

HOMINY CREEK K THROUGH TRUSS BRIDGE

Spanning Hominy Creek

Sperry vicinity

Tulsa County

Oklahoma

JP Number 24365(04)

Structure Number 7236 0743X

NBI Number 09535

PHOTOGRAPHS

COPIES OF PLANS

AND

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

*Final*

HISTORIC AMERICAN ENGINEERING RECORD

Submitted to:

Oklahoma State Historic Preservation Office

Oklahoma Historical Society

Oklahoma History Center, 800 Nazih Zuhdi Dr.

Oklahoma City, Oklahoma 73105

June 2015

SHPO File No. 1623-12/MOA #385

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Tori Raines, Photographer, July 2012

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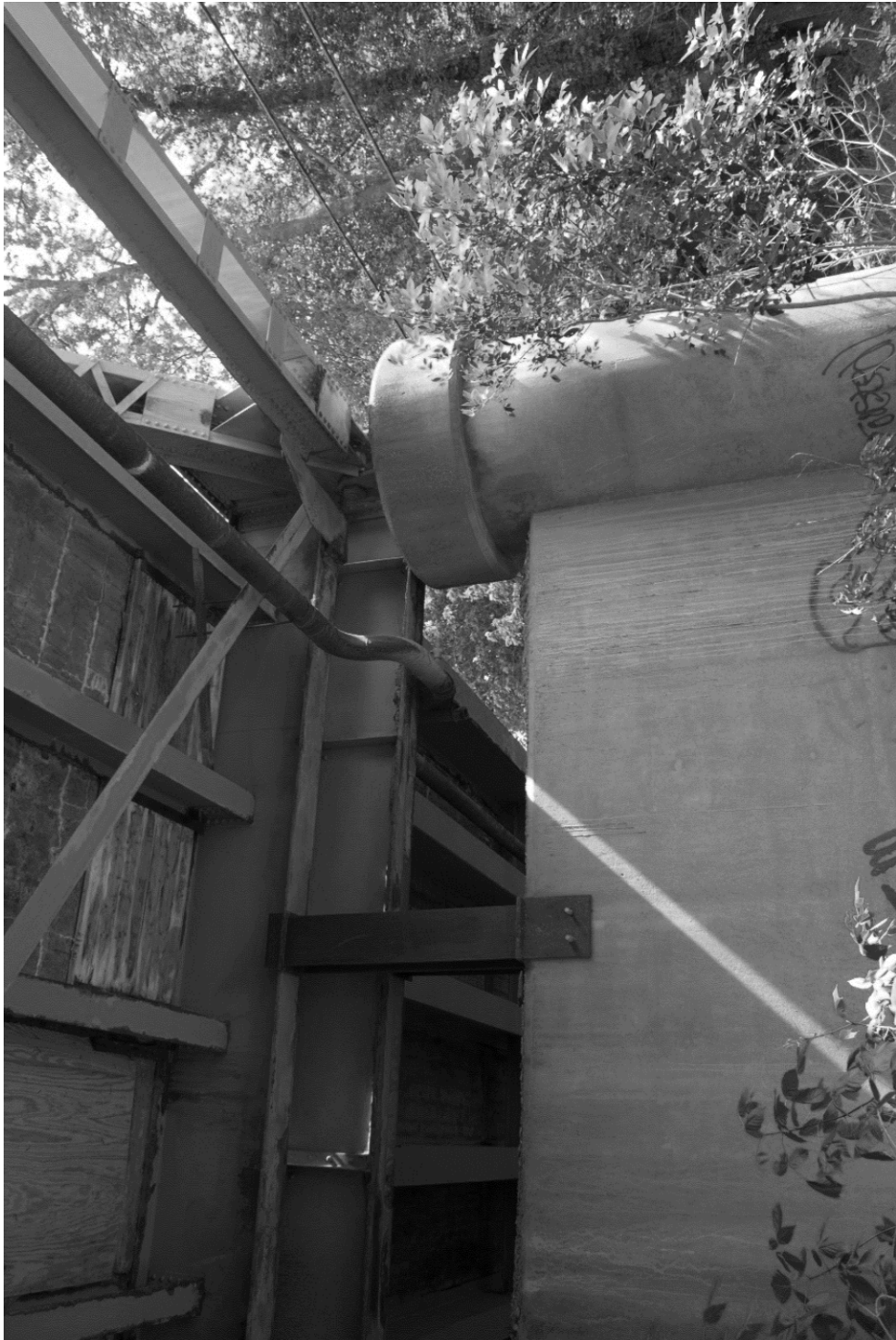
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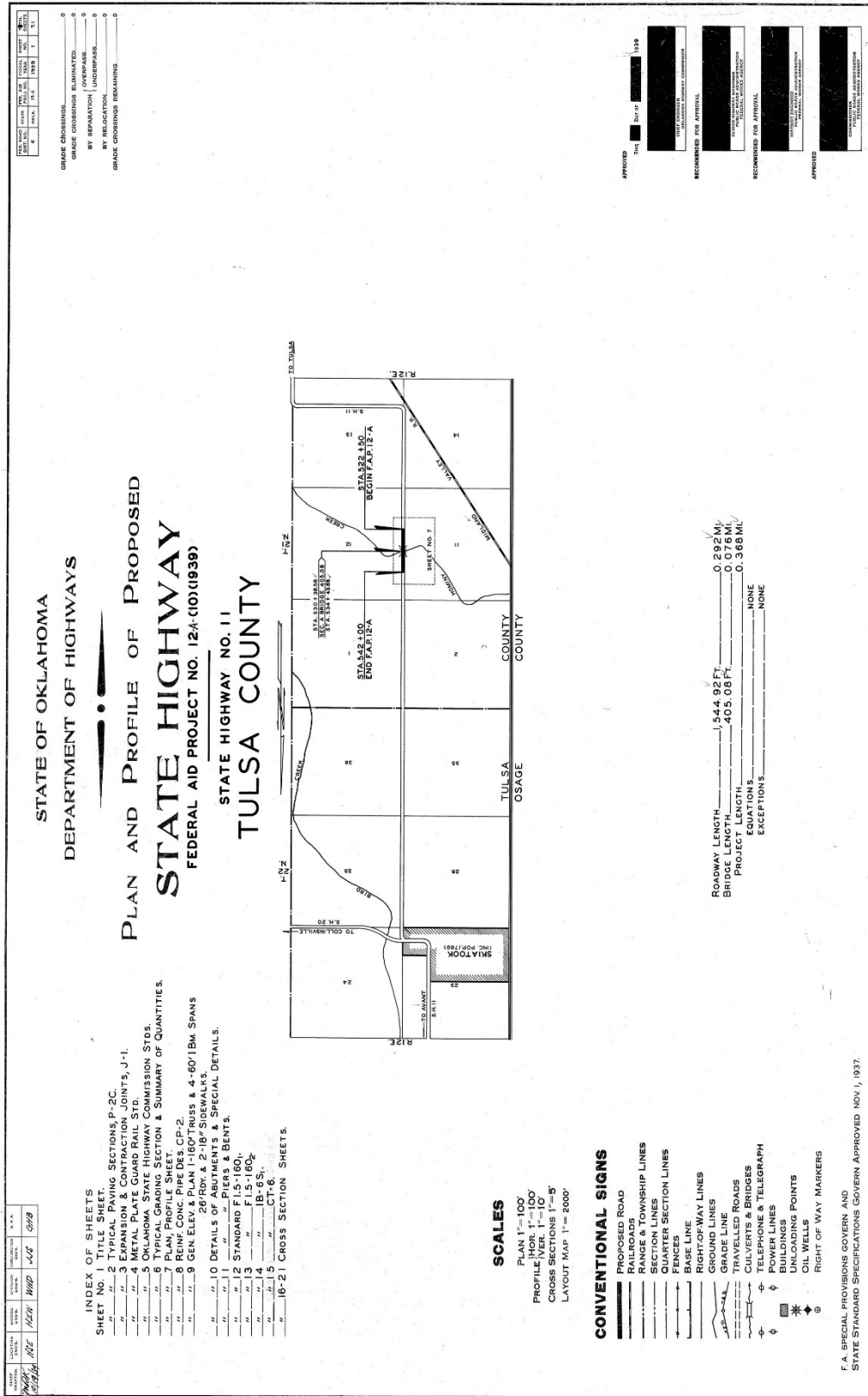
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Plans obtained from Oklahoma Department of Transportation Reproduction Services, Oklahoma City, Oklahoma, April 15, 2015.

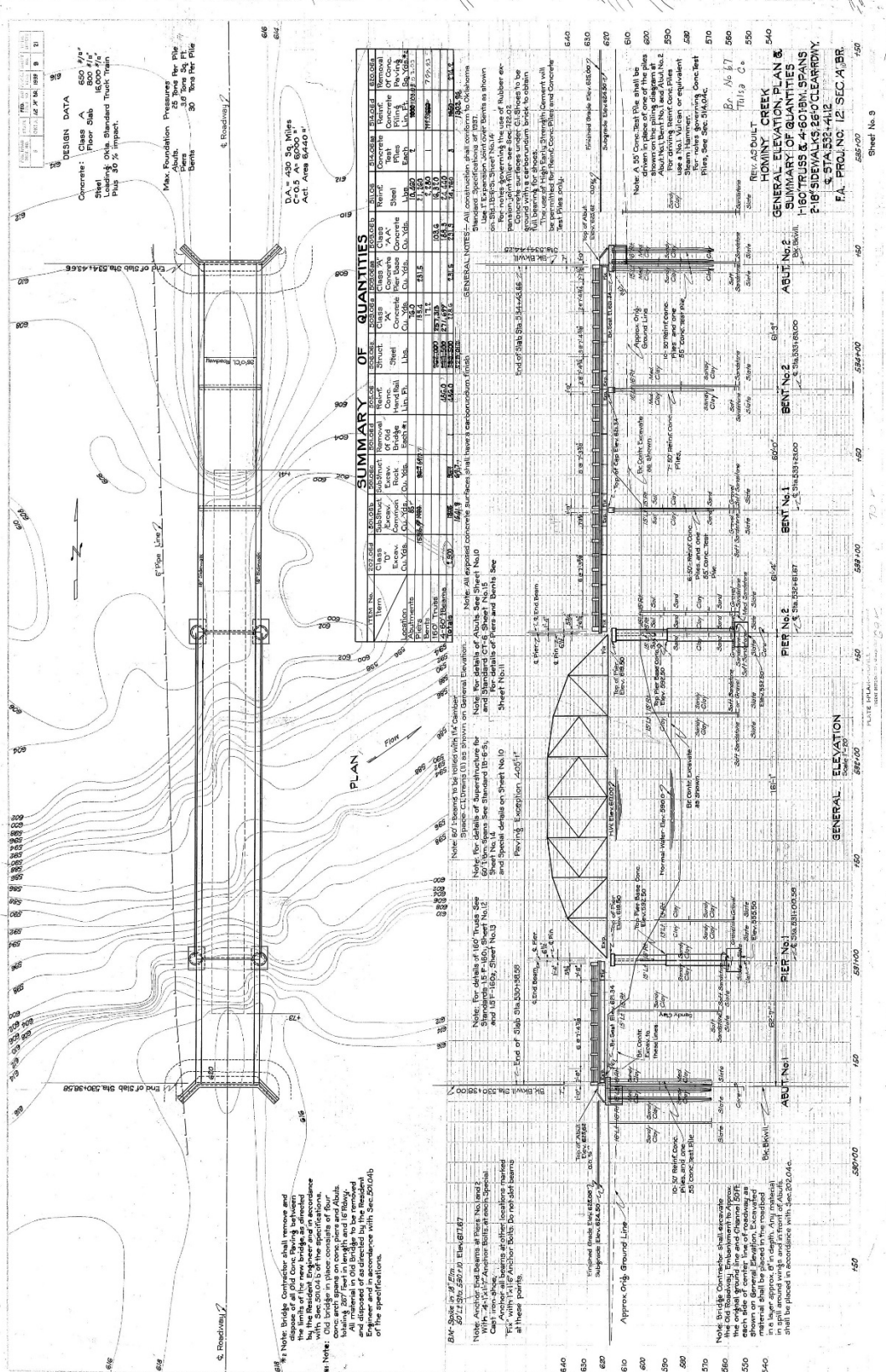
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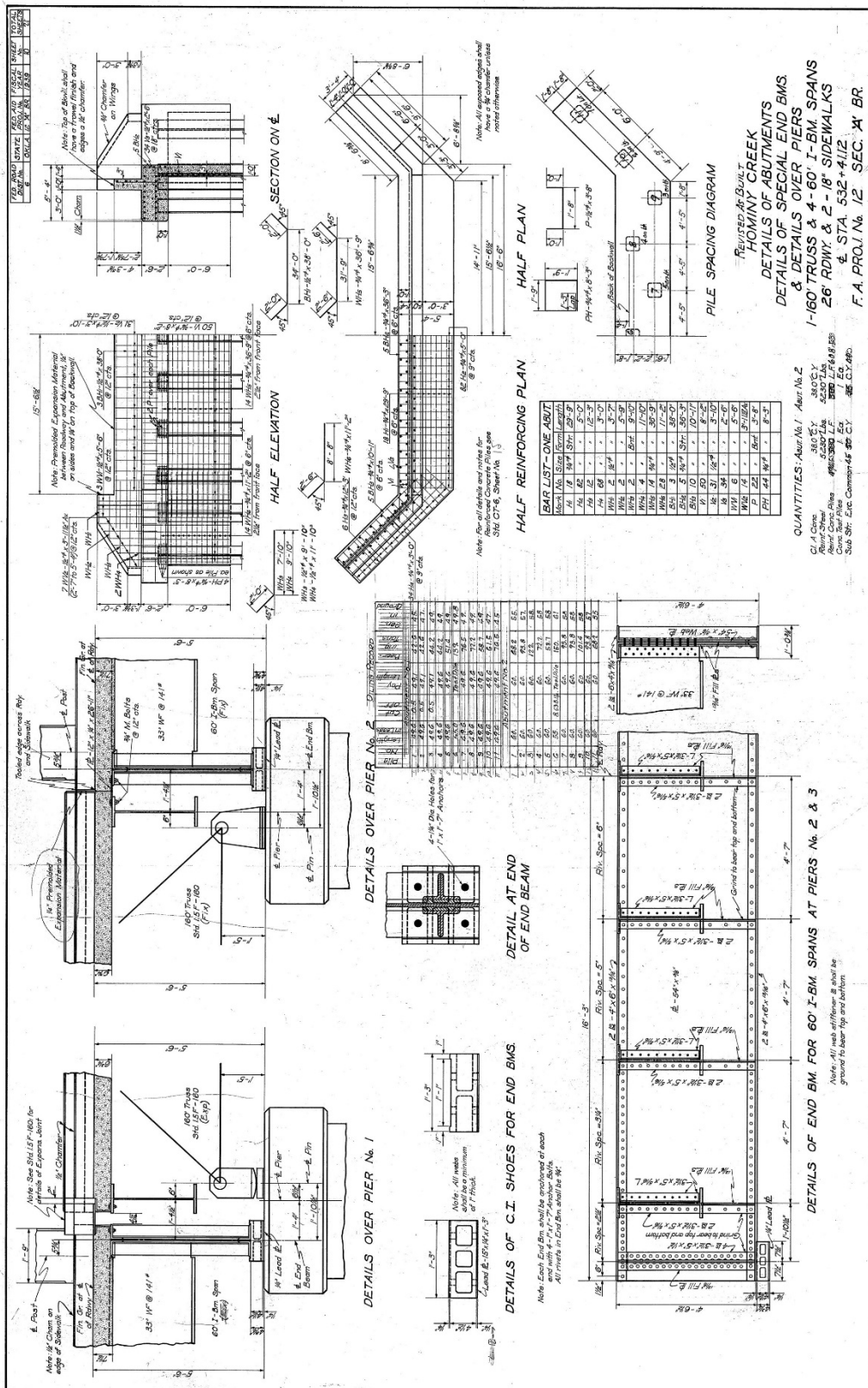




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Soundings " Hedrick

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Sperry vicinity

Tulsa County

Oklahoma

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WRITTEN HISTORICAL AND DESCRIPTIVE DATA

## HISTORIC AMERICAN ENGINEERING RECORD

### HOMINY CREEK K THROUGH TRUSS BRIDGE

**Location:** Spanning Hominy Creek approximately 1.3 miles north of Sperry in northwestern Tulsa County.

UTM: Zone 15S, 231426E, 4023122N

**Legal Location:** On the section line between Section 11 and Section 12, Township 21N, Range 12E

**Map Reference:** U.S.G.S. 7.5' series, SPERRY, OKLA (1936)

**Present Owner:** Oklahoma Department of Transportation (ODOT) Structure Number 7236 0743X

**Present Use:** Currently the bridge is carrying traffic, but is listed on ODOT Adopt-A-Bridge Program.

**Significance:** The Hominy Creek Bridge is a notable example of a K Through Truss Bridge built by Standard Paving Company. Although common in Oklahoma, this type of bridge is rare throughout the country.

**Project Information:** Historic American Engineering Record (HAER) Level II equivalent documentation was performed April through July 2014. Kelli Gaston, Architectural Historian, conducted an onsite visit and compiled the historical information. The photographs for documentation of this bridge have been digitally reproduced following National Park Service (NPS) standards for digital images. This HAER recordation serves as mitigation for the removal of the structure from vehicular traffic.

**List of Preparers:**

Historian/ Architectural Historian:	Kelli E. Gaston Consultant to Geo-Marine, Inc. Plano, Texas
Principal Investigator:	Marsha Prior, Ph.D. Geo-Marine, Inc. Plano, Texas
Report Production:	Anna Banda Geo-Marine, Inc. Plano, Texas
Photographer:	Tori Raines ODOT Cultural Resources Program Norman, Oklahoma

## **PART I: HISTORICAL INFORMATION**

### **A. Physical History:**

- 1. Date of Construction:** 1940
- 2. Architect/Engineer:** Homer X. White
- 3. Builder/Contractor/Supplier:** Standard Paving Company
- 4. Original Plans:** Not available
- 5. Alterations and Additions:** The structure remains unaltered.

### **B. Historical Context:**

#### **1. Introduction**

In outlying rural communities across Oklahoma, bridges frequently stand as the most notable examples of expert engineering. These functional structures are artifacts representative of a community's development as well as changes in engineering practices over time. The Hominy Creek Bridge is located in northeastern Oklahoma approximately 1.3 miles north of Sperry in northwestern Tulsa County. The area that would become Tulsa County was originally part of the land set aside in Indian Territory for members of the Cherokee tribe who were forcibly removed from their homeland. Cherokee migration to the area began in 1808 (Oklahoma Encyclopedia 2014a and 2014b), with larger numbers of tribal members arriving in the 1830s. Around the same time, members of the Creek Nation were also relocated to the area from the southeast. Eventually, the territory was split between the two tribal nations. Many of the relocated Creek tribal members became ranchers, with numerous small and large ranches developing across the area.

In 1882, the St. Louis and San Francisco Railroad arrived to the area. By the early 1900s, a post office was established near the present day site of the Hominy Creek Bridge. Nearby residents were primarily cotton farmers and ranchers. The Midland Valley Railroad reached the area in 1905 and subsequently, the first store opened in 1906. The community remained small until nearby oil discoveries led to an influx of workers. Within a few years, businesses including a hardware store, banks, grocery stores, and a feed store were in operation to serve local farmers and ranchers, as well oil field hands. The city incorporated in 1920. After that, production of oil in the area diminished. This decline was followed by the economic downturn of the Great Depression, both events that negatively impacted the area's economy. After World War II, OK-11 bypassed downtown Sperry, further hurting local businesses. The fortunes of this tiny community improved in the 1960s; however, when Sperry contracted to join Tulsa's public water system, after which the population boomed as the city became a sleeper community for Tulsa, which it remains today (Oklahoma Encyclopedia 2014b).

## 2. Development of the Tulsa County, Hominy Creek K Through Truss Bridge

The Hominy Creek K Through Truss Bridge, constructed in 1940 by the Standard Paving Company, is located on Oklahoma Highway 11 (OK-11), approximately 1.3 miles north of Sperry, Oklahoma. OK-11 is a two lane paved highway surrounded by both grazing and timber covered land. There are a few scattered homes in the vicinity.

Tulsa County, like much of Oklahoma, is traversed by numerous streams as well as larger rivers and bodies of water. Prior to the arrival of railroads, these waterways served as important transportation routes. The earliest attempts at bridge building were largely private, utilizing locally available materials. Such bridges were unreliable, often dangerous, and required constant maintenance. After statehood, road and bridge building maintenance became a county issue and managing miles of roads and countless bridges posed a significant problem for county commissioners. The good roads movement, beginning prior to statehood, was a driving force in the establishment of a state highway department, which was provided for by the state constitution in 1907 (Burke 2011:7). Due to the lack of funding and personnel, however, the state highway department was unable to provide for the construction of roads and bridges, leaving the responsibility at the county level (Oklahoma Department of Highways 1970; Oklahoma Encyclopedia 2014b and 2014c).

After 1910, there was increasing public and state dissatisfaction with these prefabricated county bridges that professional engineers viewed as flimsy. In 1916, the first allotment of federal aid for the purpose of building roads and bridges became available to states. Around the same time, the state of Oklahoma also created a road and bridge building program. Funds under both aid projects were awarded to communities who could provide a match. Federal and state aid greatly impacted the quality of bridges being constructed and resulted in state standards for bridge construction by the 1920s. As a result of this aid, there was tremendous bridge construction between 1924 and 1932 (King 1993). According to a September 24, 1922, article in the *Oklahoman*:

During the past year and a half, the state of Oklahoma has forged ahead of every other state in the Union, with one exception, in the construction of permanent bridges on public highways. The lone exception being the state of Texas, whose program exceeds Oklahoma's by a comparatively small margin . . . the State Highway Department sometime ago promulgated a policy of building only bridges of the most permanent and durable type, such as steel and reinforced concrete structures. This has eliminated completely the losses sustained in years gone by through the construction of faulty wooden structures, which at their best never gave complete satisfaction, and were short lived [*The Oklahoman* 1922].

The earliest newspaper mention of a bridge crossing Hominy Creek dates to 1918 with an article noting that \$13,500 is to be allotted for a new four-arch bridge over the creek "between Tulsa and Skiatook." Although the exact location is not provided, it is likely to have been constructed close to the present 1940 Hominy Creek K Through Truss Bridge. Accounts of Sperry's history indicate that the area was prone to flooding, with numerous creeks crisscrossing the landscape (Oklahoma Encyclopedia 2014a). In April 1922, the paved road between Sperry and Skiatook was inundated with water due to the flooding of Hominy Creek (Tulsa World 1922). The photo below illustrates the heavy flooding that occurred in the area in 1985.

Information regarding the specific circumstances in the community of Sperry or Tulsa County in relation to the construction of Hominy Creek in 1940 is limited.<sup>1</sup> Due to severe and frequent flooding, it would have been critical to have a reliable bridge; thus, in 1940, the state undertook the construction of a large bridge crossing Hominy Creek. Built just outside the small farming and ranching community of Sperry prior to the outbreak of World War II, the bridge stood for almost 75 years as a monument highway department efforts to provide safe crossing for residents and other travelers through the area.

The Hominy Creek Bridge is a notable example of a K Through Truss Bridge built by the Standard Paving Company. This truss design was a standardized design introduced in Oklahoma in the 1930s and used across the state through the 1950s. The K-Truss was invented by Phelps Johnson of Quebec to support the construction of the Quebec Bridge over the St. Lawrence River in 1917 (Henderson 2014). This truss type could be used to span crossings between 140 to 210 feet, utilizing a subdivided panel, a design that “afforded more strength and economy as it also increased the length of the structure” (King 1993). This truss type was also considered aesthetically pleasing. The Standard Paving Company built numerous bridges across the northeastern portion of Oklahoma. The company also participated in other major transportation projects such as the construction of portions of Route 66 in Oklahoma (<http://www.okladot.state.ok.us/memorial/route66/route66const-hist.htm>). Although K-Trusses are common in Oklahoma, interestingly, they are quite rare in other part of the U.S. (Henderson 2014).

The Hominy Creek Bridge was inventoried as part of the ODOT Planning and Research Division Cultural Resources Program 1993 assessment of Oklahoma highway bridges (King). This study examined metal truss bridges as well as concrete and stone arch bridges longer than 20 ft in length built prior to 1955. The study determined the Hominy Creek

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<sup>1</sup> Tulsa County Commissioner records were unavailable and Sperry did not have its own newspaper. Tulsa newspapers were consulted, but articles on the construction of Hominy Creek did not appear.

Bridge to be not eligible for listing in the National Register of Historic Places. The bridges was re-evaluated in 2007 and determined to be eligible as a good example of a K Through Truss bridge. This most recent survey noted that the bridge is a variation of the K Through Truss “without X-pattern diagonals or horizontal struts in the center panels.” Furthermore, “the concrete post and beam guardrails on the approach spans are intact, and the original portals remain; these features are often removed and replaced on state and U.S. highway bridges” (Eddings 2007).

## **PART II. STRUCTURAL/DESIGN INFORMATION**

- A. General Description:** The Hominy Creek K Through Truss Bridge carried two lanes of traffic along OK-11, a paved highway road running north to south 1.3 miles north of Sperry, Oklahoma. The 405-foot bridge features a single K through truss span measuring 160 feet in length and four girder approach spans (one on the south and three on the north). The approach spans have cast stone, post and beam railings. The bridge is 26 feet wide curb to curb with a total width of 28 feet. The bridge has riveted connections. The top chord of the K through truss is curved and features channel with lace and stays. The bottom chord is channel with stays. The verticals are I-beams, as are the diagonals. The diagonals also feature channel with lace. These diagonal panels form the characteristic “K” pattern. There are braced angles in the bottom chord with laced angles for diagonals. The bridge deck is concrete, as are the abutments and piers.
- 1. Character:** The K Through Truss design of the Hominy Creek Bridge is indicative of its rural setting and period of construction. The structure demonstrates the efforts made to improve rural roads, encourage development, and to contend with an area known for flooding.
  - 2. Condition of Fabric:** The Hominy Creek K Through Truss Bridge shows evidence of normal deterioration due to age and exposure to the elements. Noted deterioration includes portal damage at both ends of the bridge.
- B. Site Information:** The Hominy Creek K Through Truss Bridge is located on a state highway in a rural area. In each direction, there is pastureland, dotted with trees and other heavy vegetation particularly along fence rows and creek beds, as well as scattered residential housing.

## **PART III. CURRENT STATUS**

Due to structural deficiencies, the Hominy Creek K Through Truss Bridge is slated for replacement. This HAER Level II documentation serves as mitigation and ODOT will pursue a Memorandum of Agreement with the Oklahoma State Historic Preservation Office (OK/SHPO). In January 2014, the bridge was advertised for adoption as part of ODOT’s Adopt-A-Bridge Program.



## **PART IV. SOURCES OF INFORMATION**

### **A. Primary Sources**

Henderson, Kitty

2014 E-mail and article on K Truss bridges in the possession of ODOT-CRP.

ODOT, Division 8, Tulsa, Oklahoma [ODOT Division 8]

Files, including Bridge Inspection Report, Bridge Inventory Reports, and miscellaneous.

*Tulsa World*

1922 "Crest of Flood on Arkansas Passes." April 11.

### **B. Secondary Sources**

Burke, B.

2011 *ODOT 100 Years*. Oklahoma Heritage Association. Oklahoma City, Oklahoma.

Eddings, Anna Marie

2007 *Oklahoma Historic Bridge Survey Phase I*. Oklahoma Department of Transportation, Planning and Research Division, Cultural Resources Program. Norman, Oklahoma.

King, J.

1993 *Spans of Time*. Center for Historic Preservation and Technology, Texas Tech University. Sponsored by the Planning Division, Oklahoma Department of Transportation, State of Oklahoma; and the Federal Highway Administration.

Oklahoma Department of Highways

1970 *Oklahoma Highways and History*. Document obtained from Oklahoma Department of Libraries: Oklahoma Documents, Oklahoma City, Oklahoma.

Oklahoma Encyclopedia

2014a "Tulsa County." <http://digital.library.okstate.edu/encyclopedia/entries/T/TU008.html>. Accessed September 8, 2014.

2014b "Tulsa." <http://digital.library.okstate.edu/encyclopedia/entries/T/TU003.html>. Accessed April 4, 2014.

2014c "Sperry." <http://digital.library.okstate.edu/encyclopedia/entries/S/SP010.html>. Accessed September 8, 2014.

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LOCATION MAP

HOMINY CREEK K THROUGH TRUSS BRIDGE  
TULSA COUNTY, OKLAHOMA  
LOCATION MAP

