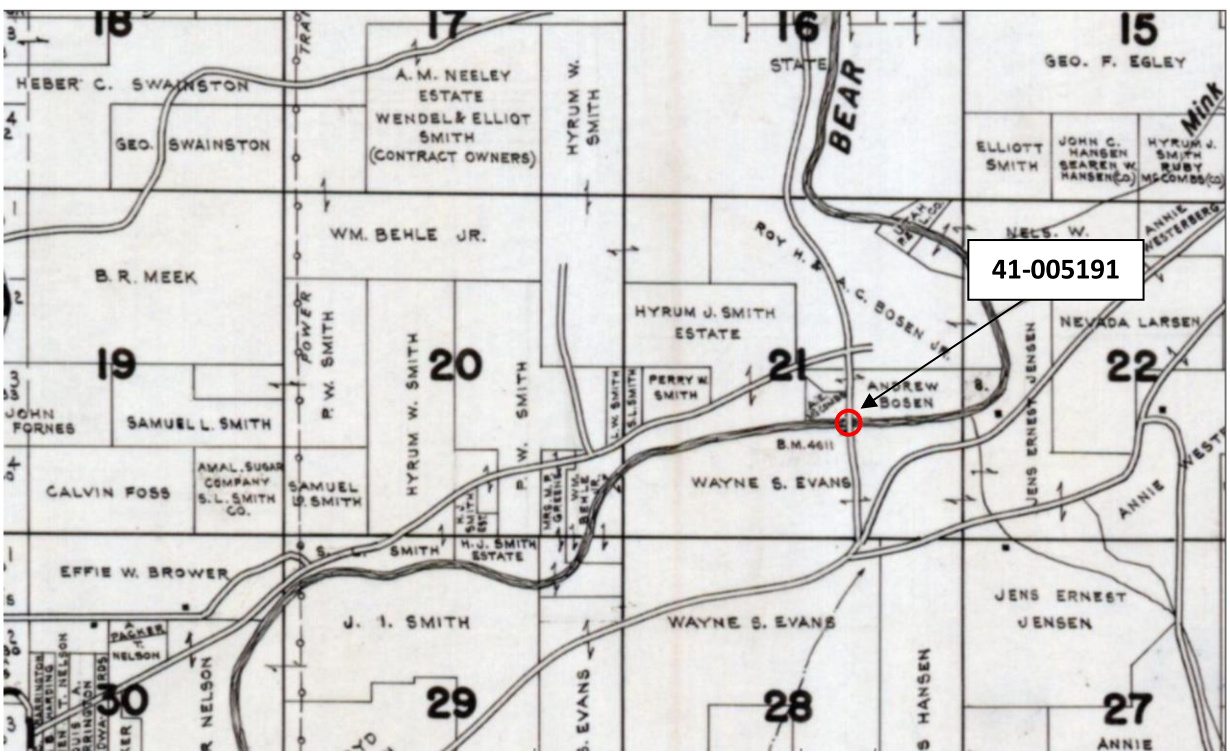
41-005191, November 2017
View NW

41-005191, November 2017
View NW, plaque detail

41-005191, **November** 2013
View SE of southeast abutment (photo courtesy of ITD inspection files)



USGS Preston 1:125,000 Quadrangle, 1915
Courtesy USGS.gov



Metsker's Atlas of Franklin County, 1940
Courtesy HistoricMapWorks.com

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Bear River Warren Truss Bridge (Riverdale Road) | FIELD#: 41-005762
STREET: E. RIVERDALE RD; 4.8 N. 2.3 E. PRESTON | RESTRICT: ☐
CITY: Preston | VICINITY: ☑ | COUNTY CD: 41 | COUNTY NAME: Franklin
SUBNAME: | BLOCK: | SUBLOT: | ACRES: 1 | LESS THAN: ☑
TAX PARCEL: | UTMZ: 12 | EASTING: 431316 | NORTHING: 4668576
TOWNSHIP: 14 | N_S: S | RANGE: 40 | E_W: E | SECTION: 31 | NE ¼, ¼ | NW ¼
QUADRANGLE: Riverdale | OTHERMAP:
SANBORN MAP: | SANBORN MAP#: | PHOTO#: Digital

PROPERTY TYPE: Structure | CONST/ACT1: Original Construction | ACTDATE1: 1931 | CIRCA1: ☑
CONST/ACT2: | ACTDATE2: | CIRCA2: ☐
ASSOCIATED FEATURES: bridge | TOTAL # FEATURES: 1
ORIGINAL USE: Transportation | WALL MATERIAL:
ORIGSUBUSE: Road-related | FOUND. MATERIAL: CONCRETE
CURRENT USE: Transportation | ROOF MATERIAL:
CURSUBUSE: Road-related | OTHER MATERIAL: METAL:Steel
ARCHSTYLE: Other:Warren Pony Truss, Polygonal Top Chord | PLAN: Rectangular | CONDITION:

NR REF #: | NPS CERT: | ACTIONDATE: | FUTURE ELIG DATE:
DIST/MPLNAME1: Metal Truss Highway Bridges of Idaho | DIST/MPLNAME2:

Individually Eligible ☑ | Contributing in a potential district ☐ | Noncontributing ☐ | Future eligibility ☐
Not Eligible ☐ | Multiple Property Study ☑ | Not evaluated ☐

CRITERIA: A ☑ B ☐ C ☑ D ☐ | CRITERIA CONSIDERATION: A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G ☐
AREA OF SIGNIF: Transportation | AREA OF SIGNIF: Engineering

COMMENTS: The 1940 Metsker map shows a crossing in this immediate vicinity, but not on the same alignment. (Metsker maps, though good primary sources, are also known to be less than precise in some aspects and should always be corroborated.)

Though previous survey refers to this building as a 'camelback' truss, technically (per HAER), the term is only appropriately used

PROJ/RPT TITLE: Steel Bridges of Eastern Idaho Survey (ITD Key No. 12479 - Mitigation) | SVY DATE: 11/18/17 | SVY LEVEL: Reconnaissance
RECORDED BY: Kerry Davis, PSLLC | PH: 816-225-5605 | ADDRESS: 1007 E. Jefferson Street, Boise, ID 83712
SUBMITTED: PHOTOS ☑ | NEGS ☐ | SLIDES ☐ | SKETCH MAP ☑

SVY RPT #: | ******** FOR ISHPO USE ONLY ******** | IHSI#: 41-005762
MS RPT #: | SITS#:
IHPR #: | HABS NO. ID-: | HAER NO. ID-: | REV#:

CS #: | IHSI# REF: | NR REF# 2: | REV# REF:
SVY RPT# 1: | SVY RPT# 2: | SVY RPT# 3: | MS RPT# 1: | MS RPT# 2:

ADD'L NOTES: District 5. Surveyed in 1982 and again in 1998. ITD Milepost reference: 100.541
MORE DATA: ☑
ATTACH: ☑

REV# | SITS# | IHSI#

OF PHOTOS: | NEGBOX#: | # OF SLIDES: | SHPO DETER: | DETER DATE:
INITIALED: | ENTRY DATE: | REVISE1: | REVISE2: | REVISE3:

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Bear River Warren Truss Bridge (Riverdale Road)
IHSI#: 41-005762

FIELD#: 41-005762
COUNTY NAME: Franklin

OTHER NAME: ITD Key#23350; ITD Structure Name X991210 0.53

COUNTY CD: 41
CITY: Preston
VICINITY: ☑

UTM REF2:
UTM REF3:
UTM REF4:

OTHER MATERIAL2: CONCRETE
CULTAFFIL:
AGENCYCERT: Local

SIGNIFDATE:
SIGNIFPERIOD:
SIGNIFPERSON:

ARCH/BUILD: Cavanagh, D.J.; Missouri Valley Bridge & Iron Co.
ARCHPLANS: ☐
TAXEASE: ☐
TAXCERT: ☐

OWNERSHIP: Public-Local
PROPOWN: Franklin County

MORE DATA: ☑
ATTACH: ☑

DOCSOURCE: ITD records; SHPO records; USGS Quads

ADD'L NOTES: District 5. Surveyed in 1982 and again in 1998. ITD Milepost reference: 100.541

COMMENTS: The 1940 Metsker map shows a crossing in this immediate vicinity, but not on the same alignment. (Metsker maps, though good primary sources, are also known to be less than precise in some aspects and should always be corroborated.)

Though previous survey refers to this building as a 'camelback' truss, technically (per HAER), the term is only appropriately used for a Pratt truss with polygonal top chord of exactly five slopes. For the purposes of this survey, the bridge truss type is categorized as a Warren truss with polygonal top chord.

This bridge should not be confused with the two-span Warren truss bridge about 3.75 miles upstream (Bear River Warren Truss Bridge (Oneida Narrows Road) IHSI#41-005191 Key#23340)

PHOTO LOG: ☐
IHSI# REF:
INITIALED:
DATEENTERED:

SKETCH: ☑

IHSI#

SITS#

REV#

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Bear River Warren Truss Bridge (Riverdale Road)

IHSI#: 41-005762

FIELD#: 41-005762

COUNTY NAME: Franklin

COMMENTS:

The 1940 Metsker map shows a crossing in this immediate vicinity, but not on the same alignment. (Metsker maps, though good primary sources, are also known to be less than precise in some aspects and should always be corroborated.)

Though previous survey refers to this building as a 'camelback' truss, technically (per HAER), the term is only appropriately used for a Pratt truss with polygonal top chord of exactly five slopes. For the purposes of this survey, the bridge truss type is categorized as a Warren truss with polygonal top chord.

This bridge should not be confused with the two-span Warren truss bridge about 3.75 miles upstream (Bear River Warren Truss Bridge (Oneida Narrows Road) IHSI#41-005191 Key#23340).

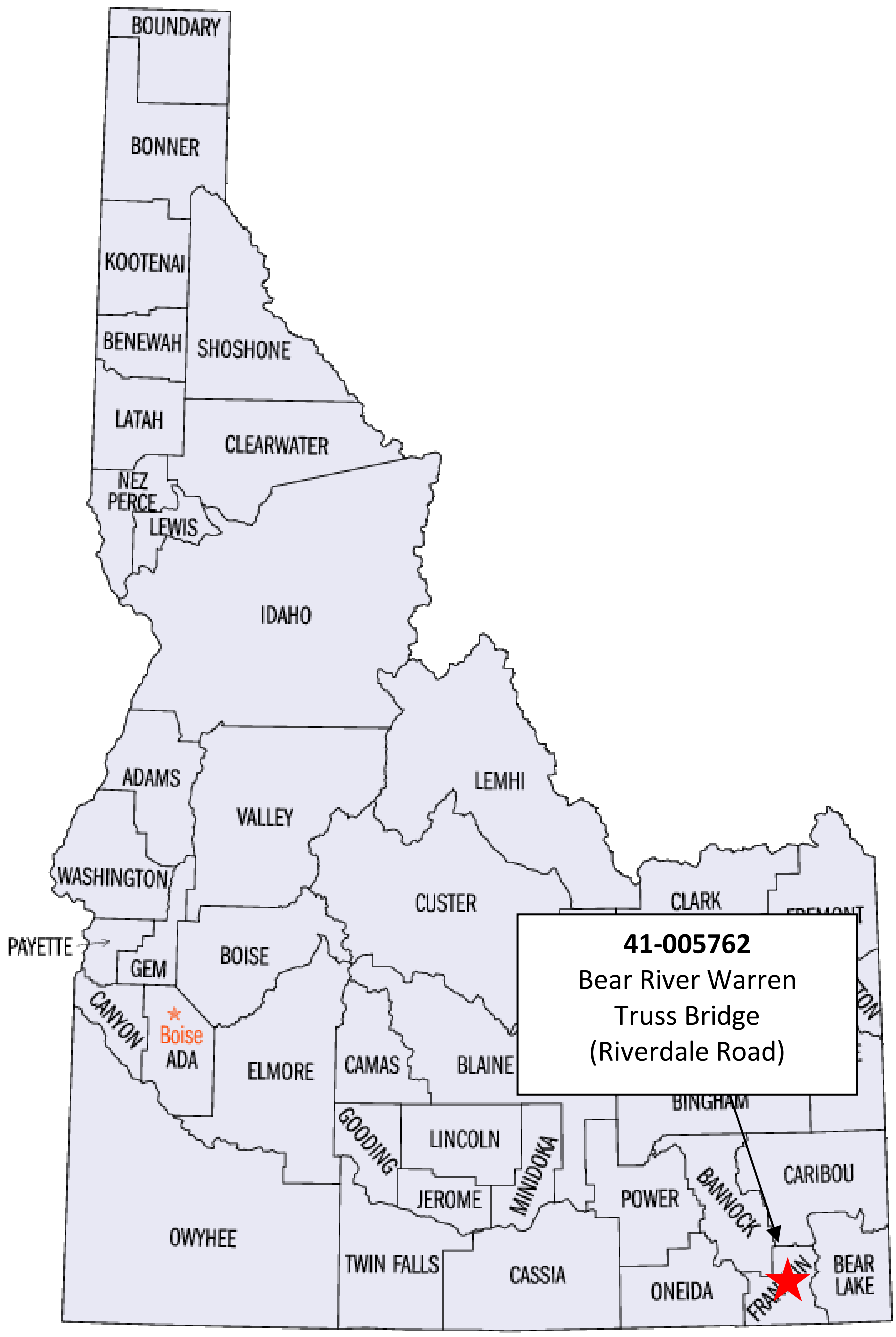
This abbreviated IHSI documentation is provided merely as supplemental documentation. Field survey verified this bridge retains all seven aspects of integrity and is individually eligible per the statewide MPDF registration requirements for Metal Truss Highway Bridges of Idaho.

ATTACH ☑

IHSI# ____

SITS# ____

REV# ____



Idaho Counties

Map courtesy of http://www.censusfinder.com/mapid.htm

Aerial View of Vicinity
Courtesy Google Earth, Imagery 2017

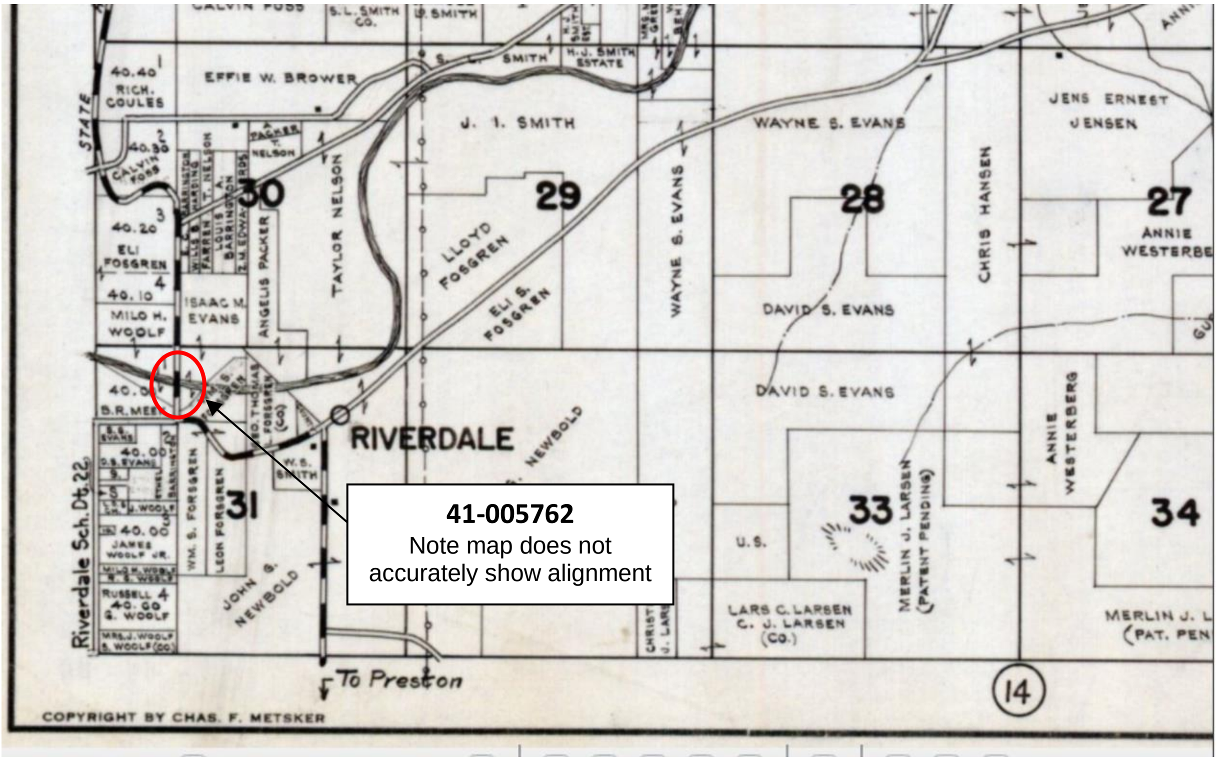
41-005762, November 2017
View NE

41-005762, November 2017
View N-NW

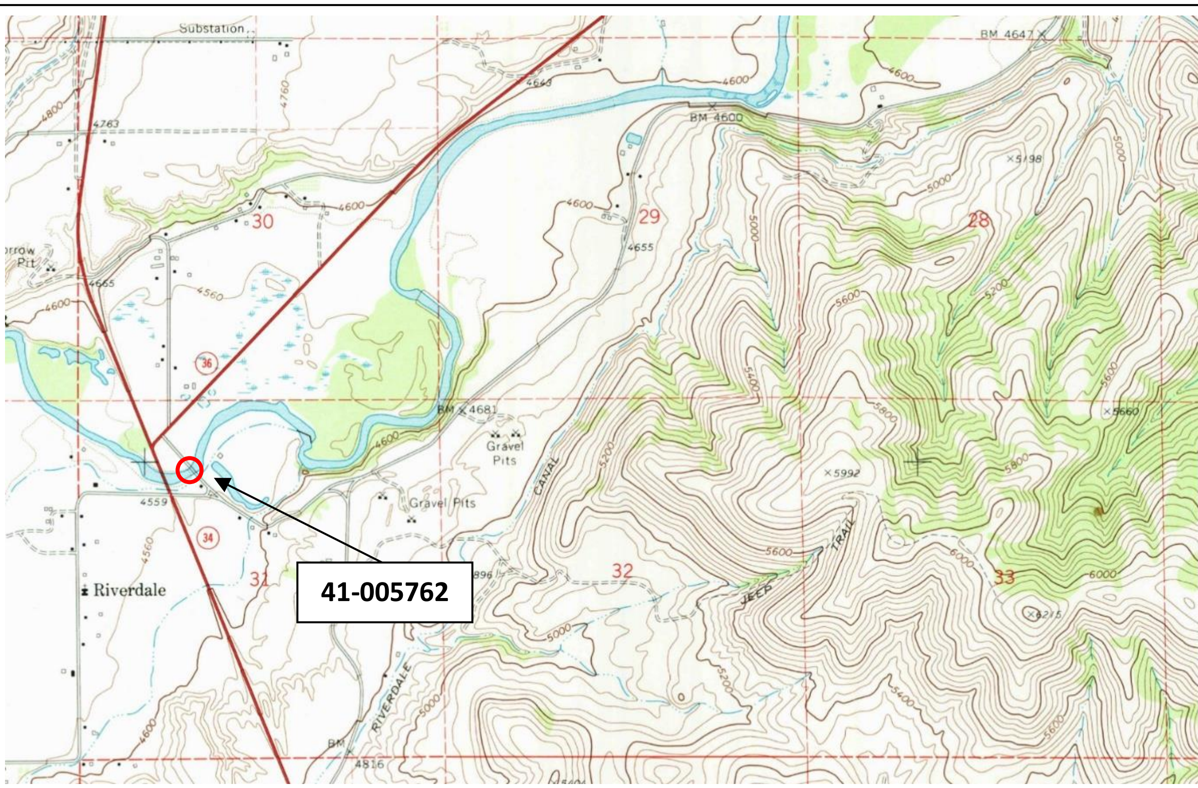
41-005762, November 2017
View SE

41-005762, November 2013
View SW (photo courtesy of ITD inspection files)

41-005762, November 2017
View NW of plaque



Metsker's Atlas of Franklin County, 1940
Courtesy HistoricMapWorks.com



USGS Riverdale Quadrangle, 1969
Courtesy ugsg.gov

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Henry's Fork Pratt Truss Bridge (aka Fun Farm Bridge) | FIELD#: 43-005790
STREET: Fun Farm Road; 0.9 S. 2.5 W. CHESTER | RESTRICT: ☐
CITY: Chester | VICINITY: ☑ | COUNTY CD: 43 | COUNTY NAME: Fremont
SUBNAME: | BLOCK: | SUBLOT: | ACRES: 1 | LESS THAN: ☑
TAX PARCEL: | UTMZ: 12 | EASTING: 449888 | NORTHING: 4870207
TOWNSHIP: 8 | N_S: N | RANGE: 41 | E_W: E | SECTION: 33 | NE ¼, ¼ NE ¼
QUADRANGLE: Newdale | OTHERMAP:
SANBORN MAP: | SANBORN MAP#: | PHOTO#: Digital

PROPERTY TYPE: Structure | CONST/ACT1: Original Construction | ACTDATE1: 1907 | CIRCA1: ☑
CONST/ACT2: Alteration | ACTDATE2: 1925;1998 | CIRCA2: ☐
ASSOCIATED FEATURES: bridge | TOTAL # FEATURES: 1
ORIGINAL USE: Transportation | WALL MATERIAL:
ORIGSUBUSE: Road-related | FOUND. MATERIAL: STONE
CURRENT USE: Transportation | ROOF MATERIAL:
CURSUBUSE: Road-related | OTHER MATERIAL: METAL:Steel
ARCHSTYLE: Other:Pratt Through Truss | PLAN: Rectangular | CONDITION: Good

NR REF #: | NPS CERT: | ACTIONDATE: | FUTURE ELIG DATE:
DIST/MPLNAME1: Metal Truss Highway Bridges of Idaho | DIST/MPLNAME2:

Individually Eligible ☑ | Contributing in a potential district ☐ | Noncontributing ☐ | Future eligibility ☐
Not Eligible ☐ | Multiple Property Study ☑ | Not evaluated ☐

CRITERIA: A ☑ B ☐ C ☑ D ☐ | CRITERIA CONSIDERATION: A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G ☐
AREA OF SIGNIF: Transportation | AREA OF SIGNIF: Engineering

COMMENTS: See continuation sheets for elaborated description, history, significance, and eligibility.

PROJ/RPT TITLE: Steel Bridges of Eastern Idaho Survey (ITD Key No. 12479 - Mitigation) | SVY DATE: 7/10/17 | SVY LEVEL: Intensive
RECORDED BY: Kerry Davis, PSLLC | PH: 816-225-5605 | ADDRESS: 1007 E. Jefferson Street, Boise, ID 83712
SUBMITTED: PHOTOS ☑ | NEGS ☐ | SLIDES ☐ | SKETCH MAP ☑

SVY RPT #: | ******** FOR ISHPO USE ONLY ******** | IHSI#: 43-005790
MS RPT #: | SITS#:
IHPR #: | HABS NO. ID-: | HAER NO. ID-: | REV#:

CS #: | IHSI# REF: | NR REF# 2: | REV# REF:
SVY RPT# 1: | SVY RPT# 2: | SVY RPT# 3: | MS RPT# 1: | MS RPT# 2:

ADD'L NOTES: District 6. Last surveyed 1982. ITD Milepost reference: 100.070

MORE DATA ☑
ATTACH ☑

REV# | SITS# | IHSI#

OF PHOTOS: | NEGBOX#: | # OF SLIDES: | SHPO DETER: | DETER DATE:
INITIALED: | ENTRY DATE: | REVISE1: | REVISE2: | REVISE3:

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME	Henry's Fork Pratt Truss Bridge (aka Fun Farm Bridge)
IHSI#	43-005790
FIELD#	43-005790
COUNTY NAME	Fremont
OTHER NAME	ITD Key # 31840; ITD Structure Name X996220 0.10
COUNTY CD	43
CITY	Chester
VICINITY	☑
UTM REF2	
UTM REF3	
UTM REF4	
OTHER MATERIAL2	WOOD
CULTAFFIL	
AGENCYCERT	Local
SIGNIFDATE	
SIGNIFPERIOD	
SIGNIFPERSON	
ARCH/BUILD	Perham & Harris
ARCHPLANS	☐
TAXEASE	☐
TAXCERT	☐
OWNERSHIP	Public-Local
PROPOWN	Fremont County
MORE DATA	☑
ATTACH	☑
DOCSOURCE	ITD records; SHPO records; USGS Quads
ADD'L NOTES	District 6. Last surveyed 1982. ITD Milepost reference: 100.070
COMMENTS	See continuation sheets for elaborated description, history, significance, and eligibility.
PHOTO LOG	☐
IHSI# REF	
INITIALED	
DATEENTERED	
SKETCH	☑

IHSI#

SITS#

REV#

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Henry's Fork Pratt Truss Bridge (aka Fun Farm Bridge)

IHSI#: 43-005790

FIELD#: 43-005790

COUNTY NAME: Fremont

COMMENTS:

See continuation sheets for elaborated description, history, significance, and eligibility.

ATTACH ☑

IHSI# __________

SITS# __________

REV# __________

DESCRIPTION

LOCATION and SETTING

The Henry's Fork Pratt Truss Bridge is located 0.9 miles south and 2.5 miles west of the town of Chester in eastern Idaho, at the north edge of Section 33, Township 8N, Range 41E. The region is defined by irrigated flat bottom lands with lava fields and sage steppe beyond. The Henry's Fork Pratt Truss Bridge carries a perpendicular north-south connector over the Henry's Fork of the Snake River and between river-flanking roads – N River Road (E 700 N) and S River Road (N 2650 E). The asphalt roadway of the single-lane Henry's Fork Pratt Truss Bridge aligns perpendicularly with its feeder roads, forming an overall H-shaped road network configuration.

TRUSS TYPE

The Henry's Fork Pratt Truss Bridge is a single span, pin-connected through truss measuring approximately 152 feet in length and 15.4 feet in width. Uncoursed, rough-faced mortared basalt with nonoriginal steel stay plates form the abutments supporting the end floor beams of the truss, which rest directly on the abutment seat. The angled wingwalls of the abutments extend approximately 30 feet out away from the pedestal along the approach grades. The inclined end posts rise from the bottom chords to meet the horizontal top chords to form an overall trapezoidal shape in elevation. The top chords and inclined end posts consist of two channels and a cover plate with stay plates and lacing bars on the underside; the bottom chords consist of paired flat eye bars.

The web members consist of vertical posts forming 8 equivalent panels and diagonal ties that intersect within the two central panels. Channel stock and lacing bars form the five central vertical posts, while channel stock with stay plates form the two outermost vertical posts of each truss. Flat eye bars and tension rods compose the diagonal ties.

A system of intersecting angle stock and gusset plates forms the portal, leaving a vehicular clearance of 9'-2". Angle stock and lacing bars form the upper sway struts connecting the top chords at each vertical post. Upper lateral bracing rods intersect diagonally between the top chords and sway struts.

The timber deck is 15.4 feet wide with no curbs and rises approximately 15 feet above the river bed. The deck is comprised of one layer of ~2.5"-x-10" planks laid flat over steel I-beam stringers below, most of which have timber sisters. A pair of five-plank-wide (each plank ~2.5"-x-11") raised running boards distinguishes the vehicular travel path and alleviates overall wear to the main deck structure. Floor beams located at the base of each vertical web member are connected by lower lateral bracing rods.

Paired, parallel wood plank rails form guardrails along the full length of each side of the bridge. Letters in relief read "CARNEGIE" on multiple structural components.

INTEGRITY

The Henry's Fork Pratt Truss Bridge is an excellent example of this bridge type, historically popular and increasingly rare in Idaho.

The Henry's Fork Pratt Truss Bridge retains a good degree of integrity, with no substantial nonhistoric or incompatible alterations to the original design or materials. The original workmanship, setting, and feeling of the structure are also readily apparent. Located at a popular water recreation site (fishing, swimming, boating), should traffic requirements necessitate a new bridge, the potential for preservation of the structure as a pedestrian bridge is high.

This structure possesses the following aspects of integrity: location, setting, design, materials, workmanship, feeling, and association. It retains sufficient integrity to be NRHP eligible individually.

Location: This structure has not been moved, and thus retains integrity of location.

Setting: The historic rural setting is intact.

Design: Integrity of design is intact, visible primarily by means of the original steel truss members assembled and executed in the Pratt truss design.

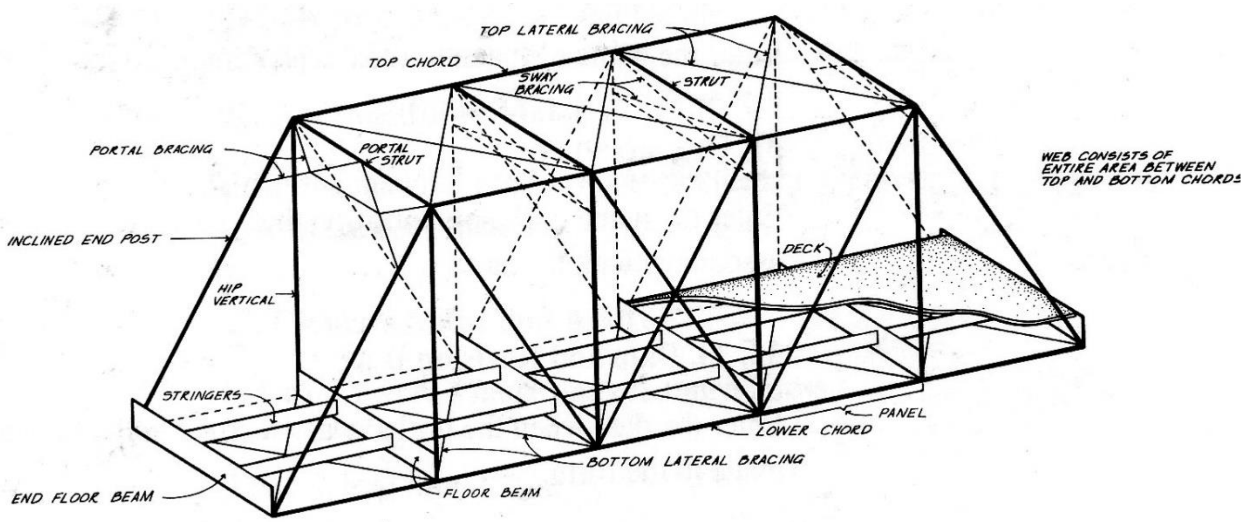
Materials: The property retains its integrity of materials, particularly by means of the original steel structural members.

Workmanship: Elements of workmanship are evident.

Feeling: The property's integrity of feeling is apparent through its retention of integrity of setting, design, materials, and workmanship, which combined, clearly convey a sense of past time and place.

Association: The association between this structure with the surrounding river and rural area is present.

Bridge-Specific Terminology Diagram[1]



Courtesy Historic American Engineering Record

[1] This diagram is included for the reader's reference as to bridge-specific terminology used in the description above. It should not be misinterpreted as an illustration of the Henry's Fork Pratt Truss Bridge.

STATEMENT OF SIGNIFICANCE

The Henry’s Fork Pratt Truss Bridge is significant under National Register Criterion A in the area of Transportation and Criterion C in the area of Engineering. As defined by the Multiple Property Documentation Form for *Metal Truss Highway Bridges of Idaho,* it is an excellent example of the Pratt truss bridge type. Built in 1907, the Henry’s Fork Pratt Truss Bridge is an example of a common, economical bridge solution for a relatively long span. Its pin-connected structure, timber deck, and basalt abutments illustrate technological solutions prior to the widespread use of poured concrete early in the period of significance.[2] Local references to the bridge give it the name of Fun Farm Bridge or Fun Farm Road Bridge, however no current map has been identified showing that road name in the vicinity. As no historic name identifies this bridge, using NRHP guidelines of resource naming, the preferred name "Henry’s Fork Pratt Truss Bridge" has been assigned. This describes and identifies the location, design, and function of the structure.

ELIGIBILITY

The Henry’s Fork Pratt Truss Bridge is individually eligible for listing in the National Register of Historic Places under Criteria A and C. This structure is associated with significant trends in local history (Criterion A) and it retains sufficient integrity to communicate its historic engineering associations (Criterion C). At the same time, it is not known to be associated with a person significant in history and it has little potential to yield data in the future, and is thus not eligible under Criteria B or D.

ELABORATION

Accompanying the arrival of population growth associated with large-scale irrigation projects and the railroad to Fremont County at the turn of the twentieth century, was the increased need to eliminate impediments to travel. Bridge crossings like the Henry’s Fork Pratt Truss Bridge provided area ranchers and farmers easy access to markets.

By 1910, 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. Letters in relief on the larger structural members indicate the bridge builder purchased the stock steel from Carnegie Steel Company.

Prior to 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. The pin-connected construction of the Henry’s Fork Pratt Truss 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, riveted technique rapidly surpassed pin-connected bridge construction during the first years of the twentieth century.

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[2] Development of the immediate local area’s history and development sufficient to establish and justify an accurate period of significance was outside the scope of this project. For the purposes of this project, as a placeholder the period of significance is given as beginning in 1907, the date of construction of the bridge, and ending in 1968, the ‘fifty-year cut-off’ established by the National Park Service as representing the span of time generally necessary to have passed before significance can be established.

In addition, the contemporary development of economic cement production promoted the widespread combination of steel and concrete in bridge construction. By the 1920s, reinforced concrete was the standard material for abutments, piers, and decks of steel truss bridges. It was not uncommon for older metal truss bridges to receive new reinforced concrete decks or poured concrete reinforcements for older stone abutments. The retention of the original basalt abutments of the Henry's Fork Pratt Truss Bridge is notable, as original stone masonry abutments are not typically intact for bridges built during the first years of the twentieth century.

The Henry's Fork Pratt Truss Bridge is a classic example of this truss design. 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.[3] The Pratt truss became the most common bridge type of the late nineteenth and early twentieth centuries and spawned numerous variations including Parker, Camelback, Baltimore, Truss Leg Bedstead, Lenticular, and Pennsylvania trusses.[4]

In Idaho, Pratt trusses were constructed into the twentieth century, suggesting the appeal of the design's strength and economical construction costs. A 1982 survey of steel truss bridges statewide identified seventy-seven Pratt truss bridges statewide, including the Henry's Fork Pratt Truss Bridge.

STRUCTURE HISTORY

The 1891 Government Land Office (GLO) subdivisional survey of this township documented no bridge crossings of the Henry's Fork (aka North Fork) of the Snake River. Per previous survey, Fremont County Commissioners' minutes indicate the St. Anthony-based firm of Perham and Harris built the Henry's Fork Pratt Truss Bridge in 1907 under a $4,700 contract with the Fremont County Commissioners. Reportedly it was to replace an earlier, damaged bridge at the same site, and at the time of its construction "was one of the first steel bridges built in Fremont County, among a number of such bridges erected by the local contracting firm of Perham and Harris." Structural members indicate the bridge builder purchased the stock steel from Carnegie Steel Company of Pittsburgh, Pennsylvania.

ITD inspection records date the bridge to 1925 and its 'reconstruction' to 1998; however, these records provide no additional information as to the source of these dates or what occurred at those times. ITD inspection records indicate the bridge was closed to all traffic in October 2016. However, at the time of field survey in July 2017, the bridge was open to vehicular traffic within the 8-ton load and 9'-2" height limits. In 2017, the bridge received a structural retrofit assembly along the bottom chord to amplify the structural stability of the truss.

[3] 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.
[4] Ibid.

Perham and Harris

Active from around 1905 through around 1920, the partnership of H.W. Perham and A.D. Harris was responsible for the construction of numerous resources in southeastern Idaho and neighboring states during a period of remarkable growth in the region. Based in St. Anthony,[5] the partnership completed various bridges, buildings, and infrastructure projects throughout southeastern Idaho, Montana, and Wyoming during the first decades of the twentieth century. In 1923, both Perham and Harris were still living in working in St. Anthony as bridge builders, but by this time the city directory no longer lists the partnership as extant. By 1930 Harris had left Idaho, while Perham continued bidding on projects in the region, either on his own or with a partner by the surname of Coffin.

Among the projects known to have been awarded and/or attributed to Perham and Harris are:

- Henry's Fork Pratt Truss Bridge (1907)
- Fremont County Courthouse (1909; designed by Wayland and Fennel; NRHP listed)
- Multiple unspecified bridges in Jefferson County on the Yellowstone Highway (1920)
- A concrete dam at the "source of the outlet to Henry's lake" for irrigation purposes (1920; contract amount $34,000)
- Vernon Schoolhouse (Fremont County; secondary source states the building was built in 1900 by Perham and Harris, however neither man was living in Idaho yet, so this attribution is unconfirmed)

Hugh Worth Perham (1862-1951), a native of Oregon, came to St. Anthony between 1900 and 1907 from Butte, Montana, where he had worked as a contractor. Census records from 1910 through 1930 show him living in St. Anthony and working as a bridge and building contractor. ITD minute books from the 1910s through early 1930s show he bid upon and was awarded projects submitted either on his own, or in the partnerships of Perham & Harris or Perham & Coffin. According to the Ashton, Idaho, centennial history, "Hugh Perham built many of the first buildings" and was "possibly" the first builder in town.

Austin D. Harris (1873-1960), a native of Ohio, came to St. Anthony between 1900 and 1907. In 1910 he was living as a lodger in H.W. Perham's house in St. Anthony, at which time his occupation was listed as 'bridge contractor.' He worked in partnership with H.W. Perham, as well as on his own, until the mid-to-late 1920s when he moved back to Munroe Falls, Ohio, where he worked as a general contractor and remained until his death in 1960.

Carnegie Steel Company

Originally founded in 1874 as the Thompson Steel Works in Braddock, Pennsylvania, Carnegie Steel later reorganized as Carnegie Steel in 1892 with headquarters in Pittsburgh. Known for the persistent drive to lower costs, Andrew Carnegie's steel company often undersold the competition, making stock steel affordable to a fast-developing nation. Considered one of, if not the, most productive steel operations in the world, Carnegie Steel became a model in the industry. In 1901, Pierpont Morgan bought Carnegie Steel as one of U.S. Steel's subsidiaries after which it kept the Carnegie name until 1936, when it was renamed Carnegie-Illinois Steel Company.

[5] The MPDF *Metal Truss Highway Bridges of Idaho* states Perham and Harris were of Rexburg but no other source corroborated this information.

Chester and Vicinity[6]

The unincorporated hamlet of Chester has its origins in the late nineteenth. Reportedly, Joseph Curr arrived in 1885 and was the first settler in the immediate vicinity. After passage of the Carey Act in 1893, the promise of large-scale irrigation of the area drew settlers and sufficient settlement took place to warrant creation of Fremont County from Bingham County.

By 1899 the railroad had reached St. Anthony from Idaho Falls and by 1900, Fremont County's population was one of the top three most populous counties statewide with 12,821 residents. With the Yellowstone Park Railway's 1906 completion of a railroad from St. Anthony to West Yellowstone, Wyoming, a railroad station was introduced at Chester and the village soon served as a trading and shipping point for the growing surrounding agricultural community and continues to do so today.

By 1910, Fremont County's population almost doubled to 24,606. At that time, Chester was listed in the Idaho Falls city directory as a "station and a post office on the O.S.L. Ry.," with daily mail, a general store (containing the post office), and Miller Brothers grain dealers. As a result, bridges like Henry's Fork Pratt Truss Bridge that provided area farmers with access over the Snake River and to local markets were critical to the survival of the regional economy.

ADDITIONAL SOURCES

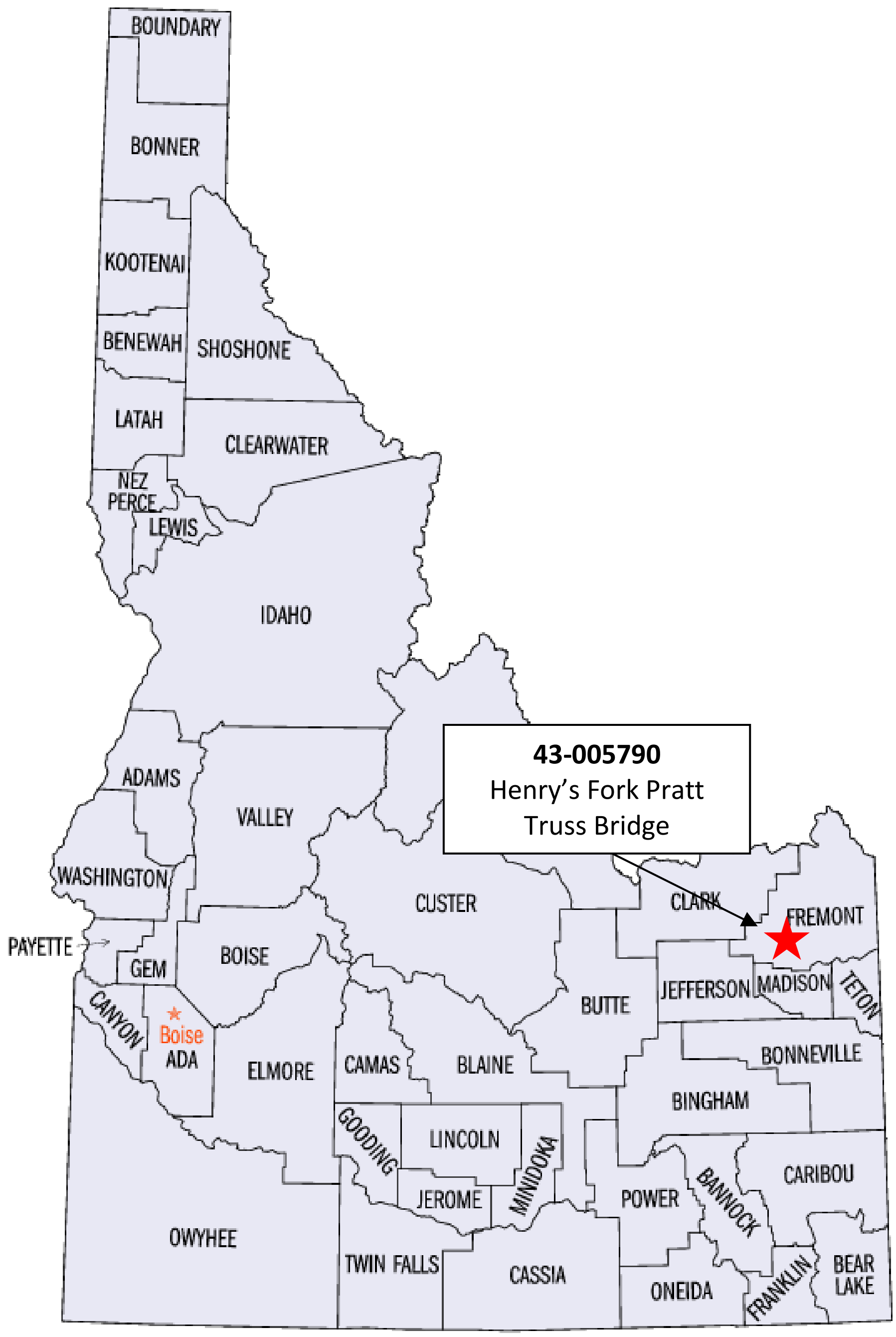
Lyon, Glade. *Ashton, Idaho: The Centennial History 1906-2006.*

"Twenty Years Ago – Taken From the Files of This Paper," *The Post-Register (Idaho Falls),* September 12, 1940, 4.

Union Pacific Railroad. "Eastern Idaho Railroad Inc. EIRR #387." Available from www.up.com/customers/profiles_d-k/eirr/index.htm.

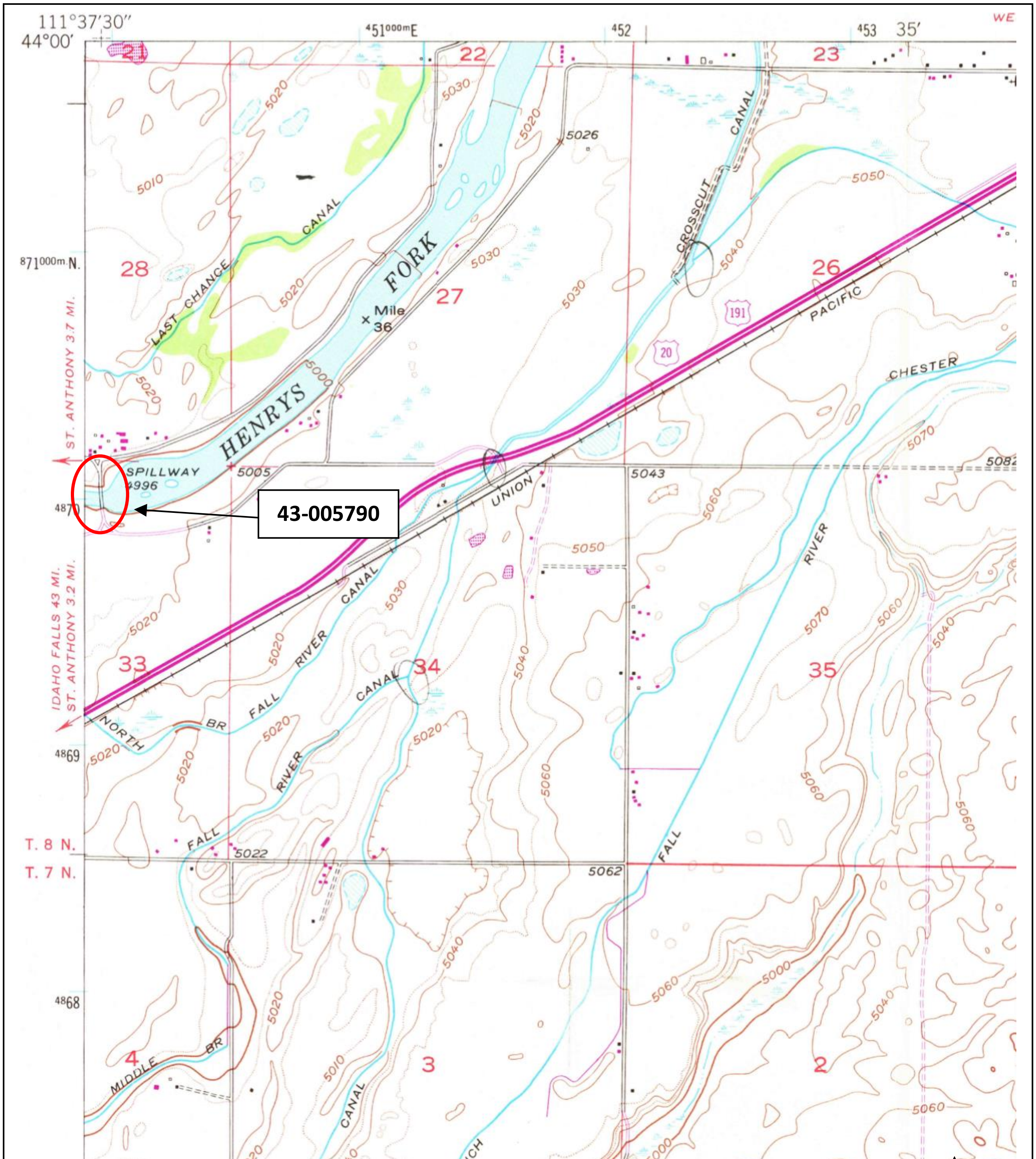
United States of America, Bureau of the Census. *1900-1930*. Washington, D.C.: National Archives and Records Administration. Available from Ancestry.com.

[6] One source suggested Chester was originally known as Fall River. No other source corroborated this information.



Idaho Counties

Map courtesy of http://www.censusfinder.com/mapid.htm



USGS, NEWDALE QUADRANGLE, 1949; 1979 revised, 7.5' Series
T8N R41E Section 33 – FREMONT COUNTY, IDAHO

N

Aerial View of Vicinity
Courtesy Google Earth, Imagery 2017

43-005790, July 2017
View NW

43-005790, July 2017
View W-NW

43-005790, July 2017
View SW

43-005790, July 2017
Detail N-NE

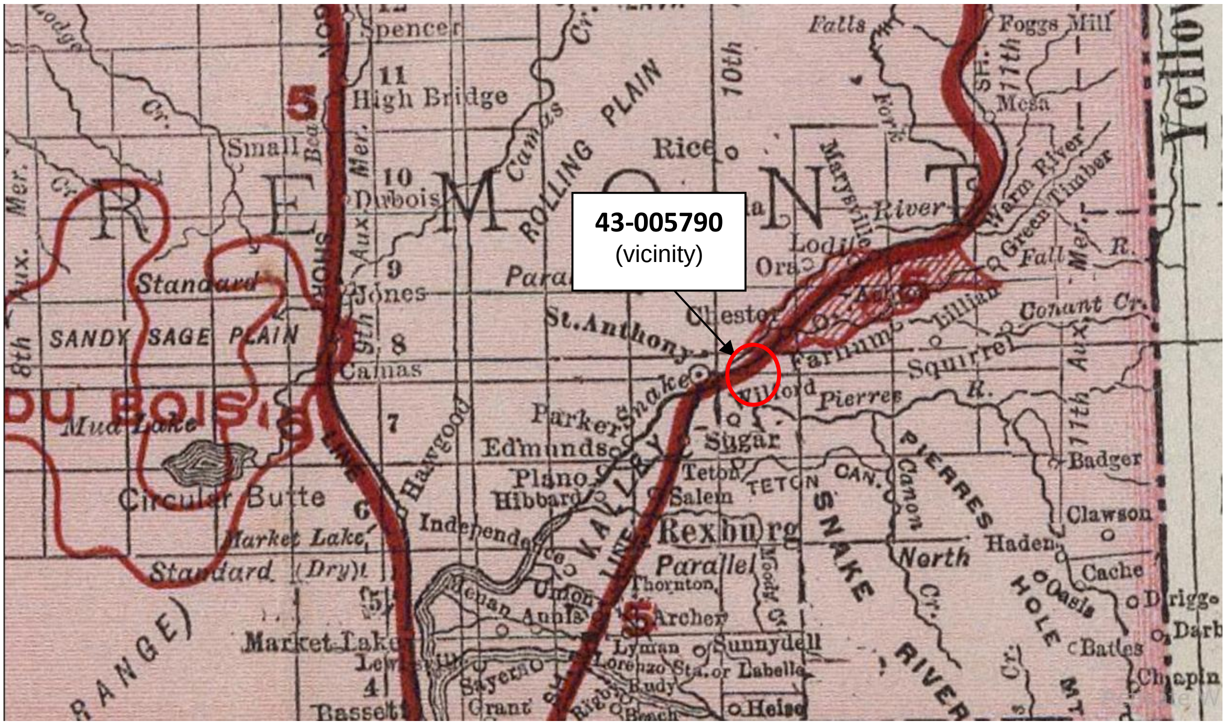
43-005790, July 2017
View NE

43-005790, July 2017
View N-NE of north abutment

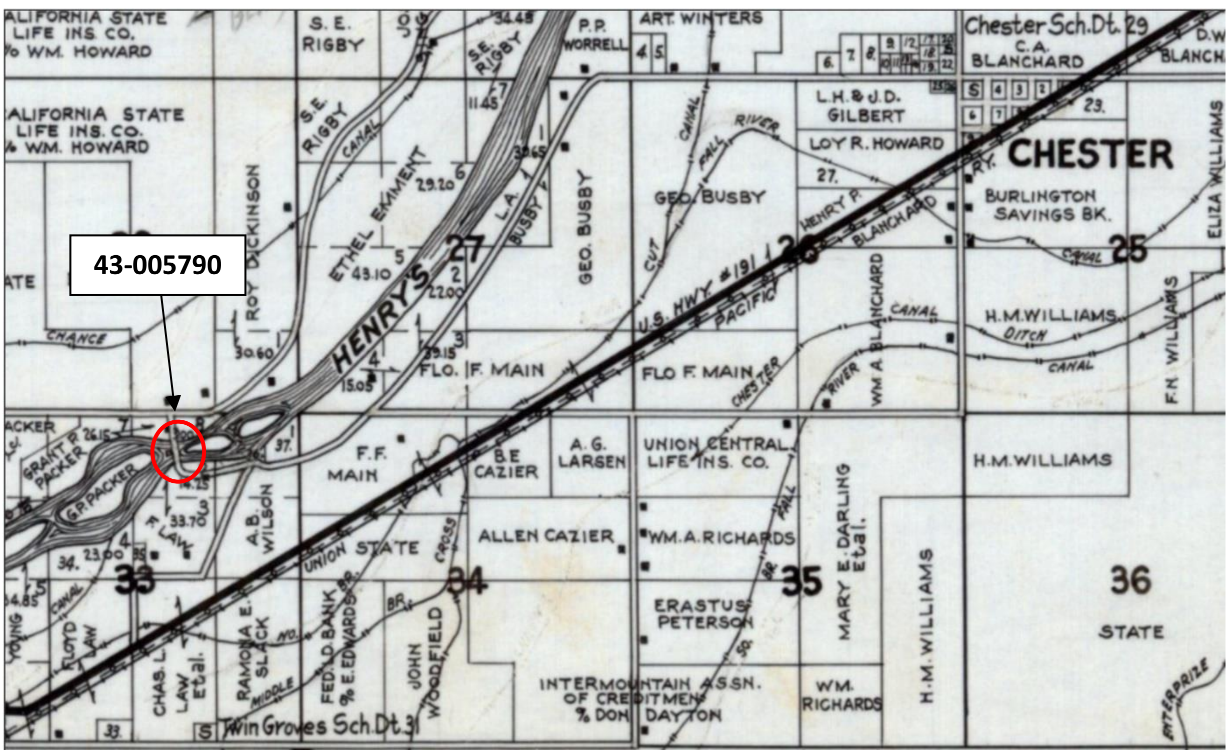
43-005790, July 2017
View E of south abutment

43-005790, July 2017
Detail view of bottom chords, floor beams, and stringers below deck

43-005790, July 2017
Detail view of one of several original stock steel markings



Rand McNally & Co.'s Pocket Map of Idaho, 1909
Note: red shading indicates land irrigated under Carey Act reclamation projects
Courtesy David Rumsey Map Collection online, www.davidrumsey.com



Metsker's Atlas of Fremont County, 1940 (detail)
Courtesy www.HistoricMapWorks.com

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Owsley Bridge
FIELD#: 47-005153
STREET: 1000 East Road; 3.6 S. 0.4 E. Hagerman (c. 200 yrds N of jct Old US 30/Bell Rapid Rd)
RESTRICT: ☐
CITY: Hagerman
VICINITY: ☑
COUNTY CD: 47
COUNTY NAME: Gooding
SUBNAME:
BLOCK:
SUBLOT:
ACRES: 2
LESS THAN: ☑
TAX PARCEL:
UTMZ: 11
EASTING: 672635
NORTHING: 4736806
TOWNSHIP: 8
N_S: S
RANGE: 13
E_W: E
SECTION: 2
¼, ¼: NE
¼:
QUADRANGLE: Hagerman
OTHERMAP:
SANBORN MAP:
SANBORN MAP#:
PHOTO#: Digital

PROPERTY TYPE: Structure
CONST/ACT1: Original Construction
ACTDATE1: 1921
CIRCA1: ☐
CONST/ACT2:
ACTDATE2:
CIRCA2: ☐
ASSOCIATED FEATURES: bridge
TOTAL # FEATURES: 1
ORIGINAL USE: Transportation
WALL MATERIAL:
ORIGSUBUSE: Road-related
FOUND. MATERIAL: CONCRETE
CURRENT USE: Transportation
ROOF MATERIAL:
CURSUBUSE: pedestrian-related
OTHER MATERIAL: METAL:Steel
ARCHSTYLE: Other:Warren Cantilevered Through Truss
PLAN: Rectangular
CONDITION: Fair

NR REF #: 98001172
NPS CERT: Listed
ACTIONDATE: 9/18/98
FUTURE ELIG DATE:
DIST/MPLNAME1: Metal Truss Highway Bridges of Idaho
DIST/MPLNAME2:

Individually Eligible ☑ Contributing in a potential district ☐ Noncontributing ☐ Future eligibility ☐
Not Eligible ☐ Multiple Property Study ☑ Not evaluated ☐

CRITERIA: A ☑ B ☐ C ☑ D ☐
CRITERIA CONSIDERATION: A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G ☐
AREA OF SIGNIF: Transportation
AREA OF SIGNIF: Engineering

COMMENTS: This abbreviated IHSI documentation is provided merely as supplemental documentation. Field survey verified this bridge retains all seven aspects of integrity and is individually eligible per the statewide MPDF registration requirements for Metal Truss Highway Bridges of Idaho.

PROJ/RPT TITLE: Steel Bridges of Eastern Idaho Survey (ITD Key No. 12479 - Mitigation)
SVY DATE: 10/12/17
SVY LEVEL: Reconnaissance
RECORDED BY: Kerry Davis, PSLLC
PH: 816-225-5605
ADDRESS: 1007 E. Jefferson Street, Boise, ID 83712
SUBMITTED PHOTOS ☑ NEGS ☐ SLIDES ☐ SKETCH MAP ☑

SVY RPT #:
******** FOR ISHPO USE ONLY ********
IHSI#: 47-005153
MS RPT #:
SITS#:
IHPR #:
HABS NO. ID-
HAER NO. ID-
REV#:
CS #:
IHSI# REF:
NR REF# 2:
REV# REF:
SVY RPT# 1:
SVY RPT# 2:
SVY RPT# 3:
MS RPT# 1:
MS RPT# 2:
ADD'L NOTES: District 4. NRHP Listed 1998; apparently not surveyed since 1998. Spans the boundary between Twin Falls and Gooding counties. ITD Milepost reference: 099.954
MORE DATA ☑
ATTACH ☑

REV# SITS# IHSI#

\# OF PHOTOS:
NEGBOX#:
\# OF SLIDES:
SHPO DETER:
DETER DATE:
INITIALED:
ENTRY DATE:
REVISE1:
REVISE2:
REVISE3:

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Owsley Bridge
IHSI#: 47-005153
FIELD#: 47-005153
COUNTY NAME: Gooding

OTHER NAME: ITD Key# 24340; ITD Structure Name X992240 0.76
COUNTY CD: 47
CITY: Hagerman
VICINITY: ☑
UTM REF2:
UTM REF3:
UTM REF4:

OTHER MATERIAL2: ASPHALT
CULTAFFIL:
AGENCYCERT: Local
SIGNIFDATE:
SIGNIFPERIOD:
SIGNIFPERSON:
ARCH/BUILD: United States Bridge Co.
ARCHPLANS: ☐
TAXEASE: ☐
TAXCERT: ☐
OWNERSHIP: Public-Local
PROPOWN: Hagerman Highway District
MORE DATA: ☑
ATTACH: ☑

DOCSOURCE: ITD records; SHPO records; USGS Quads

ADD'L NOTES: District 4. NRHP Listed 1998; apparently not surveyed since 1998. Spans the boundary between Twin Falls and Gooding counties. ITD Milepost reference: 099.954

COMMENTS: This abbreviated IHSI documentation is provided merely as supplemental documentation. Field survey verified this bridge retains all seven aspects of integrity and is individually eligible per the statewide MPDF registration requirements for Metal Truss Highway Bridges of Idaho.

At some point between 1998 and 2015 the bridge was closed to vehicular traffic.

PHOTO LOG: ☐
IHSI# REF:
INITIALED:
DATEENTERED:

SKETCH: ☑

IHSI# ________
SITS# ________
REV# ________

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Owsley Bridge

IHSI#: 47-005153

FIELD#: 47-005153

COUNTY NAME: Gooding

COMMENTS:

This abbreviated IHSI documentation is provided merely as supplemental documentation. Field survey verified this bridge retains all seven aspects of integrity and is individually eligible per the statewide MPDF registration requirements for Metal Truss Highway Bridges of Idaho.

At some point between 1998 and 2015 the bridge was closed to vehicular traffic.

ATTACH ☑

IHSI# ______

SITS# ______

REV# ______

47-005153 (ITD Key #24340), October 2017
View NE

47-005153 (ITD Key #24340), October 2017
View SW

47-005153 (ITD Key #24340), October 2017
View SW of plaque on NE inclined end post

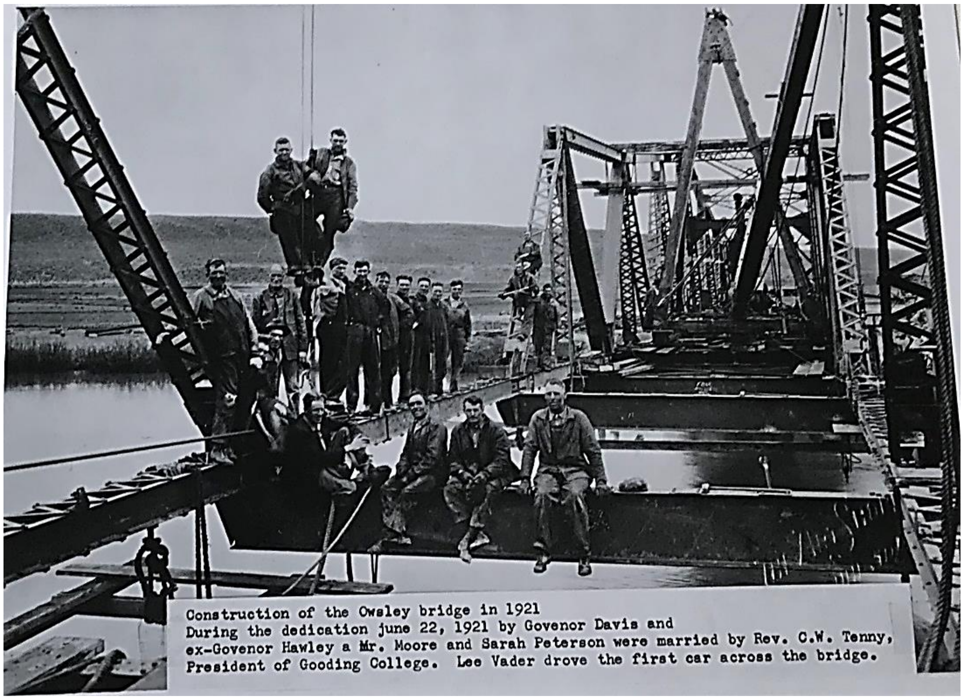
47-005153 (ITD Key #24340), October 2017
View SW of plaque on NE inclined end post

47-005153 (ITD Key #24340), October 2017
View SE of typical bottom node

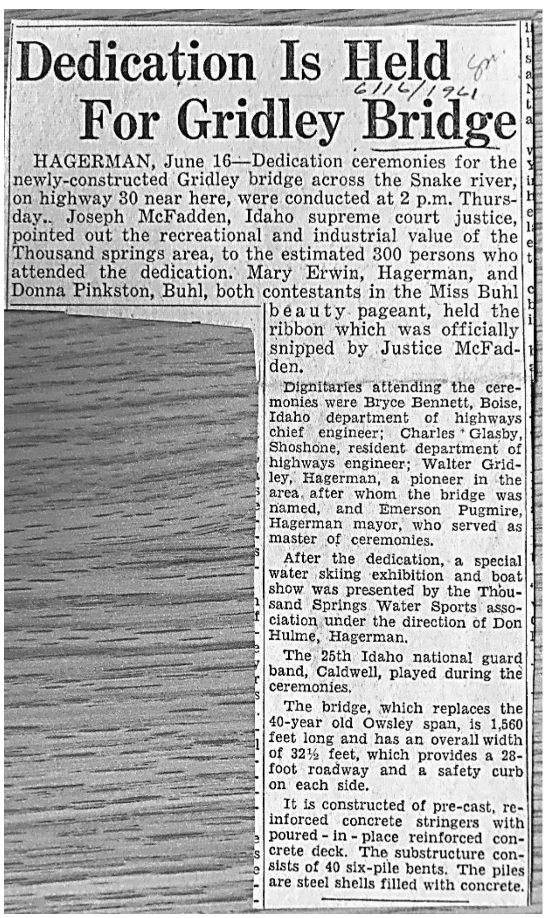
47-005153 (ITD Key #24340), October 2017
View E-SE of typical upper node

47-005153 (ITD Key #24340), October 2017
View NE of west pier

47-005153 (ITD Key #24340), October 2017
View of typical stock steel marking with letters in relief that read, "*ILLINOIS – S – USA"*



47-005153 (ITD Key #24340), Owsley Bridge during construction, 1920-1921
Courtesy Idaho Historical Society, 80-86.10



Dedication Is Held For Gridley Bridge

6/16/1961

HAGERMAN, June 16—Dedication ceremonies for the newly-constructed Gridley bridge across the Snake river, on highway 30 near here, were conducted at 2 p.m. Thursday.. Joseph McFadden, Idaho supreme court justice, pointed out the recreational and industrial value of the Thousand springs area, to the estimated 300 persons who attended the dedication. Mary Erwin, Hagerman, and Donna Pinkston, Buhl, both contestants in the Miss Buhl beauty pageant, held the ribbon which was officially snipped by Justice McFadden.

Dignitaries attending the ceremonies were Bryce Bennett, Boise, Idaho department of highways chief engineer; Charles Glasby, Shoshone, resident department of highways engineer; Walter Gridley, Hagerman, a pioneer in the area, after whom the bridge was named, and Emerson Pugmire, Hagerman mayor, who served as master of ceremonies.

After the dedication, a special water skiing exhibition and boat show was presented by the Thousand Springs Water Sports association under the direction of Don Hulme, Hagerman.

The 25th Idaho national guard band, Caldwell, played during the ceremonies.

The bridge, which replaces the 40-year old Owsley span, is 1,560 feet long and has an overall width of 32½ feet, which provides a 28-foot roadway and a safety curb on each side.

It is constructed of pre-cast, reinforced concrete stringers with poured-in-place reinforced concrete deck. The substructure consists of 40 six-pile bents. The piles are steel shells filled with concrete.

June 16, 1961 (no newspaper title given)
Courtesy Idaho Historical Society, Clippings File, Bridges-Snake River-Miscellaneous

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Big Wood River Warren Truss Bridge
FIELD#: 47-005160
STREET: 2300 East Road; 3.8 N, 3.8 E of Gooding
RESTRICT: ☐
CITY: Gooding
VICINITY: ☑
COUNTY CD: 47
COUNTY NAME: Gooding
SUBNAME:
BLOCK:
SUBLOT:
ACRES: 1
LESS THAN: ☑
TAX PARCEL:
UTMZ: 11
EASTING: 692666
NORTHING: 4762645
TOWNSHIP: 5
N_S: S
RANGE: 15
E_W: E
SECTION: 14 SE ¼, ¼ NE ¼
QUADRANGLE: Gooding
OTHERMAP:
SANBORN MAP:
SANBORN MAP#:
PHOTO#: Digital

PROPERTY TYPE: Structure
CONST/ACT1: Original Construction
ACTDATE1: 1930
CIRCA1: ☑
CONST/ACT2: Moved
ACTDATE2: 1960
CIRCA2: ☑
ASSOCIATED FEATURES: bridge
TOTAL # FEATURES: 1
ORIGINAL USE: Transportation
WALL MATERIAL:
ORIGSUBUSE: Road-related
FOUND. MATERIAL: CONCRETE
CURRENT USE: Transportation
ROOF MATERIAL:
CURSUBUSE: Road-related
OTHER MATERIAL: METAL:Steel
ARCHSTYLE: Other:Warren Pony Truss, Polygonal Top Chord
PLAN: Rectangular
CONDITION: Good

NR REF #:
NPS CERT:
ACTIONDATE:
FUTURE ELIG DATE:
DIST/MPLNAME1: Metal Truss Highway Bridges of Idaho
DIST/MPLNAME2:

Individually Eligible ☑ Contributing in a potential district ☐ Noncontributing ☐ Future eligibility ☐
Not Eligible ☐ Multiple Property Study ☑ Not evaluated ☐

CRITERIA: A ☑ B ☐ C ☑ D ☐
CRITERIA CONSIDERATION: A ☐ B ☑ C ☐ D ☐ E ☐ F ☐ G ☐
AREA OF SIGNIF: Transportation
AREA OF SIGNIF: Engineering

COMMENTS: See continuation sheets for elaborated description, history, significance, and eligibility.
PROJ/RPT TITLE: Steel Bridges of Eastern Idaho Survey (ITD Key No. 12479 - Mitigation)
SVY DATE: 5/22/17
SVY LEVEL: Intensive
RECORDED BY: Kerry Davis, PSLLC
PH: 816-225-5605
ADDRESS: 1007 E. Jefferson Street, Boise, ID 83712
SUBMITTED PHOTOS ☑ NEGS ☐ SLIDES ☐ SKETCH MAP ☑

SVY RPT #:
******** FOR ISHPO USE ONLY ********
IHSI#: 47-005160
MS RPT #:
SITS#:
IHPR #:
HABS NO. ID-:
HAER NO. ID-:
REV#:

CS #:
IHSI# REF:
NR REF# 2:
REV# REF:
SVY RPT# 1:
SVY RPT# 2:
SVY RPT# 3:
MS RPT# 1:
MS RPT# 2:
ADD'L NOTES: District 4. Last surveyed 1982. ITD Milepost reference: 104.731.
MORE DATA ☑
ATTACH ☑

OF PHOTOS:
NEGBOX#:
OF SLIDES:
SHPO DETER:
DETER DATE:
INITIALED:
ENTRY DATE:
REVISE1:
REVISE2:
REVISE3:

REV# SITS# IHSI#

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Big Wood River Warren Truss Bridge
IHSI#: 47-005160
FIELD#: 47-005160
COUNTY NAME: Gooding

OTHER NAME: ITD Key #24440; ITD Structure Name X992240 3.38
COUNTY CD: 47
CITY: Gooding
VICINITY: ☑
UTM REF2:
UTM REF3:
UTM REF4:

OTHER MATERIAL2: METAL
CULTAFFIL:
AGENCYCERT: Local
SIGNIFDATE:
SIGNIFPERIOD:
SIGNIFPERSON:
ARCH/BUILD:
ARCHPLANS: ☑
TAXEASE: ☐
TAXCERT: ☐
OWNERSHIP: Public-Local
PROPOWN: Gooding Highway District
MORE DATA: ☑
ATTACH: ☑

DOCSOURCE: ITD records; SHPO records; USGS Quads

ADD'L NOTES: District 4. Last surveyed 1982. ITD Milepost reference: 104.731.

COMMENTS: See continuation sheets for elaborated description, history, significance, and eligibility.

PHOTO LOG: ☐
IHSI# REF:
INITIALED:
DATEENTERED:

SKETCH: ☑

IHSI# ________

SITS# ________

REV# ________

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Big Wood River Warren Truss Bridge

IHSI#: 47-005160

FIELD#: 47-005160

COUNTY NAME: Gooding

COMMENTS:

See continuation sheets for elaborated description, history, significance, and eligibility.

ATTACH ☑

IHSI# ____________

SITS# ____________

REV# ____________

DESCRIPTION

LOCATION and SETTING

The Big Wood River Warren Truss Bridge is located about 3.8 miles north and 3.8 miles east of the town of Gooding in south central Idaho, near the east edge of section 14, Township 5S, Range 15E. The region is defined by irrigated farmland to the north lava fields to the south. The Big Wood River Warren Truss Bridge carries S 2300 East Road across the Big Wood River, a meandering tributary of the Malad River, at a basalt outcropping. The dirt-gravel roadway aligns in a C-curve with the single-lane big Wood River Warren Truss Bridge.

TRUSS TYPE

The Big Wood River Warren Truss Bridge is a single span, polygonal top chord, riveted pony truss bridge measuring 90 feet in length and about 19 feet in width. Standard concrete retaining wall abutments support the end floor beams of the truss, which rest directly on the abutment seat. The angled wingwalls of the abutments extend approximately 5 to 6 feet out away from the pedestal along the river approach grades.

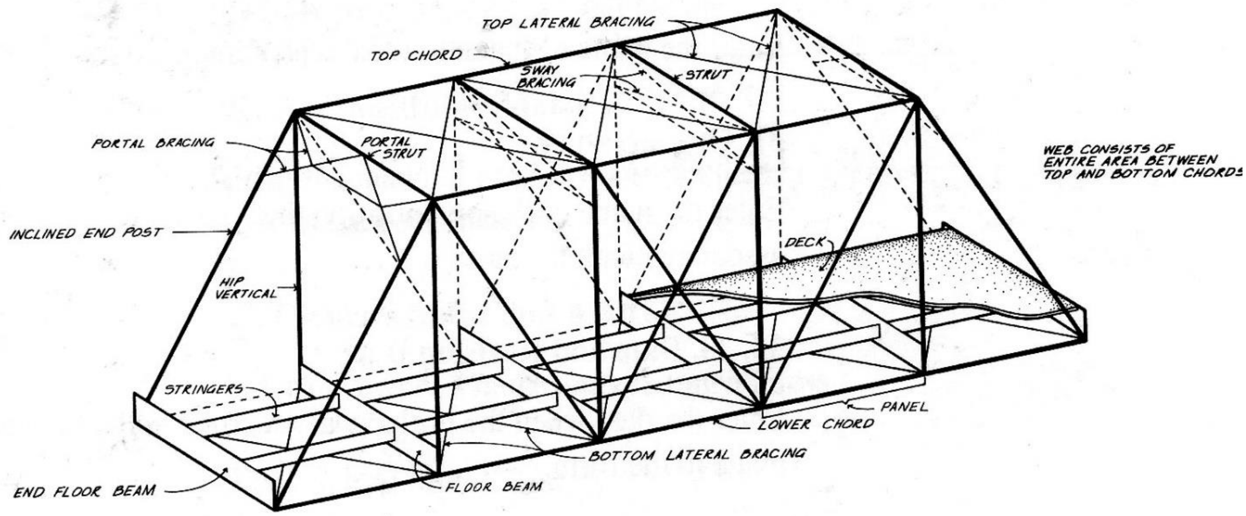
Seven slopes form the polygonal top chord creating an overall arched shape in elevation. (The reader is asked to note that while some commonly refer to any arched truss as a Camelback truss, technically the term Camelback only applies to a Parker Truss with a top chord of exactly five slopes). The top chords and inclined end posts consist of two channels and a cover plate with stay plates and lacing bars connecting the underside; the bottom chords consist of two angles with stay plates.

The web members include vertical posts, each with arced sway bracing, forming 6 equivalent panels and diagonal members forming the system of alternating equilateral triangles distinctive to a Warren truss. Both the diagonal members and vertical posts are composed of angle stock and stay plates. Gusset plates distinguish each node where diagonal members connect with the upper and lower chords.

The deck dates to 2003 and is comprised of corrugated metal laid below an asphalt and gravel wear surface. The deck is 19 feet wide with no curbs and rises approximately 25 to 30 feet above the river bed on sets of 11 full-length I-beam steel stringers (5 of which were added at the time of the deck replacement in 2003). Large, steel floor I-beams are at the base of each vertical post and the base of each diagonal node, with angle stock lateral bracing between.

A pair of guardrails span the inner length of the bridge, curving out over the abutment at each corner. Each guardrail is composed of an angle stock upper rail and bottom rail with lacing bars between. The larger structural steel components have letters in relief at regular intervals that read, “BSC LACKAWANNA.”

Bridge-Specific Terminology Diagram[1]



Courtesy Historic American Engineering Record

INTEGRITY

The Big Wood River Warren Truss Bridge is an excellent example of this bridge type, historically very popular and increasingly rare in Idaho. Although the deck is not original, and dates to the 'reconstruction' noted in ITD records as having occurred in 2003, it is a compatible replacement representing a common physical upgrade to bridges of this type and does not significantly impact the overall integrity of the bridge. The Big Wood River Warren Truss Bridge retains a good degree of integrity, with no significant alterations to the original design or materials. The original workmanship, setting, and feeling of the structure are also readily apparent. Furthermore, the potential for preservation of the bridge is high. Located on a lightly traveled surface street, it is unlikely that traffic requirements will necessitate alteration or replacement.

This structure possesses the following aspects of integrity: setting, design, materials, workmanship, feeling, and association. It retains sufficient integrity to be NRHP eligible individually. Though possibly relocated, integrity of original location does not substantially impact the overall eligibility of historic steel truss bridges.

Location: The historic record suggests this structure has been moved, and thus does not retain integrity of its original location. However, this relocation took place during the period of significance, and relocation was (and still is) a common practice for steel truss bridges.

Setting: The historic rural setting is intact.

Design: Integrity of design is intact, visible primarily by means of the original steel truss members assembled and executed in the Warren truss design.

[1] This diagram is included for the reader's reference as to bridge-specific terminology used in the description above. It should not be misinterpreted as an illustration of the Big Wood River Warren Truss Bridge.

Materials: The property retains its integrity of materials, particularly by means of the original steel structural members.

Workmanship: Elements of workmanship are evident.

Feeling: The property's integrity of feeling is apparent through its retention of integrity of setting, design, materials, and workmanship, which combined, clearly convey a sense of past time and place.

Association: The association between this structure with the surrounding river and rural area is present.

STATEMENT OF SIGNIFICANCE

The Big Wood River Warren Truss Bridge is significant under National Register Criterion A in the area of Transportation and Criterion C in the areas of Engineering. As defined by the Multiple Property Documentation Form for *Metal Truss Highway Bridges of Idaho,* it is an excellent example of the Warren truss bridge type. Built around 1930, the Big Wood River Warren Truss Bridge is an example of a common, economical bridge solution for a relatively short span. Its riveted construction and concrete abutments illustrate the standardization of these construction techniques and materials during the period of significance.[2] As no historic name identifies this bridge, using NRHP guidelines of resource naming, the preferred name "Big Wood River Warren Truss Bridge" has been assigned. This describes and identifies the location, design, and function of the structure.

ELIGIBILITY

The Big Wood River Warren Truss Bridge is individually eligible for listing in the National Register of Historic Places under Criteria A and C. This structure is associated with significant trends in local history (Criteria A) and it retains sufficient integrity to communicate its historic engineering associations (Criterion C). At the same time, it is not known to be associated with a person significant in history and it has little potential to yield data in the future, and is thus not eligible under Criteria B or D.

ELABORATION

Prior to the arrival of large-scale irrigation projects across arid southeastern Idaho, there was little need for roads, and much less bridges, until sufficient settlement or transportation had taken place to spur such infrastructure improvements. With the early twentieth century introduction of large irrigation projects across southeastern Idaho, bridge crossings like the Big Wood River Warren Truss Bridge provided farmers easy access to markets and could make the difference between growth and stagnation for the many small, young communities across the arid regions of the state.

By 1910, 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. At the Big Wood

[2] Development of the immediate local area's history and development sufficient to establish and justify an accurate period of significance was outside the scope of this project. For the purposes of this project, as a placeholder the period of significance is given as beginning in c.1930, the date of construction of the bridge, and ending in 1968, the 'fifty-year cut-off' established by the National Park Service as representing the span of time generally necessary to have passed before significance can be established.

River Warren Truss Bridge, structural components identify Bethlehem Steel Company's subsidiary after 1922, Lackawanna Steel, as responsible for the manufacture of the steel comprising this structure.

Advancements in pneumatic riveting techniques by this time greatly improved rivet installation quality, enabling more reliable panel point connections than earlier pin-connected trusses. With the increased portability of this construction technology, the more rigid, riveted technique rapidly surpassed pin-connected bridge construction during the first years of the twentieth century. The riveted construction of the Big Wood River Warren Truss Bridge illustrates the standardization of this technique.

In addition, the contemporary development of economic cement production promoted the widespread combination of steel and concrete in bridge construction. By the 1920s, reinforced concrete was the standard material for abutments, piers, and decks of steel truss bridges. It was not uncommon for older metal truss bridges to receive new reinforced concrete decks or poured concrete reinforcements for older stone abutments. The poured concrete abutments of the Big Wood River Warren Truss Bridge are compatible and typical of bridges built during the early through mid-twentieth century.

The Big Wood River Warren Truss Bridge is a classic example of this truss design. Patented in 1848, the Warren truss has diagonal members that are alternately placed in either tension or compression, resulting in a visually distinctive system of alternating equilateral or isosceles triangles. Vertical members are often incorporated to further strengthen the truss, as in the Big Wood River Warren Truss Bridge. The incorporation of a polygonal top chord increased truss strength while using about the same amount of material, however the lack of uniformity among members often led to increased construction costs. This design aspect allowed for better stress distribution as the distance between the bottom and top chords could be increased at the center of the span where the stresses were greatest.

While the straightforward design of the Warren truss was desirable, the lack of counters and sometimes verticals subjected the center pins to extensive wear, making it less durable and therefore less popular than the Pratt truss during the nineteenth century. The later standardization of riveted construction techniques eliminated these issues and the Warren truss gained popularity. In Idaho, Warren trusses were constructed into the middle of the twentieth century, suggesting the appeal of the design's strength, simplicity, and economical construction costs. A 1982 survey of steel truss bridges statewide identified fifty-two Warren truss bridges, including the Big Wood River Warren Truss Bridge, existed throughout the state of Idaho.

STRUCTURE HISTORY

GLO land records indicate the SE ¼ of the NE ¼ where the bridge sits was part of a massive 1915 Desert Land Segregations federal transfer "not exceeding three million acres to the State of Idaho."[3] Markings on the structural members indicate that the stock metal was purchased from Lackawanna Steel after it had become a subsidiary of Bethlehem Steel in 1922 of Lackawanna, New York. ITD records date this bridge to 1930, however, neither the 1939 Metsker map nor a 1946 aerial photo show a crossing or roadway at the bridge location. The next available map, the 1971 USGS quadrangle map, shows the existing bridge and crossing in place.

The bridge type, guardrail design, and construction techniques suggest a c.1930 or c.1940 construction date. Review of Idaho State Highway Commission minute books refer to various road and bridge projects in Gooding County during the 1930s and 1940s, but unfortunately insufficient locational information is

[3] Patent no. 459050, per Carey Land Act.

provided to confirm the cost or bid information to any bridge in particular. Previous survey in 1982 gave no historical information or estimated date of construction for the Big Wood River Warren Truss Bridge. ITD records state this bridge was 'reconstructed' in 2003, however, based on the agency's traditional use of the word 'reconstruction' this is merely when the existing deck was installed. Based on the records available and physical evidence, it appears this truss bridge was originally constructed around 1930 and moved from an undetermined location to this location at some point between 1946 and 1971.[4]

Gooding
Union Pacific's Oregon Short Line came through the area by 1884. After the 1893 passage of the Carey Act, the promise of reclamation and large-scale irrigation of the area drew settlers; sufficient settlement took place to warrant the 1907 formation of the town of Gooding and the subsequent 1913 creation of Gooding County from Lincoln County.

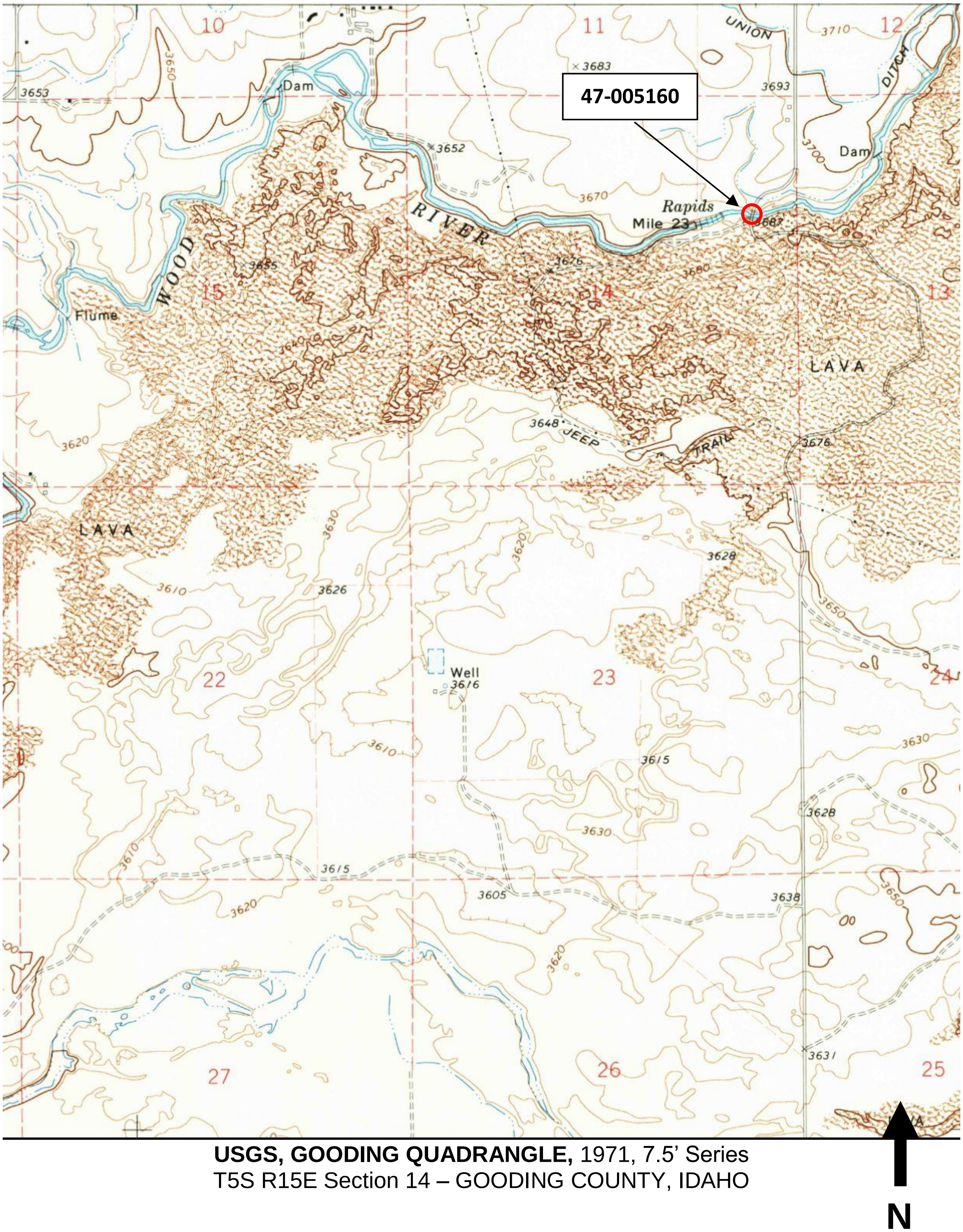
By 1920, Gooding County's population was over 7,500 and the village of Gooding served as a trading and shipping point for cattlemen and farmers and continues to do so today. Typical of small towns throughout Idaho, the large agricultural community surrounding Gooding relied heavily on the ability to cross waterways with more reliability than by unpredictable fords. Regardless it was likely moved to its current location from an as yet undetermined location at some point between 1946 and 1971, bridges like the Big Wood River Warren Truss Bridge provided area farmers with access over waterways to local markets and were critical to the survival of the regional economy, as they are today.

Lackawanna Steel
Founded in 1840 by George and Seldon Scranton, in Scranton, Pennsylvania, the Lackawanna Steel Company grew to become the second largest steel manufacturer in the world. The headquarters moved to an area on the outskirts of Buffalo, New York, in 1902, resulting in the founding of the town of Lackawanna, New York. The company was absorbed into Bethlehem Steel in 1922, after which time steel stock had letters in relief that read, "BSC Lackawanna," as they do at the Big Wood River Warren Truss Bridge.

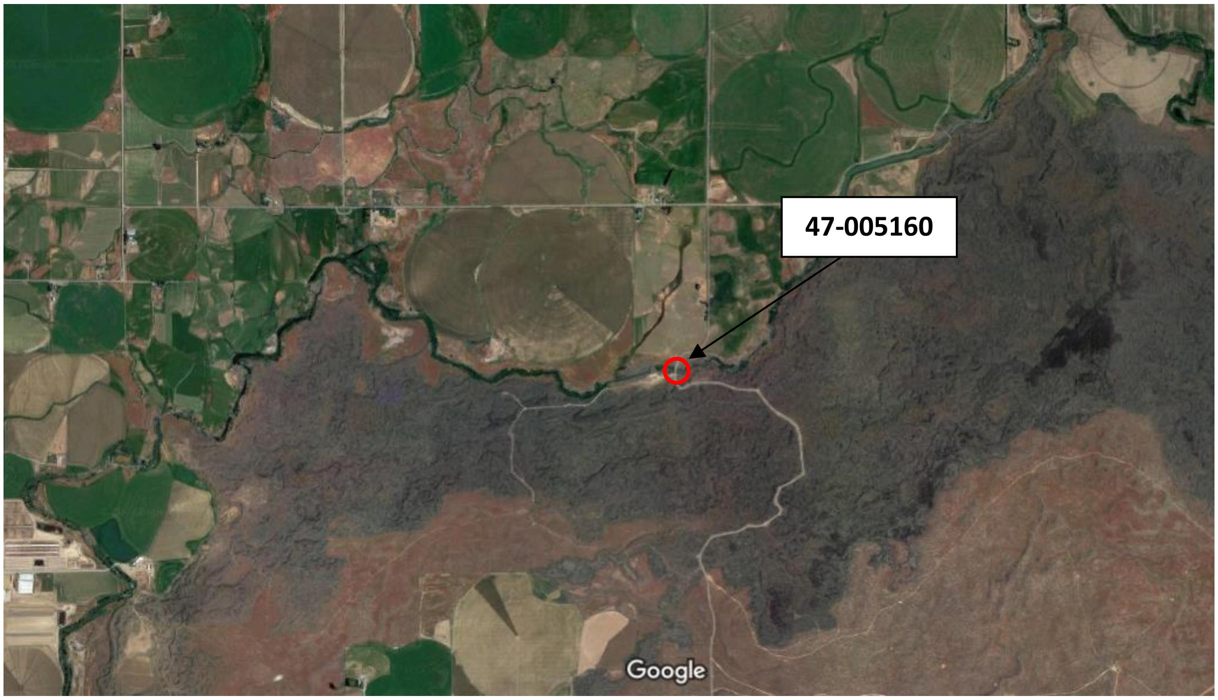
[4] Though outside the scope of this project, recommended additional research would include review of the county commission minute books, if available.

Idaho Counties

Map courtesy of http://www.censusfinder.com/mapid.htm



USGS, GOODING QUADRANGLE, 1971, 7.5' Series
T5S R15E Section 14 – GOODING COUNTY, IDAHO



Aerial View of Vicinity
Courtesy Google Earth, Imagery 2017

47-005160, May 2017
View E-NE

47-005160, May 2017
View NE

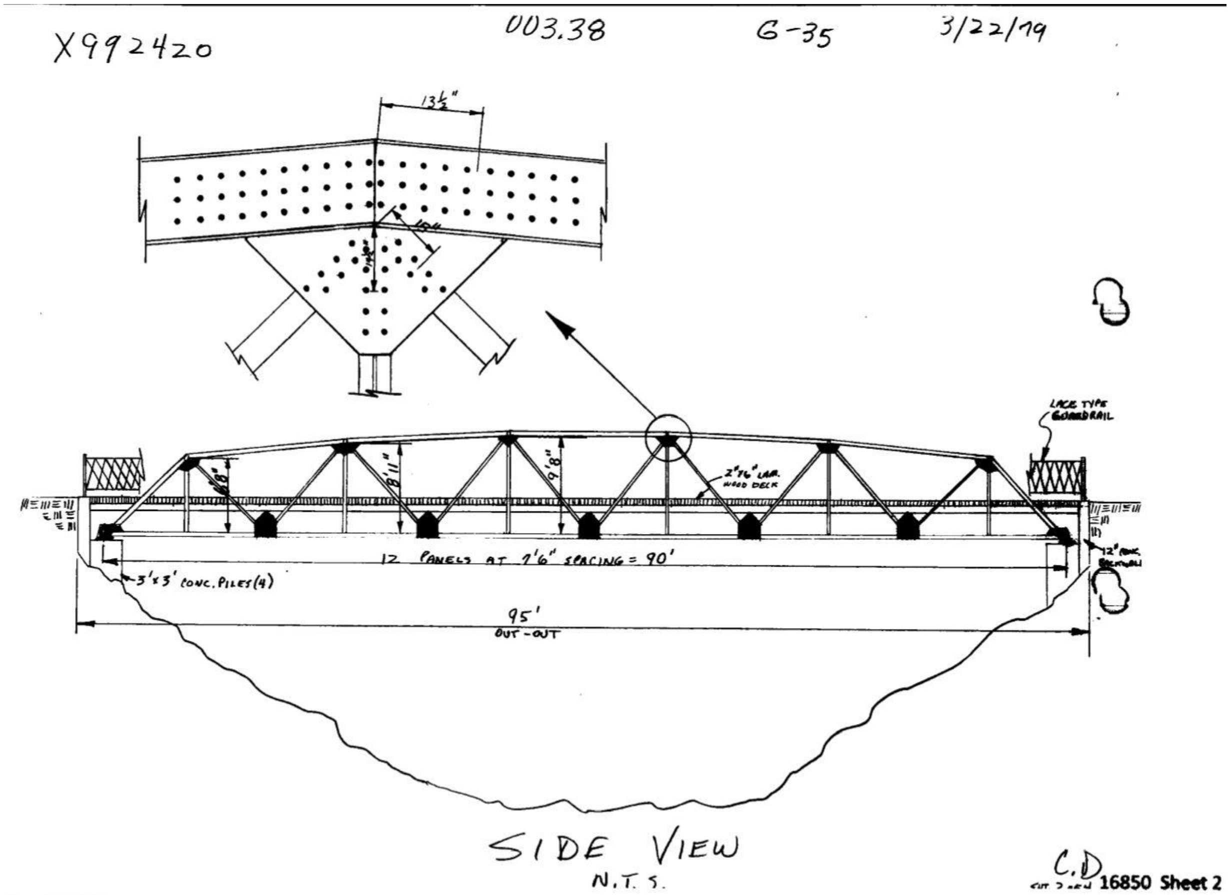
47-005160, May 2017
View S-SE

47-005160, May 2017
View S-SW from north abutment

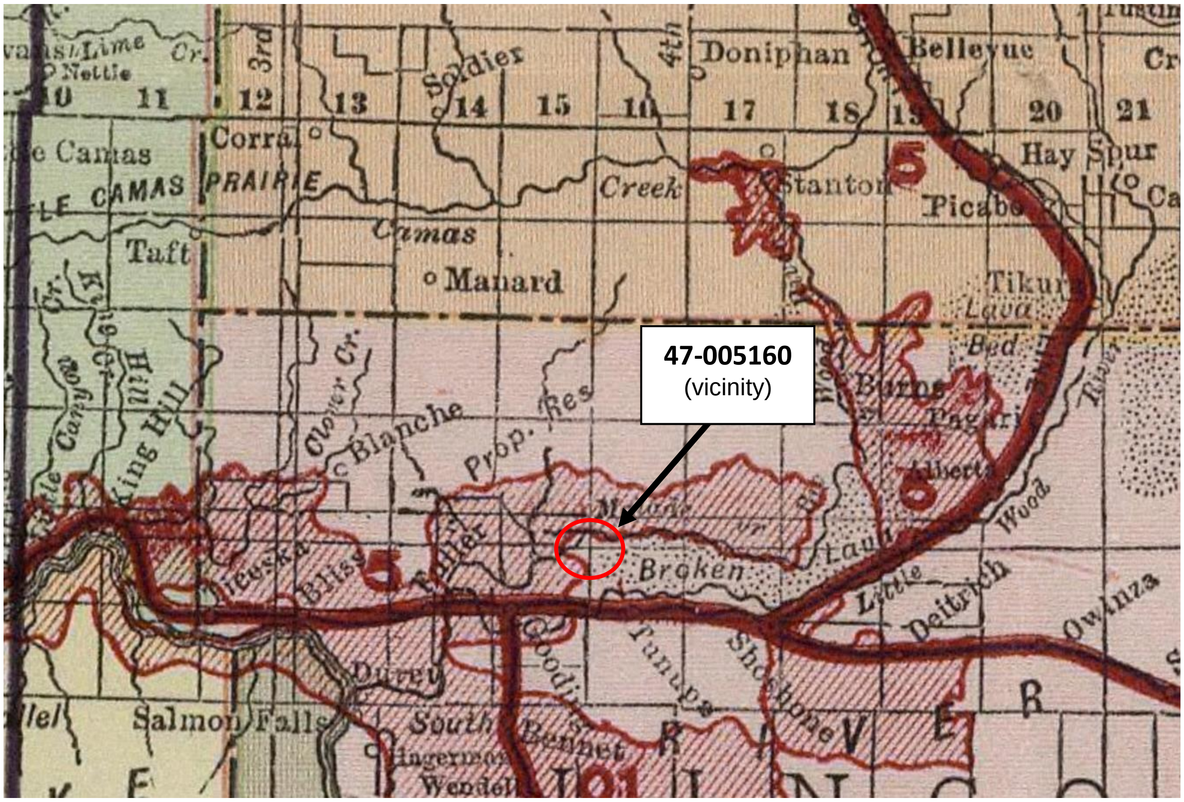
47-005160, May 2017
View NW

47-005160, May 2017
Detail view of steel manufactuer's mark – "LACKAWANNA"

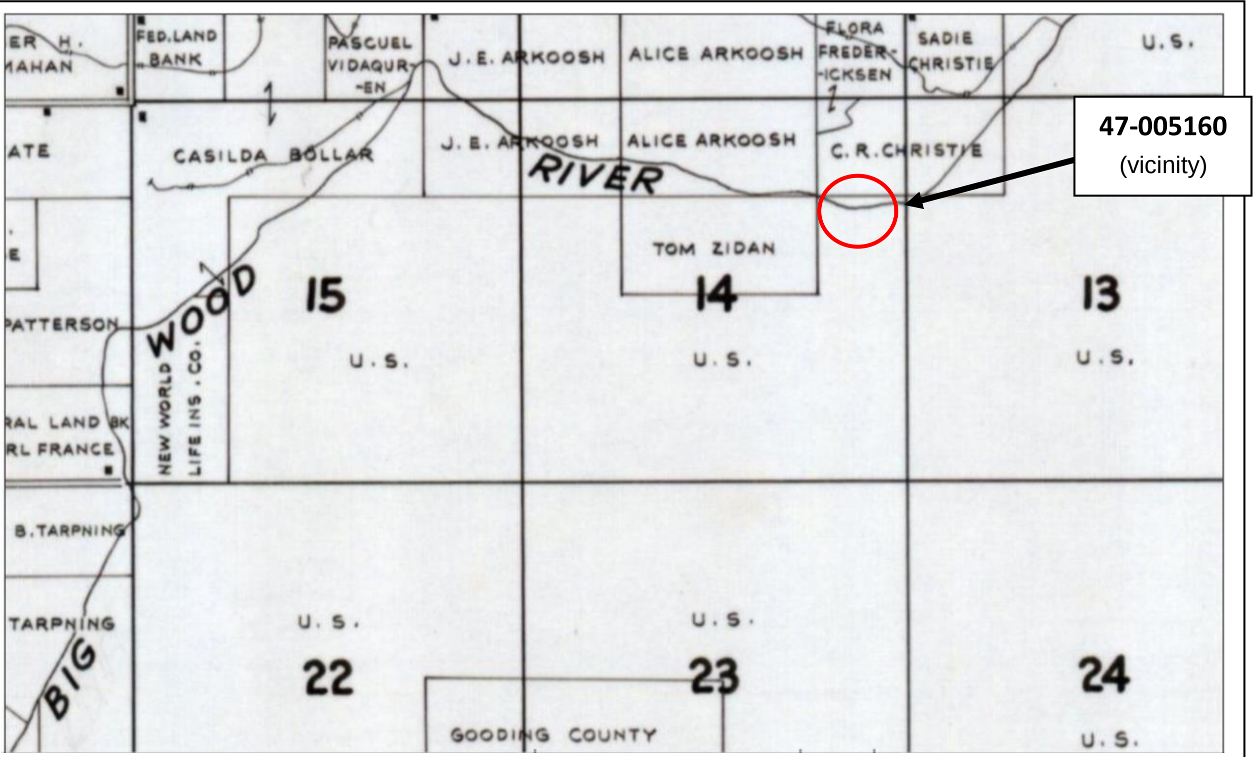
47-005160, September 2013
View N-NE (photo courtesy of ITD inspection files)



47-005160, Elevation Drawings and Details
Courtesy ITD Inspection Report Files



Rand McNally & Co.'s Pocket Map of Idaho, 1909
Note: red shading indicates land irrigated under Carey Act reclamation projects
Courtesy David Rumsey Map Collection online, www.davidrumsey.com



Metsker's Atlas of Gooding County, 1939
Courtesy HistoricMapWorks.com

Aerial View, 1946 (Note no road or crossing)
Courtesy HistoricAerials.com

Aerial View, 1992
Courtesy HistoricAerials.com

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME	Blue Lakes Bridge	FIELD#	53-004912
STREET	CANYON SPRINGS RD; 3.3 N .2 W TWIN FALLS	RESTRICT	☐
CITY	Twin Falls	VICINITY	☑
COUNTY CD	53	COUNTY NAME	Jerome
SUBNAME		BLOCK	
SUBLOT		ACRES	1
LESS THAN	☑	TAX PARCEL	
UTMZ	11	EASTING	707031
NORTHING	4720218	TOWNSHIP	9
N_S	S	RANGE	17
E_W	E	SECTION	33
¼, ¼	NW	¼	NW
QUADRANGLE	Twin Falls	OTHERMAP	
SANBORN MAP		SANBORN MAP#	
PHOTO#	Digital		

PROPERTY TYPE	Structure		
CONST/ACT1	Original Construction	ACTDATE1	1911
CIRCA1	☑	CONST/ACT2	
ACTDATE2		CIRCA2	☐
ASSOCIATED FEATURES	bridge	TOTAL # FEATURES	1
ORIGINAL USE	Transportation	WALL MATERIAL	
ORIGSUBUSE	Road-related	FOUND. MATERIAL	CONCRETE
CURRENT USE	Agriculture/Subsistence	ROOF MATERIAL	
CURSUBUSE	Irrigation facility	OTHER MATERIAL	METAL:Steel
ARCHSTYLE	Other:Pratt Pony Truss	PLAN	Rectangular
CONDITION	Good		

NR REF #		NPS CERT	
ACTIONDATE		FUTURE ELIG DATE	
DIST/MPLNAME1	Metal Truss Highway Bridges of Idaho	DIST/MPLNAME2	

Individually Eligible ☑ Contributing in a potential district ☐ Noncontributing ☐ Future eligibility ☐

Not Eligible ☐ Multiple Property Study ☑ Not evaluated ☐

CRITERIA A ☑ B ☐ C ☑ D ☐

CRITERIA CONSIDERATION A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G ☐

AREA OF SIGNIF: Transportation

AREA OF SIGNIF: Engineering

COMMENTS: Historic postcard refers to it as the Perrine Bridge. It was converted from vehicular use to irrigation pipeline support structure by 1982. The 1964 USGS quad suggests it had already been converted to an irrigation bridge by that time.

PROJ/RPT TITLE	Steel Bridges of Eastern Idaho Survey (ITD Key No. 12479 - Mitigation)	SVY DATE	10/12/17
SVY LEVEL	Reconnaissance	RECORDED BY	Kerry Davis, PSLLC
PH	816-225-5605	ADDRESS	1007 E. Jefferson Street, Boise, ID 83712

SUBMITTED PHOTOS ☑ NEGS ☐ SLIDES ☐ SKETCH MAP ☑

******** FOR ISHPO USE ONLY ********

SVY RPT #		IHSI#	53-004912
MS RPT #		SITS#	
IHPR #		REV#	
HABS NO. ID-		HAER NO. ID-	
CS #		IHSI# REF	
NR REF# 2		REV# REF	
SVY RPT# 1		SVY RPT# 2	
SVY RPT# 3		MS RPT# 1	
MS RPT# 2			

ADD'L NOTES: District 4. Last surveyed 1982.

MORE DATA ☑

ATTACH ☑

# OF PHOTOS		NEGBOX#	
# OF SLIDES		SHPO DETER	
DETER DATE		INITIALED	
ENTRY DATE		REVISE1	
REVISE2		REVISE3	

REV# SITS# IHSI#

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Blue Lakes Bridge
IHSI#: 53-004912
FIELD#: 53-004912
COUNTY NAME: Jerome
OTHER NAME: No ITD Key#. Both Jerome & Twin Falls counties
COUNTY CD: 53
CITY: Twin Falls
VICINITY: ☑
UTM REF2:
UTM REF3:
UTM REF4:

OTHER MATERIAL2:
CULTAFFIL:
AGENCYCERT: Local
SIGNIFDATE:
SIGNIFPERIOD:
SIGNIFPERSON:
ARCH/BUILD: Perrine, I.B. (Engineer)
ARCHPLANS: ☐
TAXEASE: ☐
TAXCERT: ☐
OWNERSHIP: Private
PROPOWN:
MORE DATA: ☑
ATTACH: ☑

DOCSOURCE: ITD records; SHPO records; USGS Quads

ADD'L NOTES: District 4. Last surveyed 1982.

COMMENTS:
Historic postcard refers to it as the Perrine Bridge. It was converted from vehicular use to irrigation pipeline support structure by 1982. The 1964 USGS quad suggests it had already been converted to an irrigation bridge by that time.

Twin Falls County Assessor shows the south abutment to be on the property of Canyon Springs Golf Course (McCollum Enterprises Limited). The Jerome County Assessor lists the Blue Lakes Country Club as the owner of the land below the north abutment. It is undetermined who owns the bridge structure and irrigation lines across it.

This abbreviated IHSI documentation is provided merely as supplemental documentation. Though not functioning as a vehicular bridge, field survey verified this bridge retains sufficient integrity to clearly communicate its historic associations

PHOTO LOG: ☐
IHSI# REF:
INITIALED:
DATEENTERED:

SKETCH: ☑

IHSI# ______

SITS# ______

REV# ______

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Blue Lakes Bridge

IHSI#: 53-004912

FIELD#: 53-004912

COUNTY NAME: Jerome

COMMENTS:

Historic postcard refers to it as the Perrine Bridge. It was converted from vehicular use to irrigation pipeline support structure by 1982. The 1964 USGS quad suggests it had already been converted to an irrigation bridge by that time.

Twin Falls County Assessor shows the south abutment to be on the property of Canyon Springs Golf Course (McCollum Enterprises Limited). The Jerome County Assessor lists the Blue Lakes Country Club as the owner of the land below the north abutment. It is undetermined who owns the bridge structure and irrigation lines across it.

This abbreviated IHSI documentation is provided merely as supplemental documentation. Though not functioning as a vehicular bridge, field survey verified this bridge retains sufficient integrity to clearly communicate its historic associations. Remarkable for its length, number of spans, early date, construction as a private endeavor, and associations with Perrine, it is individually eligible per the statewide MPDF registration requirements for Metal Truss Highway Bridges of Idaho.

ATTACH ☑

IHSI# ________

SITS# ________

REV# ________

53-004912 (No ITD Bridge Key #), October 2017
View NW from US 93

53-004912 (No ITD Bridge Key #), October 2017
View NW from US 93

53-004912 (No ITD Bridge Key #), October 2017
View N

53-004912 (No ITD Bridge Key #), October 2017
View E-NE

53-004912 (No ITD Bridge Key #), October 2017
View SE of typical spans

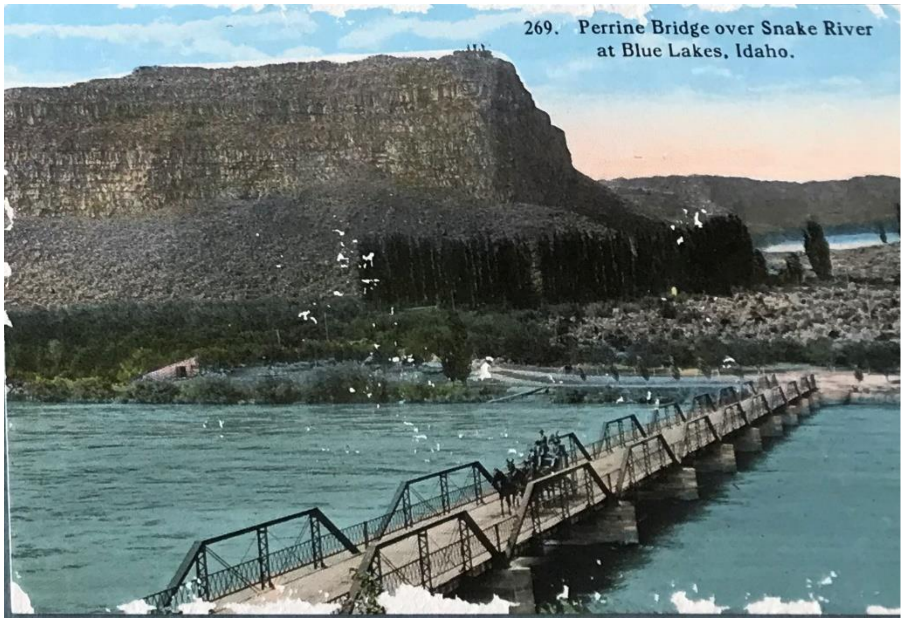
53-004912 (No ITD Bridge Key #), October 2017
View NW of typical upper node

53-004912 (No ITD Bridge Key #), October 2017
View NE

53-004912 (No ITD Bridge Key #), October 2017
View of typical bottom node

53-004912 (No ITD Bridge Key #), Blue Lakes Bridge, 1911
Courtesy Idaho Historical Society, Photo Files, Snake River-Bridges (Blue Lakes) 2301

53-004912 (No ITD Bridge Key #), Blue Lakes Bridge, no date given
Courtesy Idaho Historical Society, Photo Files, Snake River Canyon, 60-52.67



53-004912 (No ITD Bridge Key #), Blue Lakes Bridge, c.1915 (pre-1929)
Courtesy Idaho Historical Society, Photo Files, Snake River-Bridges (Perrine) 2553

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Perrine Bridge; US 93 Bridge over Snake River
FIELD#: 53-007924
STREET: US 93; 0.6 N. Twin Falls, spanning the Snake River Gorge on US 93, N of Twin Falls)
RESTRICT: [ ]
CITY: Twin Falls
VICINITY: [ ]
COUNTY CD: 83
COUNTY NAME: Twin Falls
SUBNAME:
BLOCK:
SUBLOT:
ACRES: 3
LESS THAN: [x]
TAX PARCEL:
UTMZ: 11
EASTING: 708910
NORTHING: 4719658
TOWNSHIP: 9
N_S: S
RANGE: 17
E_W: E
SECTION: 34
¼, ¼
¼
QUADRANGLE: Twin Falls
OTHERMAP:
SANBORN MAP:
SANBORN MAP#:
PHOTO#: Digital

PROPERTY TYPE: Structure
CONST/ACT1: Original Construction
ACTDATE1: 1976
CIRCA1: [ ]
CONST/ACT2:
ACTDATE2:
CIRCA2: [ ]
ASSOCIATED FEATURES: bridge
TOTAL # FEATURES: 1
ORIGINAL USE: Transportation
WALL MATERIAL:
ORIGSUBUSE: Road-related
FOUND. MATERIAL: CONCRETE
CURRENT USE: Transportation
ROOF MATERIAL:
CURSUBUSE: Road-related
OTHER MATERIAL: METAL:Steel
ARCHSTYLE: Other:Arch Deck Truss
PLAN: Rectangular
CONDITION: Excellent

NR REF #:
NPS CERT:
ACTIONDATE:
FUTURE ELIG DATE:
DIST/MPLNAME1: Metal Truss Highway Bridges of Idaho
DIST/MPLNAME2:

Individually Eligible [x]
Contributing in a potential district [ ]
Noncontributing [ ]
Future eligibility [ ]
Not Eligible [ ]
Multiple Property Study [x]
Not evaluated [ ]

CRITERIA: A [x] B [ ] C [x] D [ ]
CRITERIA CONSIDERATION: A [ ] B [ ] C [ ] D [ ] E [ ] F [ ] G [x]
AREA OF SIGNIF: Transportation
AREA OF SIGNIF: Engineering

COMMENTS: Previous survey in 2009 found this structure not eligible for NRHP listing.

The main span of the Perrine Bridge's weathered steel truss arch is nearly 1,000 feet long. At 486 feet above the river, it is the eighth highest bridge in the nation.

PROJ/RPT TITLE: Steel Bridges of Eastern Idaho Survey (ITD Key No. 12479 - Mitigation)
SVY DATE: 10/12/17
SVY LEVEL: Reconnaissance
RECORDED BY: Kerry Davis, PSLLC
PH: 816-225-5605
ADDRESS: 1007 E. Jefferson Street, Boise, ID 83712
SUBMITTED PHOTOS [x] NEGS [ ] SLIDES [ ] SKETCH MAP [x]

SVY RPT #:
********** FOR ISHPO USE ONLY **********
IHSI#: 53-007924
MS RPT #:
SITS#:
IHPR #:
HABS NO. ID-
HAER NO. ID-
REV#:
CS #:
IHSI# REF: 53-007924
NR REF# 2:
REV# REF:
SVY RPT# 1:
SVY RPT# 2:
SVY RPT# 3:
MS RPT# 1:
MS RPT# 2:
ADD'L NOTES: District 4. Both Jerome & Twin Falls counties. ITD Milepost reference: 50.02. Last surveyed 2009. Data fields accurately completed in previous survey are not reentered here in an effort to avoid redudancy.
MORE DATA [x]
ATTACH [x]
OF PHOTOS:
NEGBOX#:
OF SLIDES:
SHPO DETER:
DETER DATE:
INITIALED:
ENTRY DATE:
REVISE1:
REVISE2:
REVISE3:

REV#
SITS#
IHSI#

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Perrine Bridge; US 93 Bridge over Snake River

IHSI#: 53-007924

FIELD#: 53-007924

COUNTY NAME: Twin Falls

OTHER NAME: ITD Key #17580; ITD Structure Name 09320B 50.02

COUNTY CD: 83

CITY: Twin Falls

VICINITY: ☐

UTM REF2:

UTM REF3:

UTM REF4:

OTHER MATERIAL2: ASPHALT

CULTAFFIL:

AGENCYCERT: Local

SIGNIFDATE:

SIGNIFPERIOD:

SIGNIFPERSON:

ARCH/BUILD:

ARCHPLANS: ☑

TAXEASE: ☐

TAXCERT: ☐

OWNERSHIP: Public-State

PROPOWN: State of Idaho

MORE DATA: ☑

ATTACH: ☑

DOCSOURCE: ITD records; SHPO records; USGS Quads

ADD'L NOTES: District 4. Both Jerome & Twin Falls counties. ITD Milepost reference: 50.02. Last surveyed 2009. Data fields accurately completed in previous survey are not reentered here in an effort to avoid redudancy.

COMMENTS:

Previous survey in 2009 found this structure not eligible for NRHP listing.

The main span of the Perrine Bridge's weathered steel truss arch is nearly 1,000 feet long. At 486 feet above the river, it is the eighth highest bridge in the nation.

The 1976 Perrine Bridge is one of only a handful of steel arch bridges in Idaho. A 1982 survey of Idaho bridges statewide identified only two steel arch bridges, both in Eastern Idaho - the 1938 Pine Creek Bridge (19-005764/ITD Key# 13835) and the 1934 Pleasant Valley Creek Bridge, a cantilevered bridge with a central arch.

PHOTO LOG: ☐

IHSI# REF: 53-007924

INITIALED:

DATEENTERED:

SKETCH: ☑

IHSI#

SITS#

REV#

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Perrine Bridge; US 93 Bridge over Snake River

IHSI#: 53-007924

FIELD#: 53-007924

COUNTY NAME: Twin Falls

COMMENTS:

Previous survey in 2009 found this structure not eligible for NRHP listing.

The main span of the Perrine Bridge's weathered steel truss arch is nearly 1,000 feet long. At 486 feet above the river, it is the eighth highest bridge in the nation.

The 1976 Perrine Bridge is one of only a handful of steel arch bridges in Idaho. A 1982 survey of Idaho bridges statewide identified only two steel arch bridges, both in Eastern Idaho - the 1938 Pine Creek Bridge (19-005764/ITD Key# 13835) and the 1934 Pleasant Valley Creek Bridge, a cantilevered bridge with a central arch.

Though not quite 50 years of age, this bridge appears to meet Criteria Consideration G for resources achieving significance within the past 50 years. Not only does this crossing of the Snake River have the utmost significance at the local level for its associations with Transportation (Criteria A), but it is potentially eligible for statewide significance under Criterion C for Engineering. A reevaluation from Idaho SHPO is warranted.

This abbreviated IHSI documentation is provided merely as supplemental documentation.

ATTACH ☑

IHSI# ________

SITS# ________

REV# ________

53-007924 (ITD Key #17580), October 2017
View NE

53-007924 (ITD Key #17580), October 2017
View E

53-007924 (ITD Key #17580), October 2017
View E

53-007924 (ITD Key #17580), October 2017
View E

PAGE 14—B THE IDAHO STATESMAN, Boise, Friday, August 13, 1971

Engineers Told to Speed Design of Perrine Bridge

Highway Department engineers were told Thursday to speed up design of the new proposed Perrine bridge over the Snake River at Twin Falls after directors were informed the structure was approved for financing by the federal government.

State Highway Engineer Ellis Matthews told the board it appeared bids for construction of the four-lane bridge could be called in late 1972 if the state's 25 per cent matching funds were available.

* * *

Cost of the structure itself is estimated at more than $8 million, said Mathes. Under the federal critical bridge replacement program, the national government will provide 75 per cent of the cost. This would leave no less than $2 million for the state to provide.

The bridge will replace the old toll bridge which more than a year ago was declared to be unsafe for large truck loads. It will be torn down. The new bridge will be constructed directly east of the existing structure.

Mathes said that preliminary engineering and design were begun in 1970 and that design hearings have been held and environmental impact studies have been approved.

"Foundation investigations have been completed and bridge design work is progressing rapidly," Mathes said.

The four-lane bridge would be 476 feet above the Snake River on U.S. 93, and would be 1,400 feet long.

* * *

Span of Future

THIS IS AN ARTIST'S drawing of what the new four-lane Perrine Bridge will look like after it is built to replace the partially-condemned present structure where it crosses the Snake River near Twin Falls. The old structure, built as a toll bridge, has been declared unsafe for large truck loads.

53-007924 (ITD Key #17580), Perrine Bridge design/construction article, *Idaho Statesman,* August 13, 1971
Courtesy Idaho Historical Society, Clippings Files, Bridges: Snake River- Perrine 1927-1980

Perrine Bridge dedication attracts 4000

TIMES-NEWS, August 1, 1976, p.1c.1-4

By JULIE DODDS
Times-News writer

TWIN FALLS — Over 4,000 people cheered for the dedication of the new Perrine Bridge Saturday afternoon. The capacity crowd listened to local, county and state officials praise the new structure as a possible means of linking Jerome and Twin Falls as a single Magic Valley community.

Filling the bridge's two east lanes, Magic Valley residents were able to view the children's races, presentation of the colors, dedication ceremonies and the first cars to cross the new bridge.

While the Twin Falls City Band played "God Bless America," the Idaho National Guard presented the colors to officially begin the dedication of the new bridge.

Elsa Vaughn, mistress of ceremonies, questioned "how to say goodbye or thank you" to the old bridge, which has served its purpose for the last 49 years.

She compared the old bridge to "an elderly gentleman about to retire who gave the best he knew how and who is now ready to turn the job over to a younger man."

Jerome Mayor Charles Hancock said he hopes "we can do away with the north side and south side" and become one Magic Valley community.

Ellis Mathes, former state highway engineer, who was in office seven years ago when the building of a new bridge was proposed, was a special speaker.

Mrs. Vaughn commended the many workers who helped make the new bridge a reality and finished the structure without a single accident. "I'm sure their insurance companies are heaving a sigh of relief," she said.

Ken Upton, project manager for Allied Steel Co., said the new arch span bridge was a "monumental undertaking" and paid tribute to the many contracting companies involved in the building.

The first to cross the bridge was not one of the dignitaries, but rather a large sheep named Old Spot. John Breckenridge of the Idaho Wool Growers gave a penny to Mrs. Vaughn in payment of toll for the sheep. During the days when the old bridge had a toll booth, a penny was charged for each sheep crossing the bridge.

The first human to cross the bridge was 80-year-old Pete Creed who pushed his wife in a wheelbarrow across the entire span. He too paid a nickel toll to cross the bridge.

After the ribbon was cut by Merl Leonard, chairman of the Twin Falls County Commissioners, and Milford Jones, Jerome County commissioner, the first car was driven across the bridge.

The 1927 Ford Model T roadster pickup was driven by Darrel Lewis. He was followed by other 1927 vehicles and 1940 cars commemorating the removal of the toll booth from the original Perrine bridge.

The toll booth, when removed, was thrown over the side of the bridge into the river.

Dignitaries were allowed to ride in the cars across the bridge.

In one 1927 vehicle was Mrs. L. H. Perrine, sister-in-law to the late I. B. Perrine, who remarked that the new bridge is just "lovely."

Prior to the dedication ceremonies were races for the children and a driving contest for golfers.

Dan Obenchain was master of ceremonies for the special events.

Winners in the steeplechase bike race on the bridge were Leonard Lowder, Alan Fife, Mike Matthews and Rick Rogers, first, second, third and fourth respectively. They received complimentary certificates from McDonald's and Baskin-Robbins, as did all the race winners.

In the foot race, ages 10-12, Tim Sievers was first; Billy Walker, second; Derrick Cline, third, and Dennis Barnes, fourth.

Foot race winners, ages 8 to 9, were Shawn McQuiston, first; Tim Davis, second, and Mark Erickson, third.

Kevin Packard had the longest golfing drive from the tee box on a truck bed into the river and canyon below. His drive of 328.2 yards earned him a dozen golf balls. Mike Robertson was runner-up in the men's golfing division.

WARMER

Muggy
Details, p. 18

Amusements, 6
Farm, 33-34
Opinion, 4-5
Sports, 27-31
Living, 20-26
Local, 17

53-007924 (ITD Key #17580), Perrine Bridge design/construction article, *Times-News (Twin Falls),* August 1, 1976
Courtesy Idaho Historical Society, Clippings Files, Bridges: Snake River- Perrine 1927-1980

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Salmon River Warren Truss Bridge (Rattlesnake Creek) | FIELD#: 59-004920
STREET: off US 93 11.8 S 1.8 W SALMON; about 19mi from Salmon via US 93 | RESTRICT: ☐
CITY: Salmon | VICINITY: ☑ | COUNTY CD: 59 | COUNTY NAME: Lemhi
SUBNAME: | BLOCK: | SUBLOT: | ACRES: 1 | LESS THAN: ☑
TAX PARCEL: | UTMZ: 12 | EASTING: 266173 | NORTHING: 4980205
TOWNSHIP: 19 | N_S: N | RANGE: 21 | E_W: E | SECTION: 34 | NW ¼, ¼ NE ¼
QUADRANGLE: Goldbug Ridge | OTHERMAP:
SANBORN MAP: | SANBORN MAP#: | PHOTO#: Digital

PROPERTY TYPE: Structure | CONST/ACT1: Original Construction | ACTDATE1: 1930 | CIRCA1: ☑
CONST/ACT2: Alteration | ACTDATE2: 1956 | CIRCA2: ☐
ASSOCIATED FEATURES: bridge | TOTAL # FEATURES: 1
ORIGINAL USE: Transportation | WALL MATERIAL:
ORIGSUBUSE: Road-related | FOUND. MATERIAL: CONCRETE
CURRENT USE: Transportation | ROOF MATERIAL:
CURSUBUSE: Pedestrian-related | OTHER MATERIAL: METAL:Steel
ARCHSTYLE: Other:Warren Through Truss, Polygonal Top Ch | PLAN: Rectangular | CONDITION: Good

NR REF #: | NPS CERT: | ACTIONDATE: | FUTURE ELIG DATE:
DIST/MPLNAME1: Metal Truss Highway Bridges of Idaho | DIST/MPLNAME2:

Individually Eligible ☑ | Contributing in a potential district ☐ | Noncontributing ☐ | Future eligibility ☐
Not Eligible ☐ | Multiple Property Study ☑ | Not evaluated ☐

CRITERIA: A ☑ B ☐ C ☑ D ☐ | CRITERIA CONSIDERATION: A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G ☐
AREA OF SIGNIF: Transportation | AREA OF SIGNIF: Engineering

COMMENTS: See continuation sheets for elaborated description, history, significance, and eligibility.

PROJ/RPT TITLE: Steel Bridges of Eastern Idaho Survey (ITD Key No. 12479 - Mitigation) | SVY DATE: 9/15/17 | SVY LEVEL: Intensive
RECORDED BY: Kerry Davis, PSLLC | PH: 816-225-5605 | ADDRESS: 1007 E. Jefferson Street, Boise, ID 83712
SUBMITTED PHOTOS ☑ NEGS ☐ SLIDES ☐ SKETCH MAP ☑

SVY RPT #: | ******** FOR ISHPO USE ONLY ******** | IHSI#: 59-004920
MS RPT #: | SITS#:
IHPR #: | HABS NO. ID-: | HAER NO. ID-: | REV#:

CS #: | IHSI# REF: | NR REF# 2: | REV# REF:
SVY RPT# 1: | SVY RPT# 2: | SVY RPT# 3: | MS RPT# 1: | MS RPT# 2:

ADD'L NOTES: District 4. Last surveyed 1982. ITD Milepost reference: 102.027
MORE DATA ☑
ATTACH ☑

OF PHOTOS: | NEGBOX#: | # OF SLIDES: | SHPO DETER: | DETER DATE:
INITIALED: | ENTRY DATE: | REVISE: | REVISE: | REVISE:

REV# | SITS# | IHSI#

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Salmon River Warren Truss Bridge (Rattlesnake Creek)
IHSI#: 59-004920
FIELD#: 59-004920
COUNTY NAME: Lemhi
OTHER NAME: ITD Key#32750; ITD Structure Name X996300 102.03
COUNTY CD: 59
CITY: Salmon
VICINITY: ☑
UTM REF2:
UTM REF3:
UTM REF4:

OTHER MATERIAL2: WOOD
CULTAFFIL:
AGENCYCERT: Local
SIGNIFDATE: 1956
SIGNIFPERIOD:
SIGNIFPERSON:
ARCH/BUILD:
ARCHPLANS: ☐
TAXEASE: ☐
TAXCERT: ☐
OWNERSHIP: Public-Local
PROPOWN: Lemhi County
MORE DATA: ☑
ATTACH: ☑

DOCSOURCE: ITD records; SHPO records; USGS Quads

ADD'L NOTES: District 4. Last surveyed 1982. ITD Milepost reference: 102.027

COMMENTS: See continuation sheets for elaborated description, history, significance, and eligibility.

PHOTO LOG ☐ IHSI# REF: INITIALED: DATEENTERED:

SKETCH ☑

IHSI#

SITS#

REV#

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Salmon River Warren Truss Bridge (Rattlesnake Creek)

IHSI#: 59-004920

FIELD#: 59-004920

COUNTY NAME: Lemhi

COMMENTS:

See continuation sheets for elaborated description, history, significance, and eligibility.

ATTACH ☑

IHSI# ____

SITS# ____

REV# ____

DESCRIPTION

LOCATION and SETTING

The Salmon River Warren Truss Bridge (Rattlesnake Creek) is located about 11.8 miles south and 1.8 miles west of the town of Salmon in east-central Idaho, in the north part of Section 34, Township 19N, Range 21E. The region is defined by bare, rocky, steep slopes and relatively narrow sections of flat bottom lands occupied by ranching and irrigated farming operations. The Salmon River Warren Truss Bridge (Rattlesnake Creek) carries Rattlesnake Creek Road (as well as Loening Road from the south) over the Salmon River, a long, undammed tributary of the Snake River, just off US Highway 93. The dirt-gravel roadway of the single-lane bridge aligns perpendicularly with its feeder roads, forming an overall H-shaped road network configuration. The bridge is closed to traffic, barred by concrete barriers at each end of the deck.

TRUSS TYPE

The Salmon River Warren Truss Bridge (Rattlesnake Creek) is a single span, polygonal top chord, riveted through truss bridge measuring 175 feet in length and about 15.5 feet in width. Standard concrete retaining wall abutments support the end floor beams of the truss. The angled wingwalls of the abutments extend approximately 8 to 10 feet out away from the pedestal along the approach grades.

Six slopes form the polygonal top chord creating an overall arched shape in elevation. (The reader is asked to note that while some commonly refer to any arched truss as a Camelback truss, technically the term Camelback only applies to a Parker Truss with a top chord of exactly five slopes). The top chord segments consist of two channels and a cover plate with stay plates and lacing bars connecting the underside; the bottom chords consist of two channels with lacing bars and stay plates.

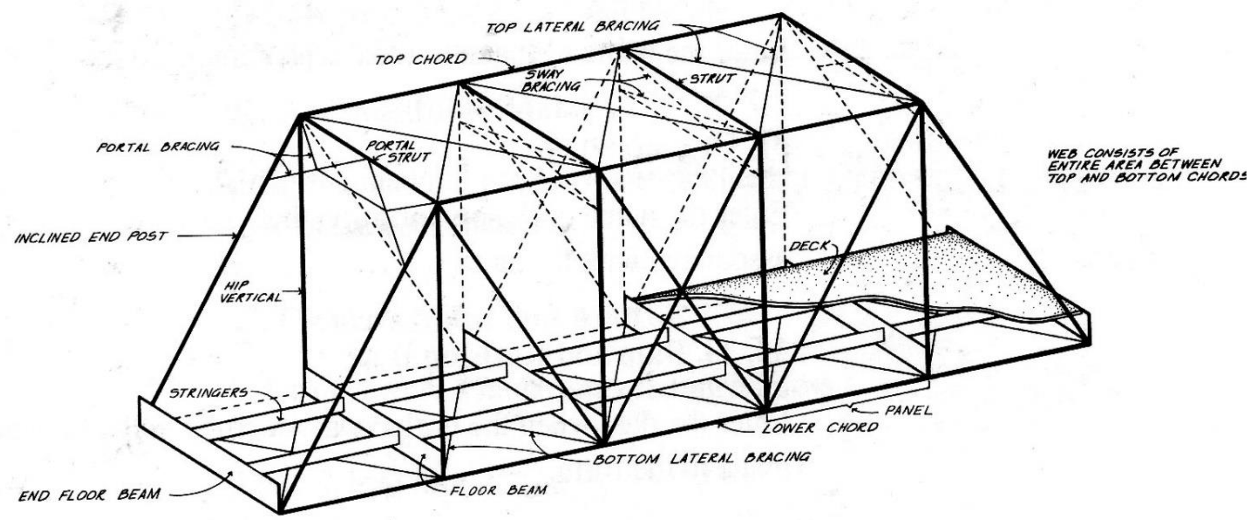
The web members include vertical posts forming 5 equivalent panels and diagonal members forming the system of alternating equilateral triangles distinctive to a Warren truss. Both the diagonal members and vertical posts are composed of channel stock, lacing bars, and stay plates.

A riveted system of interesting angle stock forms the portal and sway bracing leaving a vertical clearance of 12.75 feet; paired, abutting angle stock and lacing bars forms the sway struts that connect the top chords between each vertical post. Upper lateral bracing, comprised of angle stock, intersects diagonally between the top chords.

The timber deck is about 15.5 feet wide with no curbs. The sub-deck is comprised of a layer of ~2.5”-x-12” planks laid flat over timber stringers below. A pair of parallel, raised wearing surfaces, each consisting of ~2.5”-x-12” planks laid lengthwise, distinguishes the vehicular travel path. The deck rises approximately 15 to 20 feet above the river bed on 4”-x-11.5” timber stringers. Nine large, steel floor I-beams are under the deck at each bottom node, with angle stock lateral bracing between.

A nonhistoric W-beam guardrail with flared end with board rail above spans the inner length of each side of the bridge. The larger structural steel components have letters in relief at regular intervals that read, “*ILLINOIS-S-USA*.”

Bridge-Specific Terminology Diagram[1]



Courtesy Historic American Engineering Record

INTEGRITY

The Salmon River Warren Truss Bridge (Rattlesnake Creek) is an excellent example of this bridge type, historically very popular and increasingly rare in Idaho. Although the abutments are not original, they date to 1956 and have gained significance in their own right. Furthermore, they are compatible replacements representing a common physical upgrade to bridges of this type. The nonhistoric guardrails do not substantially impact the overall integrity of the bridge.

The Salmon River Warren Truss Bridge (Rattlesnake Creek) retains a good degree of integrity, with no substantial alterations to the original design or materials. The original workmanship, setting, and feeling of the structure are also readily apparent. Furthermore, the potential for preservation of the bridge is high. No longer carrying vehicular traffic, it is unlikely that traffic requirements will necessitate alteration or replacement.

This structure possesses the following aspects of integrity: location, setting, design, materials, workmanship, feeling, and association. It retains sufficient integrity to be NRHP eligible individually.

Location: This structure has not been moved, and thus retains integrity of location.

Setting: The historic rural setting is intact.

Design: Integrity of design is intact, visible primarily by means of the original steel truss members assembled and executed in the Warren truss design, of the polygonal top chord subtype.

[1] This diagram is included for the reader's reference as to bridge-specific terminology used in the description above. It should not be misinterpreted as an illustration of the Salmon River Warren Truss Bridge (Rattlesnake Creek).

Materials: The property retains its integrity of materials, particularly by means of the original steel structural members.

Workmanship: Elements of workmanship are evident.

Feeling: The property's integrity of feeling is apparent through its retention of integrity of setting, design, materials, and workmanship, which combined, clearly convey a sense of past time and place.

Association: The association between this structure with the surrounding river and rural area is present.

STATEMENT OF SIGNIFICANCE

The Salmon River Warren Truss Bridge (Rattlesnake Creek) is significant under National Register Criterion A in the area of Transportation and Criterion C in the area of Engineering. As defined by the Multiple Property Documentation Form for *Metal Truss Highway Bridges of Idaho,* it is an excellent example of the Warren truss bridge type, executed in the polygonal top chord subtype. Built around 1930, the Salmon River Warren Truss Bridge (Rattlesnake Creek) is an example of a common, economical bridge solution for a relatively long span. Its riveted construction and concrete abutments illustrate the standardization of these construction techniques and materials during the period of significance.[2] As no historic name identifies this bridge, using NRHP guidelines of resource naming, the preferred name "Salmon River Warren Truss Bridge (Rattlesnake Creek)" has been assigned. This describes and identifies the location, design, and function of the structure.

ELIGIBILITY

The Salmon River Warren Truss Bridge (Rattlesnake Creek) is individually eligible for listing in the National Register of Historic Places under Criteria A and C. This structure is associated with significant trends in local history (Criterion A) and it retains sufficient integrity to communicate its historic engineering associations (Criterion C). At the same time, it is not known to be associated with a person significant in history and it has little potential to yield data in the future, and is thus not eligible under Criteria B or D.

ELABORATION

Prior to the arrival of mining operations, irrigation infrastructure, and maintained roads, there was little need for bridges in the immediate vicinity, as there were few settlers. With the early twentieth century state highway improvements and increased settlement in the Salmon River valley came the need to eliminate impediments to vehicular travel. Bridge crossings like the Salmon River Warren Truss Bridge (Rattlesnake Creek) provided ranchers and farmers easy access to markets and could make the difference between growth and stagnation for the many small, young communities across the arid regions of the state.

By 1910, 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

[2] Development of the immediate local area's history and development sufficient to establish and justify an accurate period of significance was outside the scope of this project. For the purposes of this project, as a placeholder the period of significance is given as beginning in c.1930, the date of construction of the bridge, and ending in 1968, the 'fifty-year cut-off' established by the National Park Service as representing the span of time generally necessary to have passed before significance can be established.

and piers, erecting preassembled floor and truss members, and placing deck material. At the Salmon River Warren Truss Bridge (Rattlesnake Creek), structural components identify Illinois Steel as responsible for the manufacture of the stock steel comprising this structure.

Advancements in pneumatic riveting techniques by this time greatly improved rivet installation quality, enabling more reliable panel point connections than earlier pin-connected trusses. With the increased portability of this construction technology, the more rigid, riveted technique rapidly surpassed pin-connected bridge construction during the first years of the twentieth century. The riveted construction of the Salmon River Warren Truss Bridge (Rattlesnake Creek) illustrates the standardization of this technique.

In addition, the contemporary development of economic cement production promoted the widespread combination of steel and concrete in bridge construction. By the 1920s, reinforced concrete was the standard material for abutments, piers, and decks of steel truss bridges. It was not uncommon for older metal truss bridges to receive new reinforced concrete decks or poured concrete reinforcements for older stone abutments. Though not original, the poured concrete abutments of the Salmon River Warren Truss Bridge (Rattlesnake Creek) are more than fifty years of age, date to within the period of significance, and are compatible and typical of bridges built during the early twentieth century.

The Salmon River Warren Truss Bridge (Rattlesnake Creek) is a classic example of this truss design. Patented in 1848, the Warren truss has diagonal members that are alternately placed in either tension or compression, resulting in a visually distinctive system of alternating equilateral or isosceles triangles. Vertical members are often incorporated to further strengthen the truss, as in the Salmon River Warren Truss Bridge (Rattlesnake Creek). The incorporation of a polygonal top chord increased truss strength while using about the same amount of material, however the lack of uniformity among members often led to increased construction costs. This design aspect allowed for better stress distribution as the distance between the bottom and top chords could be increased at the center of the span where the stresses were greatest.

While the straightforward design of the Warren truss was desirable, the lack of counters and sometimes verticals subjected the center pins to extensive wear, making it less durable and therefore less popular than the Pratt truss during the nineteenth century. The later standardization of riveted construction techniques eliminated these issues and the Warren truss gained popularity. In Idaho, Warren trusses were constructed well into the twentieth century, suggesting the appeal of the design’s strength, simplicity, and economical construction costs. A 1982 survey of steel truss bridges statewide identified fifty-two Warren truss bridges, including the Salmon River Warren Truss Bridge (Rattlesnake Creek), as in existence throughout Idaho at that time.

STRUCTURE HISTORY

The Government Land Office (GLO) first commissioned a subdivisional survey of the area immediately around Rattlesnake Creek in 1915, suggesting little to no previous settlement activity in the vicinity. The 1915 GLO map shows no settlement up the Rattlesnake Creek drainage and no crossing of the Salmon River at or near this location. The map does show two ranch houses in the area but on the east side of the narrow valley, east of the Challis-Salmon Road (present-day US 93).

The historic record indicates settlement up Rattlesnake Creek first took place around 1920, with Charles Kapp (1895-1972), a native of Pennsylvania, ‘proving up’ land in Section 18 and receiving a Homestead patent for 175 acres. Kapp added to his land holdings in 1925 with his receipt of a Desert Lands Act patent for another 120 acres, which indicates he had introduced irrigation infrastructure.

The US Congress passed the Desert Land Act in March 1877 as an amendment to the Homestead Act in an attempt to incent settlement and development of the arid and semiarid public lands of the West. The Act enabled individuals to purchase ‘desert lands’ at a price of $1.25 per acre on the promise that the land would be irrigated within three years. A married couple could claim up to 640 acres while a single man could only claim half that. Unlike the Homestead Act, there was no residency requirement and title to the land was transferred once proof of irrigation was documented.

In 1935, Charles Kapp’s brother, John, received a Homestead patent for 160 acres abutting Charles’ up Rattlesnake Creek. Between the two brothers, over 450 acres were settled just upslope from the Salmon River Warren Truss Bridge (Rattlesnake Creek) site by the mid-1930s. According to ITD records, it is during this period around 1930 that Salmon River Warren Truss Bridge (Rattlesnake Creek) was built.

Review of historic maps and aerials shows that by 1940, the Salmon River Warren Truss Bridge (Rattlesnake Creek) was in place, at which time the U.S. Government owned most of the upslope land in the vicinity, with the exception of the Charles Kapp property up Rattlesnake Creek (later alternately known as Rattlesnake Creek Ranch and Twin Peaks Ranch) and Watt Waddington who owned the land abutting the right bank of the Salmon River (location of east abutment of the bridge). The 1940 Metsker map shows the left (west) bank with the notation “U.S. WITHDRAWN FOR POWER PURPOSES,” a notation shown along various sections of the Salmon’s banks in the region.

Review of Idaho State Highway Commission minute books refer to various road and bridge projects in Lemhi County during the 1930s and 1940s, but unfortunately insufficient locational information is provided to confirm the cost or bid information to any bridge in particular. Markings on the structural members indicate that the stock metal was purchased from Illinois Steel, a prominent and prolific steel late nineteenth and early twentieth century manufacturer out of the Chicago-Milwaukee areas.

Previous survey stated this bridge is a “rebuilt truss utilizing a span dating from about 1930” yet provided no citation or sources. Per patterns of ITD’s use of the term ‘rebuilt’ this likely refers to the bridge merely having received new abutments. Numerals in relief stamped into the abutments that read “1956” substantiate this supposition.

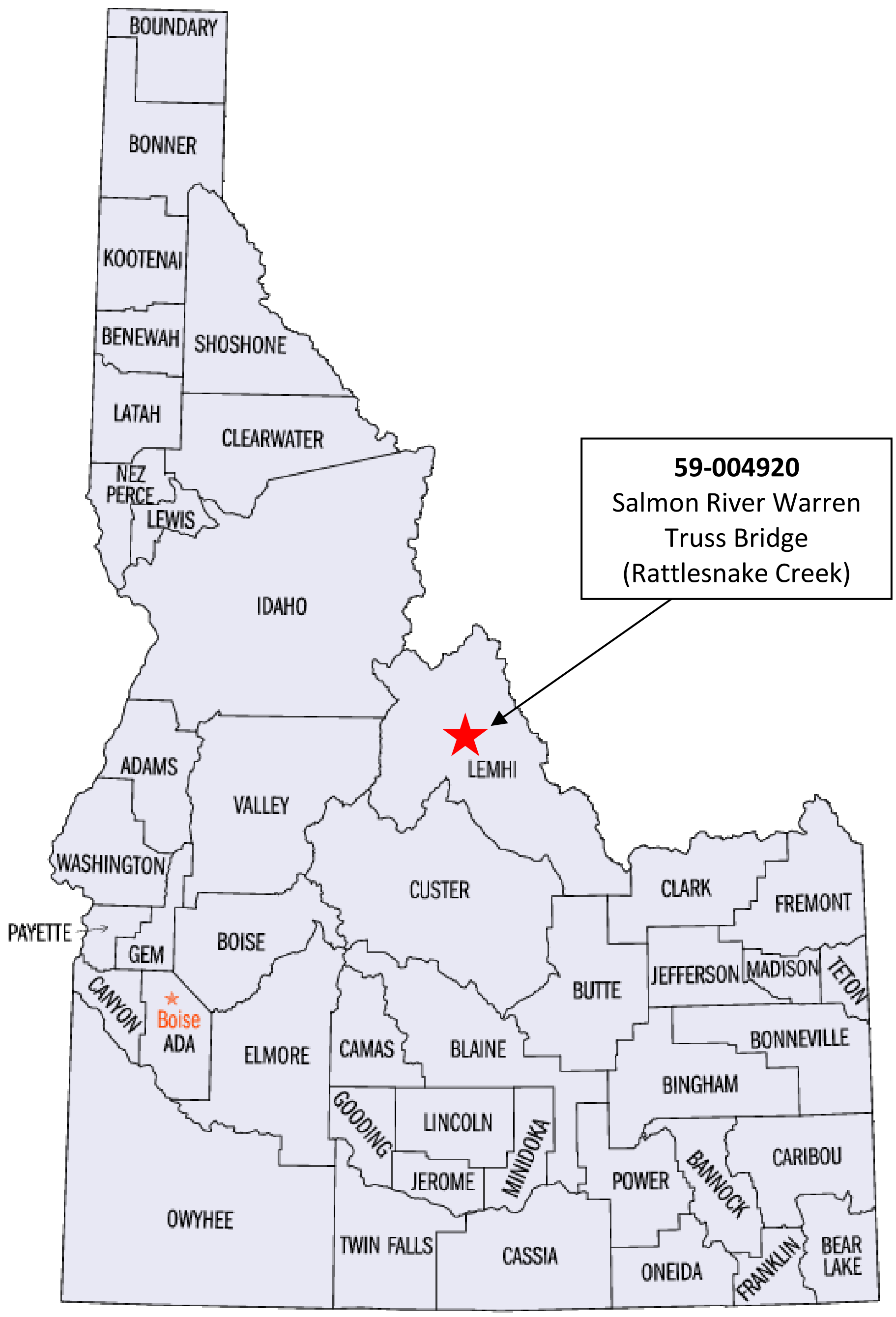
According to Centennial history of Lemhi County, in the 1950s the children who resided up at Rattlesnake Creek Ranch waited for the school bus at the Salmon River Warren Truss Bridge (Rattlesnake Creek).[3] The 1962 USGS quadrangle map shows the ranch name as Twin Peaks Ranch and featuring an accompanying airstrip. The Salmon River Warren Truss Bridge (Rattlesnake Creek) was closed to traffic at some point between 2013 and summer 2015.

Illinois Steel

Illinois Steel formed in 1889 from a consolidation of several existing, smaller steel companies in Illinois and Wisconsin that had been founded in the 1850s through 1870s. With controlling interests in railways, coal mines, iron mines, and limestone mines throughout the Midwest and Mid-Atlantic regions, the company grew to become one of the largest steel manufacturers nationwide. Various mergers at the turn of the twentieth century resulted in its consolidation into the newly formed Federal Steel Company and

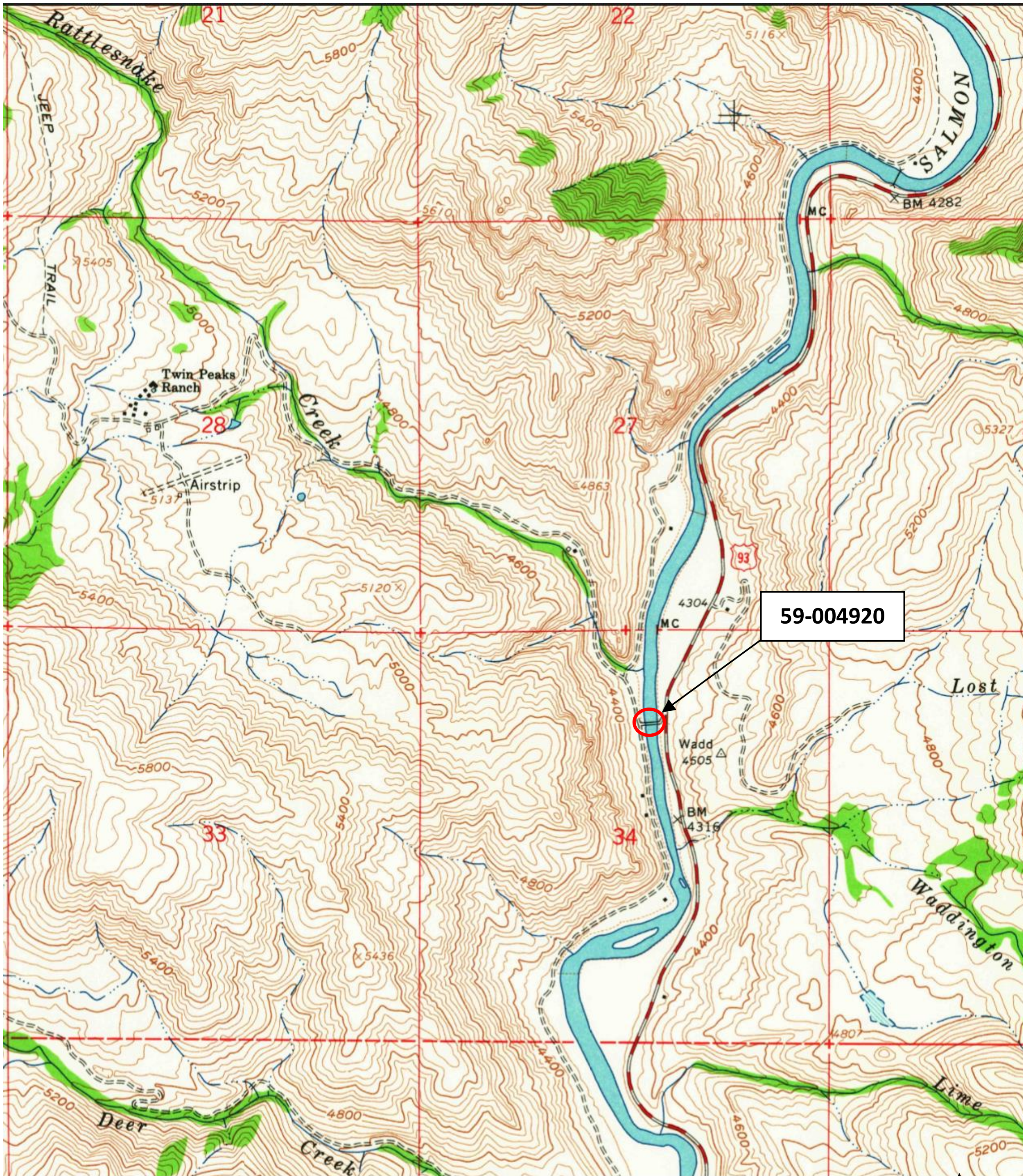
[3] *Centennial History of Lemhi County, Idaho Volume III Including the Pahsimeroi*. Salmon, Idaho: Lemhi County History Committee, 1992.

then U.S. Steel, the process of which included such prominent players as J.P. Morgan and Andrew Carnegie.

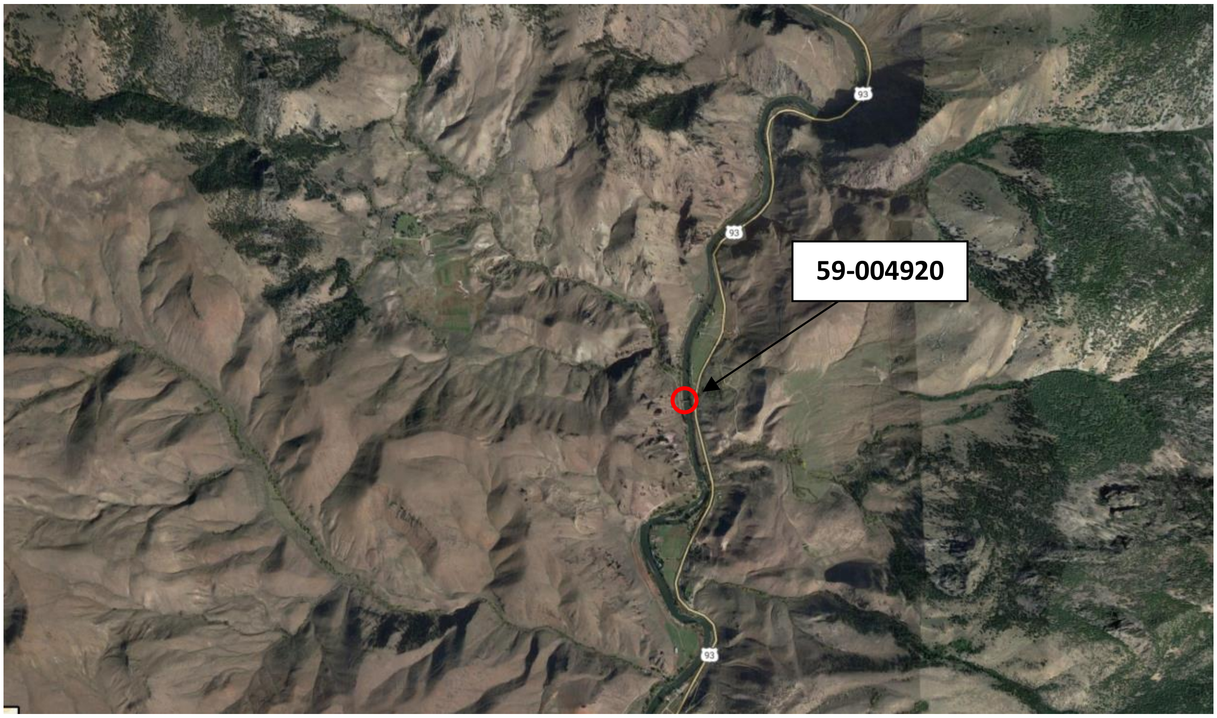


Idaho Counties

Map courtesy of http://www.censusfinder.com/mapid.htm



USGS, GOLDBUG RIDGE QUADRANGLE, 1962, 7.5' Series
T19N R21E Section 34 – LEMHI COUNTY, IDAHO



Aerial View of Vicinity
Courtesy Google Earth, Imagery 2018

59-004920, September 2017
View W

59-004920, August 2013
View S-SE
Photo courtesy ITD records

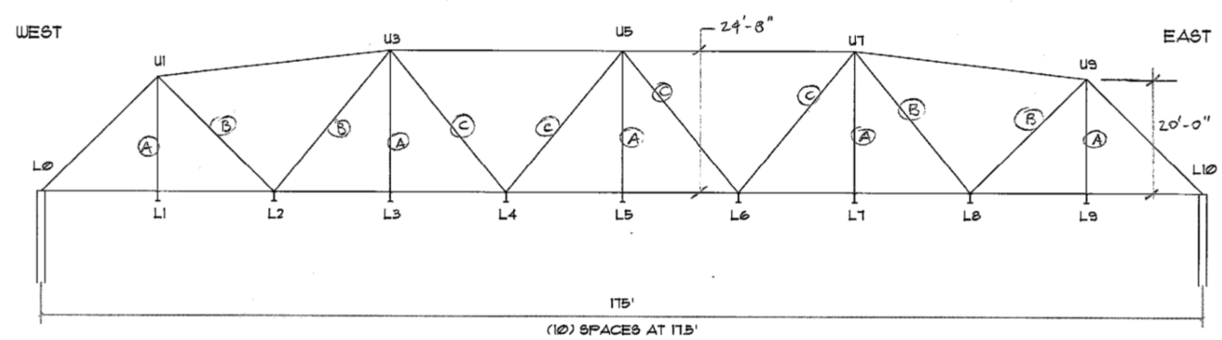
59-004920, September 2017
View E

59-004920, September 2017
View S-SW from north abutment

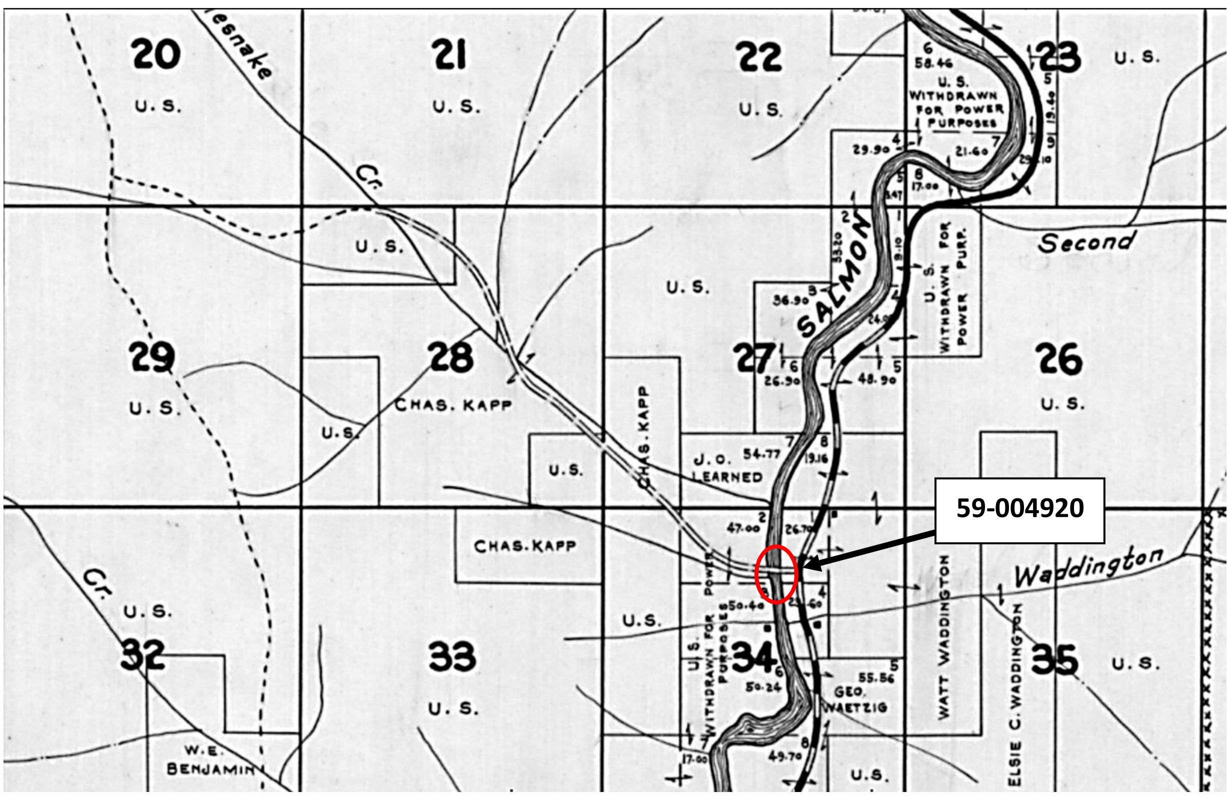
59-004920, September 2017
View W toward west abutment

59-004920, September 2017
Detail view of steel manufactuer's mark – "ILLINOIS-S-USA"

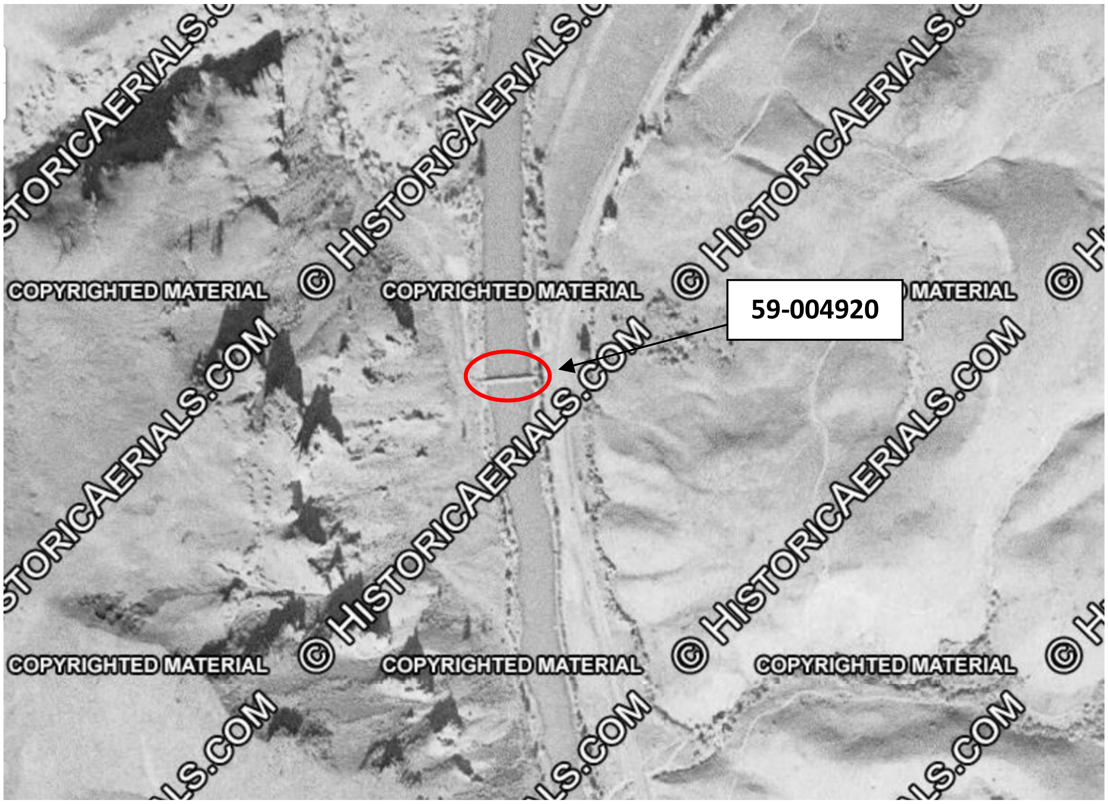
59-004920, September 2013
View NE of east abutment (note "1956" stamped into concrete)



59-004920, Elevation Drawing
Courtesy ITD Inspection Report Files



Metsker's Atlas of Lemhi County, 1940
Courtesy HistoricMapWorks.com



Aerial View, 1946
Courtesy HistoricAerials.com

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Lemhi River Warren Truss Bridge
FIELD#: 59-005796
STREET: BARRACKS LANE; 4.2 S. 6.0 E. SALMON (Approx 10 mi. SE of Salmon)
RESTRICT: ☐
CITY: Salmon
VICINITY: ☑
COUNTY CD: 59
COUNTY NAME: Lemhi
SUBNAME:
BLOCK:
SUBLOT:
ACRES: 1
LESS THAN: ☑
TAX PARCEL:
UTMZ: 12
EASTING: 281758
NORTHING: 4999525
TOWNSHIP: 21
N_S: N
RANGE: 23
E_W: E
SECTION: 30
¼, ¼: SE SE ¼
QUADRANGLE: Sal Mountain
OTHERMAP:
SANBORN MAP:
SANBORN MAP#:
PHOTO#: Digital

PROPERTY TYPE: Structure
CONST/ACT1: Original Construction
ACTDATE1: 1929
CIRCA1: ☑
CONST/ACT2: Moved
ACTDATE2: 1986
CIRCA2: ☑
ASSOCIATED FEATURES: bridge
TOTAL # FEATURES: 1
ORIGINAL USE: Transportation
WALL MATERIAL:
ORIGSUBUSE: Road-related
FOUND. MATERIAL: CONCRETE
CURRENT USE: Transportation
ROOF MATERIAL:
CURSUBUSE: Road-related
OTHER MATERIAL: METAL:Steel
ARCHSTYLE: Other:Warren Pony Truss, Polygonal Top Chord
PLAN: Rectangular
CONDITION: Good

NR REF #:
NPS CERT:
ACTIONDATE:
FUTURE ELIG DATE:
DIST/MPLNAME1: Metal Truss Highway Bridges of Idaho
DIST/MPLNAME2:

Individually Eligible ☑
Contributing in a potential district ☐
Noncontributing ☐
Future eligibility ☐
Not Eligible ☐
Multiple Property Study ☑
Not evaluated ☐

CRITERIA: A ☑ B ☐ C ☑ D ☐
CRITERIA CONSIDERATION: A ☐ B ☑ C ☐ D ☐ E ☐ F ☐ G ☐
AREA OF SIGNIF: Transportation
AREA OF SIGNIF: Engineering

COMMENTS: Structural members have letters in relief at regular intervals that read "INLAND," indicating Inland Steel produced the stock steel.

Previous survey in 1982 documented a different historic steel truss bridge at this location. The 1982 inventory form shows a common Warren Truss bridge, however field survey for this project found a Warren truss bridge with polygonal top chord

PROJ/RPT TITLE: Steel Bridges of Eastern Idaho Survey (ITD Key No. 12479 - Mitigation)
SVY DATE: 9/15/17
SVY LEVEL: Reconnaissance
RECORDED BY: Kerry Davis, PSLLC
PH: 816-225-5605
ADDRESS: 1007 E. Jefferson Street, Boise, ID 83712
SUBMITTED: PHOTOS ☑ NEGS ☐ SLIDES ☐ SKETCH MAP ☑

SVY RPT #:
******** FOR ISHPO USE ONLY ********
IHSI#: 59-005796
MS RPT #:
SITS#:
IHPR #:
HABS NO. ID-:
HAER NO. ID-:
REV#:

CS #:
IHSI# REF:
NR REF# 2:
REV# REF:
SVY RPT# 1:
SVY RPT# 2:
SVY RPT# 3:
MS RPT# 1:
MS RPT# 2:
ADD'L NOTES: District 6. ITD Milepost reference: 100.551
MORE DATA: ☑
ATTACH: ☑

REV# SITS# IHSI#

OF PHOTOS:
NEGBOX#:
OF SLIDES:
SHPO DETER:
DETER DATE:
INITIALED:
ENTRY DATE:
REVISE1:
REVISE2:
REVISE3:

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Lemhi River Warren Truss Bridge
IHSI#: 59-005796
FIELD#: 59-005796
COUNTY NAME: Lemhi

OTHER NAME: ITD Key#32700; ITD Structure Name X996300 0.50
COUNTY CD: 59
CITY: Salmon
VICINITY: ☑
UTM REF2:
UTM REF3:
UTM REF4:

OTHER MATERIAL2: WOOD
CULTAFFIL:
AGENCYCERT: Local
SIGNIFDATE:
SIGNIFPERIOD:
SIGNIFPERSON:
ARCH/BUILD:
ARCHPLANS: ☐
TAXEASE: ☐
TAXCERT: ☐
OWNERSHIP: Public-Local
PROPOWN: Lemhi County
MORE DATA: ☑
ATTACH: ☑

DOCSOURCE: ITD records; SHPO records; USGS Quads

ADD'L NOTES: District 6. ITD Milepost reference: 100.551

COMMENTS: Structural members have letters in relief at regular intervals that read "INLAND," indicating Inland Steel produced the stock steel.

Previous survey in 1982 documented a different historic steel truss bridge at this location. The 1982 inventory form shows a common Warren Truss bridge, however field survey for this project found a Warren truss bridge with polygonal top chord. Review of ITD records indicates the existing c.1929 bridge was moved to this location from an unidentified site around 1986. ITD records do not indicate the fate of the previous Warren truss.

Though moved, relocation of steel trusses was common and does not compromise the overall integrity of the structure. Field

PHOTO LOG ☐ IHSI# REF: INITIALED: DATEENTERED:

SKETCH ☑

IHSI# ____
SITS# ____
REV# ____

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Lemhi River Warren Truss Bridge

IHSI#: 59-005796

FIELD#: 59-005796

COUNTY NAME: Lemhi

COMMENTS:

Structural members have letters in relief at regular intervals that read "INLAND," indicating Inland Steel produced the stock steel.

Previous survey in 1982 documented a different historic steel truss bridge at this location. The 1982 inventory form shows a common Warren Truss bridge, however field survey for this project found a Warren truss bridge with polygonal top chord. Review of ITD records indicates the existing c.1929 bridge was moved to this location from an unidentified site around 1986. ITD records do not indicate the fate of the previous Warren truss.

Though moved, relocation of steel trusses was common and does not compromise the overall integrity of the structure. Field survey verified this bridge retains sufficient integrity and is individually eligible per the statewide MPDF registration requirements for Metal Truss Highway Bridges of Idaho. This abbreviated IHSI documentation is provided merely as supplemental documentation.

ATTACH ☑

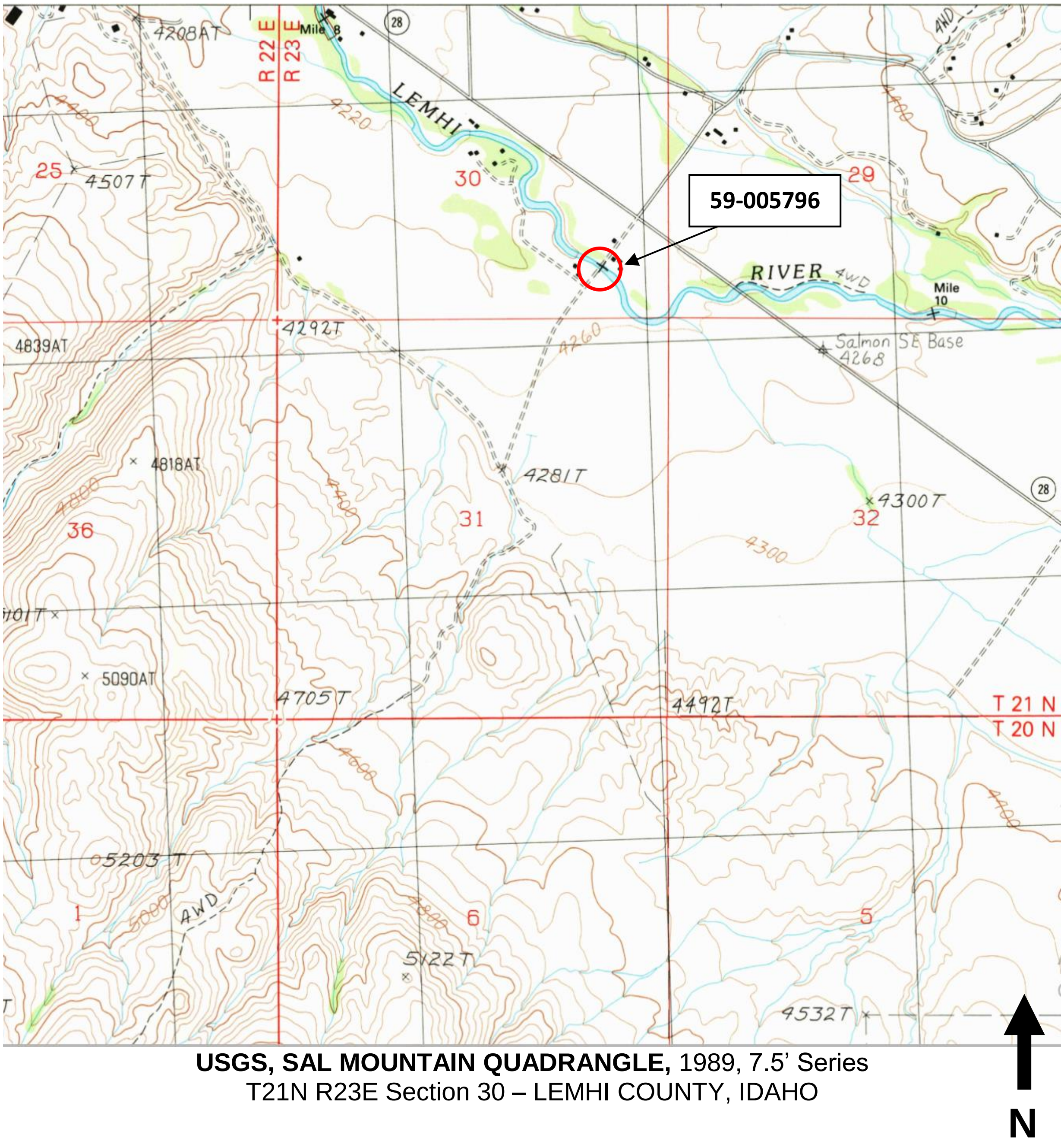
IHSI# ________

SITS# ________

REV# ________

Idaho Counties

Map courtesy of http://www.censusfinder.com/mapid.htm



USGS, SAL MOUNTAIN QUADRANGLE, 1989, 7.5' Series
T21N R23E Section 30 – LEMHI COUNTY, IDAHO

Aerial View of Vicinity
Courtesy Google Earth, Imagery 2018

59-005796, September 2017
View SW

59-005796, September 2017
View W

59-005796, September 2017
View N of NW corner bottom node/bearing

59-005796, September 2017
View of typical stock steel marking reading "INLAND"

59-005796, September 2017
View of benchmark/gaging station marker embedded in abutment

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Little Wood River Warren Truss Bridge (North Birch Street)
FIELD#: 63-005166
STREET: North Birch Street over the Little Wood River
RESTRICT: ☐
CITY: Shoshone
VICINITY: ☐
COUNTY CD: 63
COUNTY NAME: Lincoln
SUBNAME:
BLOCK:
SUBLOT:
ACRES: 1
LESS THAN: ☑
TAX PARCEL:
UTMZ: 11
EASTING: 711484
NORTHING: 4757161
TOWNSHIP: 6
N_S: S
RANGE: 17
E_W: E
SECTION: 2 NE ¼, ¼ NW ¼
QUADRANGLE: Shoshone
OTHERMAP:
SANBORN MAP: Shoshone 1928
SANBORN MAP#: 4
PHOTO#: Digital

PROPERTY TYPE: Structure
CONST/ACT1: Original Construction
ACTDATE1: 1913
CIRCA1: ☐
CONST/ACT2: Alteration
ACTDATE2: 2000
CIRCA2: ☐
ASSOCIATED FEATURES: bridge
TOTAL # FEATURES: 1
ORIGINAL USE: Transportation
WALL MATERIAL:
ORIGSUBUSE: Road-related
FOUND. MATERIAL: CONCRETE
CURRENT USE: Transportation
ROOF MATERIAL:
CURSUBUSE: Road-related
OTHER MATERIAL: METAL:Steel
ARCHSTYLE: Other:Warren Pony Truss
PLAN: Rectangular
CONDITION: Good

NR REF #:
NPS CERT:
ACTIONDATE:
FUTURE ELIG DATE:
DIST/MPLNAME1: Metal Truss Highway Bridges of Idaho
DIST/MPLNAME2:

Individually Eligible ☑ Contributing in a potential district ☐ Noncontributing ☐ Future eligibility ☐
Not Eligible ☐ Multiple Property Study ☑ Not evaluated ☐

CRITERIA: A ☑ B ☐ C ☑ D ☐
CRITERIA CONSIDERATION: A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G ☐
AREA OF SIGNIF: Transportation
AREA OF SIGNIF: Engineering

COMMENTS: See continuation sheets for elaborated description, history, significance, and eligibility.
PROJ/RPT TITLE: Steel Bridges of Eastern Idaho Survey (ITD Key No. 12479 - Mitigation)
SVY DATE: 10/12/17
SVY LEVEL: Intensive
RECORDED BY: Kerry Davis, PSLLC
PH: 816-225-5605
ADDRESS: 1007 E. Jefferson Street, Boise, ID 83712
SUBMITTED PHOTOS ☑ NEGS ☐ SLIDES ☐ SKETCH MAP ☑

SVY RPT #:
******** FOR ISHPO USE ONLY ********
IHSI#: 63-005166
MS RPT #:
SITS#:
IHPR #:
HABS NO. ID-:
HAER NO. ID-:
REV#:

CS #:
IHSI# REF:
NR REF# 2:
REV# REF:
SVY RPT# 1:
SVY RPT# 2:
SVY RPT# 3:
MS RPT# 1:
MS RPT# 2:
ADD'L NOTES: District 4. Last surveyed 1982. ITD Milepost reference: 100.076
MORE DATA ☑
ATTACH ☑

OF PHOTOS:
NEGBOX#:
OF SLIDES:
SHPO DETER:
DETER DATE:
INITIALED:
ENTRY DATE:
REVISE1:
REVISE2:
REVISE3:

REV#
SITS#
IHSI#

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Little Wood River Warren Truss Bridge (North Birch Street)
IHSI#: 63-005166
FIELD#: 63-005166
COUNTY NAME: Lincoln

OTHER NAME: ITD Key#24910; ITD Structure Name X992320 0.02
COUNTY CD: 63
CITY: Shoshone
VICINITY: ☐
UTM REF2:
UTM REF3:
UTM REF4:

OTHER MATERIAL2: WOOD
CULTAFFIL:
AGENCYCERT: Local
SIGNIFDATE:
SIGNIFPERIOD:
SIGNIFPERSON:
ARCH/BUILD: Omaha Structural Steel Works
ARCHPLANS: ☐
TAXEASE: ☐
TAXCERT: ☐
OWNERSHIP: Public-Local
PROPOWN: City of Shoshone
MORE DATA: ☑
ATTACH: ☑

DOCSOURCE: ITD records; SHPO records; USGS Quads; Sanborn maps

ADD'L NOTES: District 4. Last surveyed 1982. ITD Milepost reference: 100.076

COMMENTS: See continuation sheets for elaborated description, history, significance, and eligibility.

PHOTO LOG: ☐
IHSI# REF:
INITIALED:
DATEENTERED:

SKETCH: ☑

IHSI# ____
SITS# ____
REV# ____

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Little Wood River Warren Truss Bridge (North Birch Street)

IHSI#: 63-005166

FIELD#: 63-005166

COUNTY NAME: Lincoln

COMMENTS:

See continuation sheets for elaborated description, history, significance, and eligibility.

ATTACH ☑

IHSI# ____

SITS# ____

REV# ____

DESCRIPTION

Note: The reader is cautioned to not confuse this bridge with the single-span Warren truss bridge about 0.5 miles east (Little Wood River Warren Truss Bridge (East 3rd Street) IHSI#41-005168; No ITD Bridge Key).

LOCATION and SETTING

The Little Wood River Warren Truss Bridge (North Birch Street) is at the north edge of downtown Shoshone in south central Idaho, at the intersection of North Birch and West 3rd streets in section 2, Township 6S, Range 17E. The immediate area is characterized by a tree-lined street grid that shifts from a diagonal alignment parallel to the northwest-southeast railroad grade downtown to a cardinal alignment just north of the bridge site. The bridge is at the northwest edge of what is generally considered Downtown Shoshone where residential neighborhoods begin to the north of the river and the historic Mary L. Gooding City Park extends to the west. The area around Shoshone is a region defined by vast lava fields interspersed with irrigated farmland and unirrigated scrub land. The Little Wood River Warren Truss Bridge (North Birch Street) carries North Birch Street across the Little Wood River, a meandering, tributary of the Malad River. The paved roadway, bordered by residential development to the north, the city park to the west-southwest, and the downtown commercial area to the southeast, aligns at an obtuse angle with the single-lane Little Wood River Warren Truss Bridge (North Birch Street). The bridge is open to traffic within the limitations of the 15’-7” width and 7-ton weight-limit restrictions.

TRUSS TYPE

The Little Wood River Warren Truss Bridge (North Birch Street) is a single span, riveted pony truss bridge measuring 60 feet in length and about 16 feet in width. Standard concrete retaining wall abutments support the end floor beams of the truss, which rest directly on the abutment seat. The angled wingwalls of the abutments extend approximately 4 feet out away from the pedestal along the river banks. Remnants of stone retaining walls to the east and west of the north abutment suggest the original bridge abutments may have been stone.[1] The inclined end posts rise from the bottom chords to meet the horizontal top chords to form an overall trapezoidal shape in elevation. The top chords and inclined end posts consist of two channels and a cover plate with stay plates and lacing bars below; the bottom chords consist of two angles with stay plates.

The web members include vertical posts forming 4 equivalent panels and diagonal members forming the system of alternating equilateral triangles distinctive to a Warren truss. Both the diagonal members and vertical posts are composed of angle stock and stay plates. Gusset plates distinguish each node where diagonal members connect with the upper and lower chords.

The timber deck, comprised of vertically lain laminated 2”-by-6” boards with an asphalt wearing surface, is 16 feet wide with no curbs. The deck rises approximately 10 feet above the river bed on 6 full-length I-beam steel stringers. Large, steel floor I-beams are at the base of each vertical post, with tie rod lateral bracing between.

A pedestrian walkway spanning the full length of the outer (east) face of the east truss is part of the original design and an integral component to the bridge. Each floor beam extends out from under and past the vehicular roadway to also carry the 4’-wide walkway. The walkway features a textured sheet metal travel surface and a continuous railing composed of a framework of abutting angle stock with lacing

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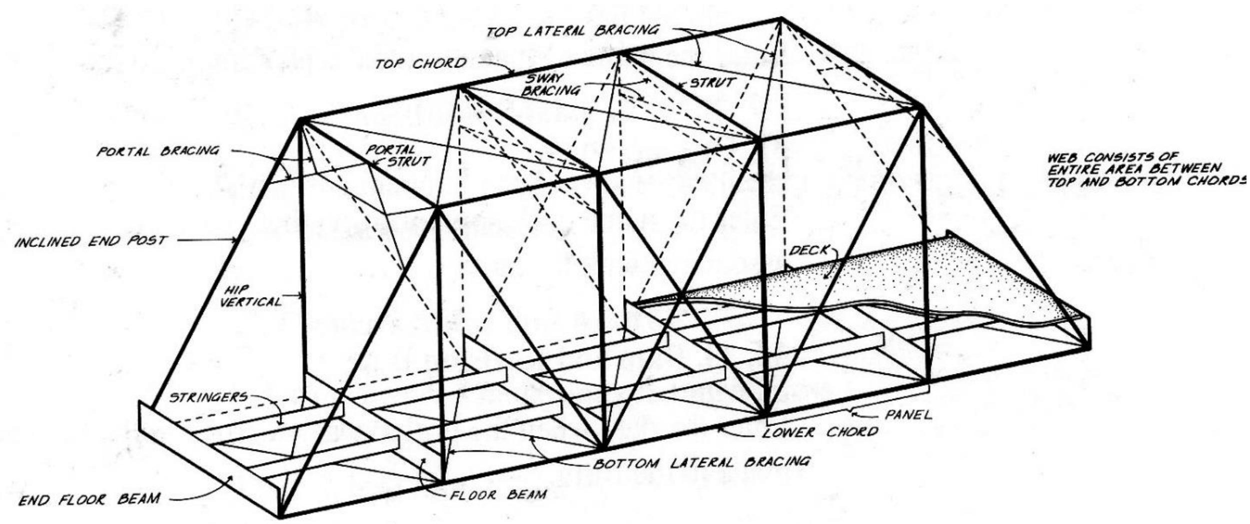
[1] These also may either be part of the original abutments to the previous nonextant bridge at this location or simply stone retaining walls to stabilize the river banks passing through town.

bars between. A guardrail composed of an angle stock frame with lacing bars between spans the inner (east) face of the west truss.

An oval, cast-iron plaque affixed to the northwest inclined end post of the west truss has letters in relief that read "OMAHA / STRUCTURAL STEEL / WORKS / 1913." In addition, the larger structural steel components have letters in relief at regular intervals that read, "*LACKAWANNA*."

Bridge-Specific Terminology Diagram[2]



Courtesy Historic American Engineering Record

INTEGRITY

The Little Wood River Warren Truss Bridge (North Birch Street) is an excellent example of this bridge type, historically very popular and increasingly rare in Idaho. Although the abutments are not original, and likely date to the 'reconstruction' noted in ITD records as having occurred in 2000, they are compatible replacements representing a common physical upgrade to bridges of this type and they do not significantly impact the overall integrity of the bridge. The Little Wood River Warren Truss Bridge (North Birch Street) retains a good degree of integrity, with no significant alterations to the original design or materials. The original workmanship, setting, and feeling of the structure are also readily apparent. Furthermore, the potential for preservation of the bridge is high. Located on a lightly traveled surface street, it is unlikely that traffic requirements will necessitate alteration or replacement.

This structure possesses the following aspects of integrity: location, setting, design, materials, workmanship, feeling, and association. It retains sufficient integrity to be National Register of Historic Places (NRHP)-eligible individually.

Location: This structure has not been moved, and thus retains integrity of location.

[2] This diagram is included for the reader's reference as to bridge-specific terminology used in the description above. It should not be misinterpreted as an illustration of the Little Wood River Warren Truss Bridge (North Birch Street).

Setting: The historic residential setting is intact.

Design: Integrity of design is intact, visible primarily by means of the original steel truss members assembled and executed in the Warren truss design.

Materials: The property retains its integrity of materials, particularly by means of the original steel structural members and the sign plaque.

Workmanship: Elements of workmanship are evident.

Feeling: The property's integrity of feeling is apparent through its retention of integrity of setting, design, materials, and workmanship, which combined, clearly convey a sense of past time and place.

Association: The association between this structure with the surrounding river and residential area is present.

STATEMENT OF SIGNIFICANCE

The Little Wood River Warren Truss Bridge (North Birch Street) is significant under National Register Criterion A in the area of Transportation and Criterion C in the area of Engineering. As defined by the Multiple Property Documentation Form for *Metal Truss Highway Bridges of Idaho,* it is an excellent example of the Warren truss bridge type. Built in 1913, the Little Wood River Warren Truss Bridge is an example of a common, economical bridge solution for a relatively short span. Its riveted construction and concrete abutments illustrate the standardization of these construction techniques and materials during the period of significance.[3]

As no historic name identifies this bridge, using NRHP guidelines of resource naming, the preferred name "Little Wood River Warren Truss Bridge (North Birch Street)" has been assigned. This describes and identifies the location, design, and function of the structure. With regards to naming, it is also worth noting that historically, the roadway carried by the bridge was known as either Oregon Street or Wheeler Street at the time of its construction, so NRHP naming guidelines using one of those original street names would also be appropriate if additional research beyond the scope of this project were to identify the actual street name in 1913.

ELIGIBILITY

The Little Wood River Warren Truss Bridge (North Birch Street) is individually eligible for listing in the National Register of Historic Places under Criteria A and C. This structure is associated with significant trends in local history (Criteria A) and it retains sufficient integrity to communicate its historic engineering associations (Criterion C). At the same time, it is not known to be associated with a person significant in history and it has little potential to yield data in the future, and is thus not eligible under Criteria B or D.

[3] Development of the immediate local area's history and development sufficient to establish and justify an accurate period of significance was outside the scope of this project. For the purposes of this project, as a placeholder the period of significance is given as beginning in 1913, the date of construction of the bridge, and ending in 1968, the 'fifty-year cut-off' established by the National Park Service as representing the span of time generally necessary to have passed before significance can be established.

ELABORATION

With the turn-of-the-twentieth century growth of regional economic centers in southern and eastern Idaho, in-town river crossings like the Little Wood River Warren Truss Bridge (North Birch Street) provided residents easy access from close-in residential neighborhoods to the downtown commercial area and beyond. All-weather crossings allowing traffic circulation into, out of, and around town could make the difference between growth and stagnation for the many small, young communities across Idaho like Shoshone.

By 1910, 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. At the Little Wood River Warren Truss Bridge (North Birch Street), a plaque and structural components identify Omaha Structural Steel Works as having purchased the stock steel from Lackawanna Steel for the assembly of the trusses.

Advancements in pneumatic riveting techniques by this time greatly improved rivet installation quality, enabling more reliable panel point connections than earlier pin-connected trusses. With the increased portability of this construction technology, the more rigid, riveted technique rapidly surpassed pin-connected bridge construction during the first years of the twentieth century. The riveted construction of the Little Wood River Warren Truss Bridge (North Birch Street) illustrates the standardization of this technique.

In addition, the contemporary development of economic cement production promoted the widespread combination of steel and concrete in bridge construction. By the 1920s, reinforced concrete was the standard material for abutments, piers, and decks of steel truss bridges. It was not uncommon for older metal truss bridges to receive new reinforced concrete decks or poured concrete reinforcements for older stone abutments. Though nonhistoric replacements, the poured concrete abutments of the Little Wood River Warren Truss Bridge (North Birch Street) are compatible and typical of bridges built during the early twentieth century.

The Little Wood River Warren Truss Bridge (North Birch Street) is a classic example of this truss design. Patented in 1848, the Warren truss has diagonal members that are alternately placed in either tension or compression, resulting in a visually distinctive system of alternating equilateral or isosceles triangles. Vertical members are often incorporated to further strengthen the truss, as in the Little Wood River Warren Truss Bridge (North Birch Street).

While the straightforward design of the Warren truss was desirable, the lack of counters and sometimes verticals subjected the center pins to extensive wear, making it less durable and therefore less popular than the Pratt truss during the nineteenth century. The later standardization of riveted construction techniques eliminated these issues and the Warren truss gained popularity. In Idaho, Warren trusses were constructed into the middle of the twentieth century, suggesting the appeal of the design's strength, simplicity, and economical construction costs. A 1982 survey of steel truss bridges statewide identified fifty-two Warren truss bridges, including the Little Wood River Warren Truss Bridge (North Birch Street), as in existence throughout Idaho at the time.

STRUCTURE HISTORY

The 1911 Sanborn map shows the roadway currently carried by the Little Wood River Warren Truss Bridge (North Birch Street) as Oregon Street, at which time there was an earlier, nonextant crossing at this location. If Sanborn measurements are assumed to be correct, the previous crossing was narrower and aligned more to the east of the roadway at this river crossing location. The 1928 and 1931 Sanborn maps show the roadway carried by the Little Wood River Warren Truss Bridge (North Birch Street) as Wheeler Street.

Omaha Structural Steel Works of Omaha, Nebraska, built the Little Wood River Warren Truss Bridge (North Birch Street) in 1913. Markings on the structural members indicate that Omaha Structural Steel Works purchased the stock metal from Lackawanna Steel Company of Lackawanna, New York. A prolific out-of-state bridge builder in Idaho, the Omaha Structural Steel Works heavily marketed short span truss bridges, including the Warren Truss design, throughout the West and Midwest at the turn of the century. Review of Idaho State Highway Commission minute books from the period confirm that Omaha Structural Steel Works was actively bidding on and awarded steel bridge construction projects in Idaho at this time. Unfortunately, the minute books do not specify bridge locational information sufficient to confirm the cost or bid information to any bridge in particular.

Though not itemized separately in the resource inventory, the 1975 National Register of Historic Places listing of the Shoshone Historic District includes this bridge within the District boundaries. It should be confirmed with Idaho SHPO if the Little Wood River Warren Truss Bridge (North Birch Street) is therefore deemed de facto NRHP-listed.

Previous survey in 1982 states the Little Wood River Warren Truss Bridge (North Birch Street) was “one of several short-span steel bridges over the Little Wood River in Shoshone’s north residential district.” At the time of the present survey, only two were identified by ITD as extant in Shoshone. (The other bridge is on East 3rd Street (IHSI#63-005168; No ITD Bridge Key) about 0.5 miles east.)

ITD records indicate this bridge was ‘reconstructed’ in 2000, which, based on the agency’s pattern of usage of this term most likely indicates when the current abutments went in. Though inspection reports are available, ITD has no architectural/engineering plans on file for this bridge.

Shoshone

Founded in 1882 at the time of the arrival of the Oregon Short Line Railroad as it made its way west toward Boise, Shoshone grew to become an important regional railroad and agricultural center. The 1907 Sanborn map shows no formal crossing at this location and the residential area to the north as “vacant land” and not yet platted. Between 1907 and 1911 the area north of the river was platted on a grid aligned with the cardinal directions. In response to new residential development occurred, the demand for an improved crossing resulted in the 1913 construction of the Little Wood River Warrant Truss Bridge (North Birch Street) to carry what was then called either Oregon Street or Wheeler Street.

Typical of small towns throughout Idaho, Shoshone served as a trading and shipping point for the surrounding rural community. As the economy and population grew, residential development and increasing traffic necessitated bridges like the Little Wood River Warren Truss Bridge (North Birch Street) be constructed to provide area residents with all-weather access over waterways between neighborhoods and the downtown commercial center, as well as to more distant markets. Presence of an in-town bridge not only supported a town’s economic stability but contributed to a local sense of modernity.

Omaha Structural Steel Works

Originally founded by John W. Towle and Fred K. Smith in 1906 as Omaha Steel Works, this company (also known as Omaha Structural Steel Bridge Company), fabricated steel stock for bridges, buildings, railroad infrastructure, and automobiles. They produced the steel for the Nebraska State Capitol building and produced artillery shells and landing craft tanks during World War II. The company transitioned into various subsidiaries and changed its name to Omsteel Industries in the 1960s. It is still in operation today as Omaha Steel with headquarters in Wahoo, Nebraska.

Lackawanna Steel

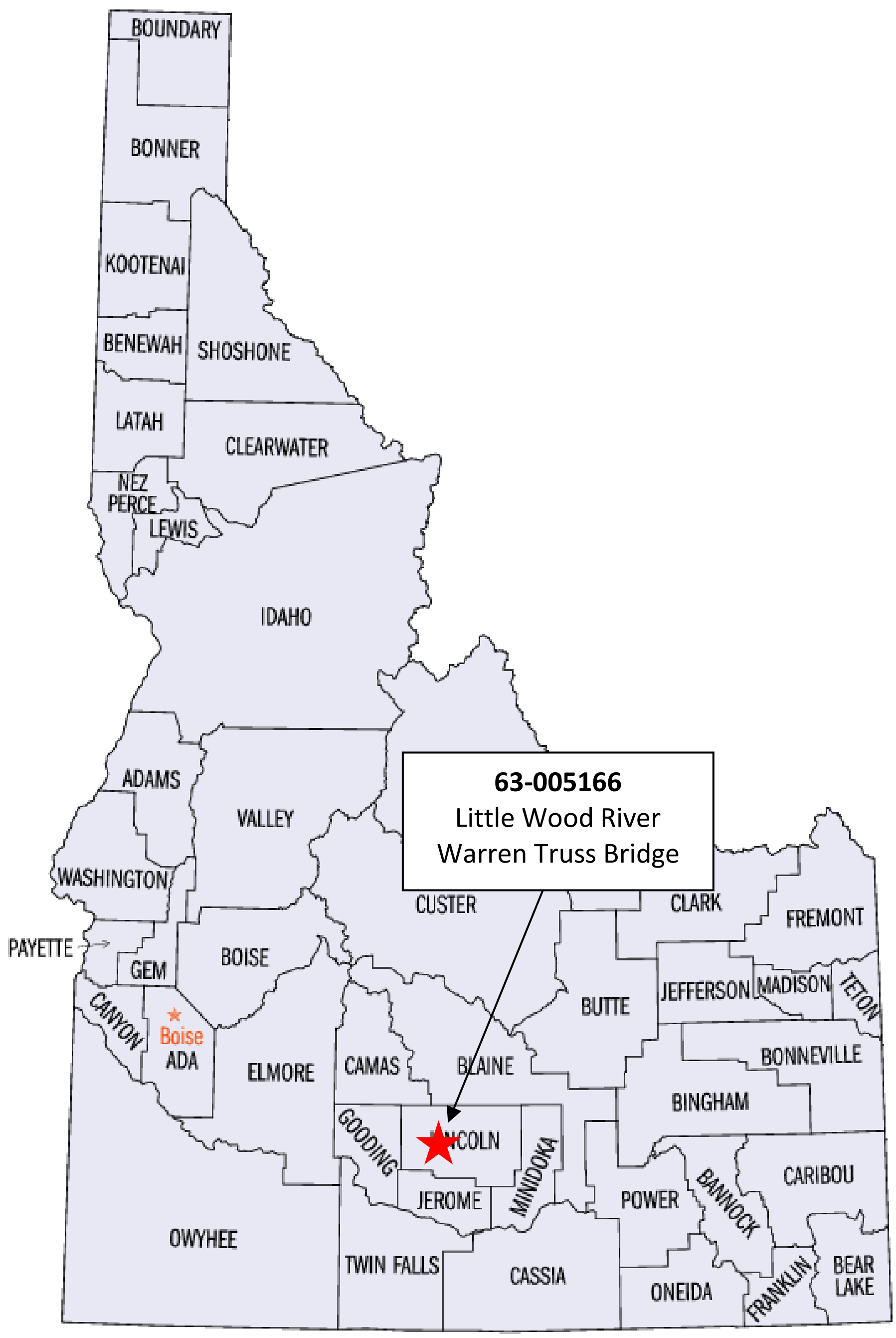
Founded in 1840 by George and Seldon Scranton, in Scranton, Pennsylvania, the Lackawanna Steel Company grew to become the second largest steel manufacturer in the world. The headquarters moved to the outskirts of Buffalo, New York, in 1902, resulting in the founding of the town of Lackawanna, New York. The company was absorbed into Bethlehem Steel in 1922, after which the stock steel markings in relief included a “B S C” or “B S Co.” prefix before “LACKAWANNA.”

ADDITIONAL SOURCES

“Combining Over 100 Years of Foundry Experience With Today’s Technology.” www.omahasteel.com/about-us/history. Website, accessed February 3, 2018.

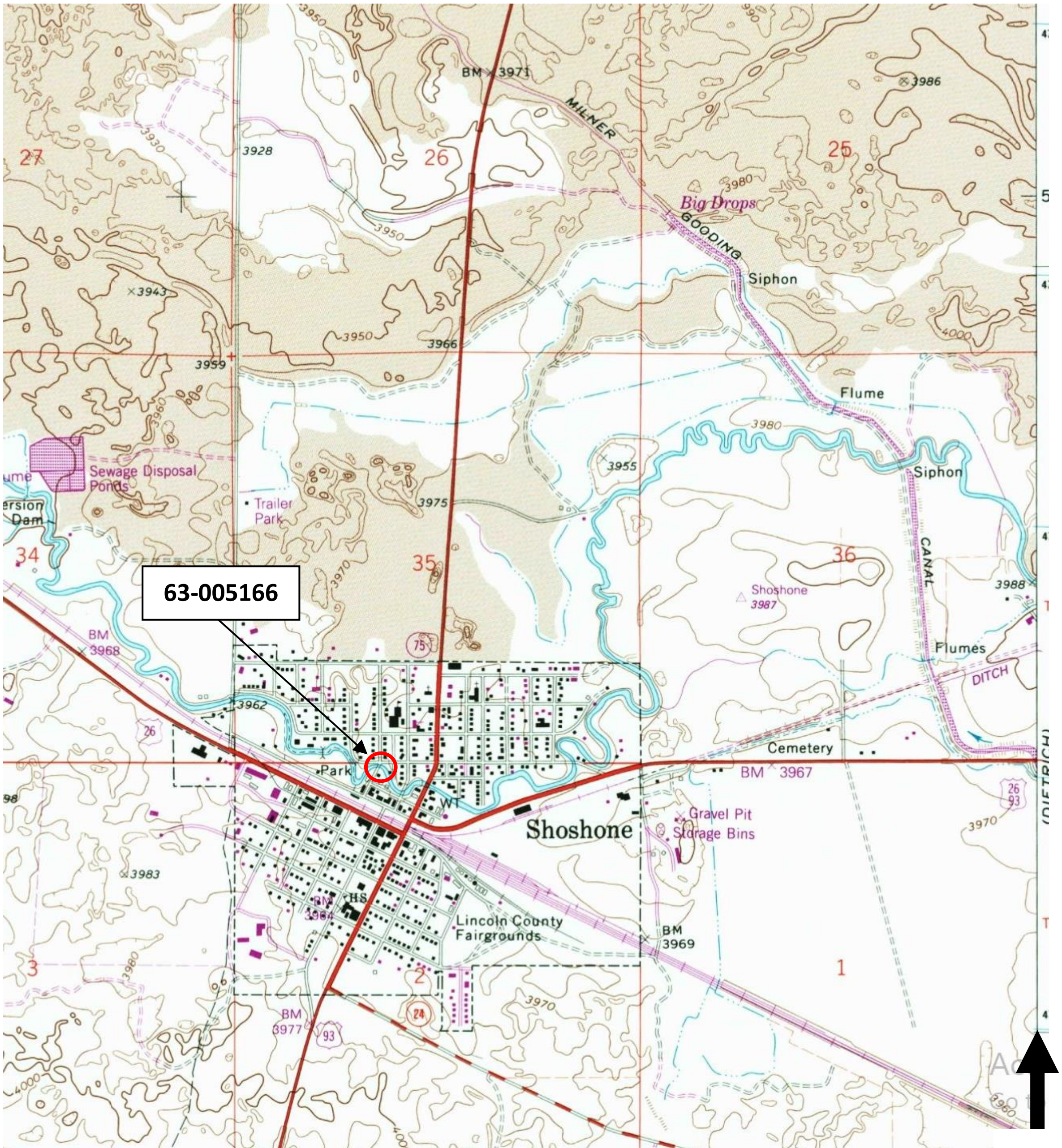
Hart, Arthur. “Shoshone Historic District,” Idaho State Historical Society Reference Series, Number 976, March 1975.

Hart, Arthur. “Shoshone Historic District,” National Register of Historic Places Inventory Nomination Form, (Idaho State Historical Society: Boise, Idaho), 1975.



Idaho Counties

Map courtesy of http://www.censusfinder.com/mapid.htm



USGS, SHOSHONE QUADRANGLE, 1971, 7.5' Series
T6S R17E Section 2 – LINCOLN COUNTY, IDAHO

Aerial View of Vicinity
Courtesy Google Earth, Imagery June 2016

63-005166, October 2017
View NE

63-005166, October 2017
View SW

63-005166, October 2017
View SW

63-005166, October 2017
View SE

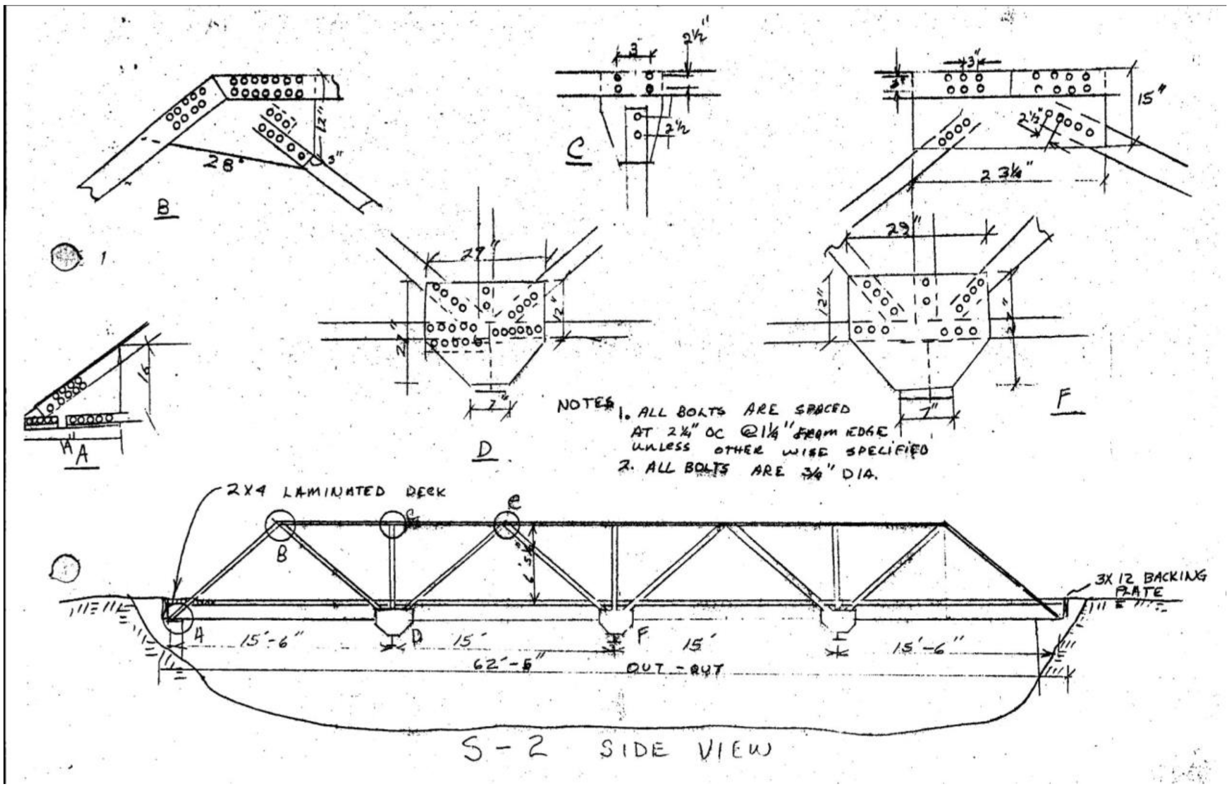
63-005166, September 2013
View SE (courtesy ITD Inspection Records)

63-005166, October 2017
View SW, plaque detail

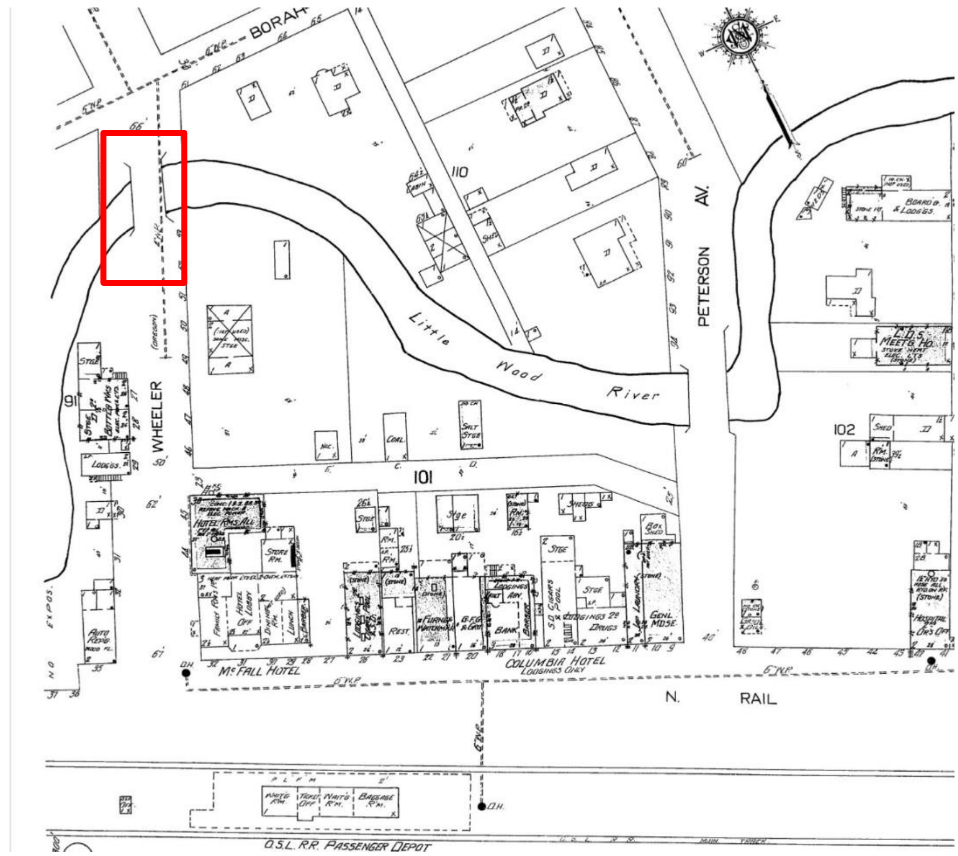
63-005166, **October** 2017
View NE of northeast abutment

63-005166, October 2017
View SE, deck and bottom chord detail

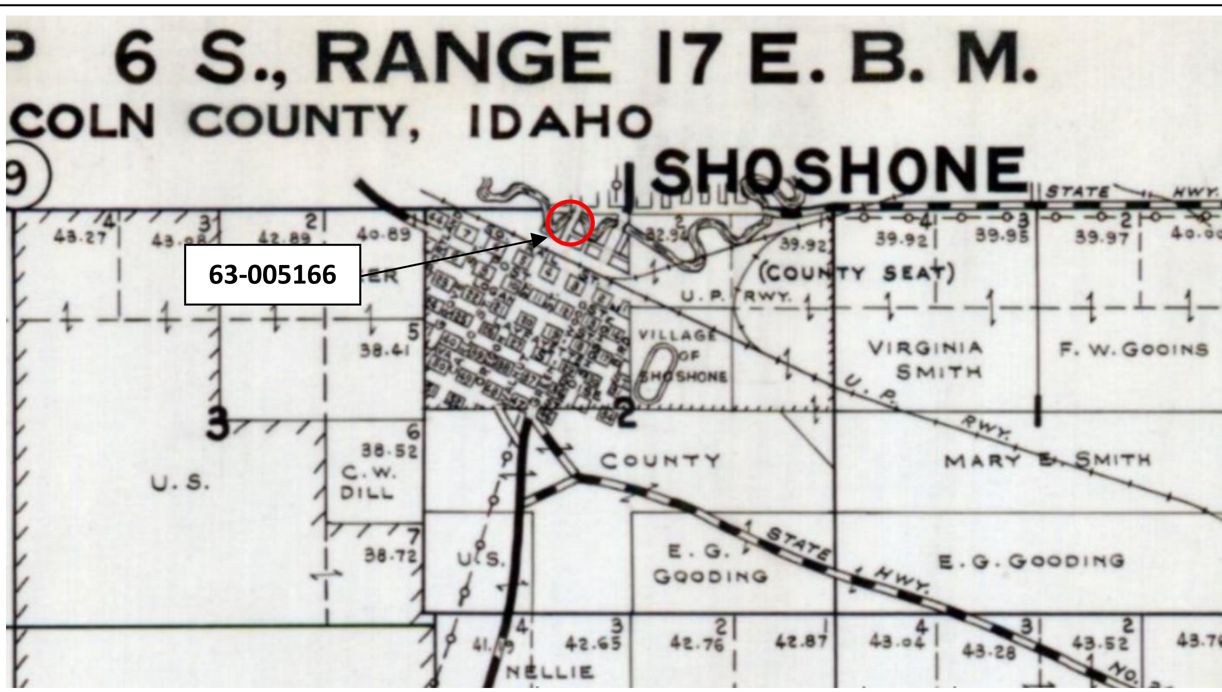
63-005166, **October** 2017
View S-SW of top chord detail



63-005166, Elevation Sketches
Courtesy ITD Inspection Report Files



Sanborn Fire Insurance Map of Shoshone, 1928



Metsker's Atlas of Lincoln County, 1939
Courtesy HistoricMapWorks.com

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME	Little Wood River Warren Truss Bridge (East 3rd Street)
FIELD#	63-005168
STREET	East 3rd Street over the Little Wood River
RESTRICT	☐
CITY	Shoshone
VICINITY	☐
COUNTY CD	63
COUNTY NAME	Lincoln
SUBNAME	
BLOCK	
SUBLOT	
ACRES	1
LESS THAN	☑
TAX PARCEL	
UTMZ	11
EASTING	712268
NORTHING	4757211
TOWNSHIP	6
N_S	S
RANGE	17
E_W	E
SECTION	2 NE ¼, ¼ NE ¼
QUADRANGLE	Shoshone
OTHERMAP	
SANBORN MAP	
SANBORN MAP#	
PHOTO#	Digital

PROPERTY TYPE	Structure
CONST/ACT1	Original Construction
ACTDATE1	1920
CIRCA1	☑
CONST/ACT2	
ACTDATE2	
CIRCA2	☐
ASSOCIATED FEATURES	bridge
TOTAL # FEATURES	1
ORIGINAL USE	Transportation
WALL MATERIAL	
ORIGSUBUSE	Road-related
FOUND. MATERIAL	CONCRETE
CURRENT USE	Transportation
ROOF MATERIAL	
CURSUBUSE	Pedestrian-related
OTHER MATERIAL	METAL:Steel
ARCHSTYLE	Other:Warren Pony Truss
PLAN	Rectangular
CONDITION	Poor

NR REF #	
NPS CERT	
ACTIONDATE	
FUTURE ELIG DATE	
DIST/MPLNAME1	Metal Truss Highway Bridges of Idaho
DIST/MPLNAME2	

Individually Eligible ☑ Contributing in a potential district ☐ Noncontributing ☐ Future eligibility ☐

Not Eligible ☐ Multiple Property Study ☑ Not evaluated ☐

CRITERIA A ☑ B ☐ C ☑ D ☐

CRITERIA CONSIDERATION A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G ☐

AREA OF SIGNIF: Transportation

AREA OF SIGNIF: Engineering

COMMENTS: Structural members have letters in relief at regular intervals that read "CAMBRIA." Originally founded in the mid-nineteenth century in Pennsylvania, it became one of the largest steel manufacturers nationwide before it was eventually absorbed by Bethlehem Steel in 1923.

PROJ/RPT TITLE	Steel Bridges of Eastern Idaho Survey (ITD Key No. 12479 - Mitigation)
SVY DATE	10/12/17
SVY LEVEL	Reconnaissance
RECORDED BY	Kerry Davis, PSLLC
PH	816-225-5605
ADDRESS	1007 E. Jefferson Street, Boise, ID 83712

SUBMITTED PHOTOS ☑ NEGS ☐ SLIDES ☐ SKETCH MAP ☑

******** FOR ISHPO USE ONLY ********

SVY RPT #	
IHSI#	63-005168
MS RPT #	
SITS#	
IHPR #	
HABS NO. ID-	
HAER NO. ID-	
REV#	
CS #	
IHSI# REF	
NR REF# 2	
REV# REF	
SVY RPT# 1	
SVY RPT# 2	
SVY RPT# 3	
MS RPT# 1	
MS RPT# 2	

ADD'L NOTES: District 4. Last surveyed 1982. Located on Township line between T6S Sec 2 and T5S Sec 35.

MORE DATA ☑

ATTACH ☑

# OF PHOTOS	
NEGBOX#	
# OF SLIDES	
SHPO DETER	
DETER DATE	
INITIALED	
ENTRY DATE	
REVISE1	
REVISE2	
REVISE3	

REV# SITS# IHSI#

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Little Wood River Warren Truss Bridge (East 3rd Street)
IHSI#: 63-005168
FIELD#: 63-005168
COUNTY NAME: Lincoln

OTHER NAME: No ITD Key#
COUNTY CD: 63
CITY: Shoshone
VICINITY: ☐
UTM REF2:
UTM REF3:
UTM REF4:

OTHER MATERIAL2: WOOD
CULTAFFIL:
AGENCYCERT: Local
SIGNIFDATE:
SIGNIFPERIOD:
SIGNIFPERSON:
ARCH/BUILD:
ARCHPLANS: ☐
TAXEASE: ☐
TAXCERT: ☐
OWNERSHIP: Public-Local
PROPOWN: City of Shoshone
MORE DATA: ☑
ATTACH: ☑

DOCSOURCE: ITD records; SHPO records; USGS Quads

ADD'L NOTES: District 4. Last surveyed 1982. Located on Township line between T6S Sec 2 and T5S Sec 35.

COMMENTS: Structural members have letters in relief at regular intervals that read "CAMBRIA." Originally founded in the mid-nineteenth century in Pennsylvania, it became one of the largest steel manufacturers nationwide before it was eventually absorbed by Bethlehem Steel in 1923.

Previous survey in 1982 indicated this bridge was built around 1920 and was "one of several short-span steel bridges over the Little Wood River in Shoshone's north residential district. At the time of present survey, this was one of only two identified by ITD as extant. (The other steel bridge is the Little Wood River Warren Truss Bridge (North Birch Street) IHSI#63-005166 Key #24910, located about 0.5 miles west at the intersection of West 3rd and North Birch streets.)

PHOTO LOG: ☐
IHSI# REF:
INITIALED:
DATEENTERED:

SKETCH: ☑

IHSI#
SITS#
REV#

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Little Wood River Warren Truss Bridge (East 3rd Street)

IHSI#: 63-005168

FIELD#: 63-005168

COUNTY NAME: Lincoln

COMMENTS:

Structural members have letters in relief at regular intervals that read "CAMBRIA." Originally founded in the mid-nineteenth century in Pennsylvania, it became one of the largest steel manufacturers nationwide before it was eventually absorbed by Bethlehem Steel in 1923.

Previous survey in 1982 indicated this bridge was built around 1920 and was "one of several short-span steel bridges over the Little Wood River in Shoshone's north residential district. At the time of present survey, this was one of only two identified by ITD as extant. (The other steel bridge is the Little Wood River Warren Truss Bridge (North Birch Street) IHSI#63-005166 Key #24910, located about 0.5 miles west at the intersection of West 3rd and North Birch streets.)

This bridge received abutment work in 2003. This bridge has been closed to vehicular traffic since at least September 2013. It does not have an ITD Key#.

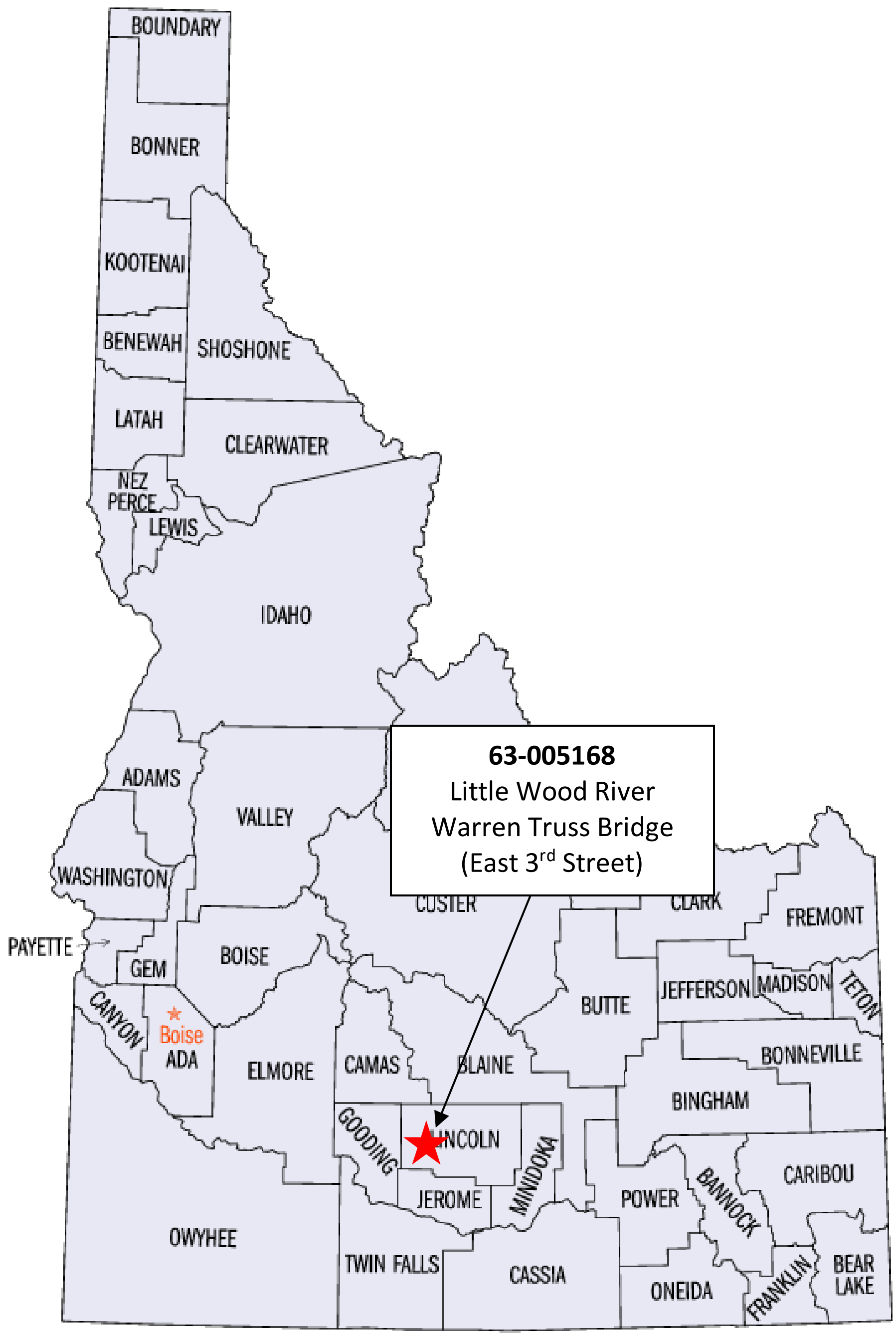
This abbreviated IHSI documentation is provided merely as supplemental documentation. The bridge has been abandoned and is closed to all vehicular traffic. Though the deck is deteriorated and chain link fencing hinders the appearance, field survey verified this bridge retains all seven aspects of integrity and is individually eligible per the statewide MPDF registration requirements for Metal Truss Highway Bridges of Idaho.

ATTACH ☑

IHSI# ____

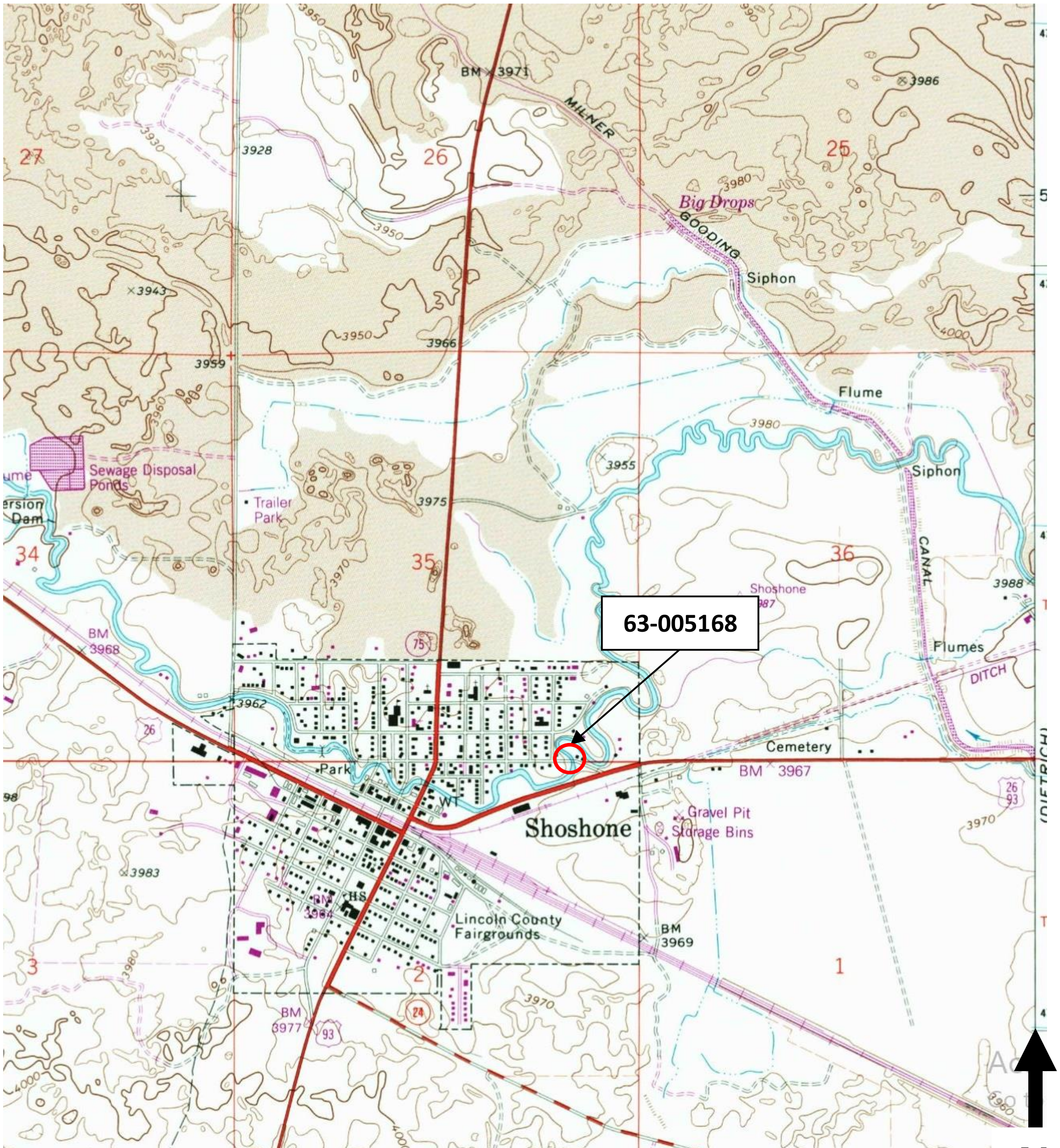
SITS# ____

REV# ____



Idaho Counties

Map courtesy of http://www.censusfinder.com/mapid.htm



USGS, SHOSHONE QUADRANGLE, 1971, 7.5' Series
T6S R17E Section 2 & T5S R17E Section 35 – LINCOLN COUNTY, IDAHO

Aerial View of Vicinity
Courtesy Google Earth, Imagery June 2016

63-005168, September 2013
View NW (photo courtesy ITD inspection records)

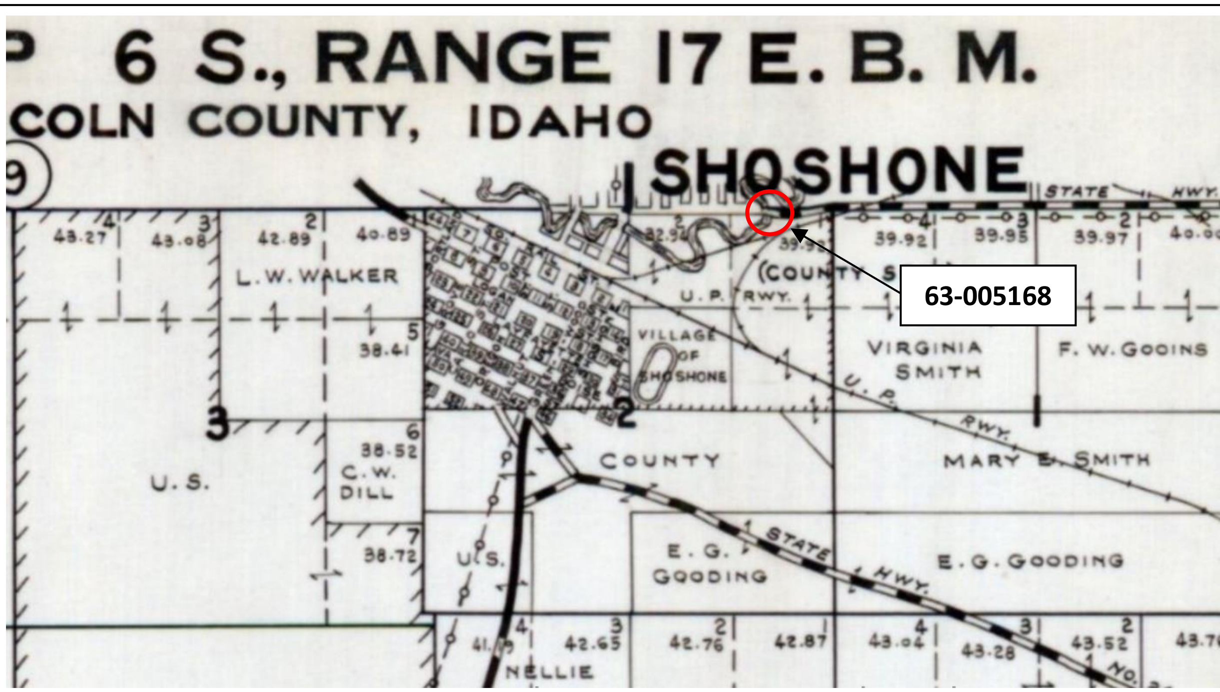
63-005168, September 2013
View W (photo courtesy ITD inspection records)

63-005168, October 2017
View of typical marking

63-005168, October 2017
View SW, top chord detail

63-005168, October 2017
View SE, detail of east abutment

63-005168, October 2017
View SW of west abutment



Metsker's Atlas of Lincoln County, 1939
Courtesy HistoricMapWorks.com

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: High Line Canal Warren Truss Bridge
FIELD#: 83-005171
STREET: 1400 East Road at High Line Canal; 7.5 S, 0.6 W Buhl
RESTRICT: ☐
CITY: Buhl
VICINITY: ☑
COUNTY CD: 83
COUNTY NAME: Twin Falls
SUBNAME:
BLOCK:
SUBLOT:
ACRES: 1
LESS THAN: ☑
TAX PARCEL:
UTMZ: 11
EASTING: 683219
NORTHING: 4706707
TOWNSHIP: 11
N_S: S
RANGE: 14
E_W: E
SECTION: 12 NW ¼, ¼ NW ¼
QUADRANGLE: Roseworth NE
OTHERMAP:
SANBORN MAP:
SANBORN MAP#:
PHOTO#: Digital

PROPERTY TYPE: Structure
CONST/ACT1: Original Construction
ACTDATE1: 1915
CIRCA1: ☐
CONST/ACT2: Alteration
ACTDATE2: 1964
CIRCA2: ☐
ASSOCIATED FEATURES: bridge
TOTAL # FEATURES: 1
ORIGINAL USE: Transportation
WALL MATERIAL:
ORIGSUBUSE: Road-related
FOUND. MATERIAL: CONCRETE
CURRENT USE: Transportation
ROOF MATERIAL:
CURSUBUSE: Road-related
OTHER MATERIAL: METAL:Steel
ARCHSTYLE: Other:Warren Pony Truss
PLAN: Rectangular
CONDITION: Excellent

NR REF #:
NPS CERT:
ACTIONDATE:
FUTURE ELIG DATE:
DIST/MPLNAME1: Metal Truss Highway Bridges of Idaho
DIST/MPLNAME2:

Individually Eligible ☑
Contributing in a potential district ☐
Noncontributing ☐
Future eligibility ☐
Not Eligible ☐
Multiple Property Study ☑
Not evaluated ☐

CRITERIA: A ☑ B ☐ C ☑ D ☐
CRITERIA CONSIDERATION: A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G ☐
AREA OF SIGNIF: Transportation
AREA OF SIGNIF: Engineering

COMMENTS: See continuation sheets for elaborated description, history, significance, and eligibility.
PROJ/RPT TITLE: Steel Bridges of Eastern Idaho Survey (ITD Key No. 12479 - Mitigation)
SVY DATE: 10/12/17
SVY LEVEL: Intensive
RECORDED BY: Kerry Davis, PSLLC
PH: 816-225-5605
ADDRESS: 1007 E. Jefferson Street, Boise, ID 83712
SUBMITTED PHOTOS ☑ NEGS ☐ SLIDES ☐ SKETCH MAP ☑

SVY RPT #:
******** FOR ISHPO USE ONLY ********
IHSI#: 83-005171
MS RPT #:
SITS#:
IHPR #:
HABS NO. ID-:
HAER NO. ID-:
REV#:
CS #:
IHSI# REF:
NR REF# 2:
REV# REF:
SVY RPT# 1:
SVY RPT# 2:
SVY RPT# 3:
MS RPT# 1:
MS RPT# 2:
ADD'L NOTES: District 4. Last surveyed 1989. ITD Milepost reference: 100.154
MORE DATA ☑
ATTACH ☑
OF PHOTOS:
NEGBOX#:
OF SLIDES:
SHPO DETER:
DETER DATE:
INITIALED:
ENTRY DATE:
REVISE:
REVISE:
REVISE:

REV#
SITS#
IHSI#

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: High Line Canal Warren Truss Bridge
IHSI#: 83-005171
FIELD#: 83-005171
COUNTY NAME: Twin Falls

OTHER NAME: ITD Key #25355; ITD Structure Name X9924200.18
COUNTY CD: 83
CITY: Buhl
VICINITY: ☑
UTM REF2:
UTM REF3:
UTM REF4:

OTHER MATERIAL2: WOOD
CULTAFFIL:
AGENCYCERT: Local
SIGNIFDATE:
SIGNIFPERIOD:
SIGNIFPERSON:
ARCH/BUILD: Helmer & Mull (B)
ARCHPLANS: ☑
TAXEASE: ☐
TAXCERT: ☐
OWNERSHIP: Public-Local
PROPOWN: Buhl Highway District
MORE DATA: ☑
ATTACH: ☑

DOCSOURCE: ITD records; SHPO records; USGS Quads; GLO survey records; Metal Truss Bridge of Idaho MPDF;

ADD'L NOTES: District 4. Last surveyed 1989. ITD Milepost reference: 100.154

COMMENTS: See continuation sheets for elaborated description, history, significance, and eligibility.

PHOTO LOG: ☐
IHSI# REF:
INITIALED:
DATEENTERED:

SKETCH: ☑

IHSI# ____
SITS# ____
REV# ____

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME High Line Canal Warren Truss Bridge

IHSI# 83-005171

FIELD# 83-005171

COUNTY NAME Twin Falls

COMMENTS:

See continuation sheets for elaborated description, history, significance, and eligibility.

ATTACH ☑

IHSI# __________

SITS# __________

REV# __________

DESCRIPTION

LOCATION and SETTING

The High Line Canal Warren Truss Bridge is located 7.5 miles south and 0.6 miles west of the town of Buhl in south central Idaho, at the corner of sections 1, 2, 11, and 12, Township 11S, Range 14E. The region is defined by irrigated farmland to the north of the canal and unirrigated scrub land to the south. The High Line Canal Warren Truss Bridge carries N 1400 East Road across the High Line Canal, a large, wide, meandering, irrigation canal. The dirt-gravel roadway, flanked by fenced pasture to the south and cultivated fields to the north, aligns in a shallow C-curve with the single-lane High Line Canal Warren Truss Bridge.

TRUSS TYPE

The High Line Canal Warren Truss Bridge is a single span, riveted pony truss measuring 38 feet in length and approximately 18 feet in width. Standard concrete retaining wall abutments support the end floor beams of the truss, which rest directly on the abutment seat. The angled wingwalls of the abutments extend approximately 5 feet out away from the pedestal along the canal bank. The inclined end posts rise from the bottom chords to meet the horizontal top chords to form a trapezoidal shape. The top chords and inclined end posts consist of two angles, a cover plate, and gusset plates; the bottom chords consist of two angles with stay plates.

The web members include vertical posts forming three equivalent panels and diagonal members forming the system of alternating equilateral triangles distinctive to a Warren truss. The vertical posts are composed of angle stock and stay plates, while the and diagonal members are formed with two angles, lacing bars, and stay plates.

The timber deck, comprised of vertically lain laminated 2”-by-6” boards, is 16 feet wide with no curbs and dates to 2006. The deck rises approximately eight feet above the canal bed on sets of five channel steel stringers per span between floor beams. Large, steel floor I-beams are at the base of each vertical post.

Identical cast-iron plaques, one each affixed to the northwest and southeast inclined end posts respectively, have letters in relief that read “BUILT BY / STATE HIGHWAY / 1915 / COMMISSION.” Though common on most bridges of this type and era, no letters in relief on structural components were identified.

INTEGRITY

The High Line Canal Warren Truss Bridge is an excellent example of this bridge type, historically very popular and increasingly rare in Idaho.

Although the abutments are not original,[1] they are compatible replacements representing a common physical upgrade to bridges of this type and they do not significantly impact the overall integrity of the bridge. The High Line Canal Warren Truss Bridge retains a good degree of integrity, with no significant alterations to the original design or materials. The original workmanship, setting, and feeling of the structure are also 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] ITD records give a ‘reconstruction’ date of 1964. This was likely the year the new abutments were installed.

This structure possesses the following aspects of integrity: location, setting, design, materials, workmanship, feeling, and association. It retains sufficient integrity to be NRHP eligible individually.

Location: This structure has not been moved, and thus retains integrity of location.

Setting: The historic rural setting is intact.

Design: Integrity of design is intact, visible primarily by means of the original steel truss members assembled and executed in the Warren truss design.

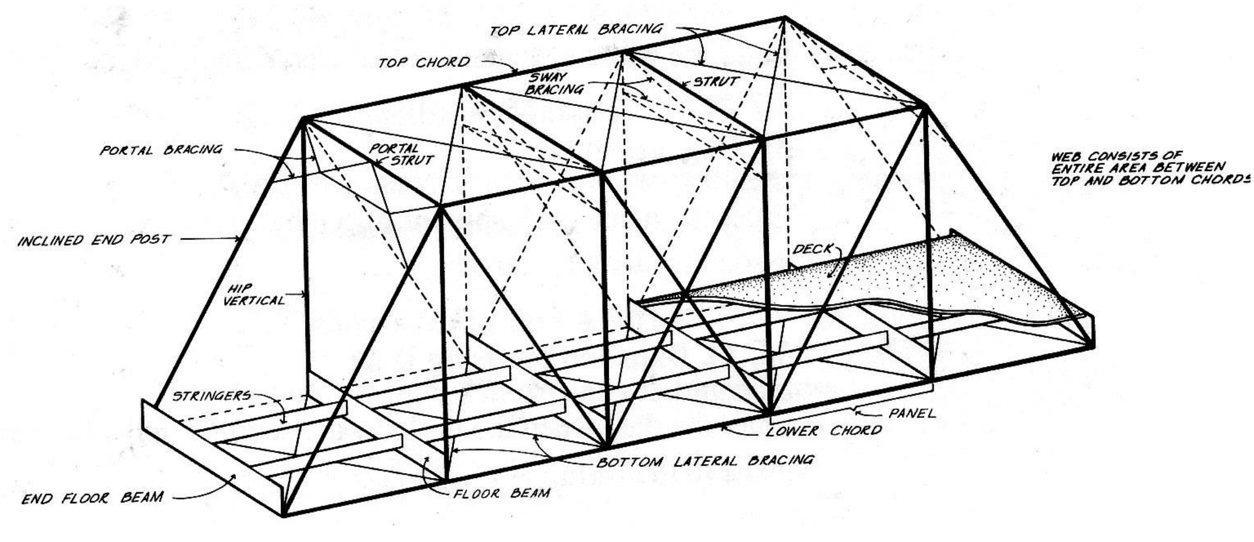
Materials: The property retains its integrity of materials, particularly by means of the original steel structural members and the sign plaque.

Workmanship: Elements of workmanship are evident.

Feeling: The property's integrity of feeling is apparent through its retention of integrity of setting, design, materials, and workmanship, which combined, clearly convey a sense of past time and place.

Association: The association between this structure with the surrounding canal and rural area is present.

Bridge-Specific Terminology Diagram[2]



Courtesy Historic American Engineering Record

[2] This diagram is included for the reader's reference as to bridge-specific terminology used in the description above. It should not be misinterpreted as an illustration of the High Line Canal Warren Truss Bridge.

STATEMENT OF SIGNIFICANCE

The High Line Canal Warren Truss Bridge is significant under National Register Criterion A in the area of Transportation and Criterion C in the area of Engineering. As defined by the Multiple Property Documentation Form for *Metal Truss Highway Bridges of Idaho,* it is an excellent example of the Warren truss bridge type. Built in 1915, the High Line Canal Warren Truss Bridge is an example of a common, economical bridge solution for a relatively short span. Its riveted construction and concrete abutments illustrate the standardization of these construction techniques and materials during the period of significance.[3] As no historic name identifies this bridge, using NRHP guidelines of resource naming, the preferred name "High Line Canal Warren Truss Bridge" has been assigned. This describes and identifies the location, design, and function of the structure.

ELIGIBILITY

The High Line Canal Warren Truss Bridge is individually eligible for listing in the National Register of Historic Places under Criteria A and C. This structure is associated with significant trends in local history (Criterion A) and it retains sufficient integrity to communicate its historic engineering associations (Criterion C). At the same time, it is not known to be associated with a person significant in history and it has little potential to yield data in the future, and is thus not eligible under Criteria B or D.

ELABORATION

Prior to the arrival of large-scale irrigation projects across arid southeastern Idaho, there was little need for roads, and much less bridges, as there were few settlers and natural water courses were few and far between. With the early twentieth century introduction of large irrigation projects across southeastern Idaho came a new impediment to travel. Bridge crossings like the High Line Canal Warren Truss Bridge provided farmers easy access to markets and could make the difference between growth and stagnation for the many small, young communities across the arid regions of the state.

By 1910, 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. Though common, no steel manufacturing company markings are located on the High Line Canal Warren Truss Bridge components.

Advancements in pneumatic riveting techniques by this time greatly improved rivet installation quality, enabling more reliable panel point connections than earlier pin-connected trusses. With the increased portability of this construction technology, the more rigid, riveted technique rapidly surpassed pin-connected bridge construction during the first years of the twentieth century. The riveted construction of the High Line Canal Warren Truss Bridge illustrates the standardization of this technique.

In addition, the contemporary development of economic cement production promoted the widespread combination of steel and concrete in bridge construction. By the 1920s, reinforced concrete was the standard material for abutments, piers, and decks of steel truss bridges. It was not uncommon for older

[3] Development of the immediate local area's history and development sufficient to establish and justify an accurate period of significance was outside the scope of this project. For the purposes of this project, as a placeholder the period of significance is given as beginning in 1915, the date of construction of the bridge, and ending in 1968, the 'fifty-year cut-off' established by the National Park Service as representing the span of time generally necessary to have passed before significance can be established.

metal truss bridges to receive new reinforced concrete decks or poured concrete reinforcements for older stone abutments. Though nonhistoric replacements, the poured concrete abutments and replacement deck of the High Line Canal Warren Truss Bridge are compatible and typical of bridges built during the early twentieth century.

The High Line Canal Warren Truss Bridge is a classic example of this truss design. Patented in 1848, the Warren truss has diagonal members that are alternately placed in either tension or compression, resulting in a visually distinctive system of alternating equilateral or isosceles triangles. Vertical members are often incorporated to further strengthen the truss, as in the High Line Canal Warren Truss Bridge.

While the straightforward design of the Warren truss was desirable, the lack of counters and sometimes verticals subjected the center pins to extensive wear, making it less durable and therefore less popular than the Pratt truss during the nineteenth century. The later standardization of riveted construction techniques eliminated these issues and the Warren truss gained popularity. In Idaho, Warren trusses were constructed into the middle of the twentieth century, suggesting the appeal of the design's strength, simplicity, and economical construction costs. A 1982 survey of steel truss bridges statewide identified fifty-two Warren truss bridges, including the High Line Canal Warren Truss Bridge, existed throughout the state of Idaho.

STRUCTURE HISTORY

Previous survey states the High Line Canal Warren Truss Bridge was one of a pair built in 1915 "on the old Idaho Pacific Highway" and that Twin Falls contractors Helmer & Mull constructed the bridge at an estimated cost of $1,140. (Review of early twentieth century road maps do not show this rural road on the Idaho Pacific Highway. A review of the State Highway Commission meeting minutes for the period confirm Helmer & Mull were contracted to do bridges in the area at the time, however, precise bridge locations could not be readily confirmed.) The bridge received new abutments, presumably around 1964 (per ITD records), and a new deck in 2006.

High Line Canal

The High Line Canal is part of the network of irrigation canals forming the large-scale Twin Falls Irrigation Tract constructed in 1905 to 1909, which diverted water from the Snake River at Milner Dam. The High Line Canal receives water from the Main Line Canal at a point called the Forks where the flow splits into the High Line and Low Line canals. The High Line Canal travels a meandering westerly path about forty-seven miles to its termination where it discharges into Deep Creek. The High Line Canal Warren Truss Bridge had a twin located about 4.4 miles north and one mile west where it carried 1300 Road East over the Low Line Canal (83-05173; ITD Key #25745; replaced 1986).

Buhl-Area

Founded in 1906 as a direct result of large-scale irrigation of the area, the nearby town of Buhl historically served as a trading and shipping point for cattlemen and farmers, and continues to do so today. Like Kimberly and Filer, which were named for key players in large-scale irrigation, Buhl was named for Frank Buhl, a major investor in the Carey Act project known as the Twin Falls South Side Project. As construction of the Milner Dam and subsequent canals/system came to fruition between 1906 and 1909, settlers were attracted to the ample water supplied by the new canal. The previously largely unsettled area grew sufficiently to substantiate creation of Twin Falls County in 1907. With the opening of the canal and irrigation of the arid but fertile land, area settlement supported commercial development in the town of Buhl and the population jumped from nonexistence to 639 in 1910, and grew another 251 percent, up to 2,245 residents, by 1920.

Typical of small towns throughout Idaho, it served as a trading and shipping point for the surrounding rural community. As a result, bridges like High Line Canal Warren Truss Bridge that provided area farmers with access over new canals and to local markets were critical to the survival of the regional economy.

Helmer & Mull

Helmer & Mull was a partnership between contractor, Charles H. Helmer, and civil engineer, Charles H. Mull, and based in Twin Falls.[4] The historic record indicates they primarily worked separately, but partnered on several projects in the mid-1910s. Individually they worked through southern Idaho during the first half of the twentieth century. Among their shared projects were: highway road work on the Idaho-Pacific Highway from Owsley's Ferry to Cassia County (1913); road and bridge work along 50 miles of the "east-west highway" across Twin Falls County (1914); and the twin bridges over the Low Line and High Line canals discussed herein.

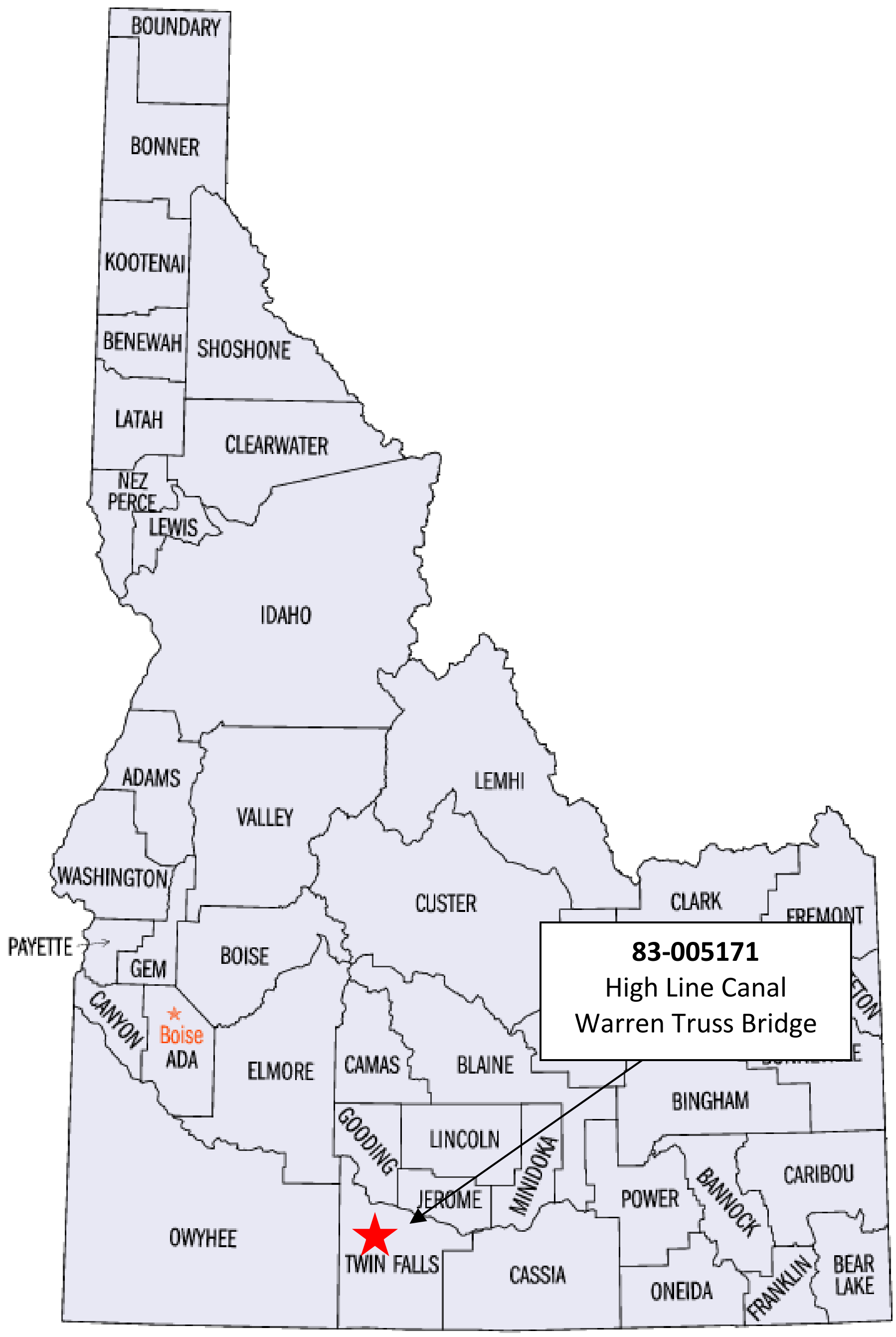
ADDITIONAL SOURCES

"Classified News of Construction Work: Paving and Road Making," *The Contractor* Vol XX No. 1 Chicago, July 1, 1914.

Historic American Engineering Record (HAER). *Milner Dam and Main Canal of the Twin Falls Canal Company, Snake River, Twin Falls (vicinity), Jerome and Twin Falls Counties, Idaho*. HAER No. ID-15; 27-TWIF.V,1. Department of Interior, National Park Service: San Francisco, California, 1989.

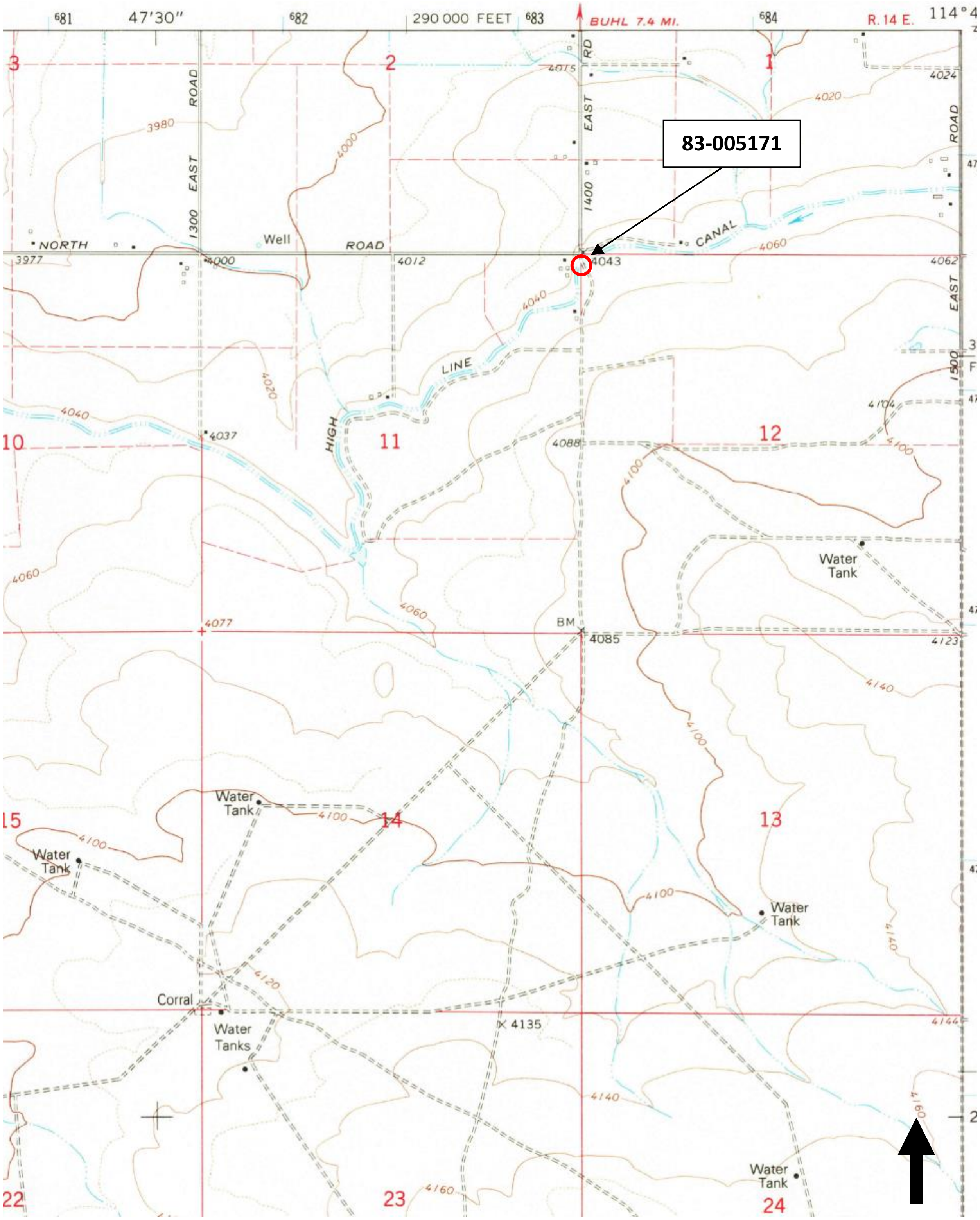
State of Idaho First Biennial Report of the State Highway Commission, 1913.

[4] Both men were, in fact, named Charles H.



Idaho Counties

Map courtesy of http://www.censusfinder.com/mapid.htm



USGS, ROSEWORTH NE QUADRANGLE, 1979, 7.5' Series
T11S R14E Section 12 – TWIN FALLS COUNTY, IDAHO

Aerial View of Vicinity
Courtesy Google Earth, Imagery 2017

83-005171, October 2017
View E

83-005171, October 2017
View SE

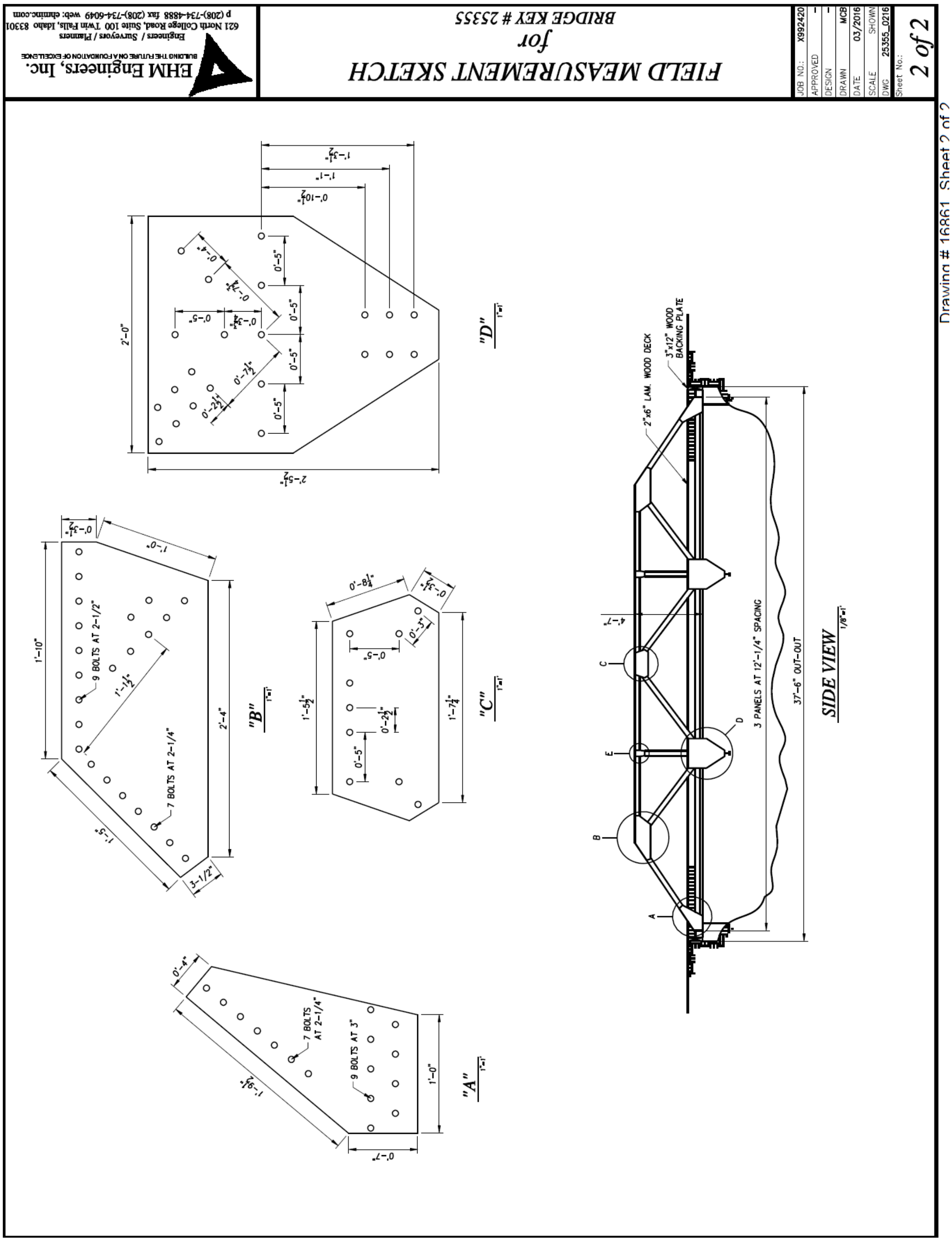
83-005171, October 2017
View SE, NW corner of bridge

83-005171, October 2017
View E

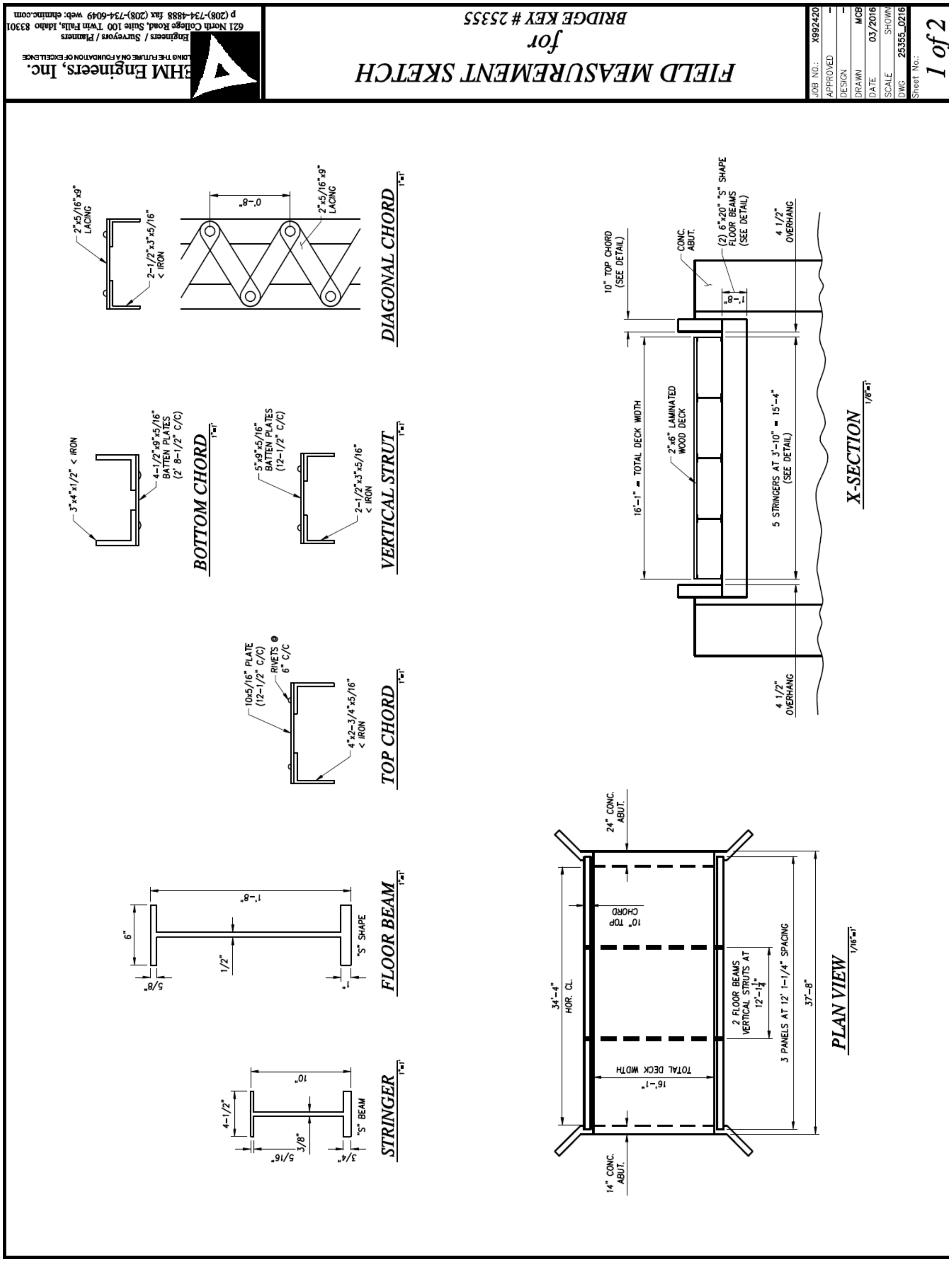
83-005171, October 2017
View N

83-005171, October 2017
View E, detail view of west panel

83-005171, February 2016
View NE (photo courtesy of ITD inspection files)

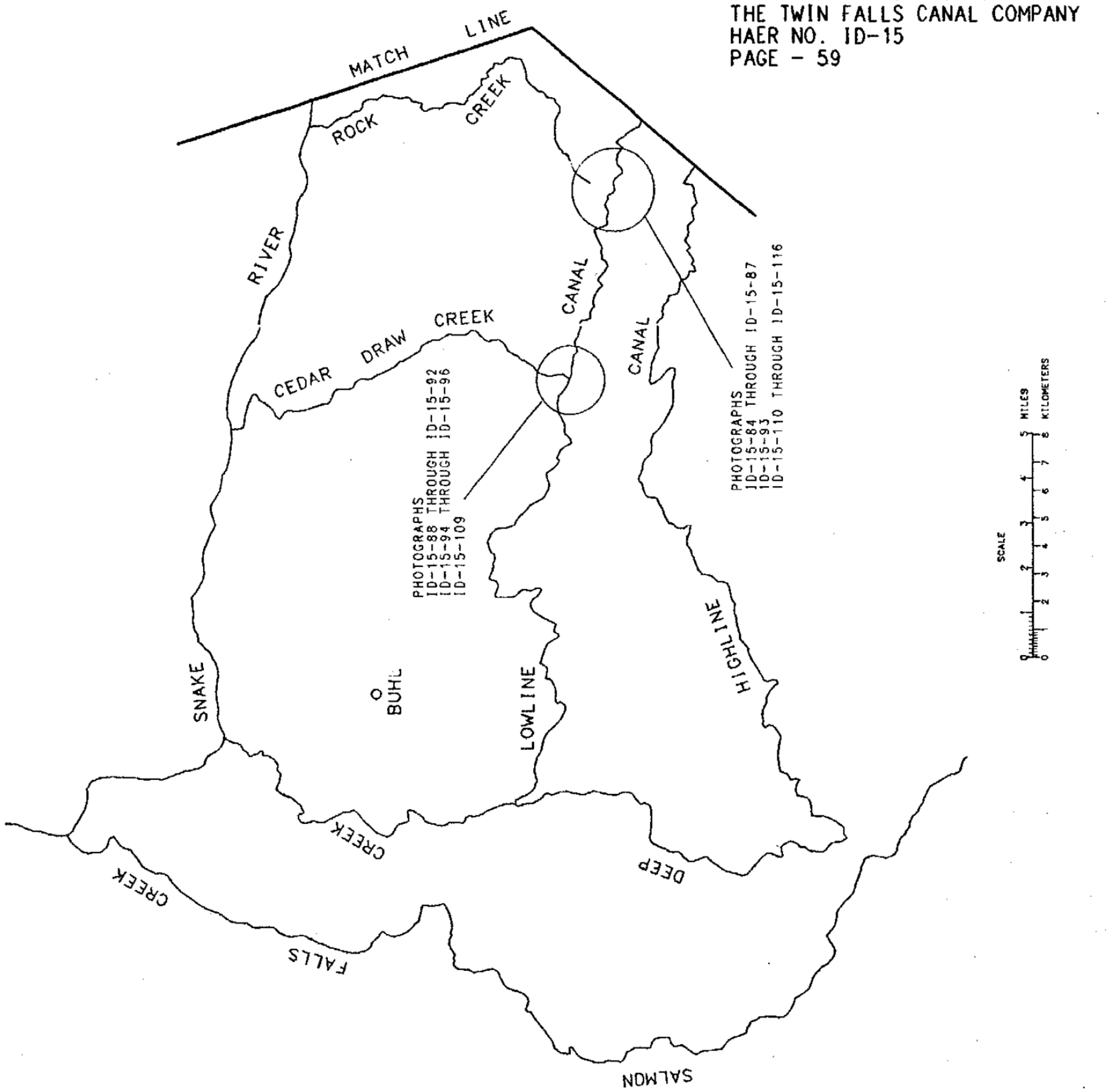


83-005171, March 2016 Plan and Elevation Drawings
Courtesy ITD Inspection Report Files



83-005171, March 2016 Plan and Elevation Drawings
Courtesy ITD Inspection Report Files

MILNER DAM AND MAIN CANAL OF
THE TWIN FALLS CANAL COMPANY
HAER NO. ID-15
PAGE - 59

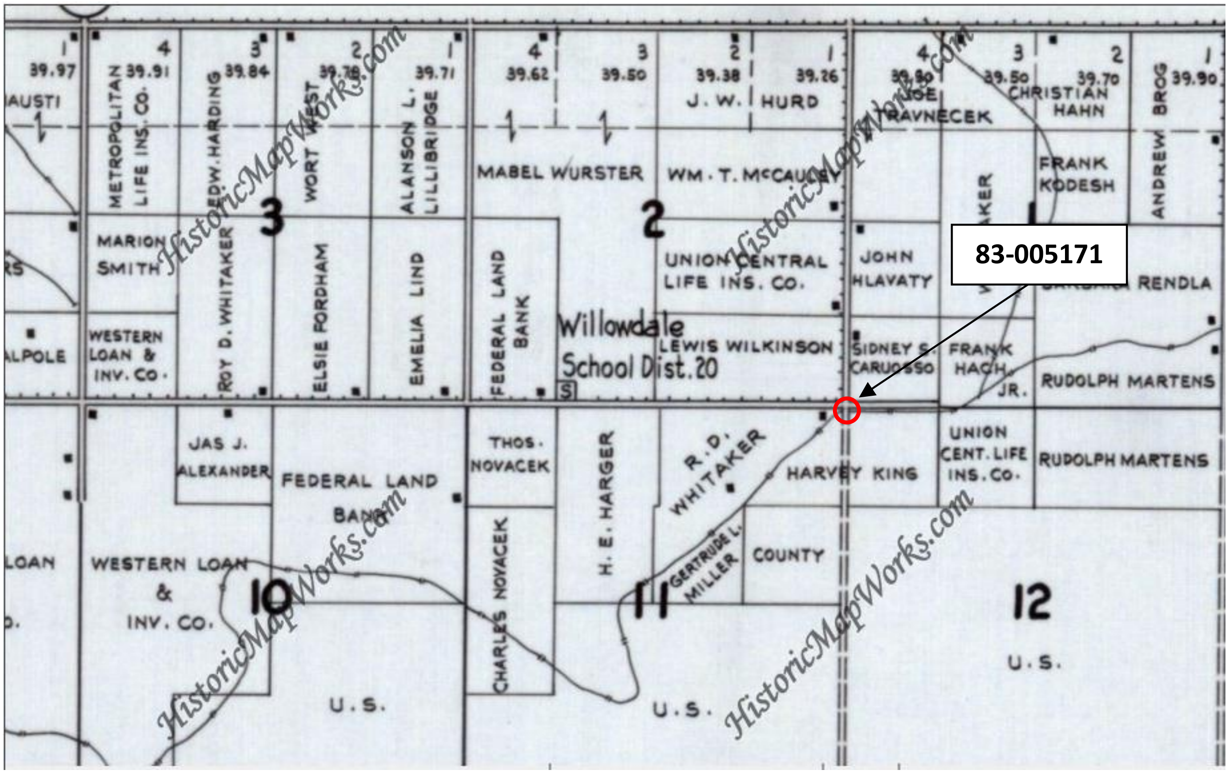


KEY MAP TO ACCOMPANY PHOTOGRAPHIC INDEX OF THE MILNER DAM AND MAIN CANAL OF THE TWIN FALLS CANAL COMPANY.

PHOTOGRAPHIC NUMBERS
ID-15-36 THROUGH ID-15-149

HAER-ID-15

SCALE:	DATE: 11-14-89
2 OF 2	CAD-A-638 MILNER



Metsker's Atlas of Twin Falls County, 1939
Courtesy HistoricMapWorks.com

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME	Fall River Steel Rigid Frame Bridge	FIELD#	ITD-21105
STREET	Ashton-Flagg Ranch Road (aka Reclamation Rd.); 9.2 N. DRUMMOND	RESTRICT	☐

CITY	Ashton	VICINITY	☑	COUNTY CD	43	COUNTY NAME	Fremont
SUBNAME		BLOCK		SUBLOT		ACRES	1
LESS THAN	☑						
TAX PARCEL		UTMZ	12	EASTING	471300	NORTHING	4878237
TOWNSHIP	9	N_S	N	RANGE	43	E_W	E
SECTION	34	¼, ¼	SE, SE	¼			
QUADRANGLE	Warm River	OTHERMAP					
SANBORN MAP		SANBORN MAP#		PHOTO#	Digital		

PROPERTY TYPE	Structure	CONST/ACT1	Original Construction	ACTDATE1	1969	CIRCA1	☐
		CONST/ACT2		ACTDATE2		CIRCA2	☐
ASSOCIATED FEATURES	bridge	TOTAL # FEATURES	1				
ORIGINAL USE	Transportation	WALL MATERIAL					
ORIGSUBUSE	Road-related	FOUND. MATERIAL	CONCRETE				
CURRENT USE	Transportation	ROOF MATERIAL					
CURSUBUSE	Road-related	OTHER MATERIAL	METAL:Steel				
ARCHSTYLE	Other:Steel Rigid Frame	PLAN	Rectangular	CONDITION	Excellent		

NR REF #		NPS CERT		ACTIONDATE		FUTURE ELIG DATE	
DIST/MPLNAME1	Metal Truss Highway Bridges of Idaho	DIST/MPLNAME2					
Individually Eligible	☑	Contributing in a potential district	☐	Noncontributing	☐	Future eligibility	☐
Not Eligible	☐	Multiple Property Study	☑	Not evaluated	☐		

CRITERIA A ☑ B ☐ C ☑ D ☐ CRITERIA CONSIDERATION A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G ☐

AREA OF SIGNIF	Transportation	AREA OF SIGNIF	Engineering

COMMENTS	See continuation sheets for elaborated description, history, significance, and eligibility.				
PROJ/RPT TITLE	Steel Bridges of Eastern Idaho Survey (ITD Key No. 12479 - Mitigation)	SVY DATE	7/9/17	SVY LEVEL	Intensive
RECORDED BY	Kerry Davis, PSLLC	PH	816-225-5605	ADDRESS	1007 E. Jefferson Street, Boise, ID 83712

SUBMITTED PHOTOS ☑ NEGS ☐ SLIDES ☐ SKETCH MAP ☑

********** FOR ISHPO USE ONLY **********

SVY RPT #				IHSI#	ITD-21105
MS RPT #				SITS#	
IHPR #		HABS NO. ID-		HAER NO. ID-	
REV#					

CS #		IHSI# REF		NR REF# 2		REV# REF			
SVY RPT# 1		SVY RPT# 2		SVY RPT# 3		MS RPT# 1		MS RPT# 2	

ADD'L NOTES: District 6. Not previously surveyed. ITD Milepost reference: 109.147. Located on township line between T9N S34 and T8N S3.

MORE DATA ☑

ATTACH ☑

# OF PHOTOS		NEGBOX#		# OF SLIDES		SHPO DETER		DETER DATE	
INITIALED		ENTRY DATE		REVISE1		REVISE2		REVISE3	

REV# SITS# IHSI#

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Fall River Steel Rigid Frame Bridge
IHSI#: ITD-21105
FIELD#: ITD-21105
COUNTY NAME: Fremont

OTHER NAME: ITD Key#21105; ITD Structure Name X996220 109.15
COUNTY CD: 43
CITY: Ashton
VICINITY: ☑
UTM REF2:
UTM REF3:
UTM REF4:

OTHER MATERIAL2: ASPHALT
CULTAFFIL:
AGENCYCERT: Local
SIGNIFDATE:
SIGNIFPERIOD:
SIGNIFPERSON:
ARCH/BUILD: Barton, Stoddard, Milhollin & Higgins (Engineers)
ARCHPLANS: ☐
TAXEASE: ☐
TAXCERT: ☐
OWNERSHIP: Public-Local
PROPOWN: Fremont County
MORE DATA: ☑
ATTACH: ☑

DOCSOURCE: ITD records; SHPO records; USGS Quads

ADD'L NOTES: District 6. Not previously surveyed. ITD Milepost reference: 109.147. Located on township line between T9N S34 and T8N S3.

COMMENTS: See continuation sheets for elaborated description, history, significance, and eligibility.

PHOTO LOG ☐ IHSI# REF: INITIALED: DATEENTERED:

SKETCH ☑

IHSI#
SITS#
REV#

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Fall River Steel Rigid Frame Bridge

IHSI#: ITD-21105

FIELD#: ITD-21105

COUNTY NAME: Fremont

COMMENTS:

See continuation sheets for elaborated description, history, significance, and eligibility.

ATTACH ☑

IHSI# ______
SITS# ______
REV# ______

DESCRIPTION

LOCATION and SETTING

The Fall River Steel Rigid Frame Bridge is located 1 mile south and 4.3 miles east of the town of Ashton in southeast Idaho, at the south edge of the southeast quarter of section 34, Township 9N, Range 43E. The region is characterized by irrigated farmland amongst steep mountain foothills. The Fall River Steel Rigid Frame Bridge carries Reclamation Road across the Fall River, a large, rocky, tributary of the Snake River. The paved roadway, flanked by fenced pasture and cultivated fields on each side, aligns in a straight line with the two-lane Fall River Steel Rigid Frame Bridge. The Farmers Own Canal (43-16350) runs parallel to the Fall River adjacent to the west-northwest end of the bridge.

BRIDGE TYPE

The Fall River Steel Rigid Frame Bridge is a three-span, steel rigid frame, deck bridge measuring a total of about 349 feet in length and approximately 30 feet in width. It features the characteristic monolithic splayed legs and horizontal girders, with the rigid inclined legs forming the primary support. The legs and their intersection with the deck define the three spans. Each of the four legs rise from concrete thrust blocks. A standard box abutment with wing walls supports the outer ends of each approach span girder. A series of eight, small triangular fins provide additional support at the curve where each west-end leg splays out and down from the main girder.

The reinforced concrete deck is about 30 feet wide with no curbs. The deck rises approximately 30 feet above the river bed on a set of the two central I-beam stringer and the two outer continuous girders. Each of the two main, monolithic girders and its respective integrated legs are is comprised of seven large panels connected by bolted stay plates. Fifteen large, steel floor I-beams are bolted to the inside of the full-length girders. Lateral bracing formed of single and paired angle stock, crosses between each leg.

Full-length continuous pre-cast concrete barriers form guardrails spanning the length of each side of the deck. No plaques or stock steel markings were identified. Painted letters stenciled on the southwest approach guardrail read, “KIRKHAM.”

INTEGRITY

The Fall River Steel Rigid Frame Bridge is an excellent example of this bridge type, historically rare and still so in Idaho. The Fall River Steel Rigid Frame Bridge retains a good degree of integrity, with no apparent nonhistoric alterations to the original design or materials. The original workmanship, setting, and feeling of the structure are also readily apparent.

This structure possesses the following aspects of integrity: location, setting, design, materials, workmanship, feeling, and association. It retains sufficient integrity to be National Register of Historic Places (NRHP)-eligible individually.

Location: This structure has not been moved, and thus retains integrity of location.

Setting: The historic rural setting is intact.

Design: Integrity of design is intact, visible primarily by means of the original steel structural members assembled and executed in the Steel Rigid Frame design.

Materials: The property retains its integrity of materials, particularly by means of the original steel structural members and deck.

Workmanship: Elements of workmanship are evident.

Feeling: The property's integrity of feeling is apparent through its retention of integrity of setting, design, materials, and workmanship, which combined, clearly convey a sense of past time and place.

Association: The association between this structure with the surrounding river and rural area is present.

STATEMENT OF SIGNIFICANCE

The Fall River Steel Rigid Frame Bridge is significant under National Register Criterion A in the area of Transportation and Criterion C in the area of Engineering. It is an excellent example of the Steel Rigid Frame bridge type. Built in 1969, the Fall River Steel Rigid Frame Bridge is an example of an uncommon, economical bridge solution for a relatively long span. Its bolted steel plate construction illustrates the standardization of this construction technique and materials during the period of significance.[1] Having not been previously surveyed and using NRHP guidelines of resource naming, the preferred name "Fall River Steel Rigid Frame Bridge has been assigned. This describes and identifies the location, design, and function of the structure.[2]

ELIGIBILITY

The Fall River Steel Rigid Frame Bridge is individually eligible for listing in the National Register of Historic Places under Criteria A and C. This structure is associated with significant trends in local history (Criteria A) and it retains sufficient integrity to communicate its historic engineering associations (Criterion C). At the same time, it is not known to be associated with a person significant in history and it has little potential to yield data in the future, and is thus not eligible under Criteria B or D.

ELABORATION

The need for all-weather crossings of rivers and streams corresponded to the growth of the market economy across Idaho throughout the twentieth century. Bridge crossings like the Fall River Steel Rigid Frame Bridge provided farmers easy access to markets and could make the difference between growth and stagnation for the many small, rural communities across the state.

Initially devised in the early twentieth century, steel rigid frame bridges date from the 1920s through the 1960s and developed concurrently with the reinforced concrete rigid frame bridges, though they were much less common, both nationwide and in Idaho. Typically used for spans of fifty to two hundred feet, the overall 'splayed-leg' form was economical, aesthetically pleasing, and eliminated the need for intermediate supports or piers.

In Idaho, Steel Rigid Frame bridges are rare. Only two examples are known to exist in Idaho – the 1975 White Bird Bridge (ITD Key# 18365/District 2) and the 1969 Fall River Steel Rigid Frame Bridge, the only extant example in Eastern Idaho.

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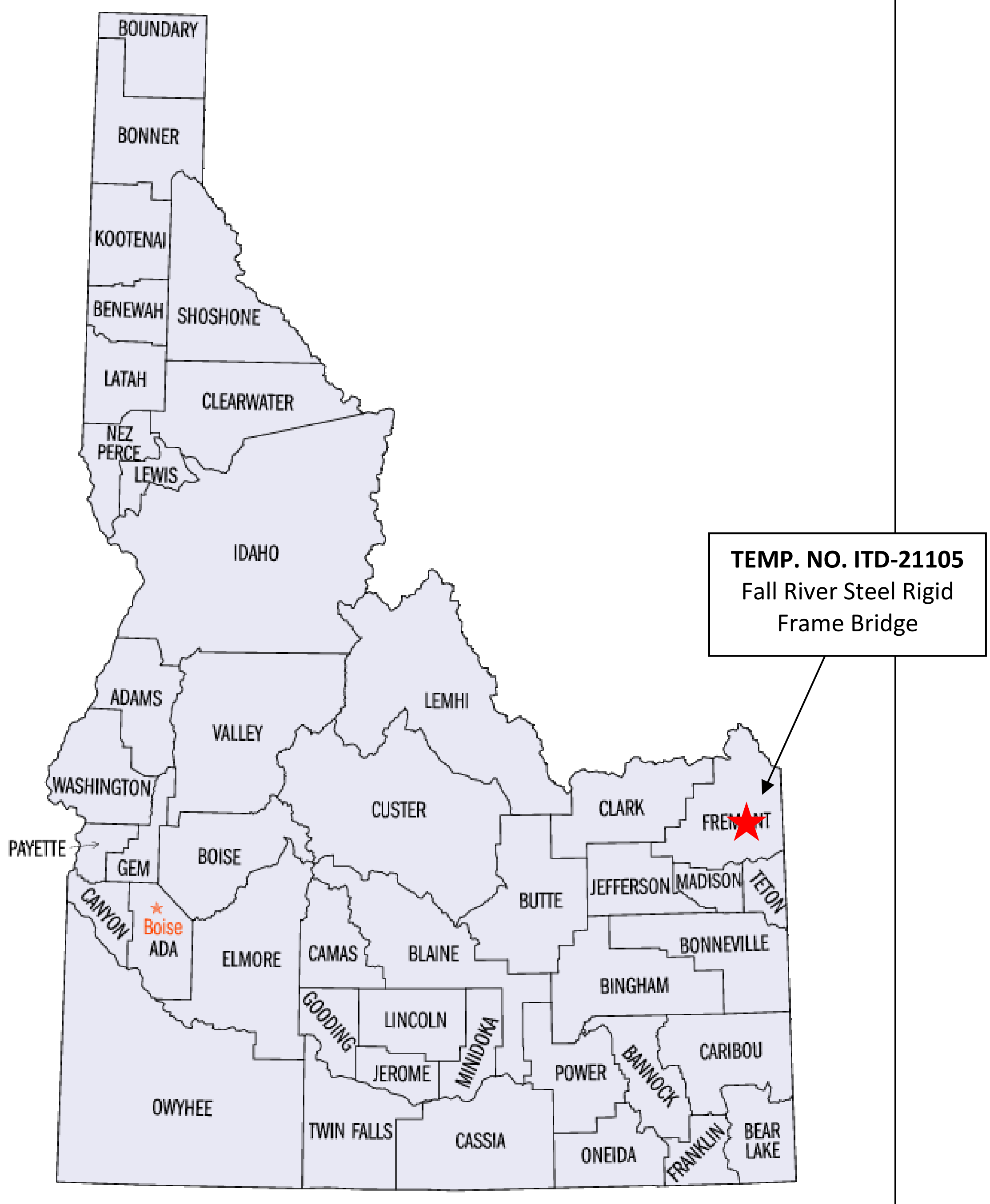
[1] Development of the immediate local area's history and development sufficient to establish and justify an accurate period of significance was outside the scope of this project. For the purposes of this project, as a placeholder the period of significance is given as beginning and ending in 1969, the date of construction of the bridge.

[2] It should be noted that some sources (e.g. some USGS quadrangle maps) refer to the river as the Falls River, while others call it the Fall River.

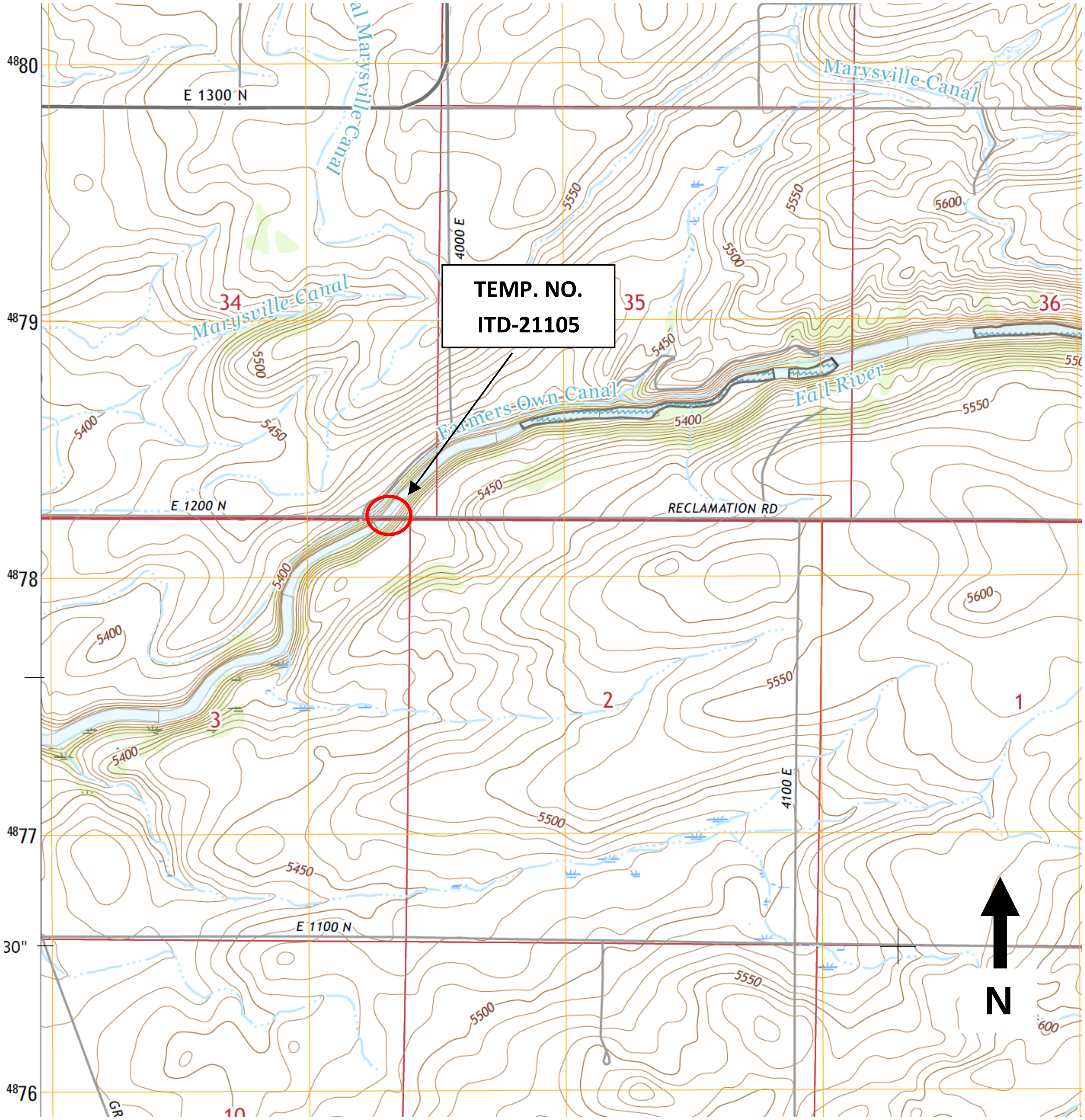
STRUCTURE HISTORY

Engineering plans on file with ITD show this bridge was designed in 1968 by the Boise engineering firm of Barton, Stoddard, Milhollin, and Higgins. Reclamation Road was realigned along a due east-west alignment with the Fall River Steel Rigid Frame Bridge. ITD records indicate the bridge opened in 1969, at which time the nearby Fall River Pratt Deck Truss Bridge (10FM287) was abandoned. This bridge has not been previously surveyed.

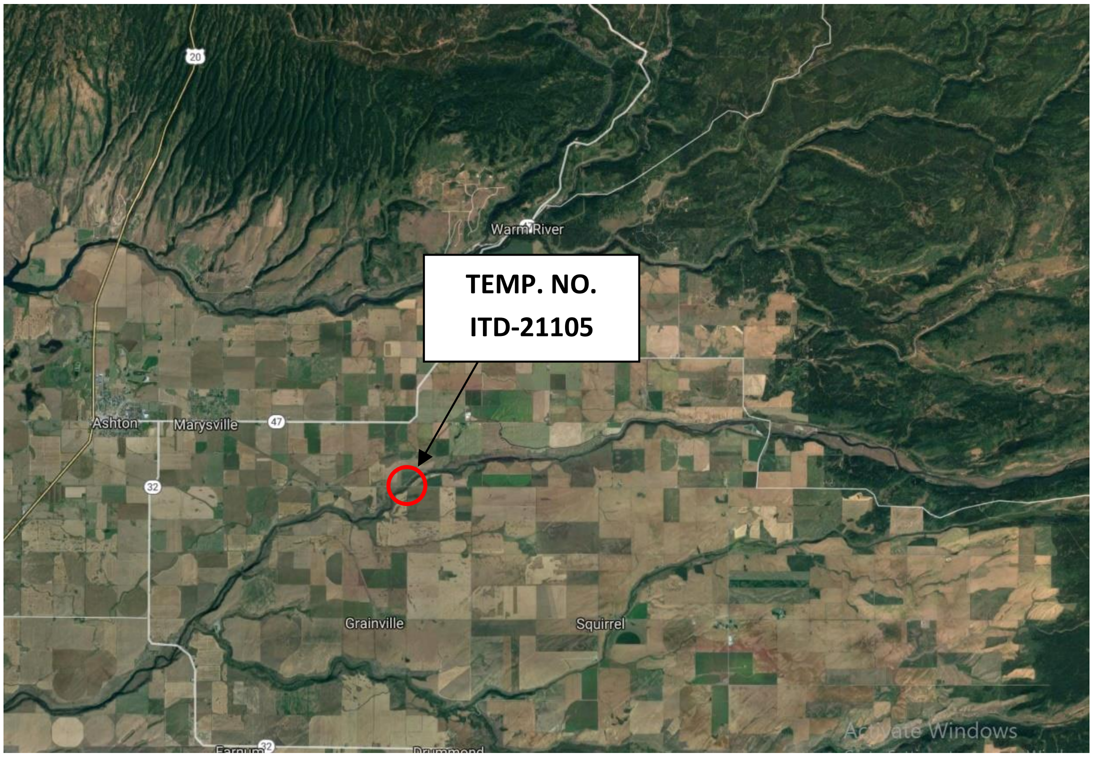


Idaho Counties

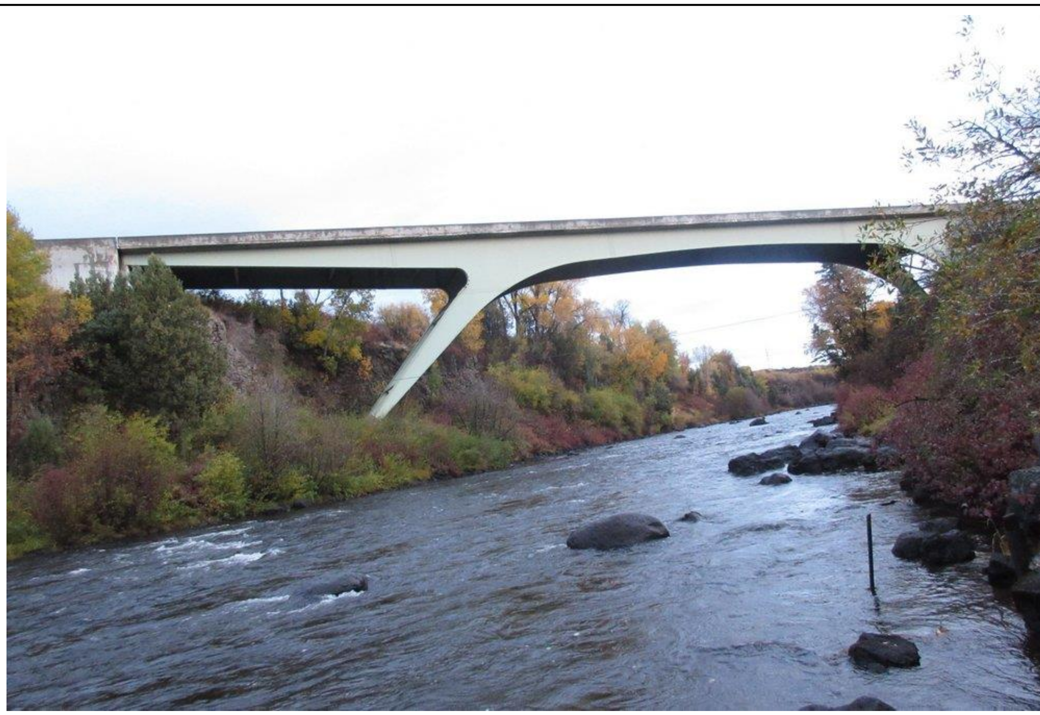
Map courtesy of http://www.censusfinder.com/mapid.htm



USGS, WARM RIVER QUADRANGLE, 2017, 7.5' Series
T9N R43E Section 34 – FREMONT COUNTY, IDAHO



Aerial View of Vicinity
Courtesy Google Earth, Imagery 2018



TEMP. NO. ITD-21105, October 2016
View N-NW
Photo courtesy ITD Inspection Records

TEMP. NO. ITD-21105, July 2017
View E

TEMP. NO. ITD-21105, July 2017
View NW

TEMP. NO. ITD-21105, July 2017
View N-NW, detail of haunch section

TEMP. NO. ITD-21105, July 2017
View NW

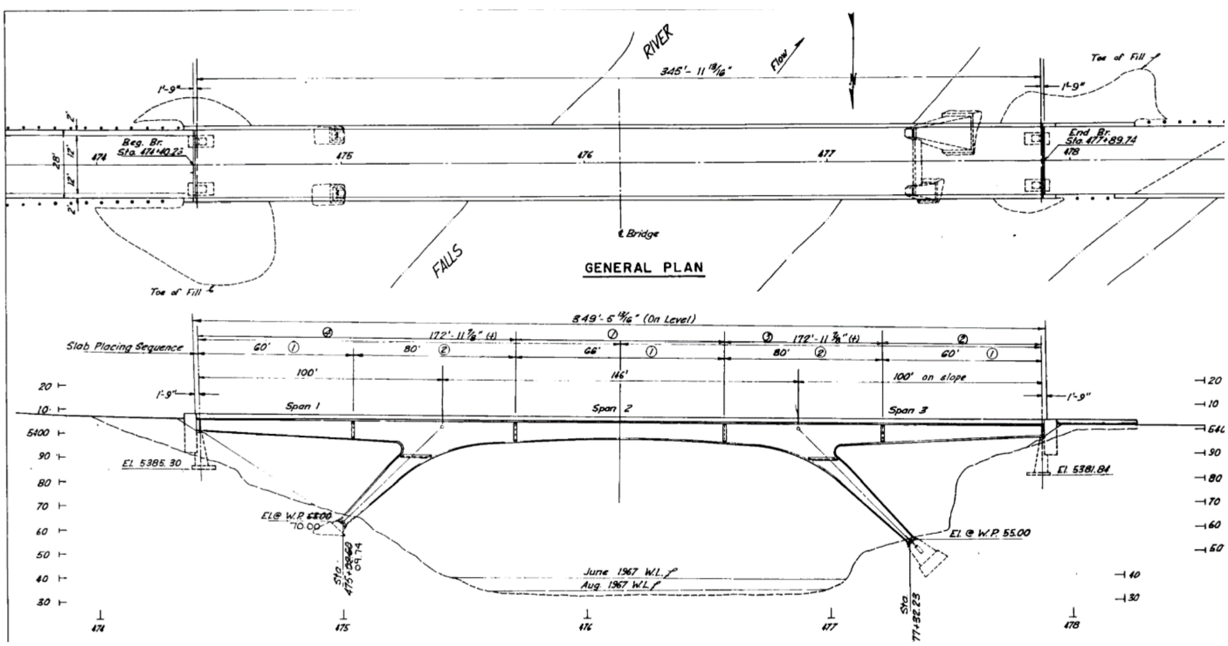
TEMP. NO. ITD-21105, July 2017
View W-NW

TEMP. NO. ITD-21105, July 2017
View E

TEMP. NO. ITD-21105, July 2017
View W

TEMP. NO. ITD-21105, July 2017
View S

TEMP. NO. ITD-21105, July 2017
View W

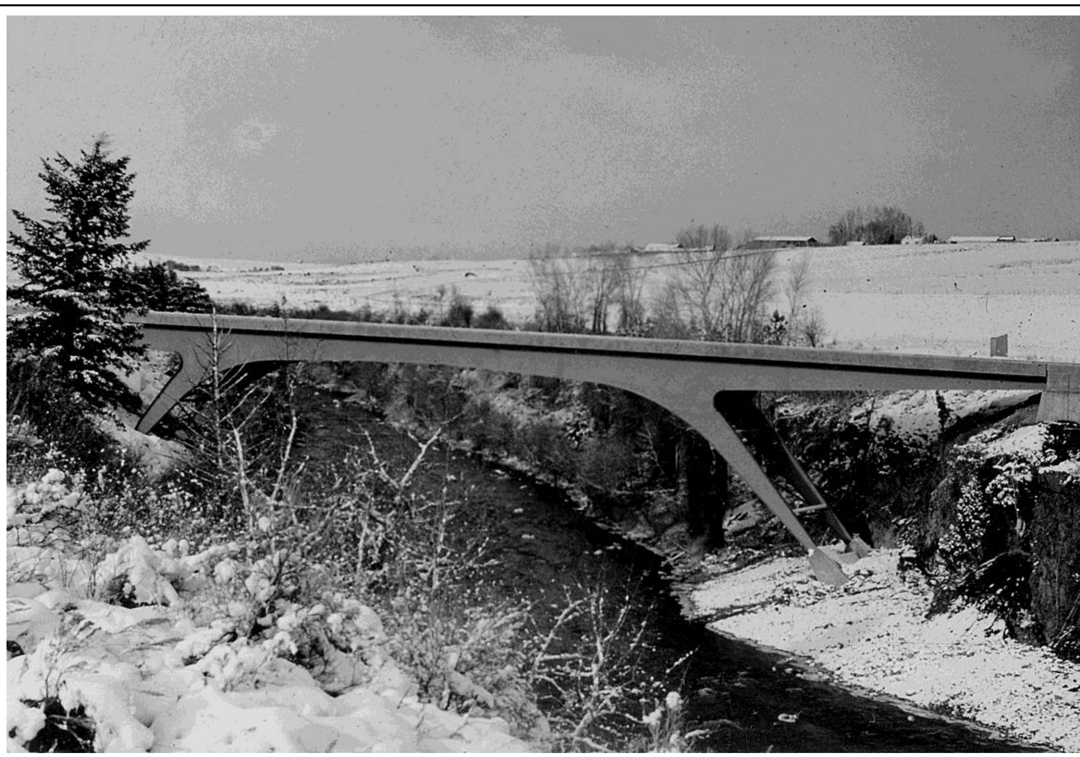


Original 1968 engineering drawings
Courtesy ITD Inspection Records

Aerial view, 1963
Courtesy HistoricAerials.com

Aerial view, 1992
Courtesy HistoricAerials.com

1969, view N-NW
Courtesy ITD Online Archives Collection http://cdm16876.contentdm.oclc.org/cdm/



1972, view S-SE
Courtesy ITD Online Archives Collection http://cdm16876.contentdm.oclc.org/cdm/

1975 White Bird Bridge (No IHSI#/ITD Key# 18365/District 2)
Courtesy ITD inspection records

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Little Wood River Warren Truss Bridge | FIELD#: ITD-23745
STREET: HI 5 Canyon Road; 2.2 N, 10.2 E of Bellevue | RESTRICT: ☐
CITY: Bellevue | VICINITY: ☑ | COUNTY CD: 13 | COUNTY NAME: Blaine
SUBNAME: | BLOCK: | SUBLOT: | ACRES: 1 | LESS THAN: ☑
TAX PARCEL: | UTMZ: 11 | EASTING: 737832 | NORTHING: 4820240
TOWNSHIP: 2 | N_S: N | RANGE: 20 | E_W: E | SECTION: 22 | NW ¼, ¼ NE ¼
QUADRANGLE: Little Wood River Resevoir | OTHERMAP:
SANBORN MAP: | SANBORN MAP#: | PHOTO#: Digital

PROPERTY TYPE: Structure
CONST/ACT1: Original Construction | ACTDATE1: 1930 | CIRCA1: ☑
CONST/ACT2: Moved | ACTDATE2: 1980 | CIRCA2: ☑
ASSOCIATED FEATURES: bridge | TOTAL # FEATURES: 1

ORIGINAL USE: Transportation | WALL MATERIAL:
ORIGSUBUSE: Road-related | FOUND. MATERIAL: CONCRETE
CURRENT USE: Transportation | ROOF MATERIAL:
CURSUBUSE: Road-related | OTHER MATERIAL: METAL:Steel
ARCHSTYLE: Other:Warren Pony Truss | PLAN: Rectangular | CONDITION: Good

NR REF #: | NPS CERT: | ACTIONDATE: | FUTURE ELIG DATE:
DIST/MPLNAME1: Metal Truss Highway Bridges of Idaho | DIST/MPLNAME2:

Individually Eligible ☑ | Contributing in a potential district ☐ | Noncontributing ☐ | Future eligibility ☐
Not Eligible ☐ | Multiple Property Study ☑ | Not evaluated ☐

CRITERIA: A ☑ B ☐ C ☑ D ☐
CRITERIA CONSIDERATION: A ☐ B ☑ C ☐ D ☐ E ☐ F ☐ G ☐

AREA OF SIGNIF: Transportation | AREA OF SIGNIF: Engineering

COMMENTS: See continuation sheets for elaborated description, history, significance, and eligibility.

PROJ/RPT TITLE: Steel Bridges of Eastern Idaho Survey (ITD Key No. 12479 - Mitigation) | SVY DATE: 5/20/17 | SVY LEVEL: Intensive
RECORDED BY: Kerry Davis, PSLLC | PH: 816-225-5605 | ADDRESS: 1007 E. Jefferson Street, Boise, ID 83712
SUBMITTED PHOTOS ☑ NEGS ☐ SLIDES ☐ SKETCH MAP ☑

SVY RPT #: | ********** FOR ISHPO USE ONLY ********** | IHSI#: ITD-23745
MS RPT #: | SITS#:
IHPR #: | HABS NO. ID-: | HAER NO. ID-: | REV#:

CS #: | IHSI# REF: | NR REF# 2: | REV# REF:
SVY RPT# 1: | SVY RPT# 2: | SVY RPT# 3: | MS RPT# 1: | MS RPT# 2:

ADD'L NOTES: District 4. Does not appear to have been previously surveyed. ITD Milepost reference:102.113. Roadway also referred to as Muldoon Canyon Road on some maps.

MORE DATA ☑
ATTACH ☑

REV# | SITS# | IHSI#

OF PHOTOS: | NEGBOX#: | # OF SLIDES: | SHPO DETER: | DETER DATE:
INITIALED: | ENTRY DATE: | REVISE1: | REVISE2: | REVISE3:

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Little Wood River Warren Truss Bridge
IHSI#: ITD-23745
FIELD#: ITD-23745
COUNTY NAME: Blaine

OTHER NAME: ITD Key#23745; ITD Structure Name X992070 1.92
COUNTY CD: 13
CITY: Bellevue
VICINITY: ☑
UTM REF2:
UTM REF3:
UTM REF4:

OTHER MATERIAL2: WOOD
CULTAFFIL:
AGENCYCERT: Local
SIGNIFDATE:
SIGNIFPERIOD:
SIGNIFPERSON:
ARCH/BUILD:
ARCHPLANS: ☑
TAXEASE: ☐
TAXCERT: ☐
OWNERSHIP: Public-Local
PROPOWN: Blaine County
MORE DATA: ☑
ATTACH: ☑

DOCSOURCE: ITD records; SHPO records; USGS Quads

ADD'L NOTES: District 4. Does not appear to have been previously surveyed. ITD Milepost reference:102.113. Roadway also referred to as Muldoon Canyon Road on some maps.

COMMENTS: See continuation sheets for elaborated description, history, significance, and eligibility.

PHOTO LOG: ☐
IHSI# REF:
INITIALED:
DATEENTERED:

SKETCH: ☑

IHSI#
SITS#
REV#

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Little Wood River Warren Truss Bridge

IHSI#: ITD-23745

FIELD#: ITD-23745

COUNTY NAME: Blaine

COMMENTS:

See continuation sheets for elaborated description, history, significance, and eligibility.

ATTACH ☑

IHSI# ____________

SITS# ____________

REV# ____________

DESCRIPTION

LOCATION and SETTING

The Little Wood River Warren Truss Bridge is located 10.2 miles east and 2.2 miles north of the town of Bellevue in south central Idaho, near the north edge of section 22, Township 2N, Range 20E. The region is defined by rolling sage steppe broken by rocky, steep slopes and selected areas of irrigated farmland. The Little Wood River Warren Truss Bridge carries HI 5 Canyon Road (aka Muldoon Canyon Road) across the Little Wood River, a relatively shallow, tributary of the Malad River The dirt-gravel roadway aligns in a shallow C-curve with the single-lane Little Wood River Warren Truss Bridge.

TRUSS TYPE

The Little Wood River Warren Truss Bridge is a single span, riveted pony truss measuring 60 feet in length and approximately 19 feet in width. Standard, box-form concrete abutments constructed around 1986 support the end floor beams of the truss and the back walls are installed behind the old abutments of the previous structure that were left in place. The inclined end posts rise from the bottom chords to meet the horizontal top chords to form a trapezoidal shape. The top chords and inclined end posts consist of two channels, a cover plate, and a combination of lacing bars and stay plates. The bottom chords consist of two channels with stay plates.

The web members include vertical posts forming 4 equivalent panels and diagonal members forming the system of alternating equilateral triangles distinctive to a Warren truss. The vertical posts and diagonal members are composed of I-beams, with riveted gusset plates at each top and bottom node.

The timber deck is 19 feet wide with no curbs. The deck is comprised of 2 layers of 2.5”-x-11” planks laid flat over 16, 4”-x-14” stringers below. A pair of three-plank-wide (each plank 2.5”-x-11”) raised running boards distinguishes the vehicular travel path and alleviates overall wear to the main deck structure. The deck rises approximately twelve feet above the river bed. Large, steel floor I-beams are at the base of each vertical post and bottom node.

A continuous length of channel stock forms a guard rail inside each truss. Each guard rail is low-set and has a curved wing rail at each of the four rail ends. Letters in relief on structural components read “B.S. Co. LACKAWANNA.” In addition, historic handwritten construction markings are visible on most of the floor beams (e.g. “7 R” and “8 L”).

INTEGRITY

The Little Wood River Warren Truss Bridge is an excellent example of this bridge type, historically very popular and increasingly rare in Idaho. The Little Wood River Warren Truss Bridge is an excellent example of this bridge type, historically very popular and increasingly rare in Idaho. Though moved, relocation of steel trusses was common and does not compromise the overall integrity of the structure. Field survey verified this bridge retains sufficient integrity and is individually eligible per the statewide MPDF registration requirements for Metal Truss Highway Bridges of Idaho. The Little Wood River Warren Truss Bridge retains a good degree of integrity, with no significant alterations to the original design or materials. The original workmanship and feeling of the structure are also readily apparent. Furthermore, the potential for preservation of the bridge is high. Located on a lightly traveled remote road, it is unlikely that traffic requirements will necessitate alteration or replacement.

This structure possesses the following aspects of integrity: setting, design, materials, workmanship, feeling, and association. It retains sufficient integrity to be NRHP eligible individually. Though relocated, integrity of original location does not substantially impact the overall eligibility of historic steel truss bridges.

Location: This property has been moved, and thus does not retain integrity of its original location. However, relocation was (and still is) a common practice for steel truss bridges, and as discussed in the MPDF for Metal Truss Highway Bridges of Idaho, original location is not a particularly important aspect of integrity.

Setting: As the structure's original location is unknown, it is unconfirmed, though likely, its historic rural setting is intact.

Design: Integrity of design is intact, visible primarily by means of the original steel truss members assembled and executed in the Warren truss design

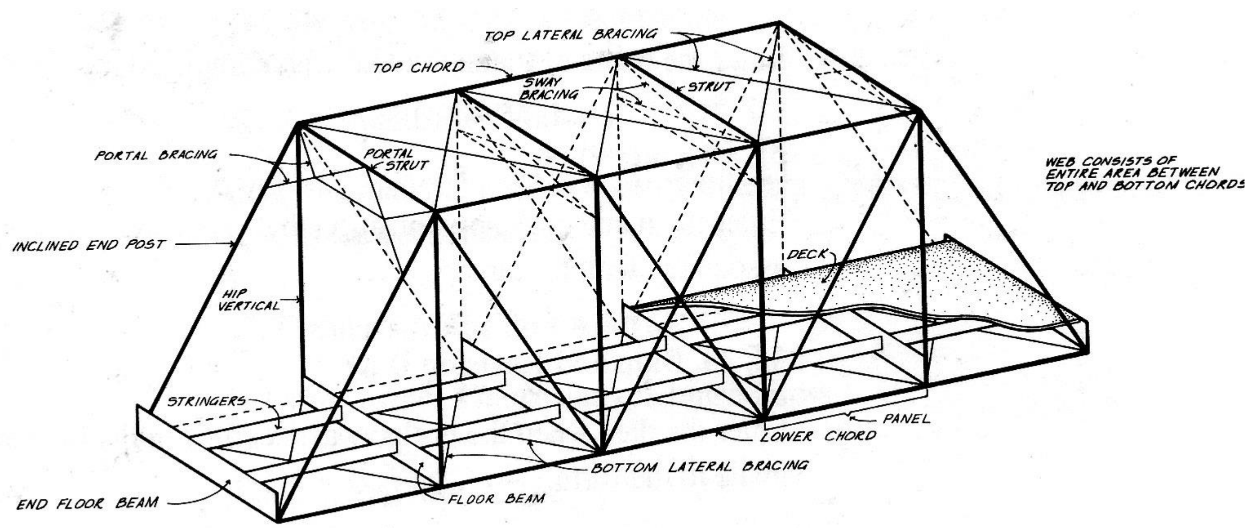
Materials: The property retains its integrity of materials, particularly by means of the original steel structural members.

Workmanship: Elements of workmanship are evident.

Feeling: The property's integrity of feeling is apparent through its retention of integrity of setting, design, materials, and workmanship, which combined, clearly convey a sense of past time and place.

Association: As the structure's original location is unknown, it is unconfirmed, though likely the association between this structure with the surrounding river and rural area is present.

Bridge-Specific Terminology Diagram[1]



Courtesy Historic American Engineering Record

[1] This diagram is included for the reader's reference as to bridge-specific terminology used in the description above. It should not be misinterpreted as an illustration of the Little Wood River Warren Truss Bridge.

STATEMENT OF SIGNIFICANCE

The Little Wood River Warren Truss Bridge is significant under National Register Criterion A in the area of Transportation and Criterion C in the areas of Engineering. As defined by the Multiple Property Documentation Form for *Metal Truss Highway Bridges of Idaho,* it is an excellent example of the Warren truss bridge type. Built around 1930, the Little Wood River Warren Truss Bridge is an example of a common, economical bridge solution for a relatively short span. Its riveted construction and concrete abutments illustrate the standardization of these construction techniques and materials during the period of significance.[2] As no historic name identifies this bridge, using NRHP guidelines of resource naming, the preferred name " Little Wood River Warren Truss Bridge" has been assigned. This describes and identifies the location, design, and function of the structure.

ELIGIBILITY

The Little Wood River Warren Truss Bridge is individually eligible for listing in the National Register of Historic Places under Criteria A and C. This structure is associated with significant trends in local history (Criteria A) and it retains sufficient integrity to communicate its historic engineering associations (Criterion C). At the same time, it is not known to be associated with a person significant in history and it has little potential to yield data in the future, and is thus not eligible under Criteria B or D.

ELABORATION

Prior to the arrival of large-scale irrigation projects across arid southeastern Idaho, there was little need for roads, and much less bridges, as there were few settlers and natural water courses were few and far between. With the early twentieth century introduction of large irrigation projects across southeastern Idaho, and the increased settlement, bridge crossings like the Little Wood River Warren Truss Bridge provided farmers and ranchers easy access to markets and could make the difference between growth and stagnation for the many small, young rural communities across the arid regions of the state.

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.

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, riveted technique rapidly surpassed pin-connected bridge construction during the first years of the twentieth century. The riveted construction of the Little Wood River Warren Truss Bridge illustrates the standardization of this 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

[2] Development of the immediate local area's history and development sufficient to establish and justify an accurate period of significance was outside the scope of this project. For the purposes of this project, as a placeholder the period of significance is given as beginning in c.1930, the date of construction of the bridge, and ending in 1968, the 'fifty-year cut-off' established by the National Park Service as representing the span of time generally necessary to have passed before significance can be established.

for abutments, piers, and decks of steel truss bridges. Though nonhistoric, the 1986 poured concrete abutments of the Little Wood River Warren Truss Bridge are typical of bridges built during the early twentieth century.

The Little Wood River Warren Truss Bridge is a classic example of this truss design. Patented in 1848, the Warren truss has diagonal members that are alternately placed in either tension or compression, resulting in a visually distinctive system of alternating equilateral triangles. Vertical members are often incorporated to further strengthen the truss, as in the Little Wood River Warren Truss Bridge.

While the straightforward design of the Warren truss was desirable, the lack of counters and sometimes verticals subjected the center pins to extensive wear, making it less durable and therefore less durable and therefore less popular than the Pratt truss during the nineteenth century. The later standardization of riveted construction techniques eliminated these issues and the Warren truss gained popularity.

In Idaho, Warren trusses were constructed into the middle of the twentieth century, suggesting the appeal of the design's strength, simplicity, and economical construction costs. A 1982 survey of steel truss bridges statewide identified 52 Warren truss bridges in existence throughout the state of Idaho at that time, not including the Little Wood River Warren Truss Bridge, which was apparently not surveyed at that time and has not yet been previously inventoried in the Idaho Historic Sites Inventory system.

STRUCTURE HISTORY

The historic record and ITD documentation are inconclusive as to the original construction date of this bridge and its relocation to its current site. Review of the truss type and its stock steel markings date the truss to circa 1930. Though roads passed through the area as early as the 1884 GLO survey, no crossing is shown at this location as late as 1957. The crossing first appears on the 1979 USGS quadrangle map.

ITD dates the bridge to 1986 with a reconstruction date of 1998. Based on the agency's traditional patterns of dating terminology usage, and the historic record, 1986 is most likely the date the abutments were constructed. It is also possibly when the bridge was moved to this location. It is unclear what ITD action occurred in 1998.

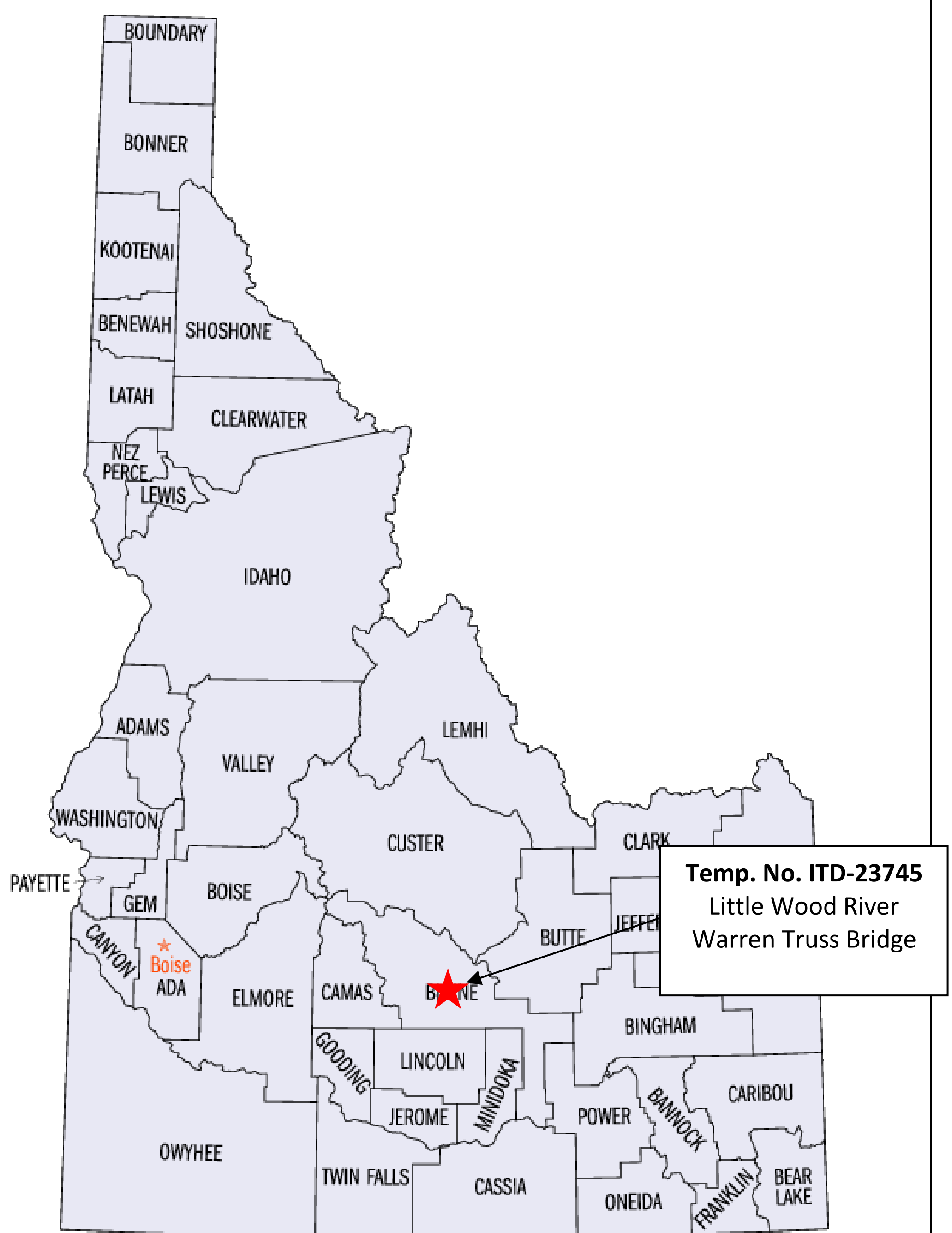
This bridge has not been previously surveyed at this location. However, it should be noted there is the possibility this bridge was surveyed at a previous, as yet undetermined, location as part of the 1982 survey and was since moved to this location in 1986. Review of ITD records indicates the existing c.1930 bridge was moved to this location from an unidentified site around 1986. ITD records do not indicate the fate of the previous bridge at this location, nor of the previous location of the existing truss.

Area History

The area surrounding the Little Wood River Warren Truss Bridge is and has historically been remote and sparsely populated (the nearest towns, Bellevue and Carey, are both almost 15 miles away). An 1880s silver mining boom at nearby Muldoon (now a ghost town) spurred the first GLO survey of the area in 1884. Little to no new development in the vicinity took place until the late 1930s when Little Wood Reservoir was constructed for flood control and irrigation storage. By 1939, the surrounding landholdings were comprised of private sheep ranching operations, county and state lands, and federally owned stock driveways. Typical of remote areas throughout Idaho, fords and bridges providing area ranchers with access to area markets were critical to the survival of the regional economy.

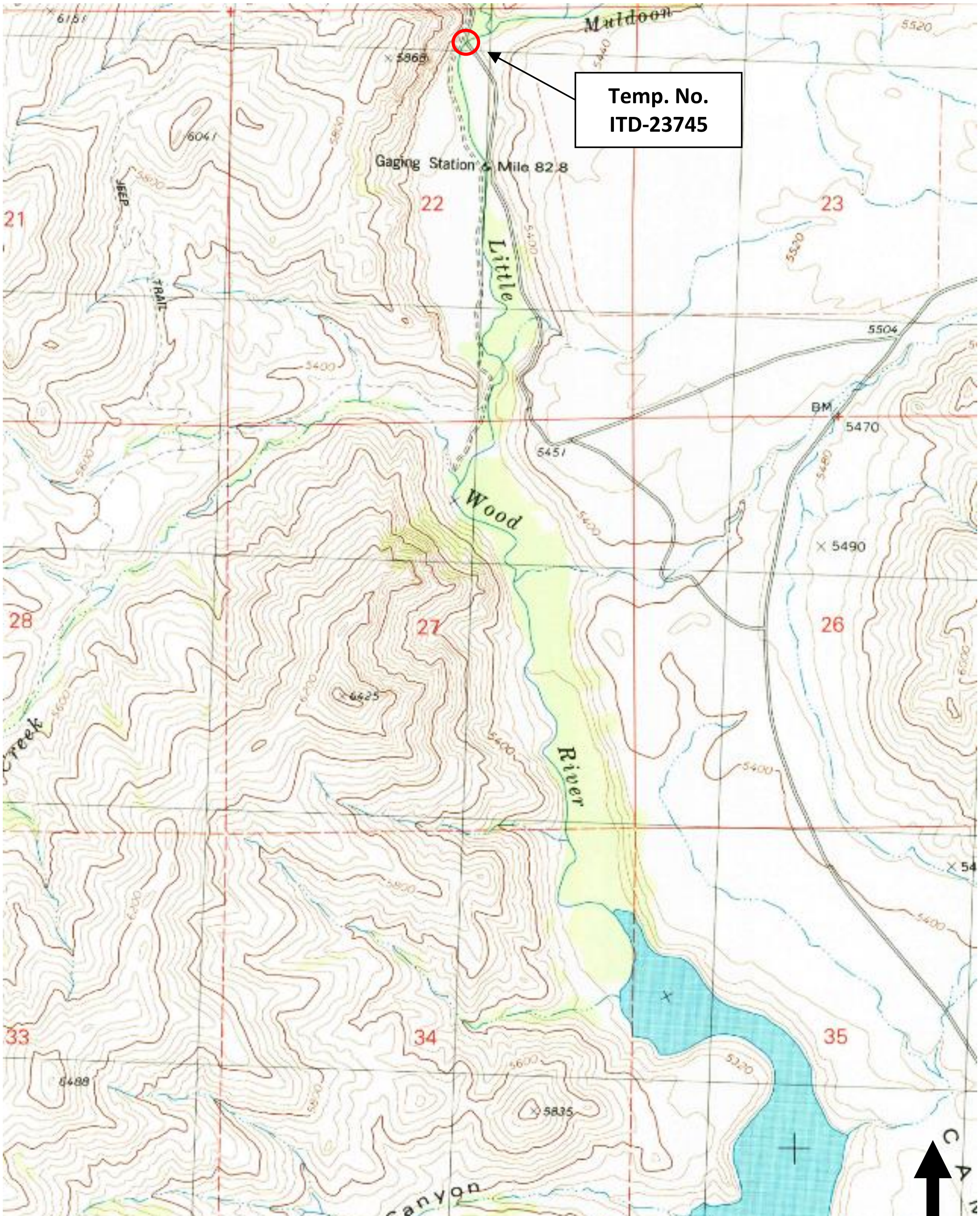
Lackawanna Steel

Founded in 1840 by George and Seldon Scranton, in Scranton, Pennsylvania, the Lackawanna Steel Company grew to become the second largest steel manufacturer in the world. The headquarters moved to an area on the outskirts of Buffalo, New York, in 1902, resulting in the founding of the town of Lackawanna, New York. The company was absorbed into Bethlehem Steel in 1922, after which time steel stock had letters in relief that read, "BSC Lackawanna" or B.S.Co. Lackawanna."



Idaho Counties

Map courtesy of http://www.censusfinder.com/mapid.htm



USGS, LITTLE WOOD RIVER RESERVOIR QUADRANGLE, 1979, 7.5' Series
T2N R20E Section 22 - BLAINE COUNTY, IDAHO

N

Aerial View of Vicinity
Courtesy Google Earth, Imagery 2017

Temp. No. ITD-23745, May 2017
View E

Temp. No. ITD-23745, May 2017
View SE

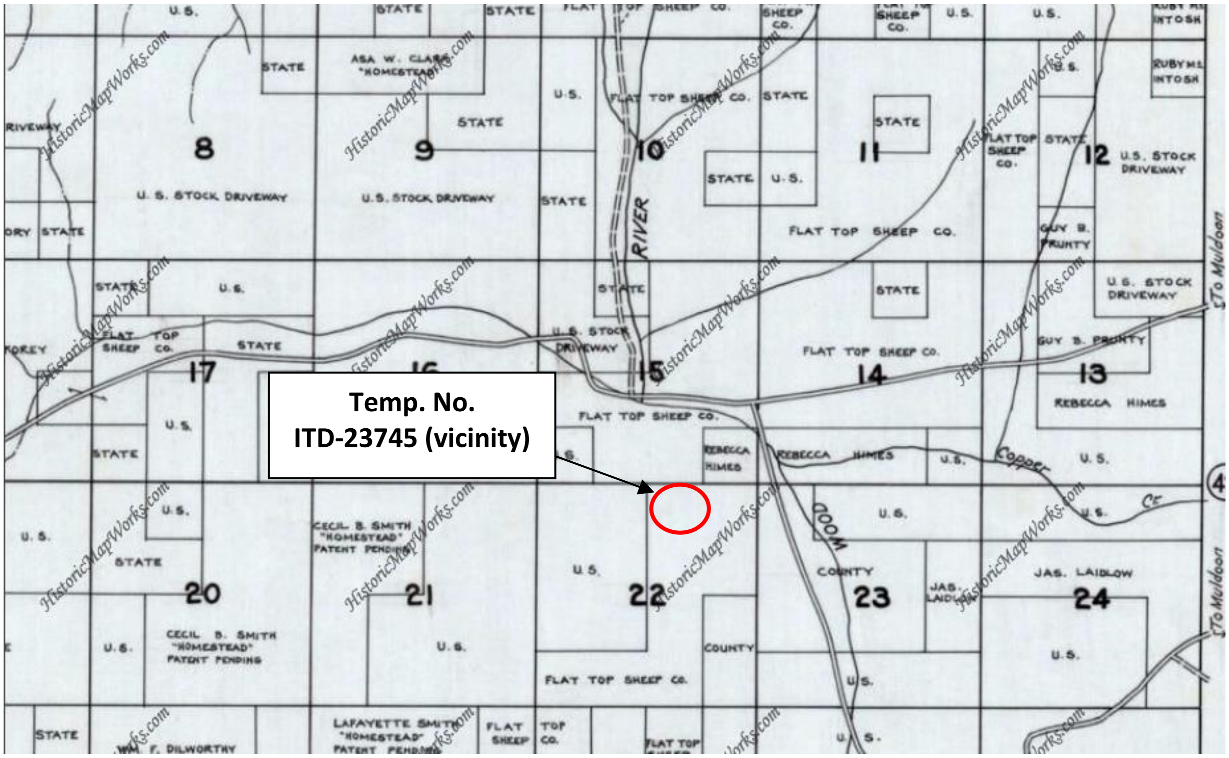
Temp. No. ITD-23745, May 2017
View NW

Temp. No. ITD-23745, May 2017
View NE

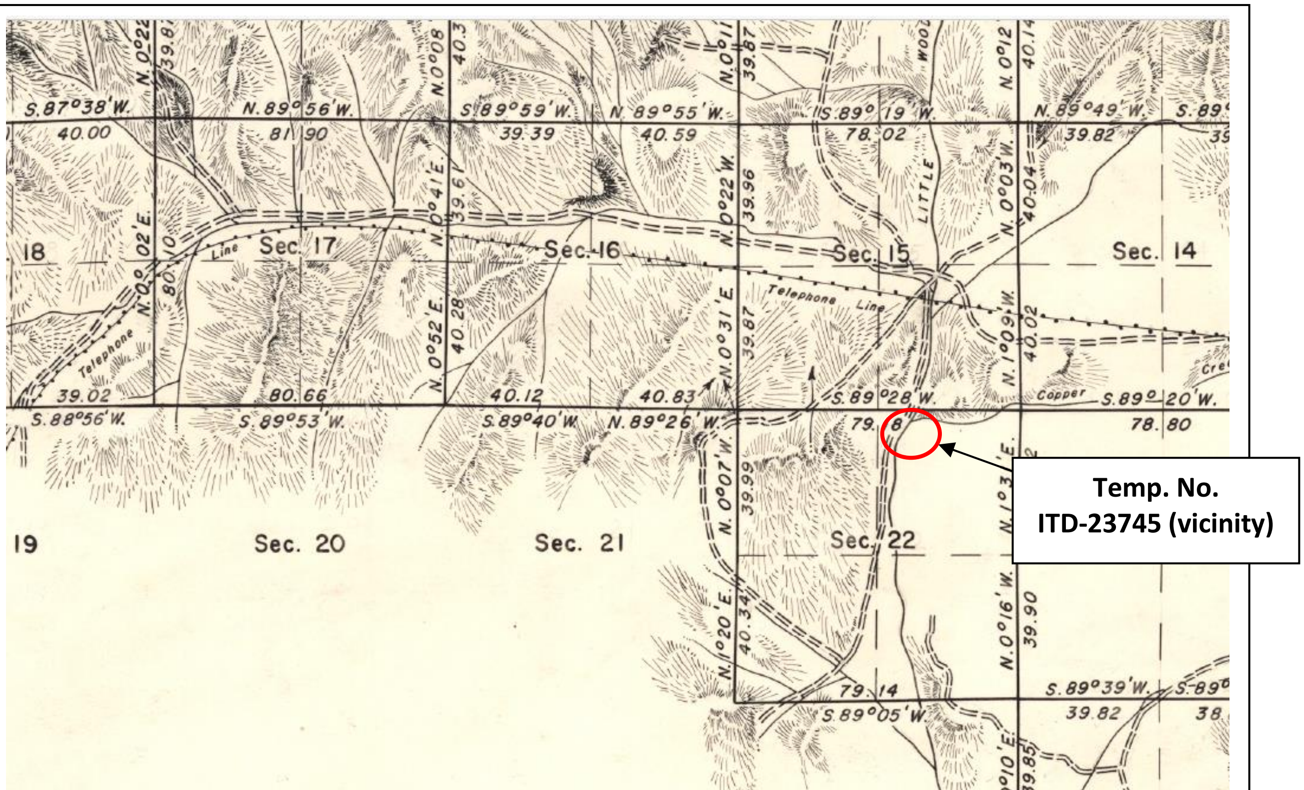
Temp. No. ITD-23745, May 2017
View NE at N abutment

Temp. No. ITD-23745, May 2017
View S

Temp. No. ITD-23745, September 2015, View SW
Courtesy ITD Records



Metsker's Atlas of Blaine County, 1939
Courtesy HistoricMapWorks.com



Township 2 North, Range 20 East, of the Boise Meridian, Idaho. Dependent Resurvey, 1957
Courtesy GLORecords.blm.gov

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Clover Creek Warren Truss Bridge | FIELD#: ITD-24465
STREET: 1200 South Road; 6.9 N, 3.0 W of Bliss | RESTRICT: ☐
CITY: Bliss | VICINITY: ☑ | COUNTY CD: 47 | COUNTY NAME: Gooding
SUBNAME: | BLOCK: | SUBLOT: | ACRES: 1 | LESS THAN: ☑
TAX PARCEL: | UTMZ: 11 | EASTING: 662206 | NORTHING: 4765495
TOWNSHIP: 4 | N_S: S | RANGE: 12 | E_W: E | SECTION: 34 | SE ¼, ¼ SE ¼
QUADRANGLE: Hog Creek | OTHERMAP:
SANBORN MAP: | SANBORN MAP#: | PHOTO#: Digital

PROPERTY TYPE: Structure | CONST/ACT1: Original Construction | ACTDATE1: 1915 | CIRCA1: ☑
CONST/ACT2: Alteration | ACTDATE2: 1987 | CIRCA2: ☐
ASSOCIATED FEATURES: bridge | TOTAL # FEATURES: 1
ORIGINAL USE: Transportation | WALL MATERIAL:
ORIGSUBUSE: Road-related | FOUND. MATERIAL: CONCRETE
CURRENT USE: Transportation | ROOF MATERIAL:
CURSUBUSE: Road-related | OTHER MATERIAL: METAL:Steel
ARCHSTYLE: Other:Warren Pony Truss | PLAN: Rectangular | CONDITION: Good

NR REF #: | NPS CERT: | ACTIONDATE: | FUTURE ELIG DATE:
DIST/MPLNAME1: Metal Truss Highway Bridges of Idaho | DIST/MPLNAME2:

Individually Eligible ☑ | Contributing in a potential district ☐ | Noncontributing ☐ | Future eligibility ☐
Not Eligible ☐ | Multiple Property Study ☑ | Not evaluated ☐

CRITERIA: A ☑ B ☐ C ☑ D ☐ | CRITERIA CONSIDERATION: A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G ☐
AREA OF SIGNIF: Transportation | AREA OF SIGNIF: Engineering

COMMENTS: See continuation sheets for elaborated description, history, significance, and eligibility.

PROJ/RPT TITLE: Steel Bridges of Eastern Idaho Survey (ITD Key No. 12479 - Mitigation) | SVY DATE: 10/12/17 | SVY LEVEL: Intensive
RECORDED BY: Kerry Davis, PSLLC | PH: 816-225-5605 | ADDRESS: 1007 E. Jefferson Street, Boise, ID 83712
SUBMITTED PHOTOS ☑ NEGS ☐ SLIDES ☐ SKETCH MAP ☑

SVY RPT #: | ******** FOR ISHPO USE ONLY ******** | IHSI#: ITD-24465
MS RPT #: | SITS#:
IHPR #: | HABS NO. ID-: | HAER NO. ID-: | REV#:

CS #: | IHSI# REF: | NR REF# 2: | REV# REF:
SVY RPT# 1: | SVY RPT# 2: | SVY RPT# 3: | MS RPT# 1: | MS RPT# 2:

ADD'L NOTES: District 4. Not previously surveyed. ITD Milespost reference: 106.463. Located on the Township line between T4S R12E Section 34 and T5S R12E Section 3.

MORE DATA ☑
ATTACH ☑

REV# | SITS# | IHSI#

OF PHOTOS: | NEGBOX#: | # OF SLIDES: | SHPO DETER: | DETER DATE:
INITIALED: | ENTRY DATE: | REVISE1: | REVISE2: | REVISE3:

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Clover Creek Warren Truss Bridge
IHSI#: ITD-24465
FIELD#: ITD-24465
COUNTY NAME: Gooding
OTHER NAME: ITD Key #24465; ITD Structure Name X992240 6.48
COUNTY CD: 47
CITY: Bliss
VICINITY: ☑
UTM REF2:
UTM REF3:
UTM REF4:

OTHER MATERIAL2: WOOD
CULTAFFIL:
AGENCYCERT: Local
SIGNIFDATE:
SIGNIFPERIOD:
SIGNIFPERSON:
ARCH/BUILD:
ARCHPLANS: ☐
TAXEASE: ☐
TAXCERT: ☐
OWNERSHIP: Public-Local
PROPOWN: Bliss Highway District
MORE DATA: ☑
ATTACH: ☑

DOCSOURCE: ITD records; SHPO records; USGS Quads

ADD'L NOTES: District 4. Not previously surveyed. ITD Milespost reference: 106.463. Located on the Township line between T4S R12E Section 34 and T5S R12E Section 3.

COMMENTS: See continuation sheets for elaborated description, history, significance, and eligibility.

PHOTO LOG: ☐
IHSI# REF:
INITIALED:
DATEENTERED:

SKETCH: ☑

IHSI#

SITS#

REV#

IDAHO HISTORIC SITES INVENTORY FORM

PROPERTY NAME: Clover Creek Warren Truss Bridge

IHSI#: ITD-24465

FIELD#: ITD-24465

COUNTY NAME: Gooding

COMMENTS:

See continuation sheets for elaborated description, history, significance, and eligibility.

ATTACH ☑

IHSI# ____________

SITS# ____________

REV# ____________

DESCRIPTION

LOCATION and SETTING

The Clover Creek Warren Truss Bridge is located 6.9 miles north and 3 miles west of the town of Bliss in south central Idaho, along the east-west section line between Township 4S, Range 12E, Section 34 and Township 5S, Range 12E, Section 3. The region is defined by vast sagebrush steppe interspersed with irrigated farmland. The Clover Creek Warren Truss Bridge carries 1200 S Road (aka Old Clover Creek Road) across Clover Creek, a 58-mile-long, relatively narrow, tributary of the Snake River. The dirt-gravel roadway, flanked by fenced grazing lands, aligns in a due east-west line with the single-lane Clover Creek Warren Truss Bridge.

TRUSS TYPE

The Clover Creek Warren Truss Bridge is a single span, riveted pony truss measuring 36 feet in length and approximately 16 feet in width. Concrete retaining wall abutments reconstructed in 1987 support the end floor beams of the truss, which rest directly on the abutment seat. A series of 7 round timber pilings line the creek-side of each abutment. The angled wingwalls of the abutments extend approximately 8-10 feet out away from the pedestal along the approach grades. The inclined end posts rise from the bottom chords to meet the horizontal top chords to form a trapezoidal shape. The top chords and inclined end posts consist of two angles, a cover plate, and gusset plates; the bottom chords consist of two angles with stay plates.

The web members include vertical posts forming 3 equivalent panels and diagonal members forming the system of alternating equilateral triangles distinctive to a Warren truss. The vertical posts are composed of angle stock and stay plates, while the end diagonal members are formed with two angles, lacing bars, and stay plates.

The timber deck, comprised of vertically lain laminated 2”-by-6” boards, is 16 feet wide with 4”-by-4” timber curbs that function to contain the gravel road surface, which is flush with the top of each curb. The deck rises approximately 18 feet above the creek bed on sets of 5 steel stringers with lateral bracing per panel between floor beams. Large, steel floor I-beams are at the base of each vertical post.

Though common on most bridges of this type and era, no letters in relief on structural components were identified.

INTEGRITY

The Clover Creek Warren Truss Bridge is an excellent example of this bridge type, historically very popular and increasingly rare in Idaho.

Although the abutments are not original, and likely date to 1987, they are compatible replacements representing a common physical upgrade to bridges of this type and they do not significantly impact the overall integrity of the bridge. The Clover Creek Warren Truss Bridge retains a good degree of integrity, with no significant alterations to the original design or materials. The original workmanship, setting, and feeling of the structure are also 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.

This structure possesses the following aspects of integrity: location, setting, design, materials, workmanship, feeling, and association. It retains sufficient integrity to be NRHP eligible individually.

Location: This structure has not been moved, and thus retains integrity of location.

Setting: The historic rural setting is intact.

Design: Integrity of design is intact, visible primarily by means of the original steel truss members assembled and executed in the Warren truss design.

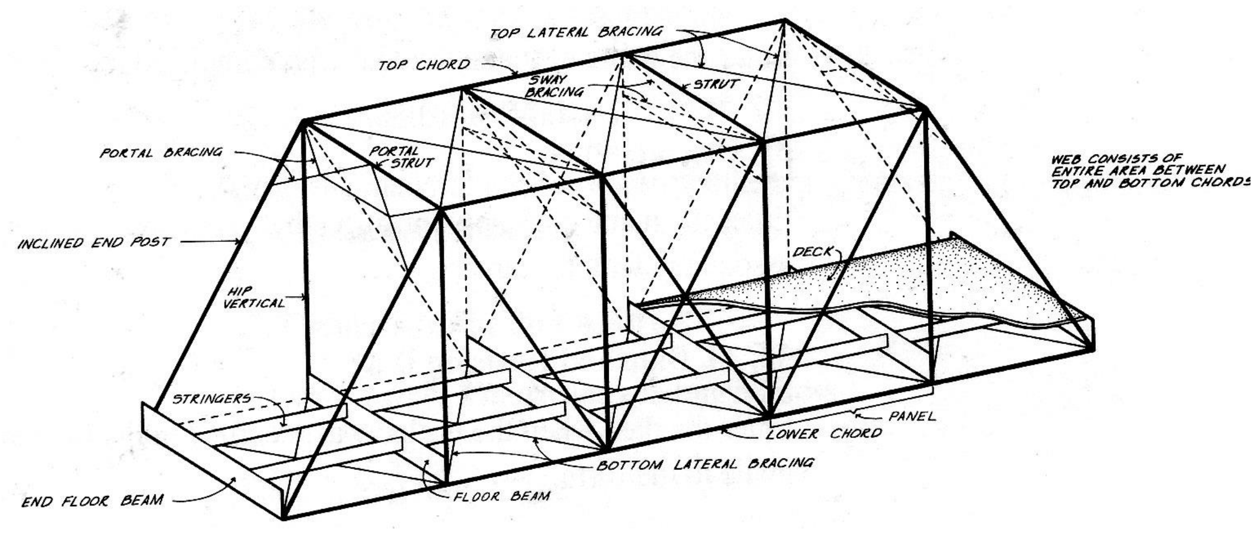
Materials: The property retains its integrity of materials, particularly by means of the original steel structural members.

Workmanship: Elements of workmanship are evident.

Feeling: The property's integrity of feeling is apparent through its retention of integrity of setting, design, materials, and workmanship, which combined, clearly convey a sense of past time and place.

Association: The association between this structure with the surrounding canal and rural area is present.

Bridge-Specific Terminology Diagram[1]



Courtesy Historic American Engineering Record

[1] This diagram is included for the reader's reference as to bridge-specific terminology used in the description above. It should not be misinterpreted as an illustration of the Clover Creek Warren Truss Bridge.

STATEMENT OF SIGNIFICANCE

The Clover Creek Warren Truss Bridge is significant under National Register Criterion A in the area of Transportation and Criterion C in the area of Engineering. As defined by the Multiple Property Documentation Form for *Metal Truss Highway Bridges of Idaho,* it is an excellent example of the Warren truss bridge type. Built circa 1915, the Clover Creek Warren Truss Bridge is an example of a common, economical bridge solution for a relatively short span. Its riveted construction and concrete abutments illustrate the standardization of these construction techniques and materials during the period of significance.[2] As no historic name identifies this bridge, using NRHP guidelines of resource naming, the preferred name " Clover Creek Warren Truss Bridge" has been assigned. This describes and identifies the location, design, and function of the structure.

ELIGIBILITY

The Clover Creek Warren Truss Bridge is individually eligible for listing in the National Register of Historic Places under Criteria A and C. This structure is associated with significant trends in local history (Criterion A) and it retains sufficient integrity to communicate its historic engineering associations (Criterion C). At the same time, it is not known to be associated with a person significant in history and it has little potential to yield data in the future, and is thus not eligible under Criteria B or D.

ELABORATION

Prior to the arrival of large-scale irrigation projects across arid southeastern Idaho, there was little need for roads, and much less bridges, as there were few settlers and natural water courses were few and far between. With the early twentieth century introduction of large irrigation projects across southeastern Idaho, and the increased settlement, bridge crossings like the Clover Creek Warren Truss Bridge provided farmers and ranchers easy access to markets and could make the difference between growth and stagnation for the many small, young communities across the arid regions of the state.

By 1910, 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. Though common, no steel manufacturing company markings are located on the Clover Creek Warren Truss Bridge components.

Advancements in pneumatic riveting techniques by this time greatly improved rivet installation quality, enabling more reliable panel point connections than earlier pin-connected trusses. With the increased portability of this construction technology, the more rigid, riveted technique rapidly surpassed pin-connected bridge construction during the first years of the twentieth century. The riveted construction of the Clover Creek Warren Truss Bridge illustrates the standardization of this technique.

In addition, the contemporary development of economic cement production promoted the widespread combination of steel and concrete in bridge construction. By the 1920s, reinforced concrete was the standard material for abutments, piers, and decks of steel truss bridges. It was not uncommon for older

[2] Development of the immediate local area's history and development sufficient to establish and justify an accurate period of significance was outside the scope of this project. For the purposes of this project, as a placeholder the period of significance is given as beginning in circa 1915, the date of construction of the bridge, and ending in 1968, the 'fifty-year cut-off' established by the National Park Service as representing the span of time generally necessary to have passed before significance can be established.

metal truss bridges to receive new reinforced concrete decks or poured concrete reinforcements for older stone abutments. Though nonhistoric replacements, the poured concrete abutments of the Clover Creek Warren Truss Bridge are compatible and typical of bridges built during the early twentieth century.

The Clover Creek Warren Truss Bridge is a classic example of this truss design. Patented in 1848, the Warren truss has diagonal members that are alternately placed in either tension or compression, resulting in a visually distinctive system of alternating equilateral or isosceles triangles. Vertical members are often incorporated to further strengthen the truss, as in the Clover Creek Warren Truss Bridge.

While the straightforward design of the Warren truss was desirable, the lack of counters and sometimes verticals subjected the center pins to extensive wear, making it less durable and therefore less popular than the Pratt truss during the nineteenth century. The later standardization of riveted construction techniques eliminated these issues and the Warren truss gained popularity. In Idaho, Warren trusses were constructed into the middle of the twentieth century, suggesting the appeal of the design's strength, simplicity, and economical construction costs. A 1982 survey of steel truss bridges statewide identified 52 Warren truss bridges in existence throughout the state of Idaho at that time, not including the Clover Creek Warren Truss Bridge, which was apparently not surveyed at that time and has not yet been previously inventoried in the Idaho Historic Sites Inventory system.

STRUCTURE HISTORY

ITD records state the Clover Creek Warren Truss Bridge dates to a 1915 design. Review of ITD minute books shows bridges being constructed over Clover Creek in both Elmore and Gooding counties, but records were not specific enough to verify precise locations and specific bridges in most cases. The Clover Creek Warren Truss Bridge is identical to the High Line Canal Warren Truss Bridge (83-005171), which has a confirmed construction date of 1915.

Primary sources substantiate there was sufficient settlement in the area to warrant road and bridge construction at the turn of/early in the twentieth century. The lands abutting the Clover Creek Warren Truss Bridge were initially surveyed by the Government Land Office (GLO) as early as 1871, suggesting there was sufficient settlement pressure pending in the vicinity to justify the effort of subdivisional survey. These detailed survey maps show an extant homestead less than a mile north of the Clover Creek Warren Truss Bridge and the land both north and south of the bridge specifically called out as "agricultural land," confirming settlement in the vicinity (see map image below).

Though the U.S. Government never relinquished ownership of the land abutting the bridge to the north, the land immediately abutting to the south was transferred to the private individuals via homestead patents in the early to mid-1890s. Rand McNally's 1909 map of Idaho shows the entire area around the Clover Creek Warren Truss Bridge as within Carey Act reclamation and irrigation project boundaries. Additional land survey and patent transfers in the 1910s and 1920s indicate additional settlement.

The 1939 *Metsker Atlas of Gooding County* shows the Jackson ranch and James Farmer Sheep Company ranch in the vicinity, as well as the one-room Clover Creek School just under two miles to the west. A 1940 updated GLO survey shows a road passing across Clover Creek in the immediate vicinity. The 1960 USGS quadrangle map shows a gaging station adjacent to this bridge.

ITD records indicate a 'reconstruction' in 1987. Based on patterns of the agency's usage of the word 'reconstruction' it is likely 1987 is the year in which the bridge received new abutments and possibly a replacement deck.

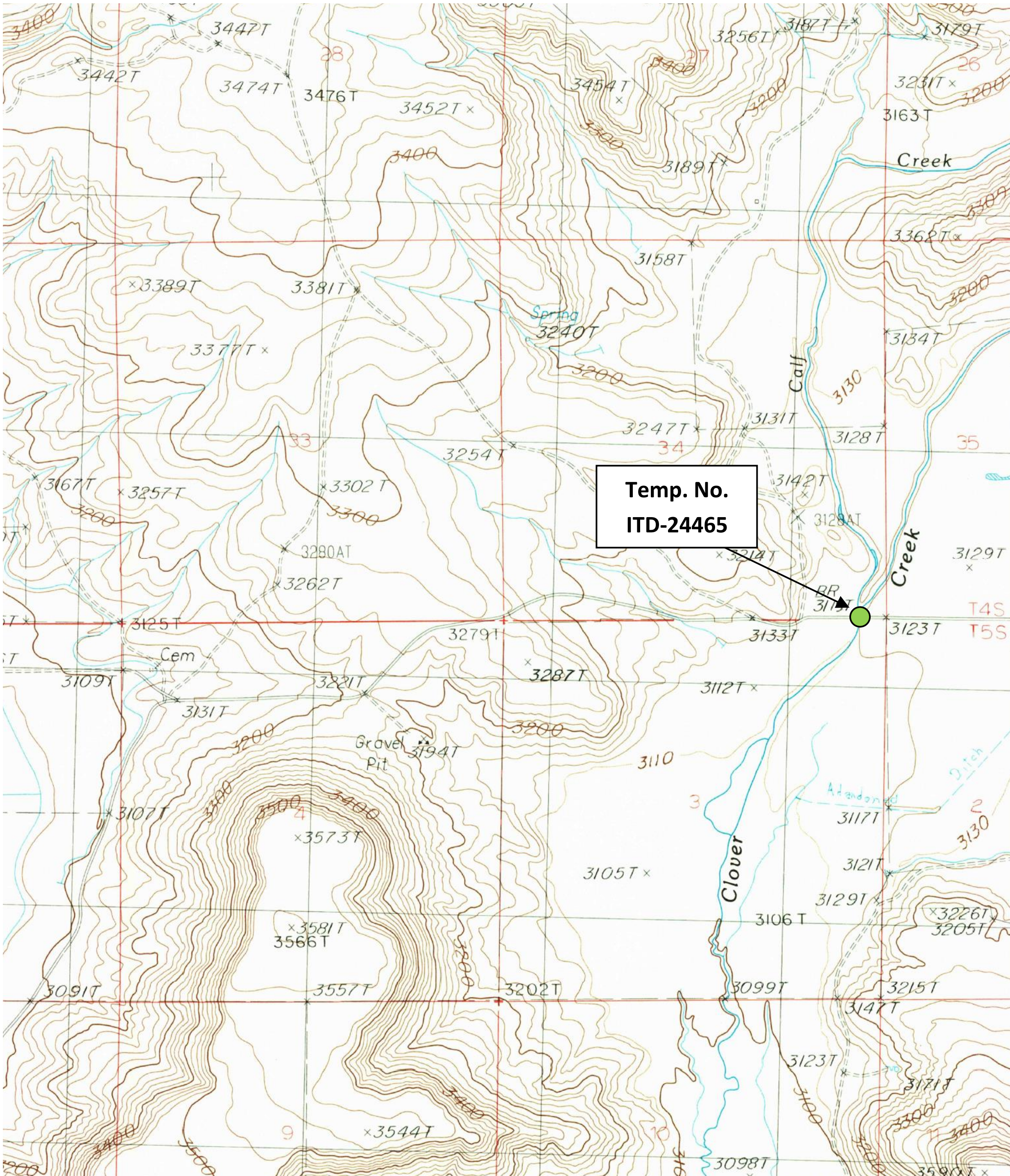
Bliss-area

Union Pacific's Oregon Short Line came through the area by 1884, with the station stop of Bliss indicated on historic maps as early as 1886. After the 1893 passage of the Carey Act, the promise of reclamation and large-scale irrigation of the area drew settlers; sufficient settlement took place to warrant the 1913 creation of Gooding County from Lincoln County.

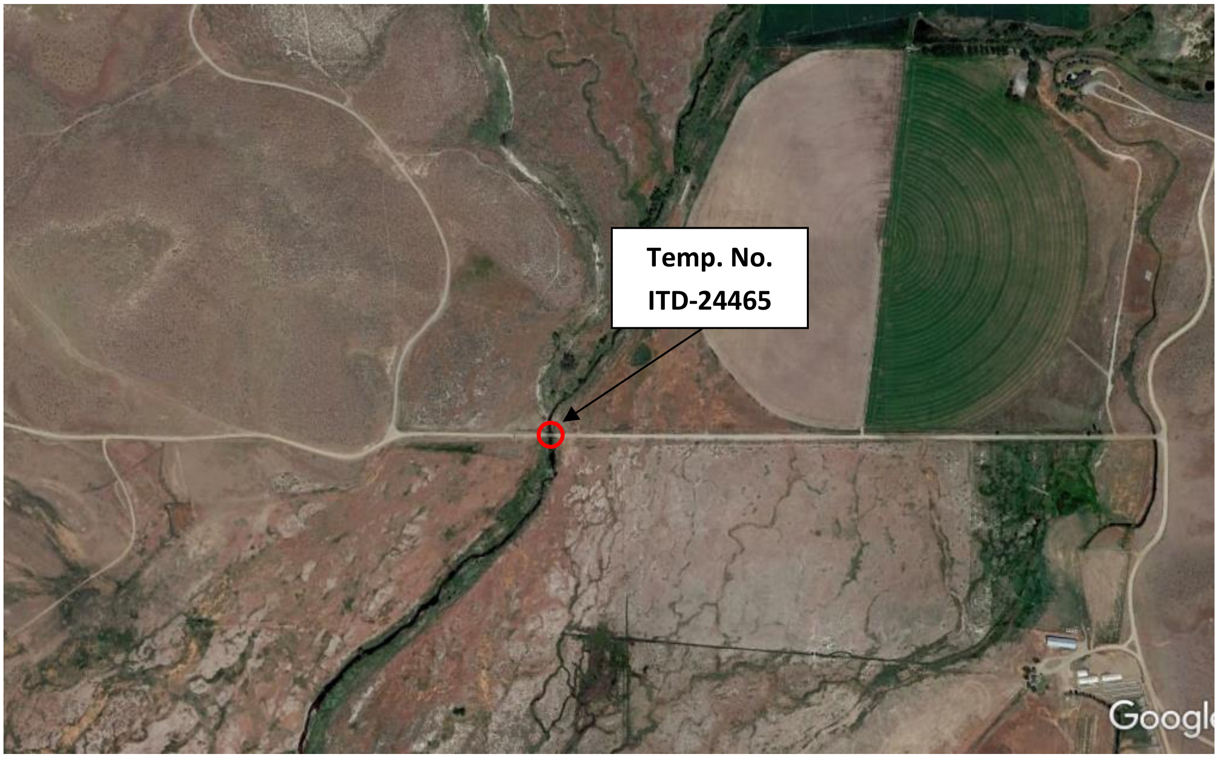
By 1920, Gooding County's population was over 7,500 and the village of Bliss served as a trading and shipping point for area cattlemen and farmers and continues to do so today. Typical of small towns throughout Idaho, the large surrounding agricultural community relied heavily on the ability to cross waterways with more reliability than by unpredictable fords. As a result, bridges like the Clover Creek Warren Truss Bridge that provided area farmers with access over waterways and to local markets, such as Bliss, were critical to the survival of the regional economy.

Idaho Counties

Map courtesy of http://www.censusfinder.com/mapid.htm



USGS, HOG CREEK QUADRANGLE, 1986, 7.5' Series
T4S, R12E, Section 34 & T5S, R12E, Section 3 - GOODING COUNTY, IDAHO



Aerial View of Vicinity
Courtesy Google Earth, Imagery June 2016

Temp. No. ITD-24465, October 2017
View E

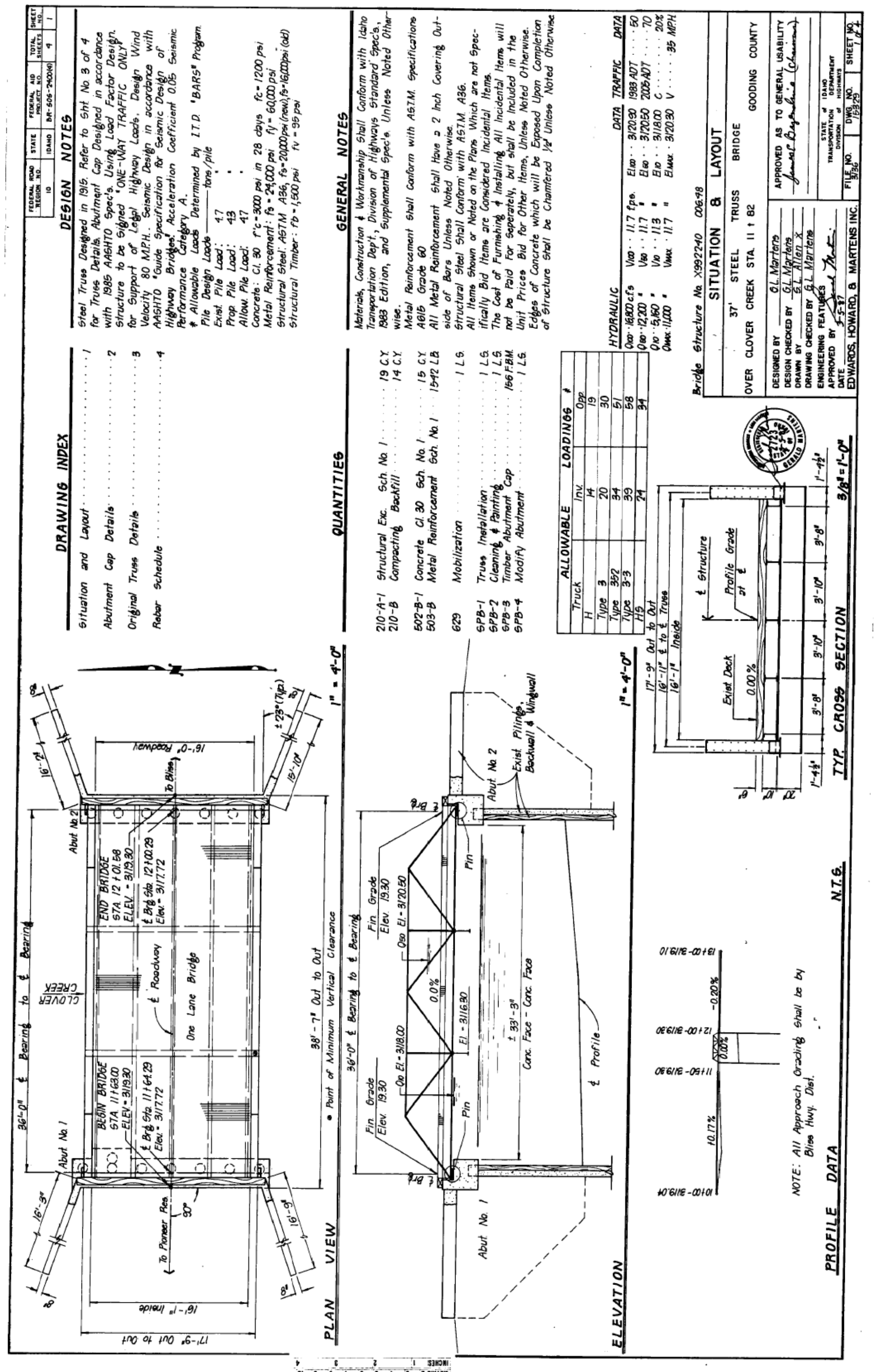
Temp. No. ITD-24465, October 2017
View NE

Temp. No. ITD-24465, October 2017
View W

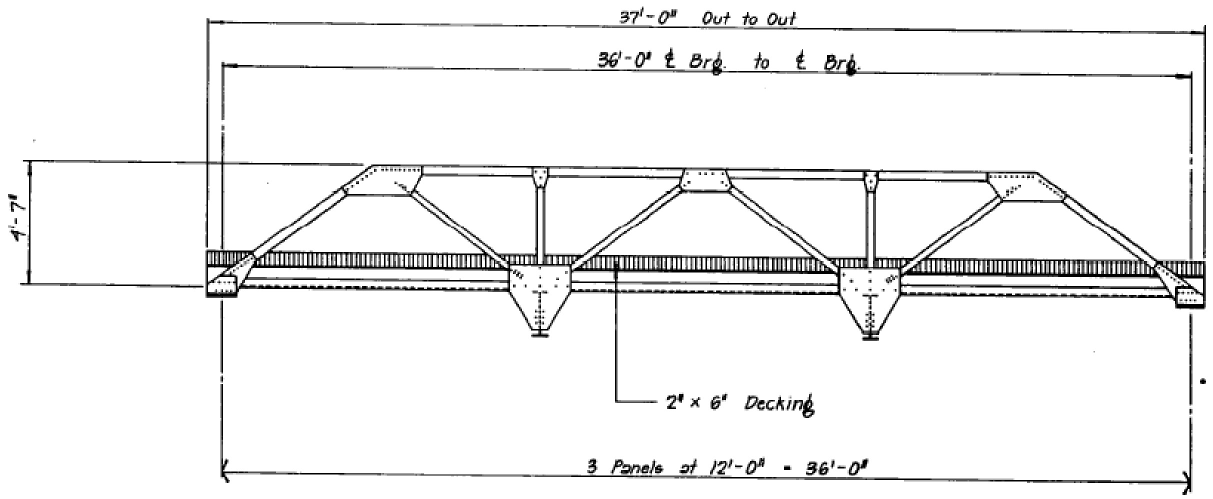
Temp. No. ITD-24465, October 2017
View SW

Temp. No. ITD-24465, October 2017
View SE

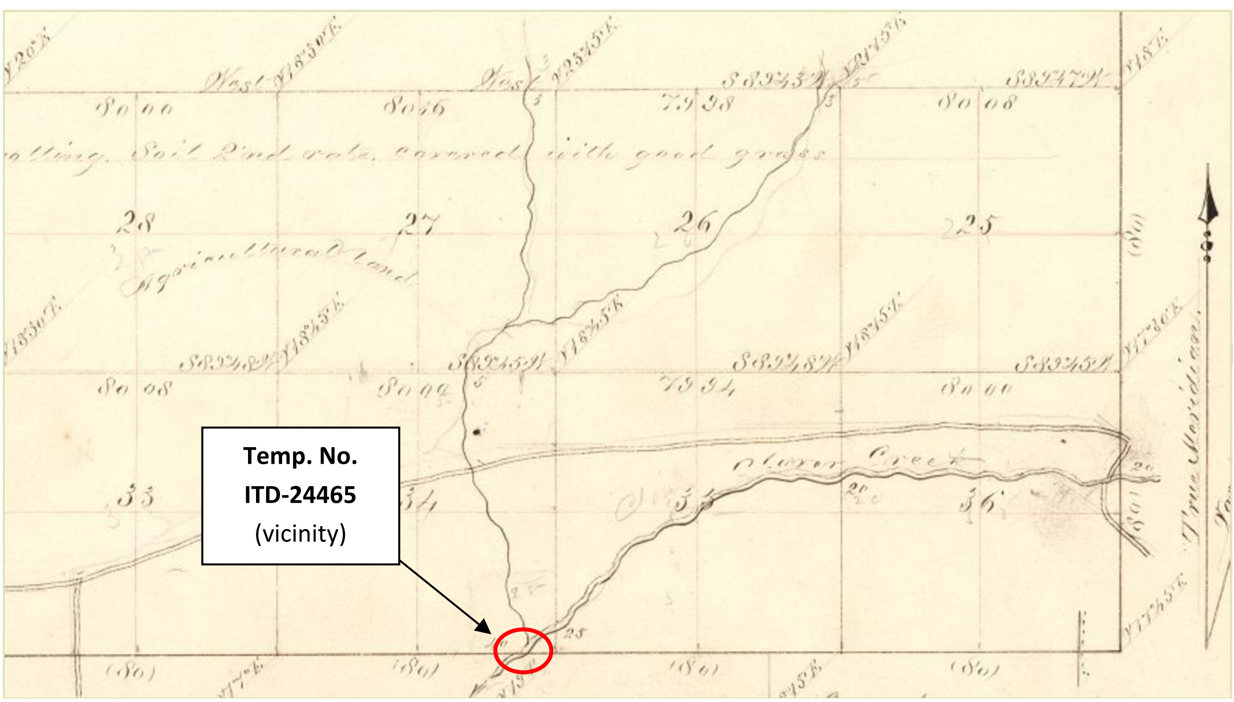
Temp. No. ITD-24465, October 2017
View NE



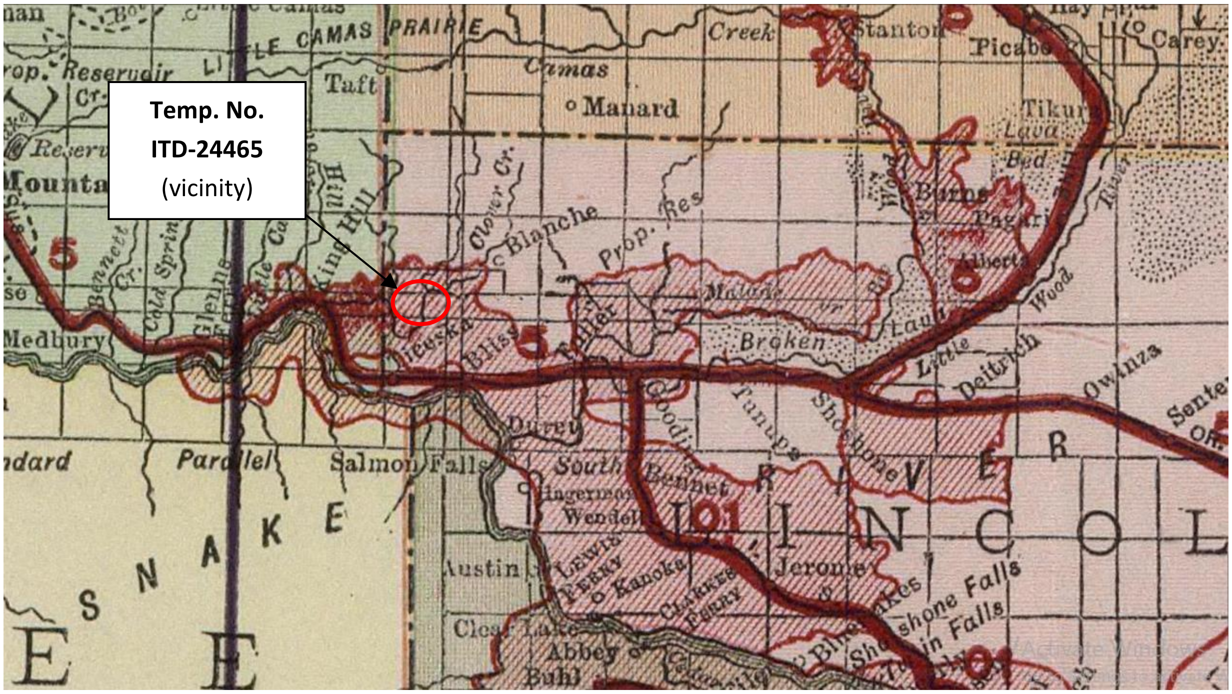
Temp. No. ITD24465, 1987 Plan and Elevation Drawings
Courtesy ITD Files



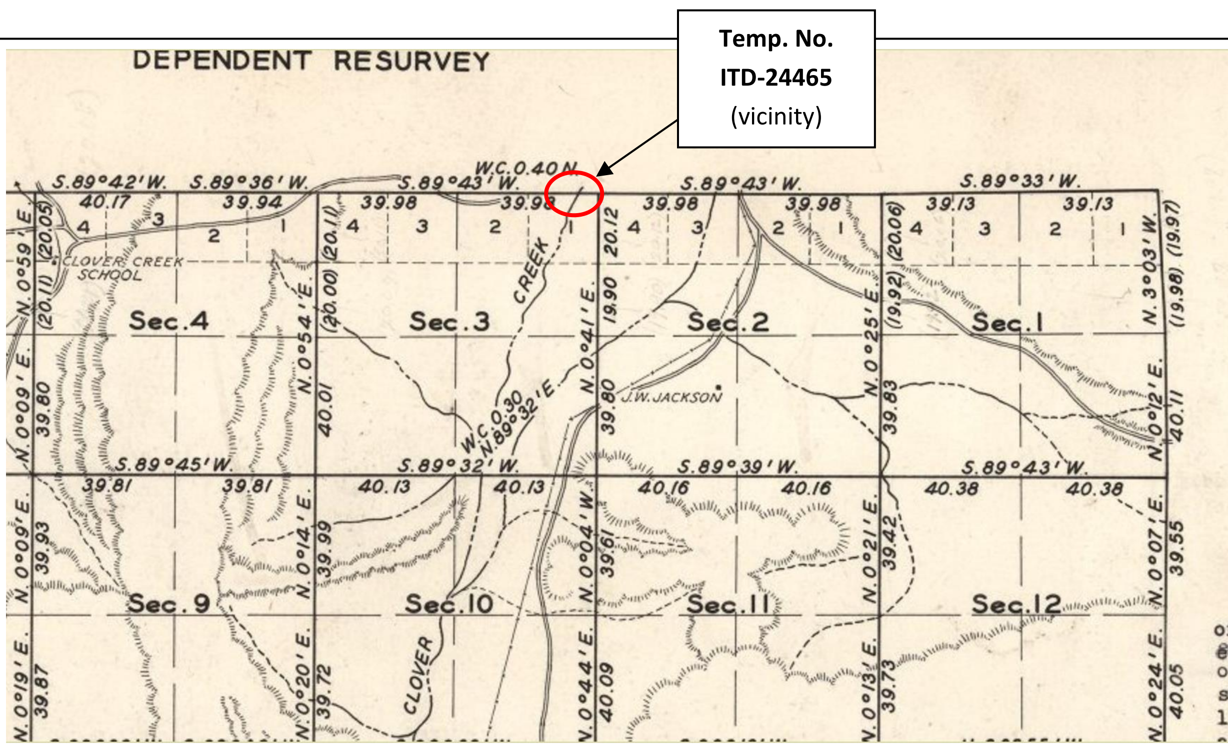
Temp. No. ITD24465, 1987 Plan and Elevation Drawings
Courtesy ITD Files



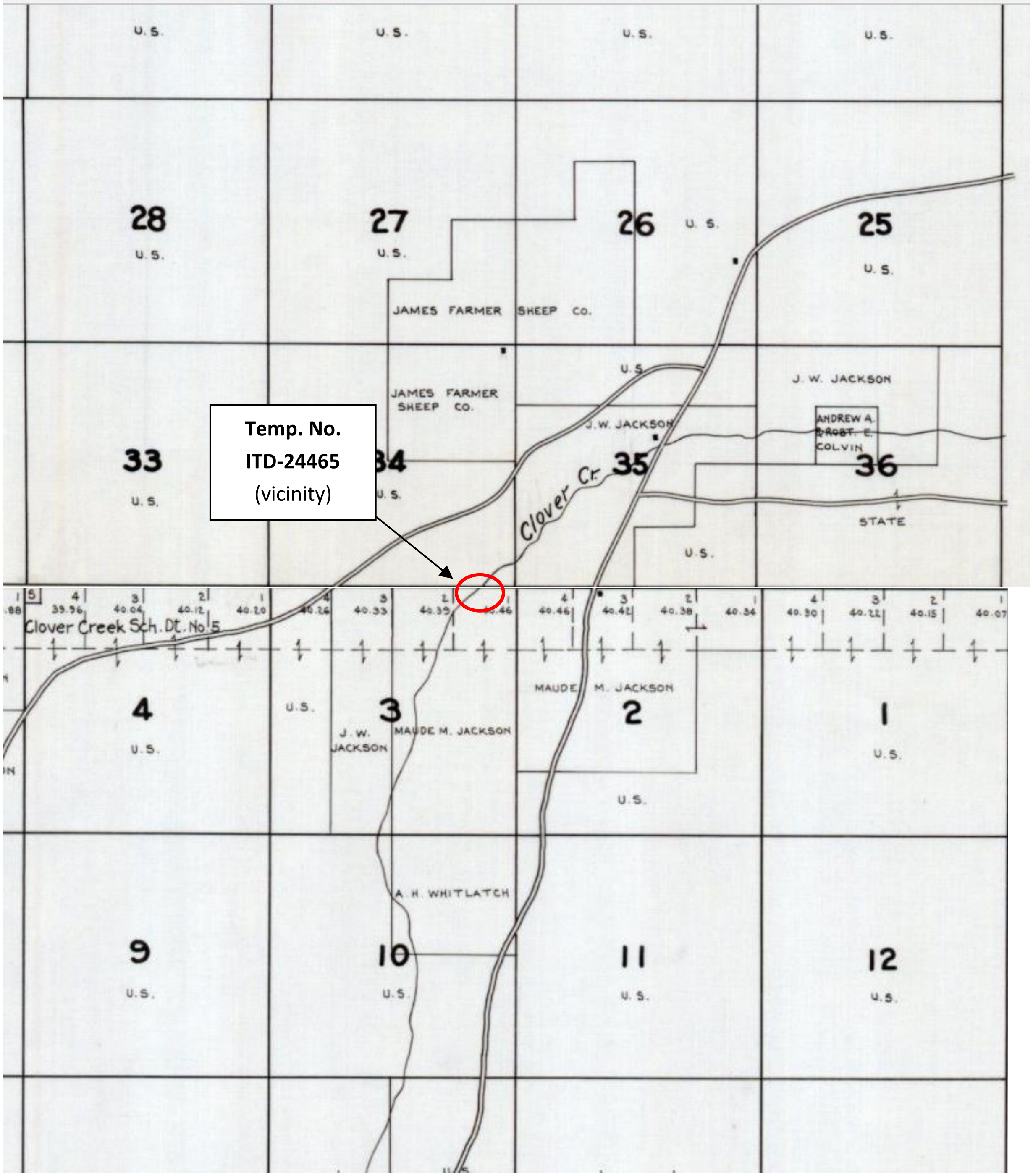
Subdivisional Survey of Township 4S 12E (partial), 1871 (detail)
Courtesy glorecords.blm.gov



Rand McNally & Co.'s Pocket Map of Idaho, 1909
Note: red shading indicates land irrigated under Carey Act reclamation projects
Courtesy David Rumsey Map Collection online, www.davidrumsey.com



Subdivisional Survey of Township 5S 12E, 1940 (detail)
Courtesy glorecords.blm.gov



Metsker's Atlas of Gooding County, 1939
Courtesy HistoricMapWorks.com
Note no roadway shown