RED RIVER WARREN WITH VERTICALS PONY TRUSS
Spanning Red River
Hollis Vicinity
Harmon County
Oklahoma

PHOTOGRAPHS

COPIES OF PLANS

AND

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
Submitted to:
Oklahoma State Historic Preservation Office
800 Nazih Zuhdi Drive
Oklahoma City, Oklahoma 73105

RED RIVER WARREN WITH VERTICALS PONY TRUSS
Spanning Red River
Hollis Vicinity
Harmon County
Oklahoma

PHOTOGRAPHS

HISTORIC AMERICAN ENGINEERING RECORD

INDEX TO PHOTOGRAPHS

RED RIVER WARREN WITH VERTICALS PONY TRUSS
Spanning Red River
Hollis Vicinity
Harmon County
Oklahoma

INDEX TO BLACK AND WHITE PHOTOGRAPHS

Tanya McDougall, Photographer, December 2011

1. OVERALL VIEW LOOKING WEST
2. OVERALL VIEW LOOKING WEST
3. DETAIL VIEW OF WARREN PONY TRUSS, LOOKING WEST
4. DETAIL VIEW OF SPANS AND PIERS, LOOKING SOUTHEAST
5. OVERALL VIEW OF SPANS AND PIERS, LOOKING NORTHWEST
6. OVERALL VIEW OF SPANS AND PIERS, LOOKING NORTHEAST
7. VIEW OF REPLACEMENT STEEL GIRDER SPAN, LOOKING WEST
8. VIEW OF CONCRETE PIER, LOOKING NORTH
9. VIEW OF CONCRETE PIER, LOOKING NORTHWEST
10. VIEW OF REPLACEMENT BENT, LOOKING NORTH
11. OVERALL VIEW OF SOUTH APPROACH, LOOKING NORTH
12. OVERALL VIEW OF NORTH APPROACH, LOOKING SOUTH
13. OVERALL VIEW OF DECK AND TRUSSES, LOOKING NORTH
14. DETAIL VIEW OF TRUSS, LOOKINGNORTHWEST
15. DETAIL VIEW OF TRUSS, LOOKING NORTHEAST

16. DETAIL VIEW OF END PANEL, LOOKING EAST

17. DETAIL VIEW OF VERTICAL MEMBER, LOOKING EAST

18. DETAIL VIEW OF CENTRAL PANEL, LOOKING EAST

19. DETAIL VIEW OF LACING AND STAY PLATES, LOOKING EAST

20. DETAIL VIEW OF END GUSSET PLATE, LOOKING EAST

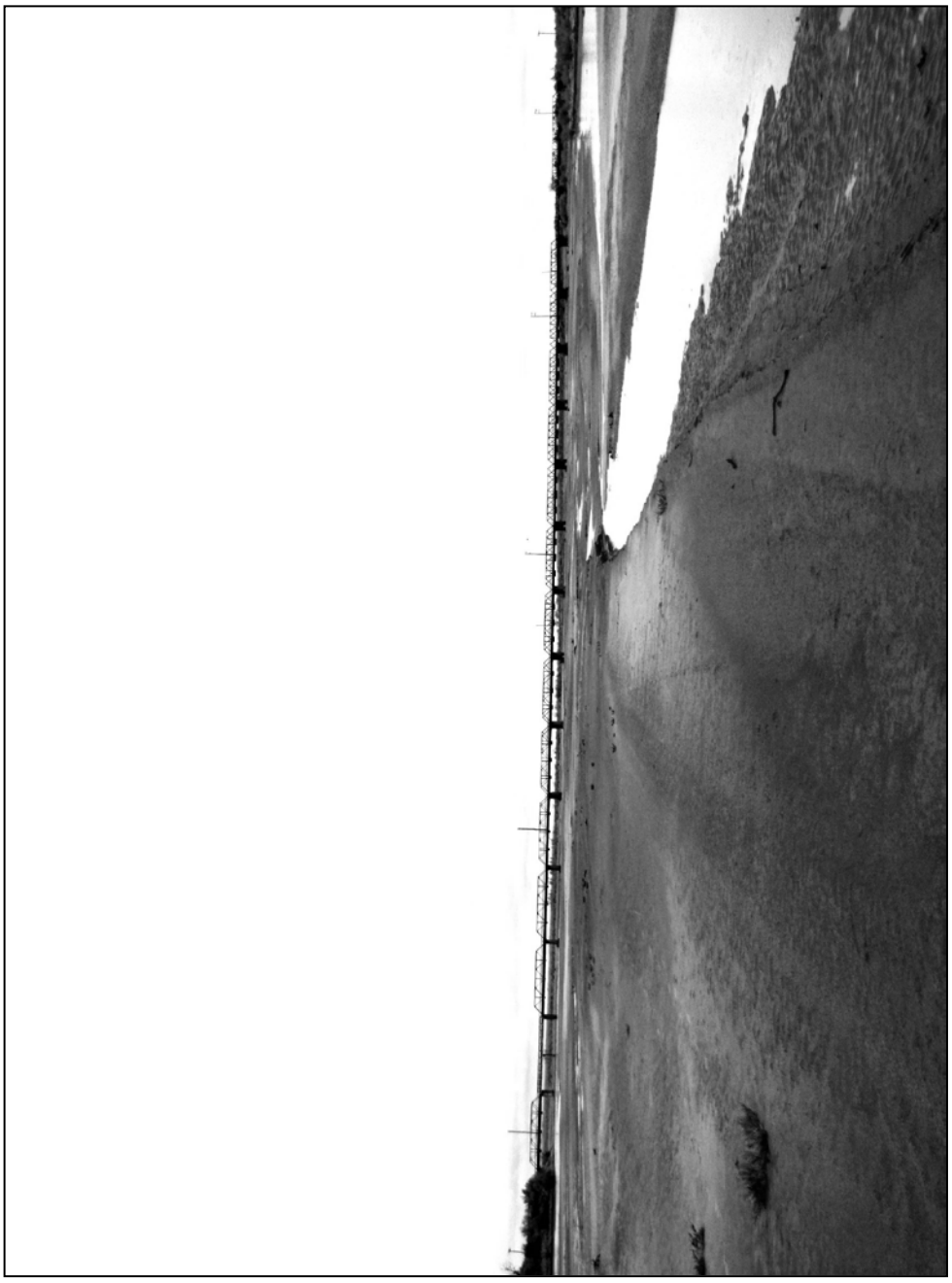
21. DETAIL VIEW VERTICAL MEMBER GUSSET PLATE, LOOKING EAST

22. DETAIL VIEW OF DIAGONAL MEMBER GUSSET PLATE, LOOKING EAST

23. DETAIL VIEW OF WOOD FLOOR PLANKS, SHOWING CHANGE IN SIZE

24. DETAIL VIEW OF BOLT

RED RIVER WARREN WITH VERTICALS PONY TRUSS
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
PHOTO 1



RED RIVER WARRN WITH VERTICALS PONY TRUSS
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
PHOTO 2

RED RIVER WARRN WITH VERTICALS PONY TRUSS
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
PHOTO 3

RED RIVER WARRN WITH VERTICALS PONY TRUSS
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
PHOTO 4

RED RIVER WARRN WITH VERTICALS PONY TRUSS
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
PHOTO 5

RED RIVER WARRN WITH VERTICALS PONY TRUSS
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
PHOTO 6

RED RIVER WARRN WITH VERTICALS PONY TRUSS
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
PHOTO 7

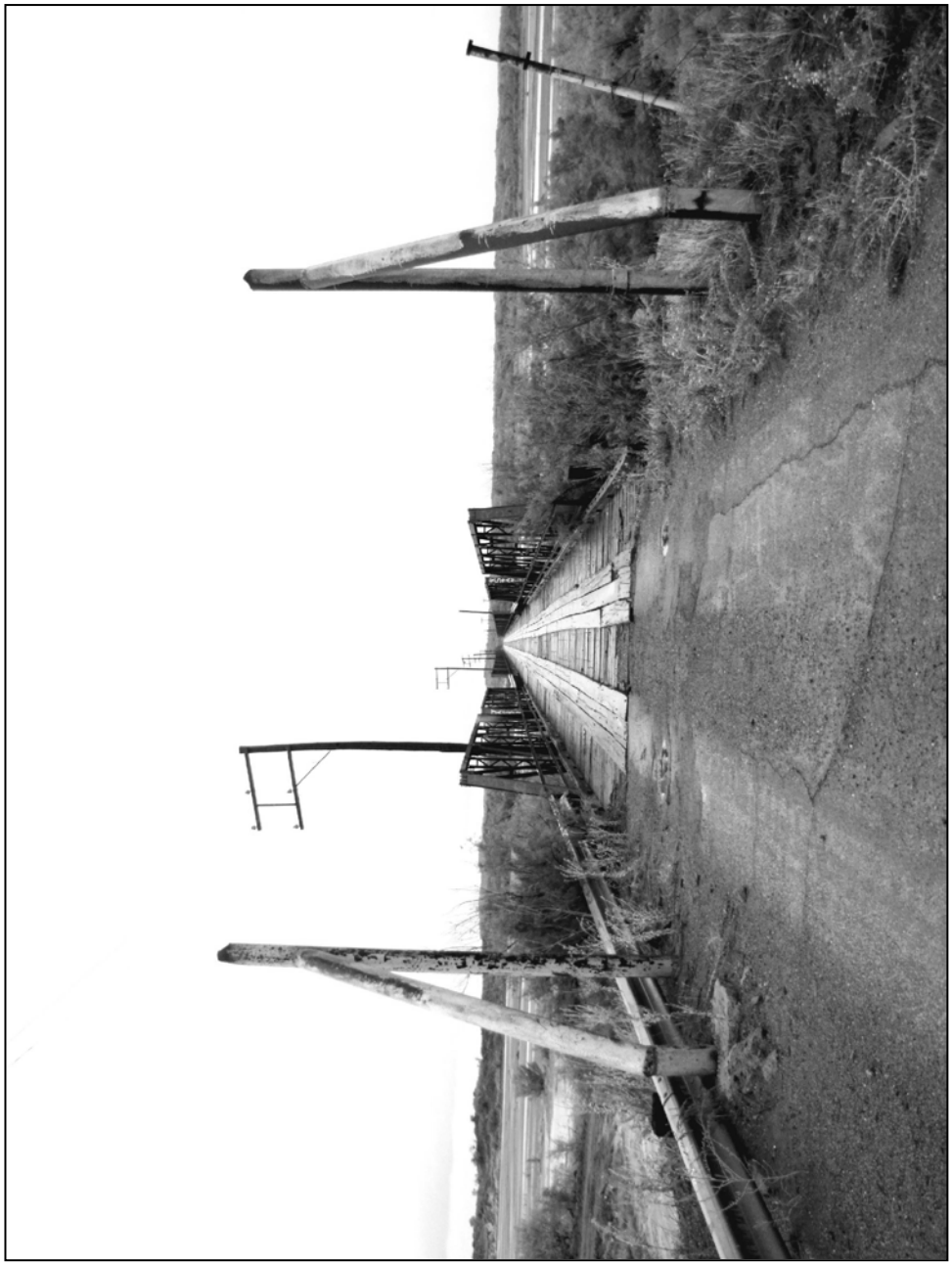
RED RIVER WARRN WITH VERTICALS PONY TRUSS
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
PHOTO 8

RED RIVER WARRN WITH VERTICALS PONY TRUSS
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
PHOTO 9

RED RIVER WARRN WITH VERTICALS PONY TRUSS
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
PHOTO 10

RED RIVER WARRN WITH VERTICALS PONY TRUSS
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
PHOTO 11

RED RIVER WARRN WITH VERTICALS PONY TRUSS
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
PHOTO 12



RED RIVER WARRN WITH VERTICALS PONY TRUSS
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
PHOTO 13

RED RIVER WARRN WITH VERTICALS PONY TRUSS
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
PHOTO 14

RED RIVER WARRN WITH VERTICALS PONY TRUSS
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
PHOTO 15

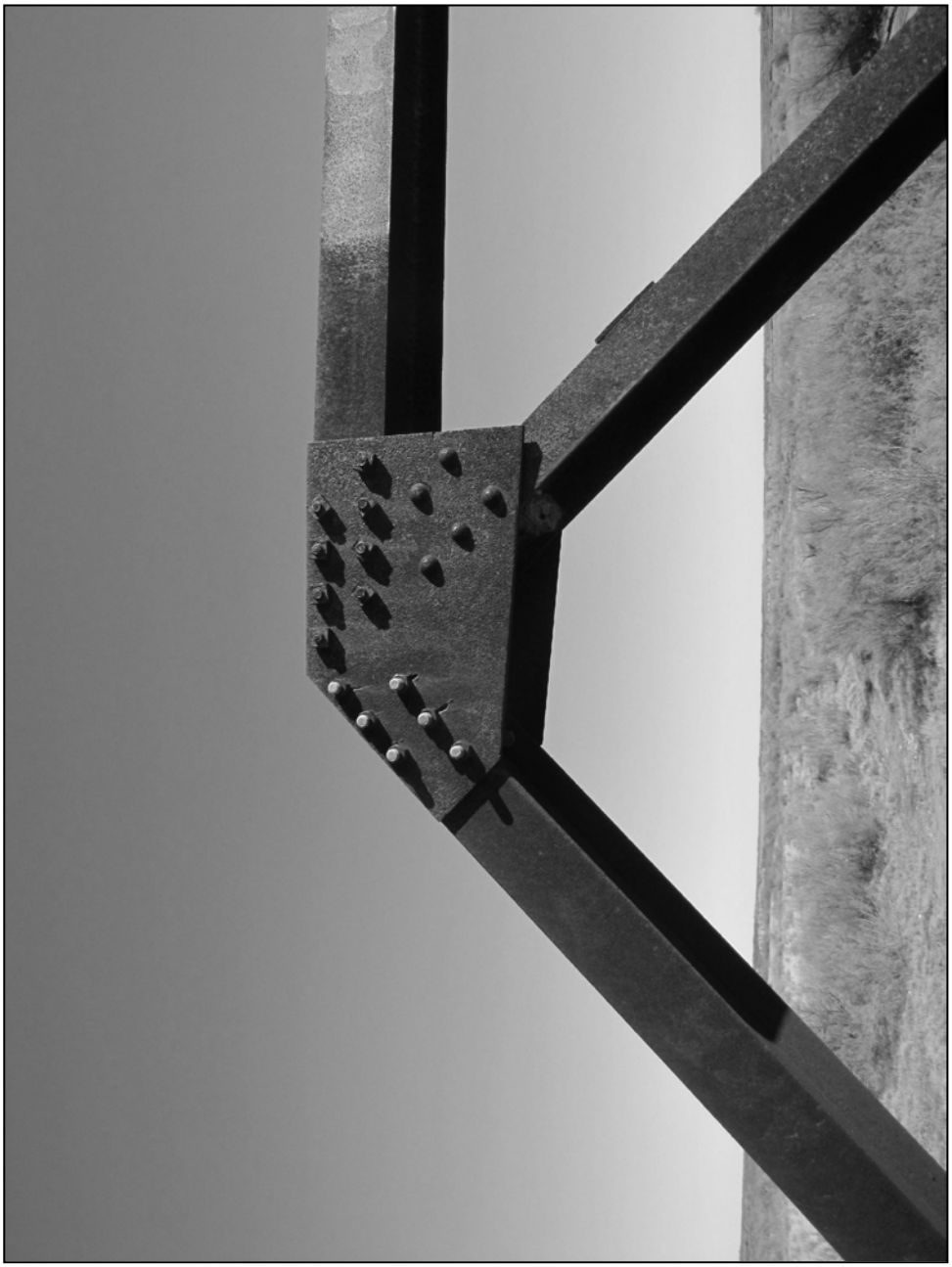
RED RIVER WARRN WITH VERTICALS PONY TRUSS
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
PHOTO 16

RED RIVER WARRN WITH VERTICALS PONY TRUSS
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
PHOTO 17

RED RIVER WARRN WITH VERTICALS PONY TRUSS
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
PHOTO 18

RED RIVER WARRN WITH VERTICALS PONY TRUSS
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
PHOTO 19

RED RIVER WARRN WITH VERTICALS PONY TRUSS
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
PHOTO 20



RED RIVER WARRN WITH VERTICALS PONY TRUSS
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
PHOTO 21

RED RIVER WARRN WITH VERTICALS PONY TRUSS
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
PHOTO 22

RED RIVER WARRN WITH VERTICALS PONY TRUSS
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
PHOTO 23

RED RIVER WARRN WITH VERTICALS PONY TRUSS
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
PHOTO 24

RED RIVER WARREN WITH VERTICALS PONY TRUSS
Spanning Red River
Hollis Vicinity
Harmon County
Oklahoma

COPIES OF PLANS

HISTORIC AMERICAN ENGINEERING RECORD

INDEX TO COPIES OF PLANS

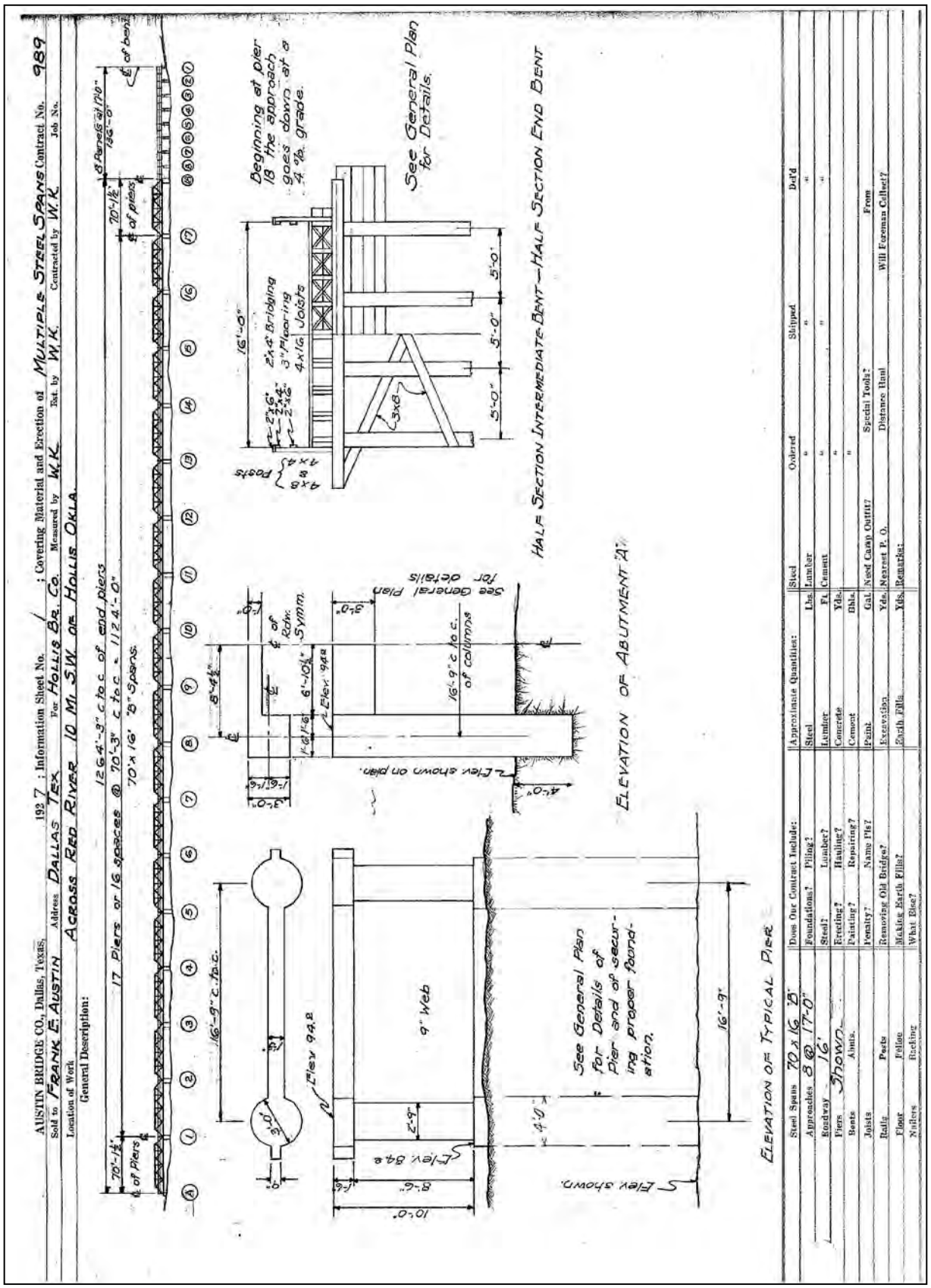
Red River Warren with Verticals Pony Truss
Spanning Red River
Hollis Vicinity
Harmon County
Oklahoma

INDEX TO COPIES OF PLANS

Plans obtained from Austin Bridge and Road, a subsidiary of Austin Industries, Dallas, Texas, January 2012

1. Sheet 1, elevation of pier, elevation of abutment “A”, and half section of bents
2. Sheet 2, general description
3. Sheet 3, permanent materials
4. Sheet 4, loading platforms
5. Sheet 5, pier forms
6. Sheet 6, top view of pier form

RED RIVER WARREN WITH VERTICALS PONY TRUSS
SEE INDEX TO COPIES OF PLANS FOR CAPTION
SHEET 1

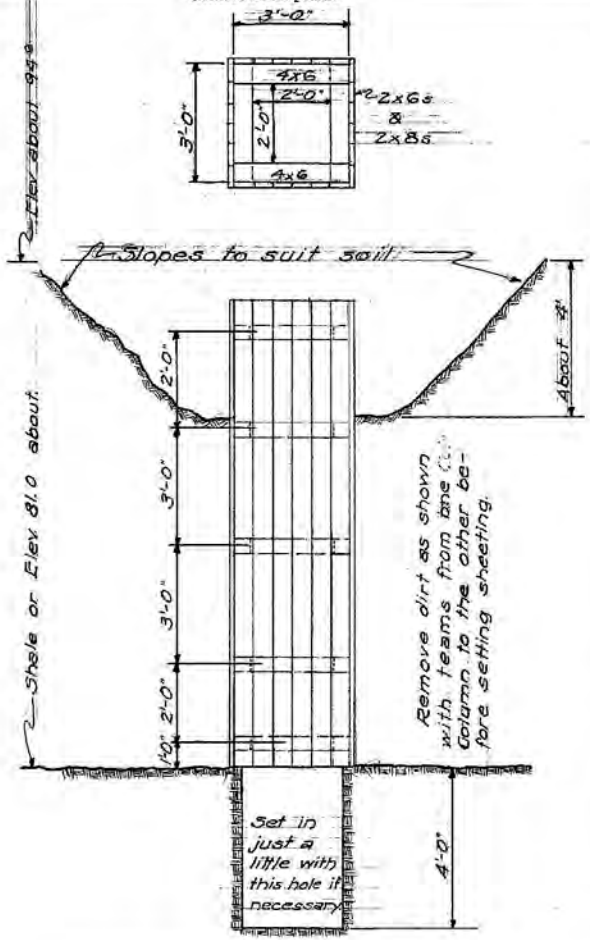


AUSTIN BRIDGE CO., Dallas, Texas, 192 ; Information Sheet No. 2 ; Covering Material and Erection of Contract No. 989

Sold to Address For Measured by Est. by Contracted by Job No.

Location of Work

General Description:



LUMBER REQ'D FOR ONE HOLE

sheeting	- 16 -	2/6 -	12'
"	- 8 -	2/8 -	12'
wales	- 5 -	4/6 -	12'
extra	- 2 -	" -	16'
"	- 4 -	2/8 -	16'
"	- 2 -	2/6 -	12'

NOTE:- Foreman had best arrange for enough lumber locally for 2 holes. He will salvage this if practical as it can be used in forming the web between these 2 columns. Concrete should be poured to about elevation 90.0 in both columns first. Then form the balance together with web, place bars and pour balance monolithic. The abutment will be the very 1st thing to be built. Pier No 1 will be next and by then we hope to have the other Cylinders.

GENERAL — We want to get off with a jump on these foundations. We have 2 loading platforms and if both can be handled with one derrick efficiently, this wants to be done. Have another crew following this foundation crew putting up forms, pouring and finishing. The steel work wants to follow close behind the pier finishing. In other words we want the last span erected within a week after the last pier is completed. The timber work on these spans should be closely behind the steel erection. We are of the opinion that this steel erection can best be handled with a stiff-leg derrick on gunwales. Bolting up trusses on the ground, lifting them into place, guying, and then placing floor beams. Will need another derrick on this job and hope to get the one at St. Jo.

Drive approach with Jo Heaver if derricks will not handle long enough leads.

Steel Spans		Does Our Contract Include:		Approximate Quantities:		Steel	Ordered	Shipped	Del'd
Approaches		Foundations?	Piling?	Steel	Lbs.	Lumber	"	"	"
Roadway		Steel?	Lumber?	Lumber	Ft.	Cement	"	"	"
Piers		Erecting?	Hauling?	Concrete	Yds.		"		
Bents	Abuts.	Painting?	Repairing?	Cement	Bbls.		"		
Joists		Penalty?	Name Pls?	Paint	Gal.	Need Camp Outfit?	Special Tools?	From	
Rails	Posts	Removing Old Bridge?		Excavation	Yds.	Nearest P. O.	Distance Haul	Will Foreman Collect?	
Floor	Fellos	Making Earth Fills?		Earth Fills	Yds.	Remarks:			
Nailers	Backing	What Else?							

RED RIVER WARREN WITH VERTICALS PONY TRUSS
SEE INDEX TO COPIES OF PLANS FOR CAPTION
SHEET 2

AUSTIN BRIDGE CO., Dallas, Texas, 192 ; Information Sheet No. 3 ; Covering Material and Erection of Contract No. 989

Sold to | Address | For | Measured by | Est. by | Contracted by | Job No.

Location of Work

General Description:

PERMANENT MATERIALS

Structural Steel (Spans) – 18 – 70x16 "B"

" " (Cylinders) – 2 for Piers 1 to 18 inclusive. Those for piers 11 to 18 inclusive are in 2 lengths. Foreman should be furnished with plan showing marking and length of each. Tubes for Pier #1 are shipping from Dallas.

Reinforcing Steel – Abutment "A"
Columns – 20 – 5/8"ϕ x 17'-0"
Web Top – 3 – " x 19'-6"
" Bottom – 3 – 1"ϕ x 19'-6"

Piers No. 1 to 18 inclusive.
Dowels – 432 – 5/8□ x 4'-0"
Col. Vert. – 432 – " x 9'-10½"
Col. Hoops – 180 – ¼ϕ x 8'-0"

Piers No. 1 to 18 inclusive (cont.)
Col. Coping – 36 – 5/8□ x 3'-5"
" " – 72 – " x 3'-2"
" " – 72 – " x 2'-10"
" " – 72 – 34□ x 2'-5"
Pier " – 36 – " x 21'-9"
Web Vert. – 288 – ½□ x 9'-9"
" Horiz. – 324 – 5/8□ x 18'-0"

Old Rail Road Rails – – Not knowing how these rails will drive or just what method will be used, we are sending a minimum car load to start with. This might be more than required or less than needed. Foreman will have office order others if needed.

Concrete Materials – Gravel 400yds, Sand 200 yds and Cement 600 BBls.

Lumber, both Fir and Pine – (Fir) – Joists on Spans – 171 – 4/16 – 20' (Pine) Floor – 2000 – 3/8 – 16'
" " " – 477 – " – 18' Posts – 6 – 4/8 – 12' (4' lgts)
" " App. – 72 – " – 18' " – 4 – 4/4 – 16' do
Bridging " " – 16 – 2/4 – 18' Rails – 32 – 2/6 – 18'
" " Spans – 144 – " – 18' " – 16 – 2/4 – 18'
Caps – 8 – 10/12 – 22'
Sways – 4 – 3/8 – 22'
Bulk'ds – 4 – 3/10 – 24'
" 2 – " – 18'

Creosoted Piles
8 pcs @ 30'
12 " @ 32'
12 " @ 34"

Carbosota (For treating Caps, sways, bulkhead planks and pile heads) 12 gals.

Paint for the rail on approach — 5 gals of white.

" " " Spans — 60 gals of Aluminum.

Hardware for Timber Work
40 – ¾" x 21" D.B.
10 – ¾" x 16" M.B.
10 – " x 18" "
5 – " x 20" "
110 – 5/8" x 10" "
50 – ¾" O.G. Washers
220 – 5/8" " "
300 lbs – 7" spikes
3500 " – 60d nails
100 " – 20d "
200 " – 16d "

Steel Spans		Does Our Contract Include:		Approximate Quantities:		Steel	Ordered	Shipped	Del'd
Approaches		Foundations?	Piling?	Steel	Lbs.	Lumber	"	"	"
Roadway		Steel?	Lumber?	Lumber	Ft.	Cement	"	"	"
Piers		Erecting?	Hauling?	Concrete	Yds.		"		
Bents	Abuts.	Painting?	Repairing?	Cement	Bbls.		"		
Joists		Penalty?	Name Pls?	Paint	Gal.	Need Camp Outfit?	Special Tools?	From	
Rails	Posts	Removing Old Bridge?		Excavation	Yds.	Nearest P. O.	Distance Haul	Will Foreman Collect?	
Floor	Felloe	Making Earth Fills?		Earth Fills	Yds.	Remarks:			
Nailers	Backing	What Else?							

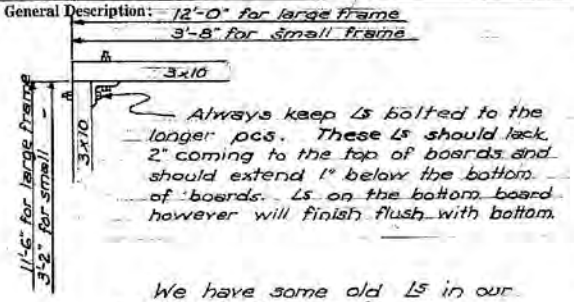
RED RIVER WARREN WITH VERTICALS PONY TRUSS
SEE INDEX TO COPIES OF PLANS FOR CAPTION
SHEET 3

AUSTIN BRIDGE CO., Dallas, Texas, 192 ; Information Sheet No. 4 ; Covering Material and Erection of Contract No. 989

Sold to Address For Measured by Est. by Contracted by Job No.

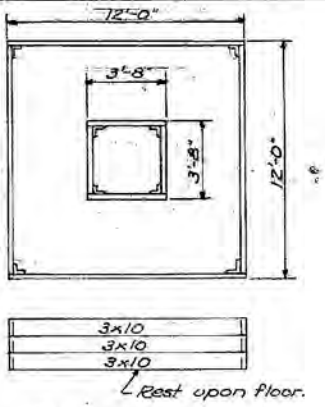
Location of Work

General Description: 12'-0" for large frame
3'-8" for small frame

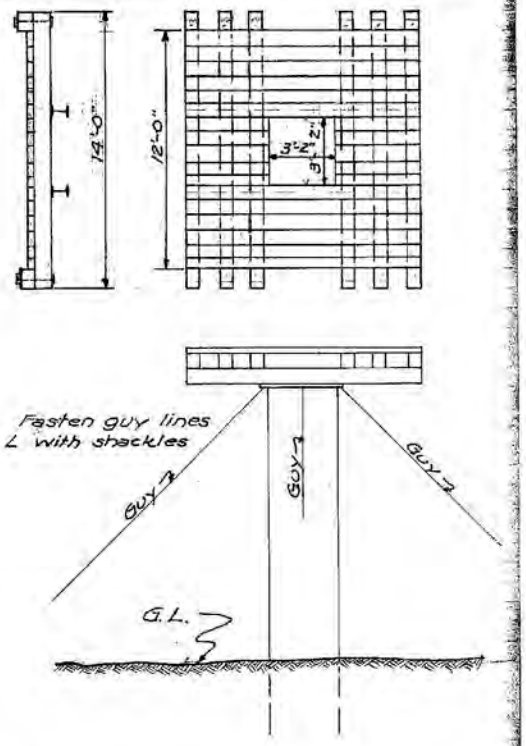


Always keep Ls bolted to the longer pcs. These Ls should lack 2" coming to the top of boards and should extend 1" below the bottom of boards. Ls on the bottom board however will finish flush with bottom.

We have some old Ls in our yard that will serve for this.



STANDARDS



MATERIALS REQUIRED FOR TWO LOADING PLATFORMS

Angles to rest upon cyls. and carry steel loading frame - 2
Steel frames for loading.

Stringers	2 x 6 = 12 -	8/8	- 14'-0"
Floor -	2 x 14 = 28 -	3/10	- 12'-0"
Standards	2 x 12 = 24 -	"	- 12'-0"
"	2 x 3 = 6 -	"	- 16'-0"

" Angles - Most any size 3"x3" or larger and between 6" and 9" in length (48)
" " Bolts 96 - 5/8" x 4½"
Joists to beams 2x12 = 24 - 5/8" x 9½"
Cleats to Joists 2 x 12 = 24 - 5/8" x 16

Everything will be shipped from Dallas except lumber which will be arranged for locally.

PROCEDURE The (L) resting upon cyl. should be bolted to the steel loading loading frame and the Joists are to be bolted to the steel frame also. This entire unit could be placed and removed as 1 piece. The side board or standards can be placed and removed in single units. For dead men for the guys on cylinders use sand boxes that can be moved from place to place. Cylinders should be sunk to elevations shown on plan. You will then drive the rails to refusal. If to hard to drive into, then either excavate 2' below Cylinder into rock or drill and set dowel as on general plan.

Steel Spans		Does Our Contract Include:		Approximate Quantities:		Steel	Ordered / Shipped / Del'd
Approaches		Foundations?	Piling?	Steel	Lbs.	Lumber	" " "
Roadway		Steel?	Lumber?	Lumber	Ft.	Cement	"
Piers		Erecting?	Hauling?	Concrete	Yds.		"
Bents	Abuts.	Painting?	Repairing?	Cement	Bbls.		
Joists		Penalty?	Name Pls?	Paint	Gal.	Need Camp Outfit?	Special Tools? From
Rails	Posts	Removing Old Bridge?		Excavation	Yds.	Nearest P. O.	Distance Haul Will Foreman Collect?
Floor	Fellos	Making Earth Fills?		Earth Fills	Yds.	Remarks:	
Nailers	Backing	What Else?					

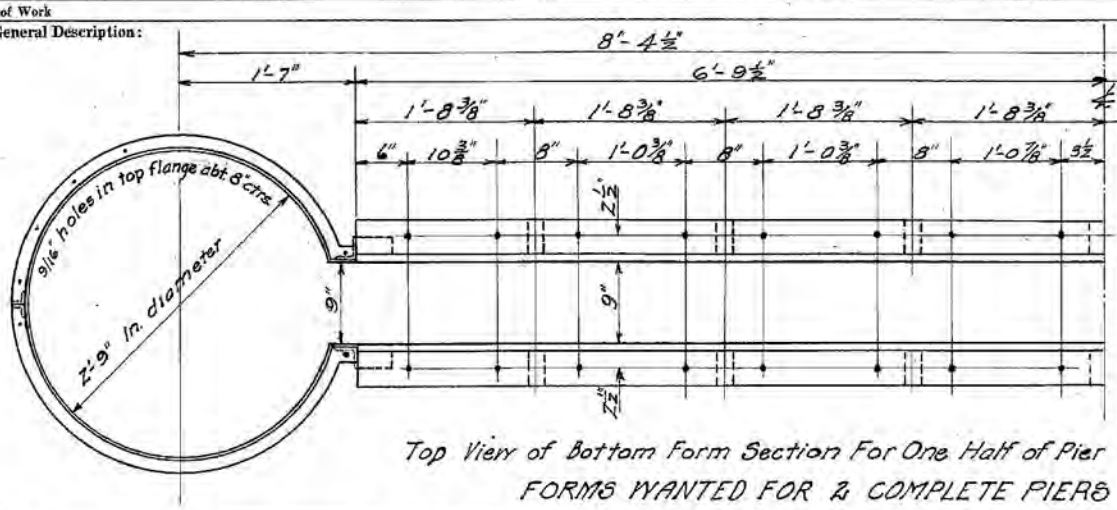
RED RIVER WARREN WITH VERTICALS PONY TRUSS
SEE INDEX TO COPIES OF PLANS FOR CAPTIONS
SHEET 4

AUSTIN BRIDGE CO., Dallas, Texas, 192 ; Information Sheet No. 5 ; Covering Material and Erection of Contract No. 989

Sold to Address For Measured by Est. by Contracted by Job No.

Location of Work

General Description:



Top View of Bottom Form Section For One Half of Pier

FORMS WANTED FOR 2 COMPLETE PIERS

Lumber Req'd For 4 Bottom Form Sections

(Forms wanted for 2 Piers)

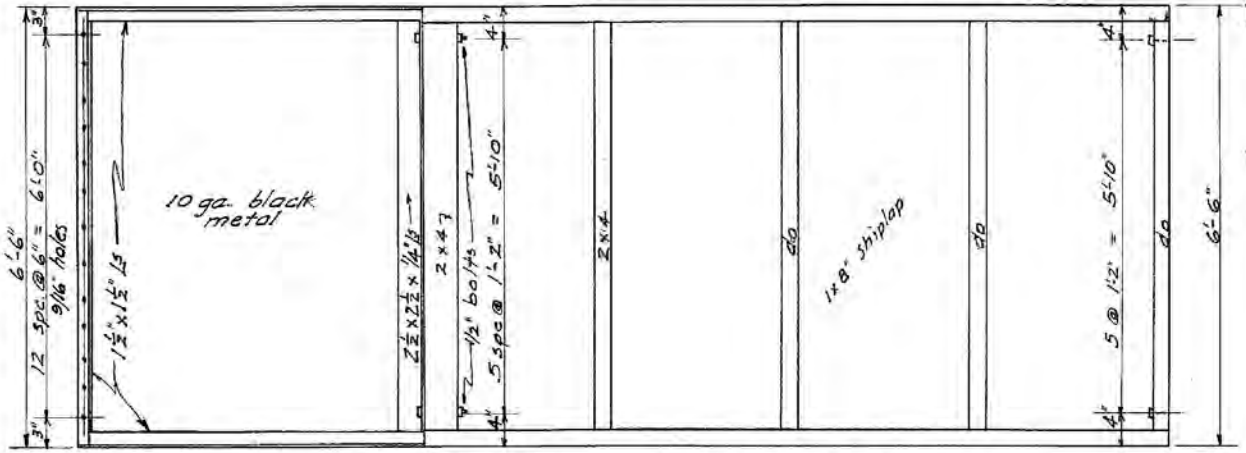
Vert. Ribs - 10 - 2/4 - 14'
Horiz. Pcs - 4 - " - 14'
Surface - 24 - 1/8 - 14' sl.

Hardware Req'd For 4 Bottom Form Sections

(Hdw. wanted for 2 sets)

Web to Col. 24 - ½" x 5" M.B.
" - Web. 12 - " x 4½" "
Top to Bot. 32 - " x 4½" "
Washers 150 - ½" cut.

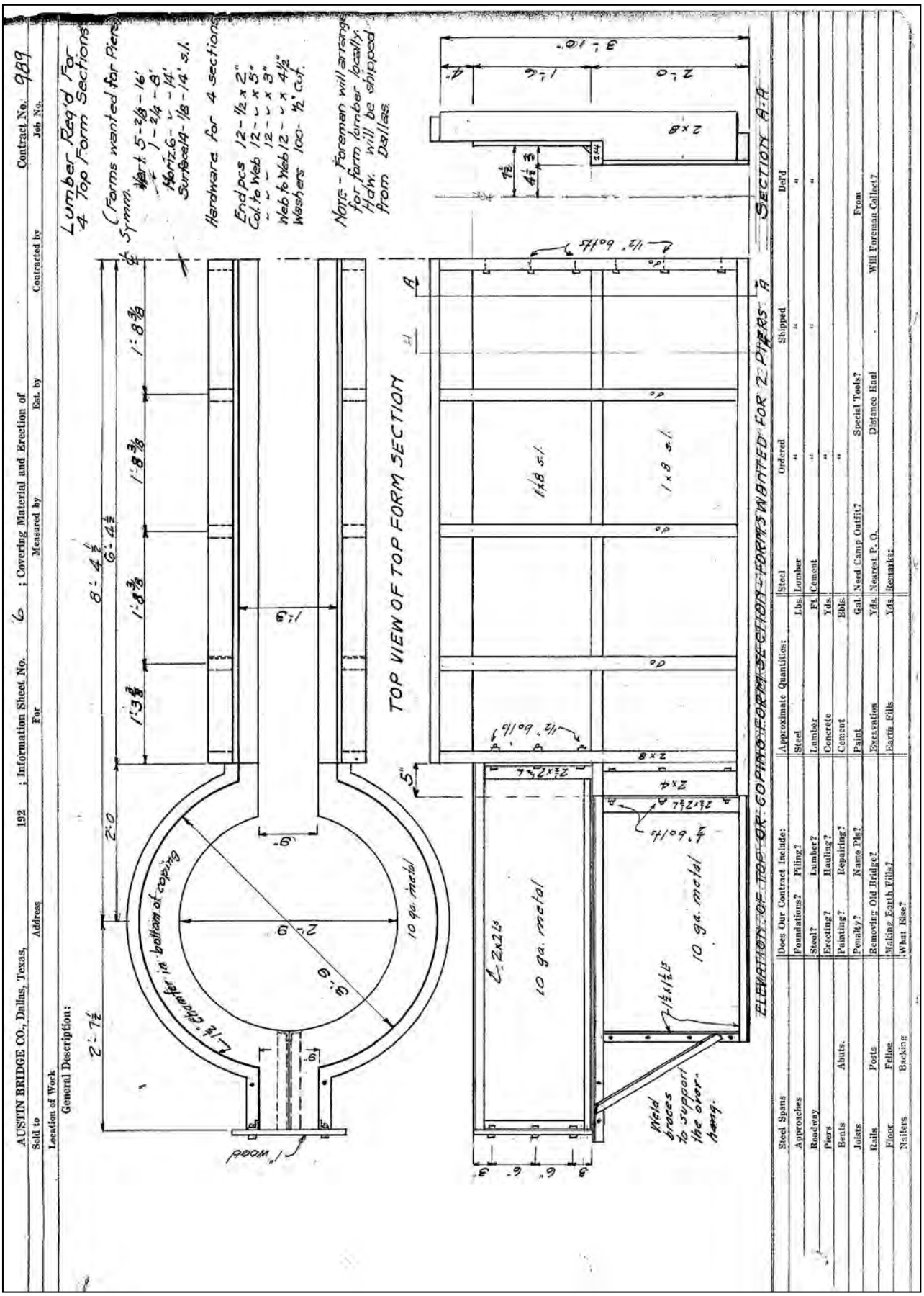
NOTE: The hardware will be shipped from Dallas. Foreman will arrange for form lumber locally.



Elevation of Bottom Form Section

Steel Spans		Does Our Contract Include:		Approximate Quantities:		Steel	Ordered	Shipped	Del'd
Approaches		Foundations?	Piling?	Steel	Lbs.	Lumber	"	"	"
Roadway		Steel?	Lumber?	Lumber	Ft.	Cement	"	"	"
Piers		Erecting?	Hauling?	Concrete	Yds.		"		
Bents	Abuts.	Painting?	Repairing?	Cement	Bbls.		"		
Joists		Penalty?	Name Pls?	Paint	Gal.	Need Camp Outfit?	Special Tools?	From	
Rails	Posts	Removing Old Bridge?		Excavation	Yds.	Nearest P. O.	Distance Haul	Will Foreman Collect?	
Floor	Felloe	Making Earth Fills?		Earth Fills	Yds.	Remarks:			
Nailers	Backing	What Else?							

RED RIVER WARREN WITH VERTICALS PONY TRUSS
SEE INDEX TO COPIES OF PLANS FOR CAPTIONS
SHEET 5


AUSTIN BRIDGE CO., Dallas, Texas, 192 ; Information Sheet No. 6 ; Covering Material and Erection of Contract No. 989
Sold to For Measured by Est. by Contracted by
Address Job No.
Location of Work
General Description:
Lumber Req'd For 4 Top Form Sections
(Forms wanted for Piers 5-mm.
Vert. 5-2⅛ - 16'
" 1 - 24 - 8'
Horiz. 6 - " - 14'
Surface 4 - ⅛ - 14' s.l.
Hardware for 4 sections
End pcs 12 - ½ x 2"
Col. to Web 12 - " x 5"
" " 12 - " x 3"
Web to Web 12 - " x 4½"
Washers 100 - ½" Cof.
Note - Foreman will arrange for form lumber locally. How will be shipped from Dallas
TOP VIEW OF TOP FORM SECTION
ELEVATION OF TOP OR BOTTOM FORM SECTION - FORMS WANTED FOR 2 PIERS
SECTION A-A
10 ga. metal
Weld braces to support the overhang.
Steel Spans
Approaches
Roadway
Piers
Bents Abuts.
Joists
Rails Posts
Floor Fellos
Nailers Backing
Does Our Contract Include:
Foundations? Piling?
Steel? Lumber?
Erecting? Hauling?
Painting? Repairing?
Penalty? Name Pile?
Removing Old Bridge?
Making Earth Fills?
What Rise?
Approximate Quantities:
Steel Lbs.
Lumber Ft.
Concrete Yds.
Cement Bbls.
Paint Gal.
Excavation Yds.
Earth Fills Yds.
Steel Ordered Shipped
Lumber " "
Cement " "
" "
" "
Special Tools? From
Need Camp Outfit?
Nearest P. O. Distance Haul Will Foreman Collect?
Remarks:
Del'd

RED RIVER WARREN WITH VERTICALS PONY TRUSS
Spanning Red River
Hollis Vicinity
Harmon County
Oklahoma

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD

RED RIVER WARREN WITH VERTICALS PONY TRUSS

Location: Spanning the Red River, at Hollis Road, in the Hollis vicinity, Harmon County, Oklahoma.
UTM: 14/E0412173/N3826712
Quad: Hollis Southwest, OK-TX

Present Owner: Harmon County, Oklahoma, and Hardeman County, Texas
ODOT Structure Number 29N1684E1680001
TxDOT Structure Number 25100AA0112001

Present Use: Vehicular Bridge

Significance: The Red River Warren with Verticals Pony Truss was constructed in 1927, by the Austin Bridge Company of Dallas, Texas. Initial plans for the bridge's construction were for the sole purpose of carrying an 18-inch pipeline across the Red River for the Lone Star Gas Company. However, the gas company offered to collaborate with Harmon County to construct a one-lane wagon bridge, if the county agreed to contribute $10,000 toward its construction. Ultimately, a 1,402-foot Warren Truss wagon bridge was constructed. This unusually long one-lane bridge is the longest Warren Truss bridge crossing the Red River and demonstrates a unique collaboration between the gas company and the citizens of Harmon County.

Project Information: Historic American Engineering Record (HAER) Level II equivalent documentation was performed in December 2011. Tanya McDougall, Architectural Historian, conducted the on-site recordation and compiled the historical information. During the on-site recordation, photographs following National Park Service (NPS) standards for digital photographs were taken of the structure, and observations on existing conditions were noted. This HAER recordation serves as mitigation for the demolition of this structure.

List of Preparers:

Historian/ Project Manager: Tanya McDougall
Architectural Historian
Geo-Marine Inc.
Plano, Texas

Principal Investigator: Marsha Prior, Ph.D.
Director of Historical Services
Geo-Marine Inc.
Plano, Texas

Field Assistant:	Lindsey Skelton Geo-Marine, Inc. Plano, Texas
Editor:	Sharlene Allday Geo-Marine, Inc. Plano, Texas
Report Production:	Denise Pemberton Geo-Marine, Inc. Plano, Texas

PART I. HISTORICAL INFORMATION

A. Physical History:

1. **Date of Construction:** 1927

2. **Architect/Engineer:** Not Known

3. **Builder/Contractor/Supplier:** Austin Bridge Company

4. **Original Plans:** Copies of plans were obtained from Austin Industries, Dallas, Texas

5. **Alterations and Additions:** Two of the original Warren Truss spans have been removed and replaced by steel girder spans. Additional bents were added at the center of each replacement span. The replacement spans are the third span on each end of the bridge.

B. Historical Context:

1. Introduction

The Red River Warren with Verticals Pony Truss Bridge is located on the Red River between Harmon County, Oklahoma, and Hardeman County, Texas. The nearest populated center to the bridge is the town of Hollis, located approximately 7.5 miles north in Harmon County, Oklahoma. The area now encompassed by Harmon County was part of Greer County, Texas, until 1896, when it was deemed part of Oklahoma Territory.[1] In 1907, Oklahoma was admitted to the Union as the forty-sixth state, and in 1909, Harmon County was established as Oklahoma's seventy-sixth county. Hollis was designated the county seat (Wilson 2011).

[1] In 1819, the Adams-Onis Treaty of 1819 established the boundary line between Spanish Territory and United States Territory; however, errors on the treaty map contributed to disputes concerning where the boundary line was actually located. In 1886, Greer County, Texas, was organized, but disputes over the boundary line persisted. In 1896, the U.S. Supreme Court decided the boundary line between Texas and U.S. Territory was the South Fork of the Red River and made Greer County part of Oklahoma Territory (Moore 2012).

During the early part of the 1900s, settlers were attracted to Harmon County for its rich soil and abundant wildlife. Agriculture was the primary economic mainstay in the county, and crops grown included cotton, wheat, and sorghum. Livestock was also raised. In 1909, the county had 1,312 farms, and by 1930 the number of farms had grown to 1,799. As the county's agricultural industry continued to develop, several gins in and around Hollis were established. By the 1930s, 13 cotton gins operated in the towns of Hollis and Gould (Wilson 2011).

Early transportation routes used throughout the county followed Native American trails and waterways. In 1910, the Altus, Wichita Falls, and Hollis Railway, later the Missouri, Kansas, and Texas Railroad, constructed a railroad line through Harmon County, passing Hollis on the way to the Oklahoma-Texas state line (Wilson 2011). In 1924, several roads near the location of the Red River bridge were improved through funding approved by the Commissioner of Highways and the State Engineer (Harmon County Clerk [HCC] 1924:County Commissioner Minutes [CCM] 2:88).

Between 1910 and 1930, Harmon County experienced a period of growth, and in 1930 the county population peaked at 13,834 (Wilson 2011). It was during this period of growth and economic activity (late-1920s and 1930s) that the county made the decision to collaborate with the Lone Star Gas Company of Dallas, Texas, to construct a wagon bridge across the Red River.

2. Development of the Harmon County, Red River Bridge

In 1927, the Lone Star Gas Company announced plans to construct an 18-inch pipeline from Texas through southwest Oklahoma. The pipeline route would cross the Red River through the southwest corner of Harmon County; however, in order to cross the Red River a bridge would have to be constructed south of Hollis. Initially, plans for the Red River Bridge were for the sole purpose of carrying the pipeline, but on February 17, 1927, the gas company made it known that they would "entertain a proposition from the county to make [the bridge] wide enough to provide a wagon bridge" (*Hollis Post-Herald and Harmon County Tribune* [*HPHHCT*] 17 February 1927).

The Lone Star Gas Company had one condition to construct the bridge: that $10,000 be contributed toward its cost (*Gould Democrat* [*GD*] 14 September 1939). However, since the bridge was to be constructed by a private company and not the state, the responsibility of paying the $10,000 fee fell on the county and its citizens. Although the cost of the bridge was no doubt a burden, the benefits of having a bridge in that location were very appealing. The bridge south of Hollis would allow access to areas southwest and provide a faster route to Childress, Texas. For these reasons, the county agreed to the $10,000 fee and began raising funds for construction of the bridge (*GD* 14 September 1939).

By April 1927, a soliciting committing was formed and tasked with selling notes to fund construction of the Red River Bridge. The notes could be purchased from committee members, most businesses throughout Hollis, or the *HPHHCT* office in Hollis. Payments for the bridge were scheduled for "one-quarter to be paid May 1st, one-quarter July 1st, and the last half October 1st" (*HPHHCT* 14 April 1927).

The Austin Bridge Company of Dallas, Texas, was contracted by Frank E. Austin and the Hollis Bridge Company of Dallas, Texas, to construct the bridge.[2] Frank E. Austin, who was also the director and treasurer of the Austin Bridge Company, was granted a toll franchise on April 18, 1927, by the Harmon County Board of County Commissioners (HCC 1927:CCM 2:224). Frank Austin most likely created the Hollis Bridge Company for the purpose of operating a toll service on the bridge. The practice of collecting a toll for the use of a bridge was very common because it allowed the state to avoid the cost of constructing and maintaining a facility, and allowed the bridge company to recuperate the cost of construction (Everett 2011).

In May 1927, Frank Austin informed the county that "orders for all materials for the bridge have been placed, and . . . work on the bridge will actually start as soon as materials are on the ground . . ." He also noted that the bridge company had not yet received its first payment (*HPHHCT* 5 May 1927; Miller 1974:83). Materials used to construct the bridge were shipped from Dallas with the exception of the lumber used for the deck, which was to be purchased locally (Austin Industries 1927:4).

Although the first payment for the bridge was delayed, by July 1927 construction activities for the Red River Bridge were well underway (*HPHHCT* 14 July 1927). The Red River Warren with Verticals Pony Truss Bridge was completed by 1928 and cost approximately $63,000 (*GD* 14 September 1939). Upon completion, the Hollis Bridge Company opened the bridge as a toll bridge, which it operated until 1929, when the company was consolidated under the charter of the Southern Toll Bridge Corporation of Dallas, Texas, of which Frank E. Austin was a director (*Ada Weekly News* 6 June 1928; *San Antonio Express* 29 January 1929).

The Red River Warren with Verticals Pony Truss Bridge operated as a toll bridge from 1927 through 1939. During the late-1920s and throughout the 1930s, having toll bridges along the Red River was a highly debated issue. Citizens no longer wanted to pay for the use of transportation facilities, and in 1929, the state began taking on the responsibility of bridge construction. In 1931, the state constructed three free bridges crossing the Red River on U.S. Highways 75, 77, and 81. The free bridges were constructed near toll bridges already operating on those roads, which angered the toll bridge companies and began what is known as the "Red River Bridge War"[3] (Everett 2011).

---

[2] The Austin Bridge Company, located in Dallas, Texas, was one of the most prolific bridge companies in Texas and the southwest. The company began as the George E. King Bridge Company of Des Moines, Iowa, for which the Austin brothers, George L. Austin and Frank E. Austin, were agents in the Dallas area. By 1908, the Austin brothers had severed ties with the King Bridge Company and formed their own partnership under the name Austin Brothers, Contractors. In 1918, Charles R. Moore, a manager of the company, purchased the contracting portion of the Austin company and modified the name to Austin Brothers Bridge Company. Frank E. Austin retained the fabricating portion of the company, but also stayed on as a director and treasurer of the new company. The company was renamed Austin Bridge Company in 1923 (Miller 1974:1–3).

[3] The "Red River Bridge War" began in July 1931, when three free bridges crossing the Red River were opened next to existing toll bridges. The Red River Bridge Company, a private firm operating the toll bridges, filed an injunction in the United States district court of Houston preventing the Texas Highway Department from opening the free bridges. On July 10, 1931, Texas governor Ross S. Sterling ordered barricades erected across the Texas approaches to the new free bridge. The act was countered on July 16, 1931, by Oklahoma governor William Murray, who ordered the bridge open by executive order. The dispute over the free bridges continued until August 6, 1931, when the Texas injunction was dissolved (Taylor 2012).

By 1939, most of the bridges crossing the Red River were free of tolls, and in April of that year, the State Highway Department was authorized to purchase pipe bridges at a cost not to exceed $1,500 each *(Ada Evening News* 18 April 1939). On September 8, 1939, the state of Oklahoma purchased the Red River Bridge south of Hollis for $1,446.10 and opened it as a free bridge (*GD* 14 September 1939). The bridge has remained toll-free since.

PART II. STRUCTURAL/DESIGN INFORMATION

A. General Description: The Red River Warren with Verticals Pony Truss is a one-lane wood deck bridge along Hollis Road on the border of Oklahoma and Texas. The structure runs north–south to accommodate the west to east drainage of the Red River.

The structure consists of 18 spans and eight 17-foot approach spans on the north end. The total length of the structure is approximately 1,402 feet with the longest span measuring 70 feet. The simple span design (spans that could be independent of one another) has allowed for the replacement of two of the original Warren Truss spans with steel girder spans. The replacement of the original truss spans has created gaps at each end of the structure and interrupted the once continuous row of trusses. Each truss consists of four panels, has inclined end posts, vertical members consisting of angles held together with lacing, and diagonal members consisting of angles held together with stay plates. The structure is riveted together with gusset plates located at each connection.

The structure's 16-foot-wide one-lane deck consists of 10 rows of wood stringers, metal bottom lateral bracing, and metal floor beams. The deck floor consists of wood floor planks running perpendicular to the structure, with two rows placed on top running parallel to the structure. The floor planks covering the first two spans on the south end of the structure are smaller in width than the floor planks on the remaining structure. The floor planks at the southern end are approximately 2.36 inches wide and the remaining floor planks are approximately 11.5 inches wide.

The bridge's substructure consists of 17 concrete piers and 11 metal bents. The concrete piers (column piers with solid web wall) are original to the structure and positioned at the ends of each span. Nine of the metal bents (steel bents with braces) are original to the structure and support the approach spans. The two remaining metal bents are located at the center of the replacement steel girder spans and were added to the structure presumably when the replacement spans were installed.

1. Character: The bridge structure is a multispan Warren Truss bridge with a one-lane wood deck. The simple-span design is indicative of its rural location. Constructing several small spans is easier than constructing one large continuous span. Furthermore, the small spans are easier to transport, particularly to rural areas.

The riveted connections are also a defining feature of this structure. After World War I, riveted connected trusses became standard, with the Warren Truss being one of the most common truss designs. Riveted connections were used until 1960, when bolt connection became popular (Solomon 2007:52). Although the Warren Truss is a

common truss design used throughout Oklahoma and Texas, this structure's unusual length demonstrates a unique use of multiple spans.

2. **Condition of Fabric:** The Red River Warren with Verticals Pony Truss retains its character and integrity. The structure shows evidence of normal deterioration due to exposure to the elements. Noted deterioration includes damage to the wood plank floor and erosion of the concrete piers. The replacement steel girder spans on each end of the bridge have produced gaps along the once continuous truss system, but due to their location near the ends, they do not detract from the structure's long collection of Warren Pony Trusses and unique visual impact.

B. Site Information: The immediate area surrounding the Red River Warren with Verticals Pony Truss Bridge is undeveloped. The northern and southern landscapes are covered by native vegetation.

PART III. SOURCES OF INFORMATION

A. Primary Sources:

Ada Evening News [Ada, Oklahoma]
1939 "State Highway Department to Purchase Pipe Bridges" 18 April:1. Ada, Oklahoma.

Ada Weekly News [Ada, Oklahoma]
1928 "Delay Step for Buying Bridges" 6 June:7. Ada, Oklahoma.

Austin Industries
1927 "Multiple Steel Spans, Contract No. 989." Information sheets 1–6. Austin Bridge Company, Dallas, Texas.

Gould Democrat (GD) [Gould, Oklahoma]
1939 "River Bridge Sale Abolishes Toll into Texas" 14 September:1. Gould, Oklahoma.

Harmon County Clerk (HCC)
1924 County Commissioner Minutes. Book 2:88. Hollis, Oklahoma.

1927 County Commissioner Minutes. Book 2:224. Hollis, Oklahoma.

Hollis Post-Herald and Harmon County Tribune (*HPHHCT*) [Hollis, Oklahoma]
1927 "Red River May be Bridged South of Hollis, Also Salt Fork." 17 February:1. Hollis, Oklahoma.

1927 "Another Good Citizen Wanted to Help on Bridge." 14 April:1. Hollis, Oklahoma.

1927 "Work on Red River bridge to Start Soon." 5 May:1. Hollis, Oklahoma.

1927 "Two Boys Injured at new River Bridge." 14 July:1. Hollis, Oklahoma.

San Antonio Express [San Antonio, Texas]
1929 "Red River Toll Bridge Company Chartered." 29 January:12. San Antonio, Texas.

B. Secondary Sources:

Everett, D.
2011 "Turnpikes and Toll Bridges." http://digital.library.okstate.edu/encyclopedia/entires/T/TU022.html (accessed October 31, 2011).

Moore, W.
2012 "Greer County, Texas." http://www.tshaonline.org/handbook/online/articles/hcg81 (accessed January 19, 2012).

Miller, S.
1974 *Austin Bridge Company and Associated Companies: The First 50 Years 1918–1968.* Taylor Publishing Company, Dallas, Texas.

Solomon, B.
2007 *North American Railroad Bridges.* Voyageur Press, St. Paul, Minnesota.

Taylor, L.
2012 "Red River Bridge Controversy." http://www.tshaonline.org/handbook/online/articles/mgr02 (accessed January 17, 2012).

Wilson, L.
2011 "Harmon County, Oklahoma." http://digital.library.okstate.edu/encyclopedia/entries/H/HA026.html (accessed September 21, 2011).

RED RIVER WARREN WITH VERTICALS PONY TRUSS
Spanning Red River
Hollis Vicinity
Harmon County
Oklahoma

LOCATION MAP

RED RIVER WARREN WITH VERTICALS PONY TRUSS
HARMON COUNTY, OKLAHOMA
LOCATION MAP