

SNI-A-BAR CREEK BRIDGE

BRIDGE NO. J0025R

HISTORIC AND PHOTOGRAPHIC DOCUMENTATION

LAFAYETTE COUNTY, MISSOURI

ROUTE 224

MODOT SAFE & SOUND PROJECT NO. 5B8D4Q7B



JULY 2010



Sni-A-Bar Creek Bridge

Bridge No. J0025R

Historic and Photographic Documentation

Lafayette County, Missouri

Route 224

MoDOT Safe & Sound Project No. 5B8D4Q7B

Report Historian:
Thomas J. Gubbels

Submitted to:

State Historic Preservation Office
Missouri Department of Natural Resources

Prepared for:

The Federal Highway Administration
In Compliance with Section 106 of the National Historic Preservation Act

Missouri Department of Transportation

July 2010

HISTORIC DOCUMENTATION
BRIDGE J0025R

I. Introduction

Location: Highway Bridge carrying Missouri State Route 224 over Sni-A-Bar Creek near Wellington, Lafayette County, Missouri

Construction Dates: 1928-1930

Present Owner: Missouri Department of Transportation, Jefferson City, Missouri

Present Use: Highway bridge to be replaced on existing alignment; Project to begin in August 2010

Significance: Bridge J0025R is a good example of a standard Missouri State Highway Department bridge from the late 1920s. Bridge J0025R features a Parker through-truss span, a Warren pony-truss span, and a concrete deck girder span; all based on standard highway department bridge designs. Bridge J0025R was originally built to replace an older structure that washed away in a flash flood. Bridge J0025R has undergone only minor renovations since opening to traffic in 1930, and it remains an outstanding example of the highway department's standard approach to short-span bridge building in its early years.

Historian: Thomas J. Gubbels, Historic Preservation Section, Design Division, Missouri Department of Transportation, April 2008.

II. History of Bridge J0025R

The origin of Bridge J0025R lies in the passage of the Centennial Road Law. Following a long and contentious debate, the Missouri General Assembly passed a law in 1921 creating a statewide highway system. The Centennial Road Law called for the construction of a 1,500-mile system of “high-type” roads linking Missouri’s county seats and major population centers as well as a 6,100-mile system of secondary roads featuring oiled earth and gravel driving surfaces. A \$60 million bond issue approved by Missouri voters in 1920 would finance construction of Missouri’s new highway system, and the highway system would be built and maintained by a four-member, non-partisan board known as the Missouri State Highway Commission.¹

In order to provide for an orderly construction program, the Centennial Road Law listed proposed locations for primary highways in each of Missouri’s 114 counties. In Lafayette County the Centennial Road Law called for the construction of a high-type road, “beginning at the Lafayette-Jackson county line just east of Levasy, thence east by Wellington, Lexington, Dover, Waverly to the Saline-Lafayette county line.”² This route paralleled a Missouri Pacific Railroad line between Wellington and Lexington, two important commercial communities that served as nineteenth century steamboat shipping centers. This route was originally designated as Missouri State Highway 20, and from 1922 through 1926 it was built through Lafayette County as an 18’-wide concrete road. This highway crossed the Sni-A-Bar Creek immediately east of Wellington along a county-built concrete bridge that was used in place when the state highway system was built.³ No detailed information was found regarding this early bridge across the Sni-A-Bar Creek. Missouri State Route 20 was relabeled U.S. Highway 24 when a standard federal numbering system for interstate highways was created in the mid-1920s, and the highway served as a critical transportation link between Lafayette County and the rest of the nation.

Beginning on the morning of November 16, 1928, Lafayette County received over 7.5 inches of rainfall over a 36-hour period. This immense downpour led to flash flooding along numerous waterways in central Missouri, and several roads and culverts were washed away. The Sni-A-Bar Creek overflowed its banks near Wellington,

¹Missouri State Highway Commission, *Roads and Their Builders* (Jefferson City, MO: Missouri State Highway Commission, 1970), 78; and Missouri State Highway Commission, *Third Biennial Report of the Missouri State Highway Commission for the Period Ending December First 1922* (Jefferson City, MO: Missouri State Highway Commission, 1922), 10-11. For a detailed discussion of the debate within the Missouri General Assembly over the Centennial Road Law, see Richard Traylor, “Pulling Missouri Out of the Mud: Highway Politics, The Centennial Road Law, and the Problems of Progressive Identity,” *Missouri Historical Review*, 98 (October 2003): *passim*.

²Missouri State Highway Commission, *Third Biennial Report*, 48.

³Lafayette County Historical Society, *Continuing the History of Lafayette County, Missouri* (Higginsville, MO: Lafayette County Historical Society, 2002), 38, 204; and Missouri State Highway Commission, “Plan and Profile of Proposed State Road, Missouri State Highway 20, Section 9,” 1926, microfiche copy available from Design Division, Missouri Department of Transportation General Headquarters, Jefferson City, MO.

destroying several homes and agricultural fields as well as killing large numbers of livestock. The flash flood destroyed a farmhouse located near U.S. Highway 24 owned by Ed Tucker. Tucker and his two daughters were able to escape from the deluge, but his wife Grace drowned in the floodwaters. Her body washed downstream, and her corpse was not found until March 10, 1929, when it was discovered floating in the Missouri River near Boonville.⁴

The November 1928 flash floods proved to be too much for the bridge across the Sni-A-Bar Creek on U.S. Highway 24. The structure was completely destroyed, and a nearby Missouri Pacific Railroad bridge was also badly damaged. In response to this natural disaster, the Missouri State Highway Commission approved the emergency expenditure of state funds to repair and reopen damaged roads throughout the region. The highway commission allocated funds to repair damaged shoulders and guard rails along U.S. Highway 24 throughout Lafayette County as well as providing money to combat landslides along the roadway. The highway commission also provided \$7,595 to construct a temporary wood crossing at the Sni-A-Bar Creek to accommodate traffic until a permanent structure could be built. Work on the temporary wood crossing began in late November, and the bridge opened to traffic on December 11, 1928. This temporary bridge accommodated only a single lane of traffic, and the highway commission realized that a permanent structure needed to be built as soon as possible to carry traffic along U.S. Highway 24.⁵

Since the Missouri State Highway Commission needed to act quickly to restore service along U.S. Highway 24 following the November 1928 floods in Lafayette County, they decided to use standard design plans for the replacement bridge. The Missouri State Highway Department's Bridge Division had worked diligently to create standard bridge designs that conformed to federal standards issued by the U.S. Bureau of Public Roads. The replacement bridge across the Sni-A-Bar Creek was based on standard plans created by the Bridge Division in the mid-1920s for a bridge with a 20'-

⁴“Heavy Rains Leave Ruin in Their Wake,” *Lexington News*, 22 November 1928, 1; Mary Borgman, “History of Wellington, Missouri,” *Heritage*, September 1979, 6; and Missouri State Board of Health, “Certificate of Death: Mrs. Grace Tucker,” downloaded 29 April 2008 from <http://www.sos.mo.gov/TIF2PDFConsumer/DispPDF.aspx?Tiff=/archives/DeptofHealth/Death/1928/00037608.TIF&Fln=539511.pdf>.

⁵“Wellington News,” *Lexington News*, 29 November 1928, 2; “Wellington News,” *Lexington News*, 13 December 1928, 7; Missouri State Highway Commission, “Minutes of the Meeting of the State Highway Commission Held in Jefferson City, Missouri, December 11, 1928,” as held by the Secretary to the Missouri State Highway Commission, Missouri Department of Transportation General Headquarters, Jefferson City, MO, 13-15; and Missouri State Highway Commission, *Sixth Biennial Report of the State Highway Commission of Missouri for the Period Ending December First 1928* (Jefferson City, MO: Missouri State Highway Commission, 1928), 344. The temporary wood bridge across the Sni-A-Bar Creek was difficult for drivers to maneuver as evidenced by the frequent accidents reported at the crossing. For example, a truck driver accidentally drove off the wood bridge on the evening of April 28, 1929. The driver and two passengers survived the accident, but two cows that were being transported inside the truck were killed. See “Wellington News,” *Lexington News*, 2 May 1929, 6.

wide driving surface and a 15-ton weight capacity.⁶ The new bridge was labeled Bridge J-25, and the structure would feature a 45' deck girder span, a 200' Parker through-truss span, and an 80' Warren pony-truss span.⁷ The highway commission formally approved plans for the new bridge across the Sni-A-Bar Creek in February 1929 and added the project to the March 15, 1929, letting. The Clinton Bridge Works of Clinton, Iowa, submitted the low bid for the project, offering to build the structure for \$23,920.98. The highway commission accepted this bid at its April 1929 meeting and asked that work on the replacement bridge begin as soon as possible. The contract signed by the Clinton Bridge Works called for Bridge J-25 to open to traffic no later than November 15, 1929, but unforeseen complications delayed completion of the bridge until the spring of 1930.⁸

At the end of April 1929 workers from the Clinton Bridge Company arrived in Wellington to begin construction of Bridge J-25 across the Sni-A-Bar Creek. The first tasks addressed by the Clinton Bridge Company were the construction of two reinforced concrete piers and two reinforced concrete end bents to support the superstructure. Work also started in the spring of 1929 to install stone rip-rap and a concrete mattress to prevent additional scouring along the banks of the Sni-A-Bar Creek. Despite occasional construction delays caused by high water in the summer of 1929, the substructure of Bridge J-25 was completed in November 1929 and workers began to erect the steel superstructure.⁹

Erecting the steel superstructure of Bridge J-25 proved to be a challenging task for the Clinton Bridge Company. Problems with high water along Sni-A-Bar Creek had already delayed completion of the substructure, forcing the Clinton Bridge Company to work on the superstructure throughout the cold winter months. Work on the bridge had to be postponed several times due to cold weather and ice storms in the winter of 1929-1930, and several workers were injured during the erection of the steel spans. On December 28, 1929, a large derrick used to erect the steel collapsed, seriously injuring three workers. A few weeks later, another worker slipped and fell from the incomplete steel superstructure into the creek below, breaking an arm, collarbone, and three ribs.

⁶Missouri State Highway Commission, *Third Biennial Report*, 68-83; 128; and Missouri State Highway Commission, *Seventh Biennial Report of the State Highway Commission of Missouri for Period Ending December 1, 1930* (Jefferson City, MO: Missouri State Highway Commission, 1930), 255.

⁷Missouri State Highway Department, "Bridge Over Sni-A-Bar Creek: Project No. U.S. 24-S9B," 1929, microfiche copy available from Division, Missouri Department of Transportation General Headquarters, Jefferson City, MO.

⁸"Wellington News," *Lexington News*, 18 April 1928, 5; Missouri State Highway Commission, "Minutes of the Meeting of the State Highway Commission Held in Jefferson City, Missouri, February 12, 1929," as held by the Secretary to the Missouri State Highway Commission, Missouri Department of Transportation General Headquarters, Jefferson City, MO, 49, 52; and Missouri State Highway Commission, "Minutes of the Meeting of the State Highway Commission Held in Jefferson City, Missouri, April 9, 1929," as held by the Secretary to the Missouri State Highway Commission, Missouri Department of Transportation General Headquarters, Jefferson City, MO, 67-68.

⁹"Wellington News," *Lexington News*, 25 April 1929, 5; "Wellington News," *Lexington News*, 6 June 1929, 2; "Wellington News," *Lexington News*, 26 September 1929, 6; and "Wellington News," *Lexington News*, 7 November 1929, 4.

Despite the frequent construction accidents, no workers were killed during the construction of Bridge J-25.¹⁰

The superstructure of Bridge J-25 was completed in March 1930, and workers with the Clinton Bridge Company immediately began to pour the concrete driving surface across the bridge. Once the concrete driving deck had been installed, a final inspection was made and the new bridge opened to traffic without fanfare on April 23, 1930. The temporary wood bridge across the Sni-A-Bar Creek was torn down, and traffic once again flowed smoothly along U.S. Highway 24 through Lafayette County.¹¹

Bridge J-25 has undergone little change since opening to traffic in 1930. The Missouri Highway and Transportation Department made minor repairs to the bridge in 1987, including the replacement of several expansion joints and the placement of an asphaltic concrete overlay across the entire length of the structure. Following the completion of these repairs the bridge across the Sni-A-Bar Creek was renamed Bridge J0025R in the department's bridge inventory.¹² The highway where Bridge J0025R is located was renamed Missouri Supplementary Route AB when an improved U.S. Highway was built to the north of its original location in 1959. The road was then relabeled Missouri State Route 224 in December 1968 to mark its status as a spur of the improved U.S. Highway 24.¹³ Bridge J0025R will be replaced as part of the Missouri Department of Transportation's "Safe and Sound" bridge improvement program, and an excellent example of a small, standard bridge from the early years of Missouri's highway program will disappear from the landscape.¹⁴

III. Construction Contractor: Clinton Bridge Company

Aretmus Lamb, a lumber dealer from Clinton, Iowa, founded the Clinton Bridge Company in 1875. Lamb's company held an initial capital of \$25,000, and by 1879 the

¹⁰"Wellington News," *Lexington News*, 2 January 1930, 3; "Wellington News," *Lexington News*, 9 January 1930, 6; and "Wellington News," *Lexington News*, 30 January 1930, 3.

¹¹"Wellington News," *Lexington News*, 3 April 1930, 4; "Sni Bridge is Opened," *Lexington News*, 24 April 1930, 1; and "Wellington News," *Lexington News*, 15 May 1930, 6.

¹²Missouri Highway and Transportation Commission, "Repairs to Bridge: Sni-A-Bar Creek," 1987, microfiche copy available from Design Division, Missouri Department of Transportation General Headquarters, Jefferson City, MO.

¹³Missouri State Highway Commission, "Minutes of the Statutory Commission Meeting Held in Jefferson City, Missouri, on Tuesday, May 12, 1959," as held by the Secretary to the Missouri State Highway Commission, Missouri Department of Transportation General Headquarters, Jefferson City, MO, 20; and Missouri State Highway Commission, "Minutes of Special Highway Commission Meeting Held in Jefferson City, Missouri, on Thursday and Friday, December 19-20, 1968," as held by the Secretary to the Missouri State Highway Commission, Missouri Department of Transportation General Headquarters, Jefferson City, MO, 112.

¹⁴For additional information about the Safe and Sound Bridge Program, See Missouri Department of Transportation, "Safe & Sound Bridge Program Moves Forward," downloaded 29 April 2008 from <http://www.modot.mo.gov/safeandsound/>.

Clinton Bridge Company had built a variety of wood and iron bridges throughout the Midwest. By the first decade of the twentieth century, the company had changed its name to the "Clinton Bridge and Iron Works" and had a full-time workforce of approximately 200 men. The company returned to its original name in 1928, and in 1929 the Clinton Bridge Company registered with the Missouri Secretary of State as an out-of-state corporation interested in conducting business in Missouri. According to its registration, the primary business goals of the Clinton Bride Company in Missouri were the "fabrication and erection of steel and concrete bridges and buildings as well as the distribution of iron and steel products for bridges, buildings or paving."¹⁵ During the Second World War the Clinton Bridge Company entered into a partnership with four other construction companies to compete for lucrative defense contracts. The new firm was known as the "Allied Structural Steel Company," and it continued to operate a branch office in Clinton, Iowa. The Allied Structural Steel Company built numerous bridges, buildings, and structures following the end of the Second World War, including the Project Apollo assembly building at Cape Canaveral, Florida. The Allied Structural Steel Company was absorbed into Trinity Industries of Dallas, Texas, in 1983, and the company's former facilities in Clinton, Iowa, were closed down following the merger.¹⁶

IV. Physical Description of Bridge J0025R

Bridge J0025R was built using standard highway department design plans. The overall length of the bridge is approximately 332' 5", and it features a 45' deck girder span, a 200' Parker through-truss span, and an 80' Warren pony-truss span. The substructure supporting Bridge J0025R features two reinforced concrete end bents and two reinforced concrete piers. Bent 1 is located on the western end of the bridge. Bent 1 rests atop rectangular footings measuring 7' 4" x 6' with a thickness of 2' 6". The two columns that support Bent 1 are approximately 16' 9" in height when measured from the top of the footings to the wingwall crown. The wingwalls flare out to a length of 21' 9" when measured from the center of the bent to their outer edge. Bent 4 on the eastern end of Bridge J0025R is similar in design to Bent 1 with slightly larger measurements. The footings underneath Bent 4 are 2' 6" thick, and they measure 8' x 6'. The columns of Bent 4 are approximately 16' 9" in height, and its wingwalls flare out to a length of 20' 5".

The closed piers that support Bridge J0025R rest upon driven concrete pilings and large concrete footings. The footings of Pier 2, the westernmost pier, measure 9' 2" x 9' 8" with a thickness of 6' 6", while the footings of Pier 3, the easternmost pier, measure 9' 11" x 9' 11" with a thickness of 6' 6". The battered columns that support Pier 2 are

¹⁵Clinton Bridge Company, "Application to do Business in Missouri," 1929, as held by the Corporations Office, Missouri Secretary of State, Jefferson City, MO.

¹⁶Alexy Simmons, "Cache Creek Bridge," HAER No. CA-49, Historic American Engineering Record (HAER), National Park Service, U.S. Department of the Interior, 1985, 2-3; Gary Arabank, "Traer Street Bridge," HAER No. IA-9, Historic American Engineering Record (HAER), National Park Service, U.S. Department of the Interior, 1983, 10-11; and Kent Good, "Northern Pacific Railroad Overhead Bridge," HAER No. ND-6, Historic American Engineering Record (HAER), National Park Service, U.S. Department of the Interior, 1990, 7.

approximately 43' in height when measured from the top of the footings to the crown, while the columns of Pier 3 are slightly smaller, measuring approximately 39' in height. Each pier features an 18" thick crown with a length of approximately 22' 6". The substructure of Bridge J0025R is joined to the superstructure by both fixed and rocker shoes.

The superstructure of Bridge J0025R features a standard concrete deck girder design with an approximate length of 45'. The superstructure also features an 80' standard pony-truss span with a Warren web. The Warren pony-truss is composed of four identical panels each measuring 20' in length. The top chords of the Warren pony-truss span are composed of two 10" steel channels, two steel angles, and cover plates, while the lower chords are composed of two large steel channels. The verticals are composed of four steel angles that vary in size, while the diagonals are composed of two steel angles of various sizes.

The most imposing element of Bridge J0025R is a standard 200' Parker through-truss span. The top chord of the Parker through-truss span is composed of two 15" steel channels of varying lengths and cover plates. The lower chord is also composed of two 15" steel channels of varying lengths. The verticals are composed of either two steel channels or two steel angles and lacing bars, while the diagonals feature two angles and steel stay plates. The top struts of the Parker through-truss span are composed of steel angles and gusset plates, as is the sway bracing across the entire span. The concrete deck is supported on eight courses of steel I-beam stringers resting upon steel floor beams measuring approximately 21' 5" in length. Bridge J0025R features standard 30" steel pipe guardrails and a 20' wide roadway. The original concrete driving surface across Bridge J0025R was repaired in the late 1980s with the installation of a 1-1/2" asphaltic concrete overlay, and several expansion joints were repaired across the length of the structure.¹⁷

¹⁷The physical description of Bridge J0025R is based on the following design plans: Missouri State Highway Department, "Bridge Over Sni-A-Bar Creek: Project No. U.S. 24-S9B"; Missouri Highway and Transportation Commission, "Repairs to Bridge: Sni-A-Bar Creek"; Missouri State Highway Department, "Shop Details for 200'-0" Standard High Truss: Standard Plans S8200," 1927, microfiche copy available from Design Division, Missouri Department of Transportation General Headquarters, Jefferson City, MO; and Missouri State Highway Department, "Shop Details for 80'-0" Standard Pony Truss: Standard Plans S880," 1927, microfiche copy available from Design Division, Missouri Department of Transportation General Headquarters, Jefferson City, MO.

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Clinton Bridge Company. "Application to do Business in Missouri." 1929. As held by the Corporations Office, Missouri Secretary of State, Jefferson City, MO.

Good, Kent. "Northern Pacific Railroad Overhead Bridge." HAER No. ND-6. Historic American Engineering Record (HAER), National Park Service, U.S. Department of the Interior, 1990.

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_____ “Minutes of Special Highway Commission Meeting Held in Jefferson City, Missouri, on Thursday and Friday, December 19-20, 1968.” As held by the Secretary to the Missouri State Highway Commission, Missouri Department of Transportation General Headquarters, Jefferson City, MO.

_____ “Minutes of the Statutory Commission Meeting Held in Jefferson City, Missouri, on Tuesday, May 12, 1959.” As held by the Secretary to the Missouri State Highway Commission, Missouri Department of Transportation General Headquarters, Jefferson City, MO.

_____ “Plan and Profile of Proposed State Road, Missouri State Highway 20, Section 9.” 1926. Microfiche copy available from Design Division, Missouri Department of Transportation General Headquarters, Jefferson City, MO.

_____ *Roads and Their Builders.* Jefferson City, MO: Missouri State Highway Commission, 1970.

_____ *Seventh Biennial Report of the State Highway Commission of Missouri for Period Ending December 1, 1930.* Jefferson City, MO: Missouri State Highway Commission, 1930.

_____ *Sixth Biennial Report of the State Highway Commission of Missouri for the Period Ending December First 1928.* Jefferson City, MO: Missouri State Highway Commission, 1928.

_____ *Third Biennial Report of the Missouri State Highway Commission for the Period Ending December First, 1922.* Jefferson City, MO: Missouri State Highway Commission, 1922.

Missouri State Highway Department. “Bridge Over Sni-A-Bar Creek: Project No. U.S. 24-S9B.” 1929. Microfiche copy available from Division, Missouri Department of Transportation General Headquarters, Jefferson City, MO.

_____ “Shop Details for 200’-0” Standard High Truss: Standard Plans S8200.” 1927. Microfiche copy available from Design Division, Missouri Department of Transportation General Headquarters, Jefferson City, MO.

_____ “Shop Details for 80’-0” Standard Pony Truss: Standard Plans S880.” 1927. Microfiche copy available from Design Division, Missouri Department of Transportation General Headquarters, Jefferson City, MO.

Simmons, Alexy. "Cache Creek Bridge." HAER No. CA-49. Historic American Engineering Record (HAER), National Park Service, U.S. Department of the Interior, 1985.

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**Sni-A-Bar Creek Bridge (Bridge No. J0025R)
Route 224, Lafayette County, Missouri**

Photographer: Randall Dawdy, Missouri Department of Transportation

Date: December, 2007

Location of Negatives: Missouri State Historic Preservation Office

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#20 of 22. Bridge J0025R. East approach span detail. View to north.

#21 of 22. Bridge J0025R. East approach span. View to northeast.

#22 of 22. Bridge J0025R. Pier 3. View to north.

Note: The archival photographs were shot by Randall Dawdy, a MoDOT senior historic preservation specialist, on December 12, 2007 using a Nikon N6006 single lens reflex camera. Images were captured on 100 TMAX 35mm black & white film and processed by Shaun Schmitz, a MoDOT senior photographer, at the MoDOT photolab in Jefferson City. Prints were made on Epson Premium Glossy Photo Paper and used Epson Matte Black UltraChrome K3 Ink. In addition, two sets of prints will be maintained by the MODOT historic preservation unit, and a copy will be provided to the Lafayette County Historical Society along with this report.



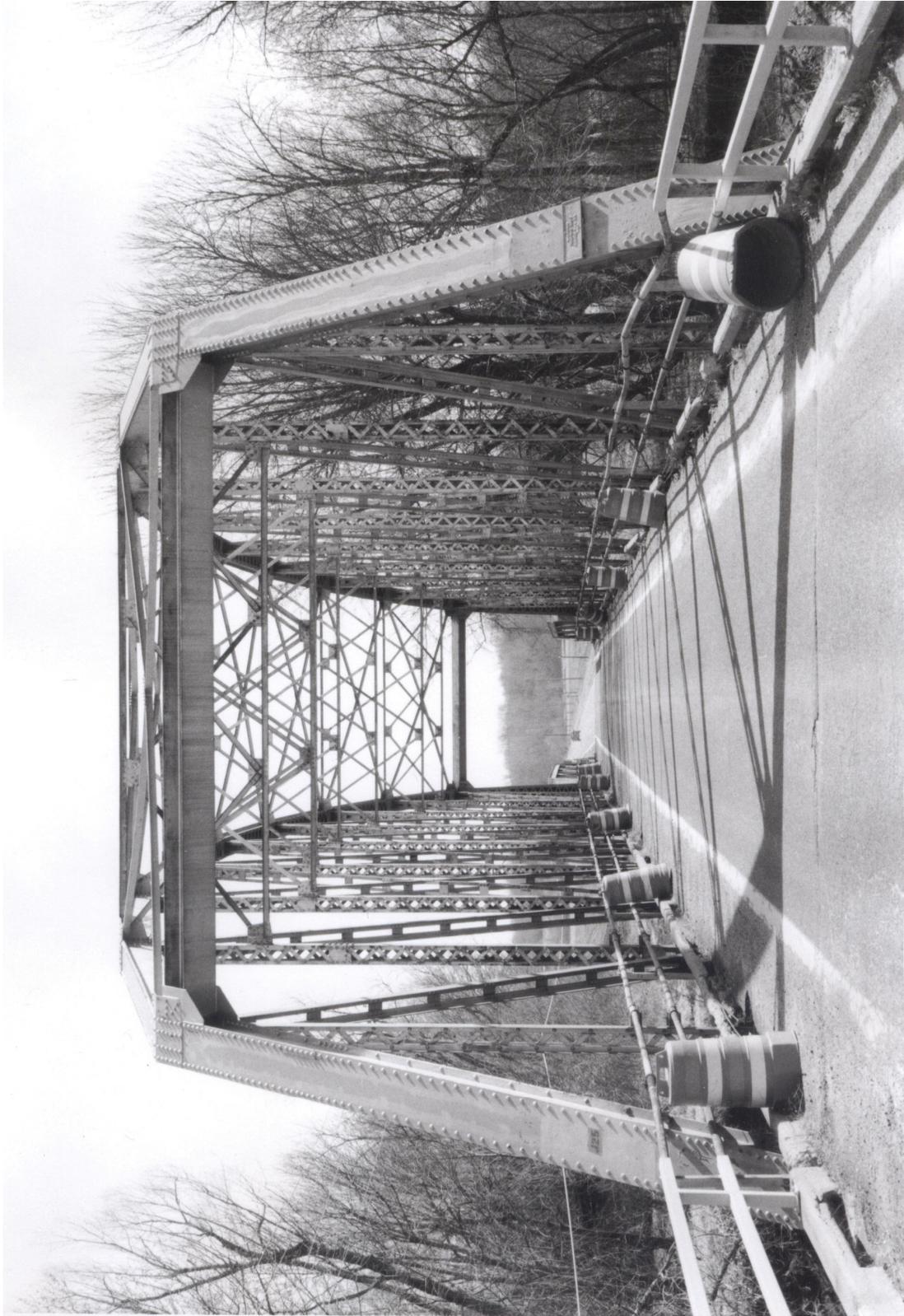
#1 of 22. Bridge J0025R. Nameplate on southwest endpost. View to east.



#2 of 22. Bridge J0025R. South side. View to east.



#3 of 22. Bridge J0025R. West approach. View to east.



#4 of 22. Bridge J0025R. West portal. View to east.



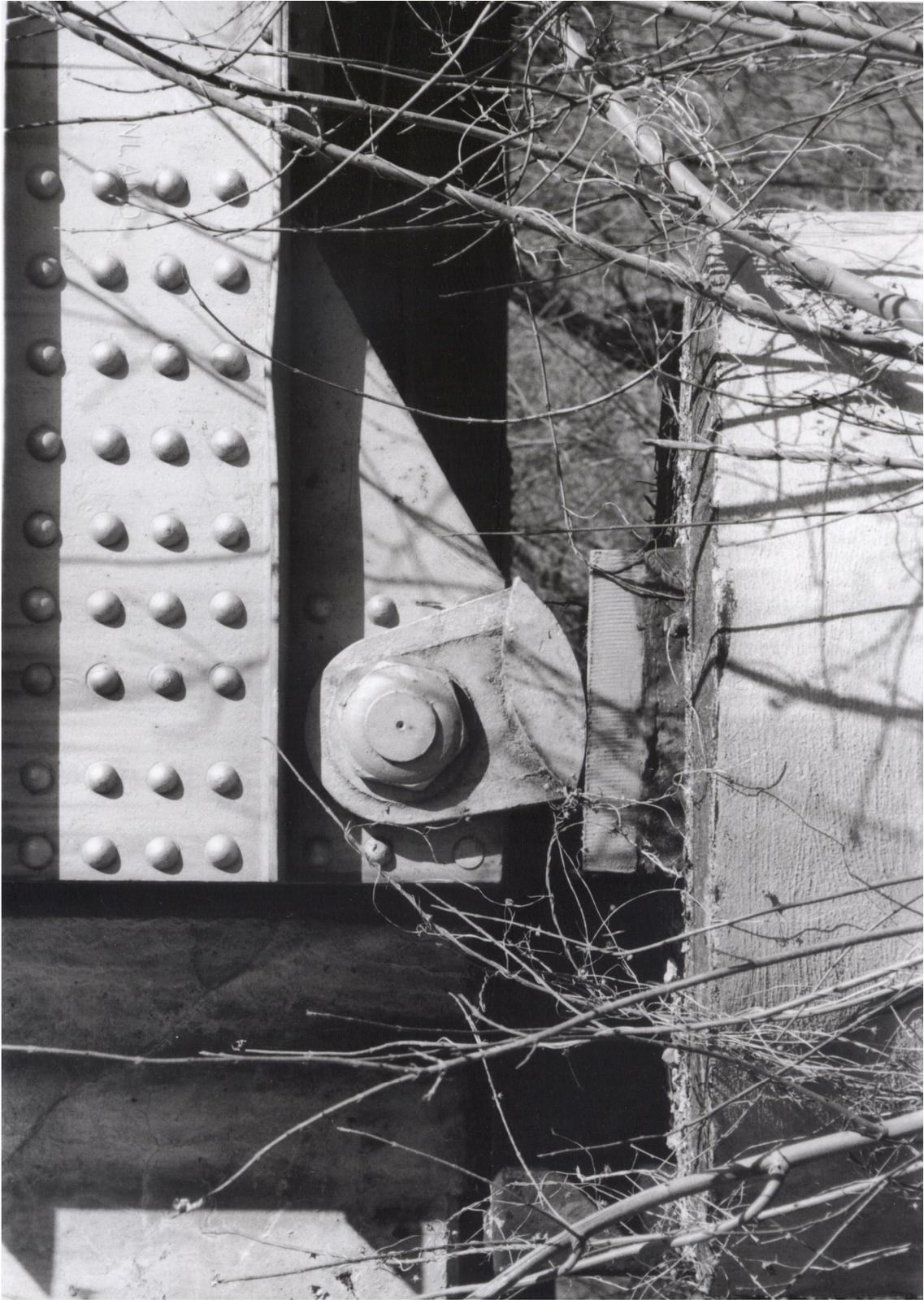
#5 of 22. Bridge J0025R. Detail at northwest endpost. View to northwest.



#6 of 22. Bridge J0025R. West approach span. View to north.



#7 of 22. Bridge J0025R. Pier 2. View to north.



#8 of 22. Bridge J0025R. Rocker bearing at Pier 2. View to north.



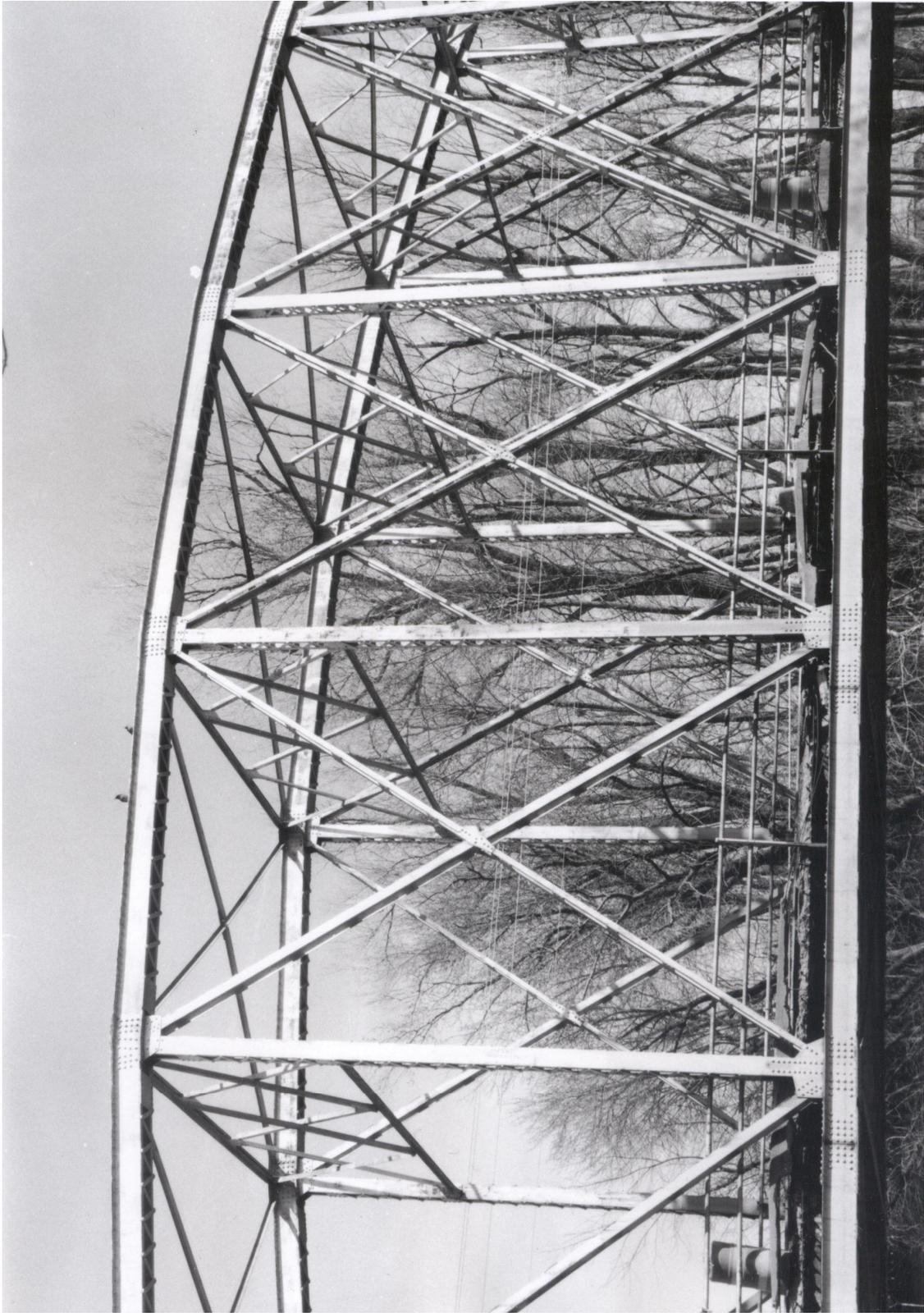
#9 of 22. Bridge J0025R. West end. View to northwest.



#10 of 22. Bridge J0025R. Subdeck. View to east.



#11 of 22. Bridge J0025R. West end of main span. View to north.



#12 of 22. Bridge J0025R. Center of main span. View to north.



#13 of 22. Bridge J0025R. South side. View to northeast.



#14 of 22. Bridge J0025R. South profile. View to north.



#15 of 22. Bridge J0025R. East approach. View to west.



#16 of 22. Bridge J0025R. East portal. View to west.



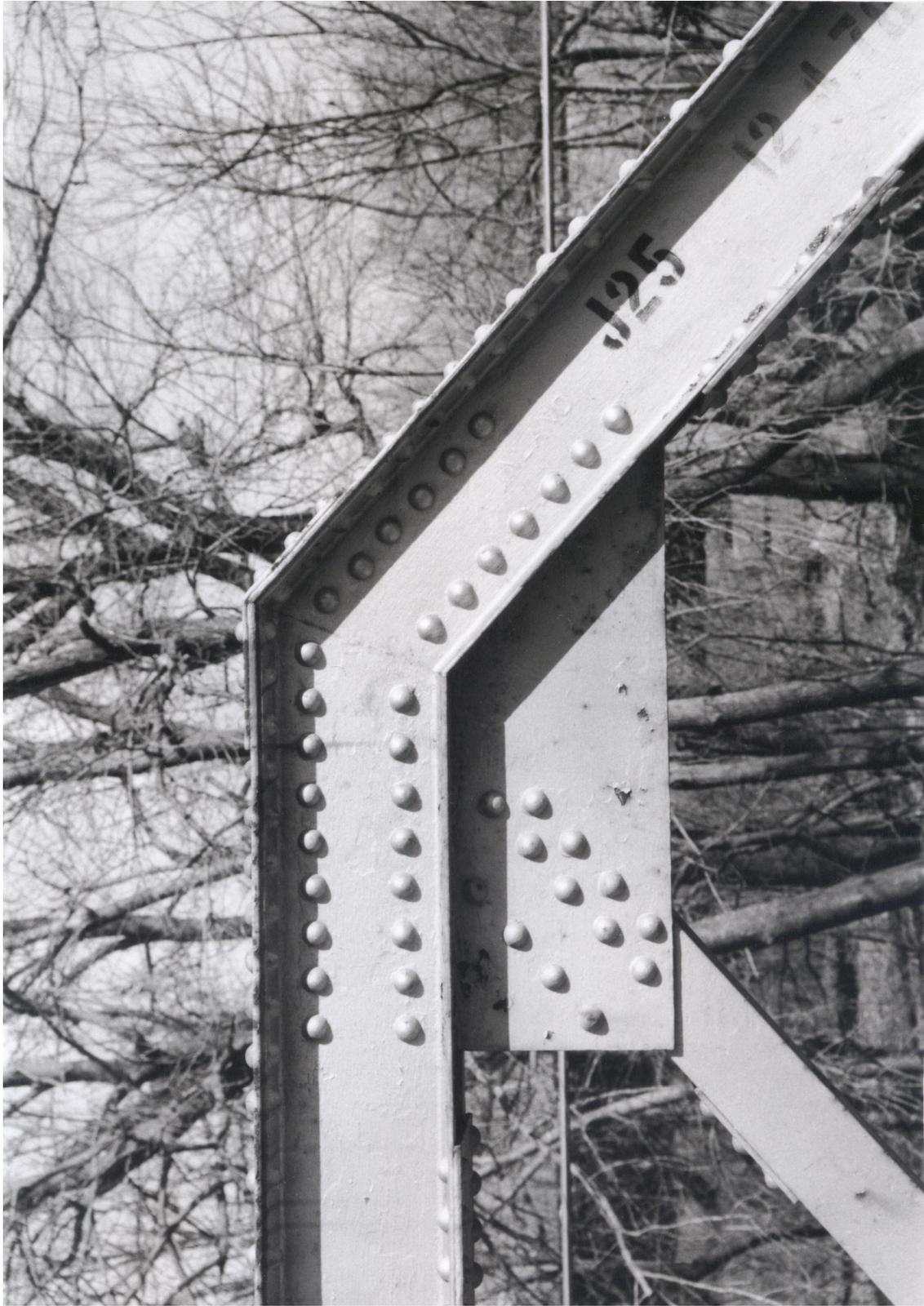
#17 of 22. Bridge J0025R. Top laterals and sway bracing. View to west.



#18 of 22. Bridge J0025R. West portal. View to west.



#19 of 22. Bridge J0025R. East approach span. View to northwest.



#20 of 22. Bridge J0025R. East approach span detail. View to north.



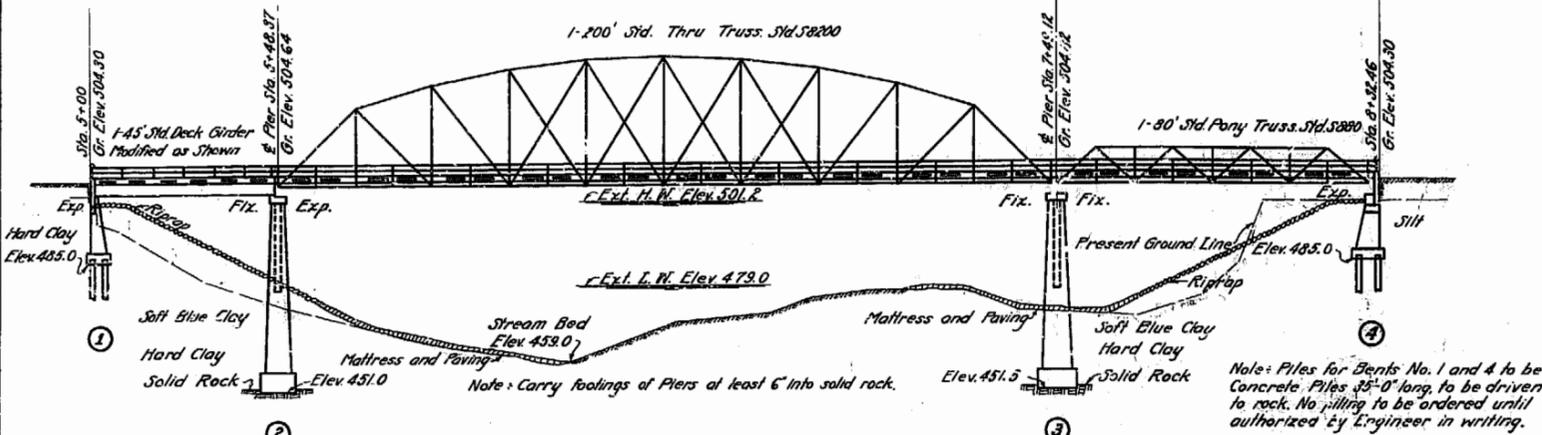
#21 of 22. Bridge J0025R. East approach span. View to northeast.



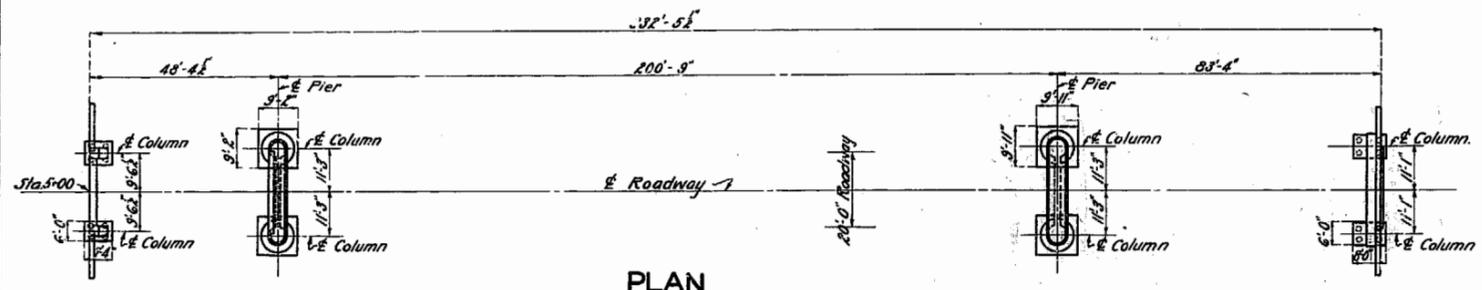
#22 of 22. Bridge J0025R. Pier 3. View to north.

MISSOURI STATE HIGHWAY DEPARTMENT

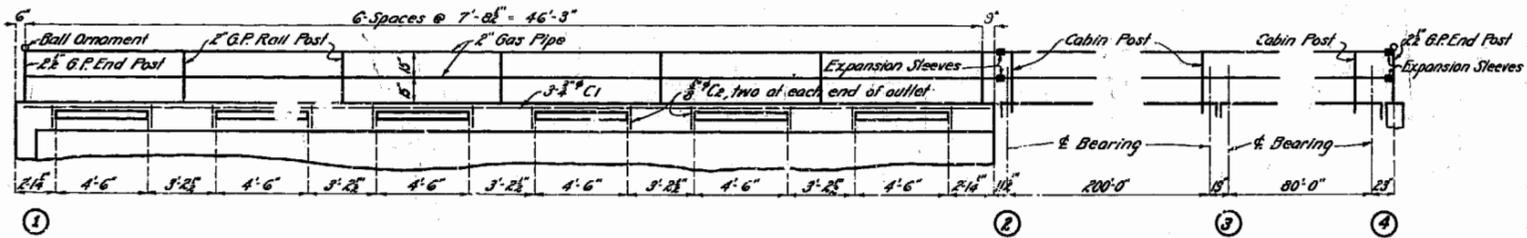
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GENERAL ELEVATION

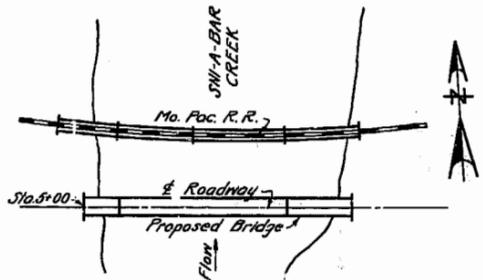


PLAN

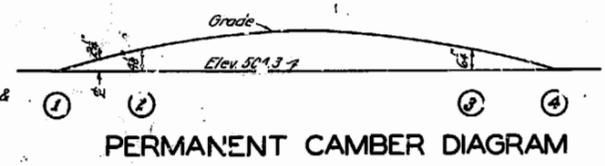


ELEVATION OF HANDRAIL AND CURB

Note:
Excavation volume for Pier No. 2 to be computed on area 11'2" x 33'-5" extending from Elev. 473.0 to bottom of footings.
Excavation for Pier No. 3 to be computed on area 11'11" x 34'-5" extending from Elev. 473.0 to bottom of footings.
Excavation for Bents 1 & 4 to be computed in accordance with Specifications.



LOCATION SKETCH



PERMANENT CAMBER DIAGRAM

BEARING PLATES AND BOLTS REQUIRED
(For Deck Girder Span only)
16 - Plates 15" x 3" x 20" - planed to 1/2" thickness.
16 - 3/4" Bolts 12" long - 3/4 Nuts, Cst. Hds.
16 - 3/4" Bolts 12" long - No threads or nuts.
4 - Copper Plates 15" x 20" 1/4 gauge.
16 - 3/4" Bolts - 12" long Soft Iron.
Above list of bearing plates and bolts is complete.
Plates and bolts listed on Std. C6345 not to be ordered.

SUPERSTRUCTURE				BILL OF REINFORCING STEEL				SUBSTRUCTURE							
NO.	SIZE	LENGTH	MARK LOCATION	BENDING SKETCHES & CUTTING DIAGRAMS				NO.	SIZE	LENGTH	MARK LOCATION				
Span 1-2								Pier No. 2							
31	3/4"	21'-3"	S1 Slab									Pier No. 3			
31	3/4"	22'-9"	S2 "									Bent No. 4			
30	3/4"	23'-9"	S3 "									10 - 3/4" 5'-3" Di. Footing			
6	3/4"	26'-6"	S4 "									4 - 3/4" 27'-9" Hi Beam			
6	3/4"	7'-0"	S5 "									5 - 3/4" 27'-9" Hb "			
1E	3/4"	6'-0"	S6 "									3 - 3/4" 20'-0" Hi Backwall			
12	3/4"	24'-0"	S7 "									20 - 3/4" 10'-0" Hi Wing			
12	3/4"	24'-6"	C1 Curbs									2 - 3/4" 9'-6" Hb "			
48	3/4"	12'	C2 "									4 - 3/4" 10'-0" Hb "			
196	3/4"	8'-3"	D1 Girder									2 - 3/4" 22'-0" T4 Backwall			
16	3/4"	24'-0"	B2 "									4 - 3/4" 15'-0" T5 Wing			
20	1 1/2"	43'-3"	B3 "	8 - 3/4" 8'-9" V6 "											
9	1 1/2"	50'-3"	B4 "	8 - 3/4" 9'-0" V5 Haunch											
12	1 1/2"	50'-3"	B5 "	8 - 3/4" 10'-3" V6 "											
6	3/4"	22'-6"	W1 Web	28 - 3/4" 12'-0" U2 Beam											
Substructure				Bent No. 1				Bent No. 4							
12	3/4"	5'-3"	D1 Footing	10 - 3/4" 5'-3" Di. Footing				4 - 3/4" 27'-9" Hi Beam							
8	3/4"	9'-3"	F1 Haunches	5 - 3/4" 27'-9" Hb "				3 - 3/4" 20'-0" Hi Backwall							
6	3/4"	17'-6"	H1 Wing	20 - 3/4" 10'-0" Hi Wing				2 - 3/4" 9'-6" Hb "							
2	3/4"	16'-9"	H2 "	4 - 3/4" 10'-0" Hb "				2 - 3/4" 22'-0" T4 Backwall							
2	3/4"	30'-9"	H3 "	8 - 3/4" 8'-9" V6 "				8 - 3/4" 9'-0" V5 Haunch							
4	1 1/2"	21'-3"	H4 Beam	8 - 3/4" 10'-3" V6 "				28 - 3/4" 12'-0" U2 Beam							
4	1 1/2"	21'-3"	H5 "	35 - 3/4" 6'-0" V6 Backwall				4 - 3/4" 7'-0" V9 "							
2	3/4"	21'-3"	H6 "												
3	3/4"	21'-3"	H7 "												
4	3/4"	19'-0"	W1 Wing												
6	3/4"	16'-3"	W2 "												
3	3/4"	21'-3"	W3 Beam												
6	3/4"	9'-6"	V1 Wing												
12	3/4"	13'-0"	V2 Column												
25	3/4"	11'-0"	U1 Beam												

Notes: Dimensions given are along E of Bars and are for computed lengths. For reinforcing in floor of steel spans see Std. J8 S1A bars required for 200' span and 210 A bars for 80' span.

GENERAL NOTES:

Concrete in superstructure to be 1:2:3 1/2 mix. Concrete in substructure to be 1:2:4 mix. Exposed edges to be beveled 1/4" where no other bevel is noted.
Two name plates, type 'D' as shown on Std. S816, to be furnished and placed by contractor. Cost of name plates to be included in price bid for other items.
Where biluminous felt is used in expansion or partition joints in concrete, stitch felt in vertical joints securely to one face of concrete with copper wire.
Shop drawings for the 200 ft. span and the 80 ft. span to be furnished by the Missouri State Highway Department. Shop drawings for fabrication of bearing plates and bolts for the concrete span to be furnished by the Missouri State Highway Department.
Deck Girder span to be cambered as shown by permanent camber diagram instead of cambered as indicated on Std. C6345.
Structural steel to be subpunched, matchmarked and reamed in accordance with specifications. Steel truss spans to be assembled complete in shop for inspection.
Paint: Shop: As furnished by Missouri State Highway Department, contact surfaces, one coat of red lead; surfaces inaccessible after erection, three coats of red lead.
Field: Three coats of paint as furnished by the Missouri State Highway Department.
For details of expansion device at Pier No. 2 see Std. S813.
For details of expansion device at Pier No. 3 see Std. S814.
For details of expansion device at Bent No. 4 see Std. S811.

B.M. Elev. 500.0, Nail in roof of 24" Oak, 80 ft. R.I. of Sta. 4+75.

BRIDGE OVER SNI-A-BAR CREEK

STATE ROAD FROM WELLINGTON TO LEXINGTON
ABOUT 1 MILE EAST OF WELLINGTON
PROJECT NO. U.S. 24-S9A & S9B STA. 5+00

LAFAYETTE COUNTY

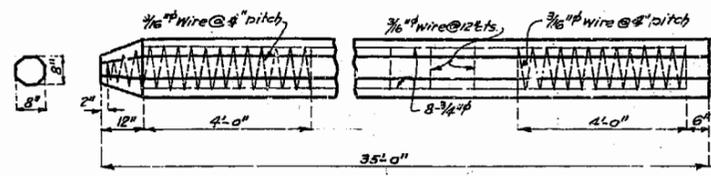
SUBMITTED BY: *[Signature]* DATE: *[Date]*
APPROVED BY: *[Signature]* DATE: *[Date]*
BRIDGE ENGINEER
CHIEF ENGINEER

STD. S8
STD. S18
STD. S19
STD. S811
STD. S818
STD. C6345
J 25

145

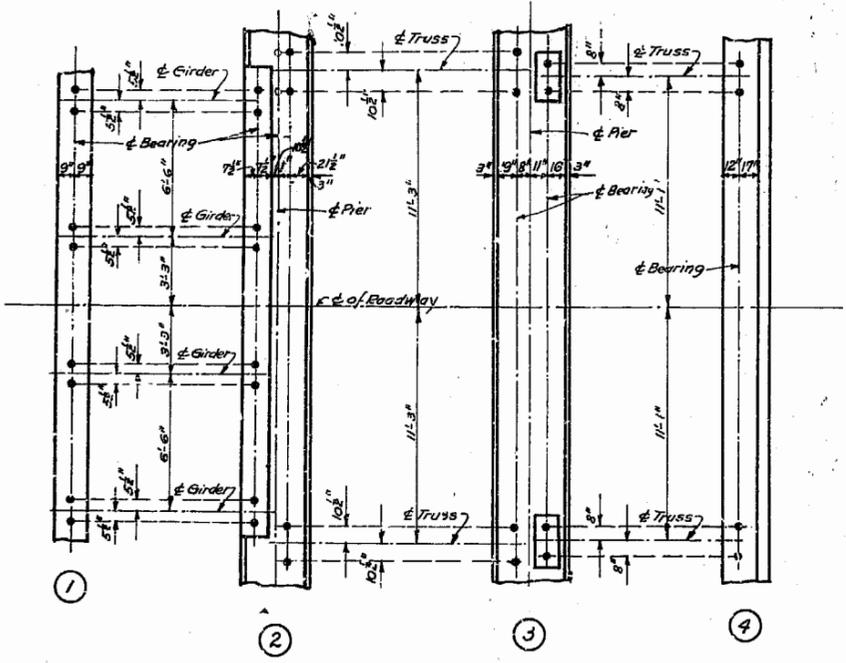
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	U.S. 24-59A-2398	19		

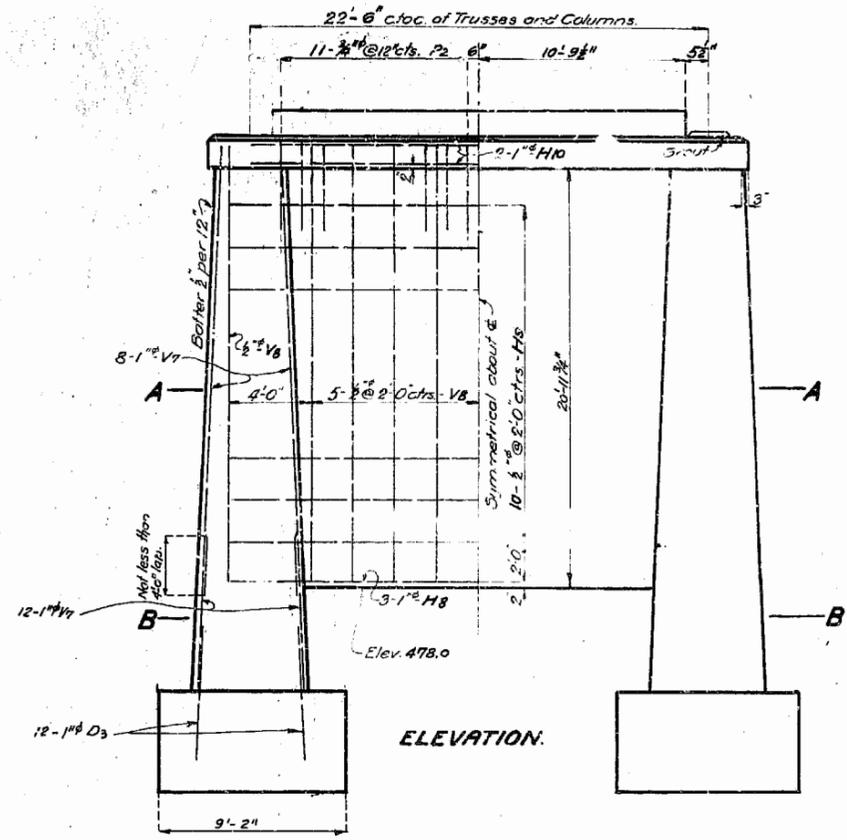


Required for 1 Pile: 8 - 3/8" bars 34.8' long
 205 lin. ft. of 1/8" wire.
 Total Reinforcing Steel 433 lbs.
 Total Concrete 1:2:4 mix 1.883 cu yds.

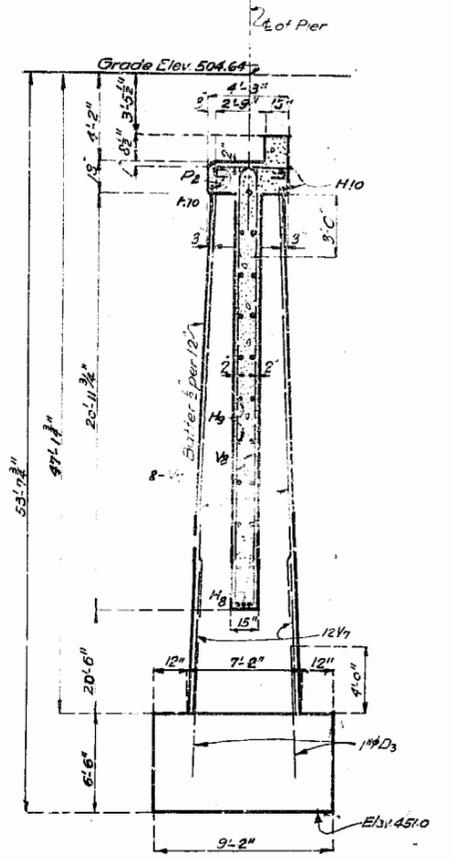
DETAIL OF REINFORCED CONCRETE PILE



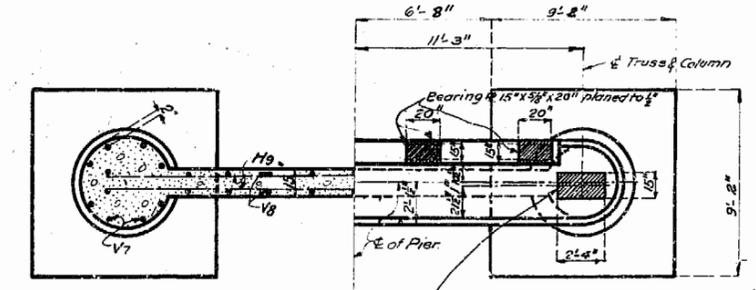
ANCHOR BOLT PLAN



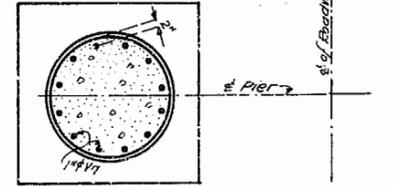
ELEVATION.



SECTION AT E-E.



**HALF HORIZONTAL SECTION A-A HALF PLAN.
 DETAILS OF PIER NO. 2.**



HALF HORIZONTAL SECTION B-B

Note: This drawing is not to scale.
 Follow dimensions.

147

Assembled Jan. 1929 By J.G.
 Checked Feb. 1929 By G.B.
 Drawn Feb. 1925 By J.I.
 Checked Feb. 1921 By B.G.

FINISHED

BRIDGE OVER SNI-A-BAR CREEK
 STATE ROAD FROM WELLINGTON TO LEXINGTON
 ABOUT 1 MILE EAST OF WELLINGTON
 PROJECT NO. U.S. 24-59A-2398. STA. 5+00

LAFAYETTE COUNTY

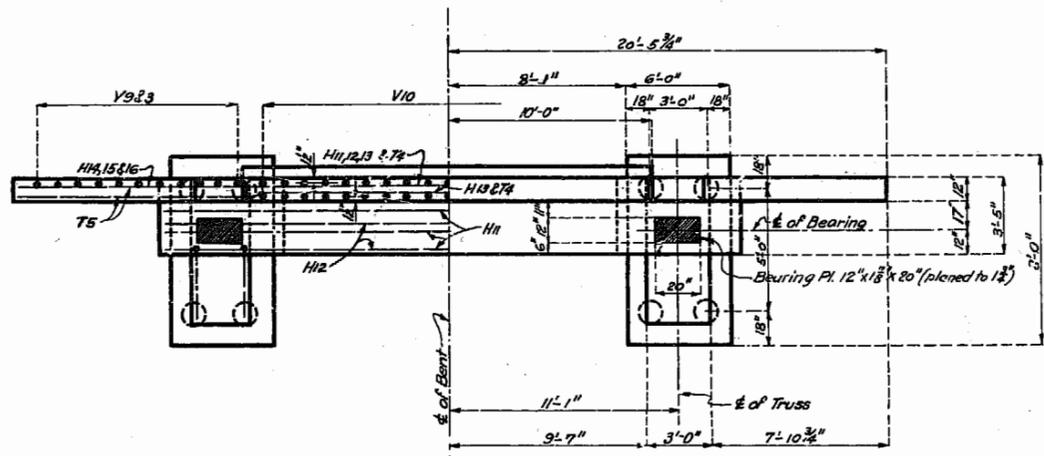
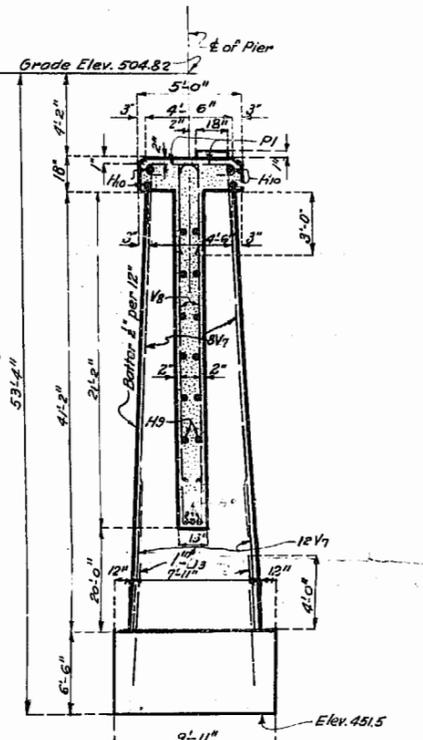
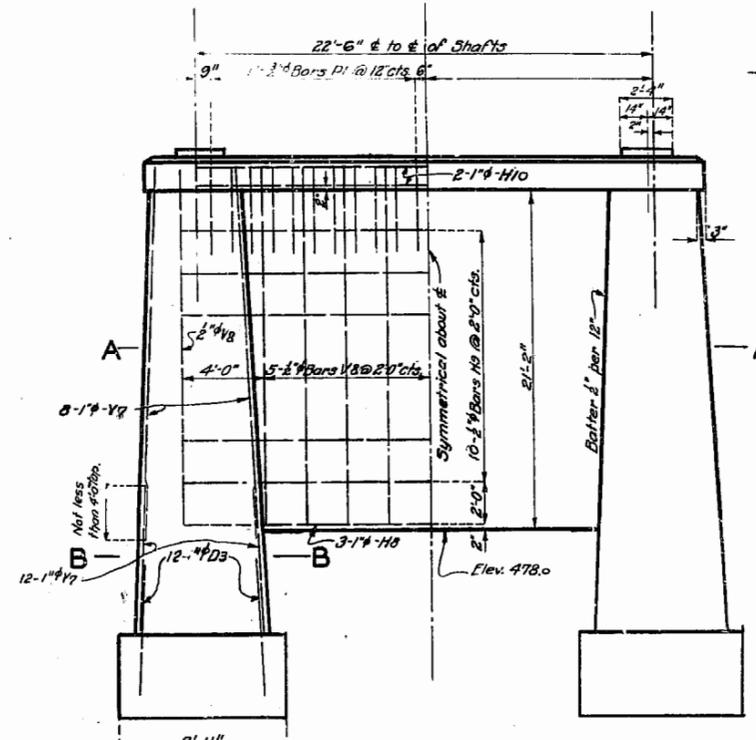
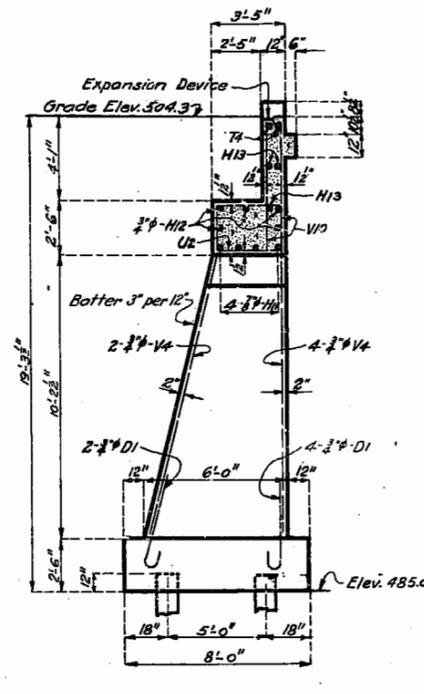
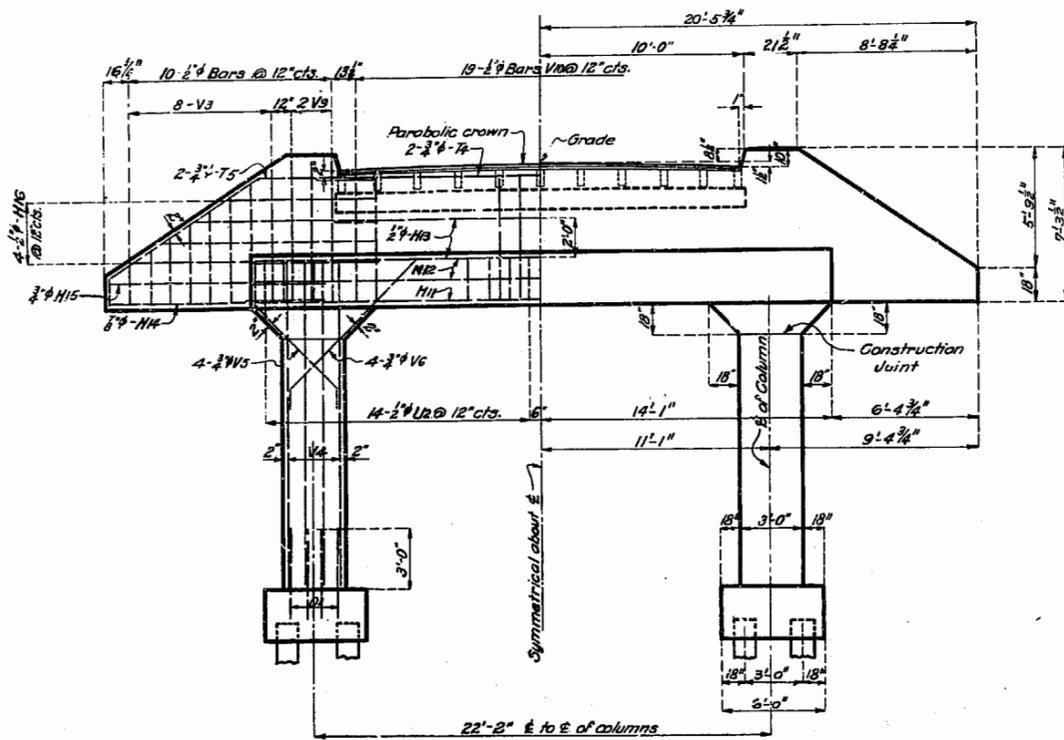
SUBMITTED BY: *[Signature]* DATE: *[Date]*
 APPROVED BY: *[Signature]* DATE: *[Date]*

STD. S818
STD. S18
STD. S19
STD. S811
STD. S8
STD. C6345
J 25

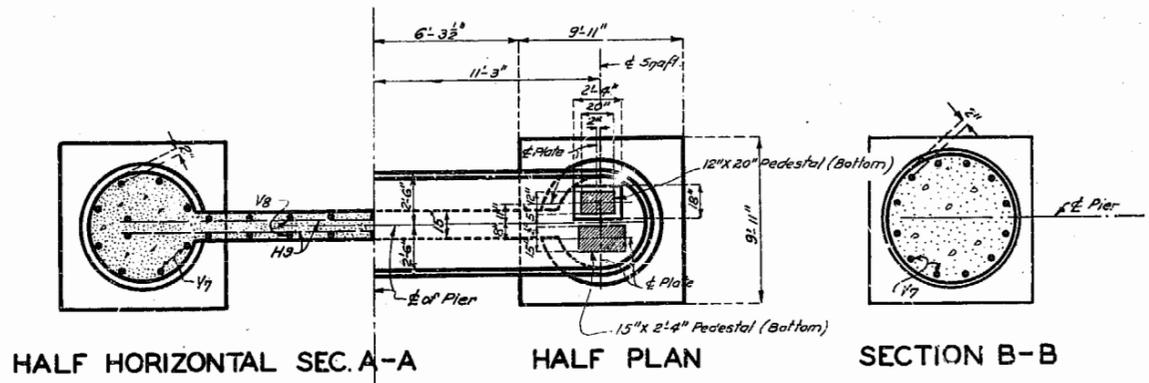
Sheet # 3 of 5

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	U.S. 24-59A	19		



DETAILS OF BENT NO. 4



NOTE: This drawing is not to scale. Follow dimensions.

BRIDGE OVER SNI-A-BAR CREEK

STATE ROAD FROM WELLINGTON TO LEXINGTON
 ABOUT 1 MILE EAST OF WELLINGTON
 PROJECT MO. U.S. 24-59A&59B. STA. 5+00
LAFAYETTE COUNTY

SUBMITTED BY: *T. H. Kutt* DATE: *2-20-29*
 ACTING BRIDGE ENGINEER
 APPROVED BY: *T. H. Kutt* DATE: _____
 CHIEF ENGINEER

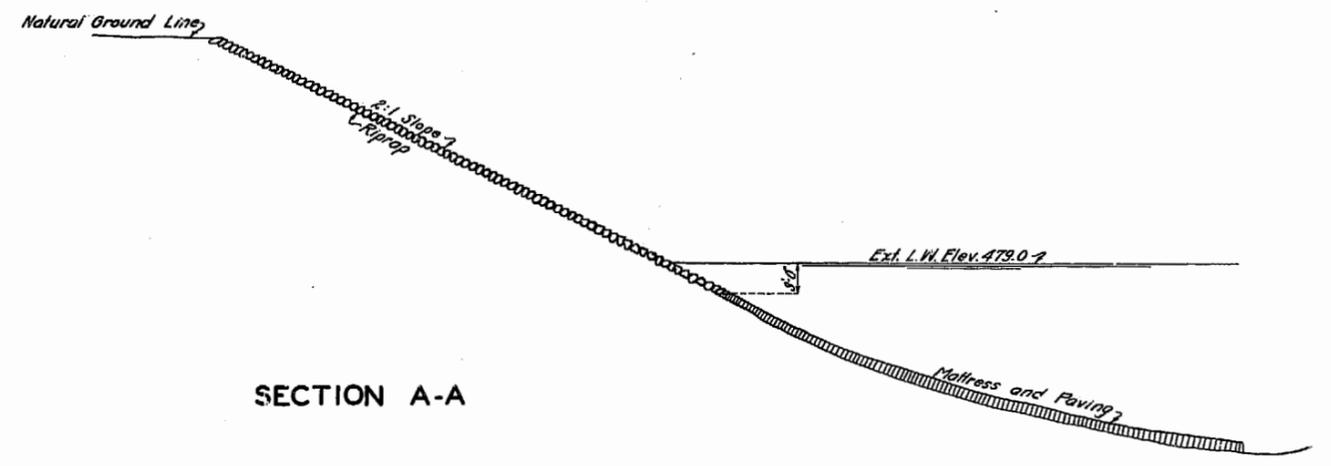
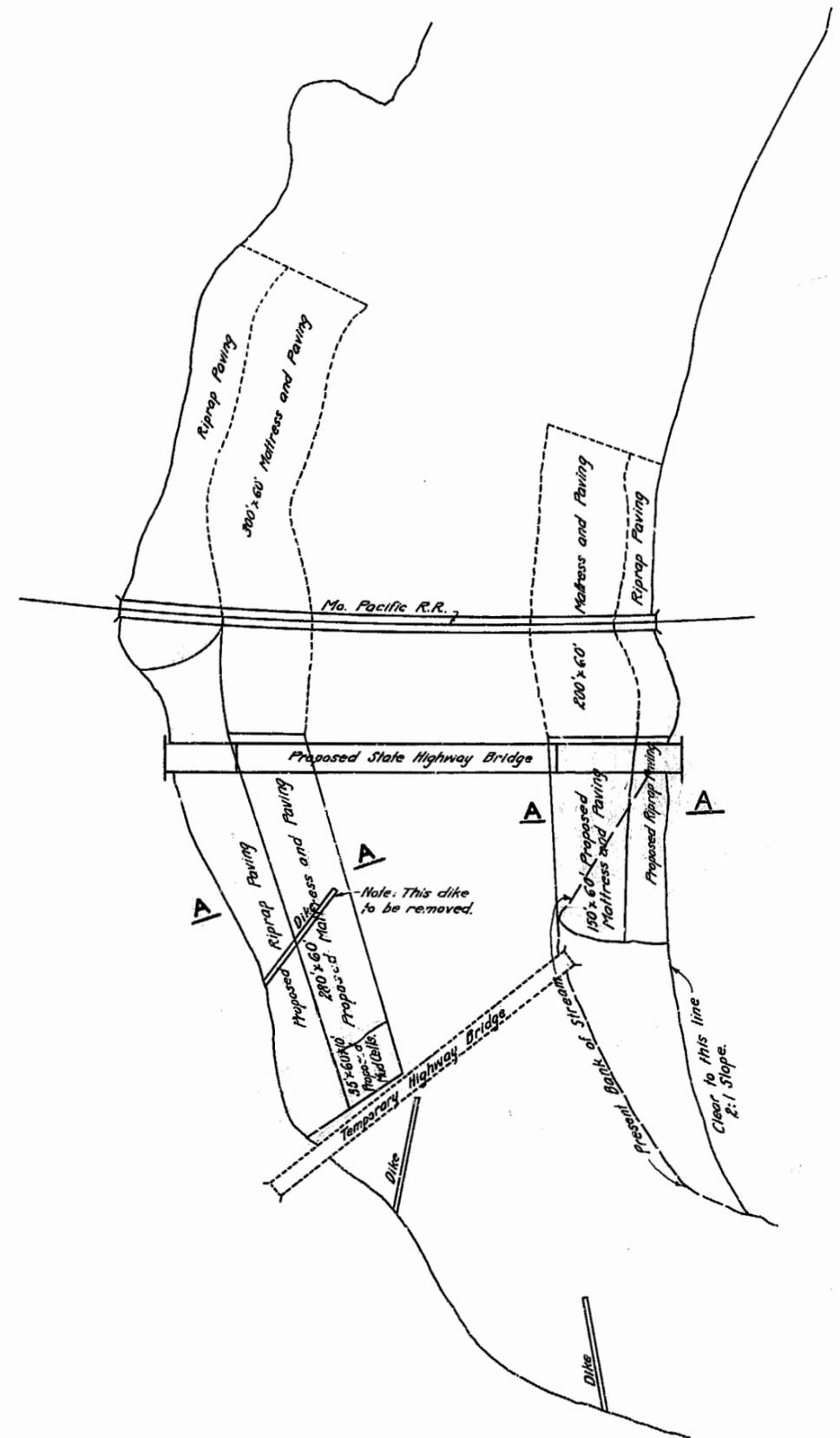
STD. S818
STD. S16
STD. S19
STD. S811
STD. S8
STD. C6345
J25

148

Assembled Jan. 1929 By J.G.
 Checked Feb. 1929 By G.P.
 Drawn Dec. 1926 By F.C.L.
 Checked Dec. 1926 By G.D.

MISSOURI STATE HIGHWAY DEPARTMENT

FED. AID DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	05-R-238	1929		



Mud Cells	Cu. Ft.	21000
Plain Riprap	Sq. Yds.	1200
Loose Fascine Mattress	Sq. Ft.	25300

Note: Work within solid lines included in Project No. U.S.R.24-S.9A. That within dotted lines to be constructed by R.R. Co.

149

Drawn Feb. 1929 By W.S.M.
Checked Feb. 1929 By d.B.

Sheet No. 5 of 5.

BRIDGE OVER SNI-A-BAR CREEK

STATE ROAD FROM WELLINGTON TO LEXINGTON
ABOUT 1 MILE EAST OF WELLINGTON
PROJECT NO. U.S.R.24-S.9A & 59B STA. 5+00

LAFAYETTE COUNTY

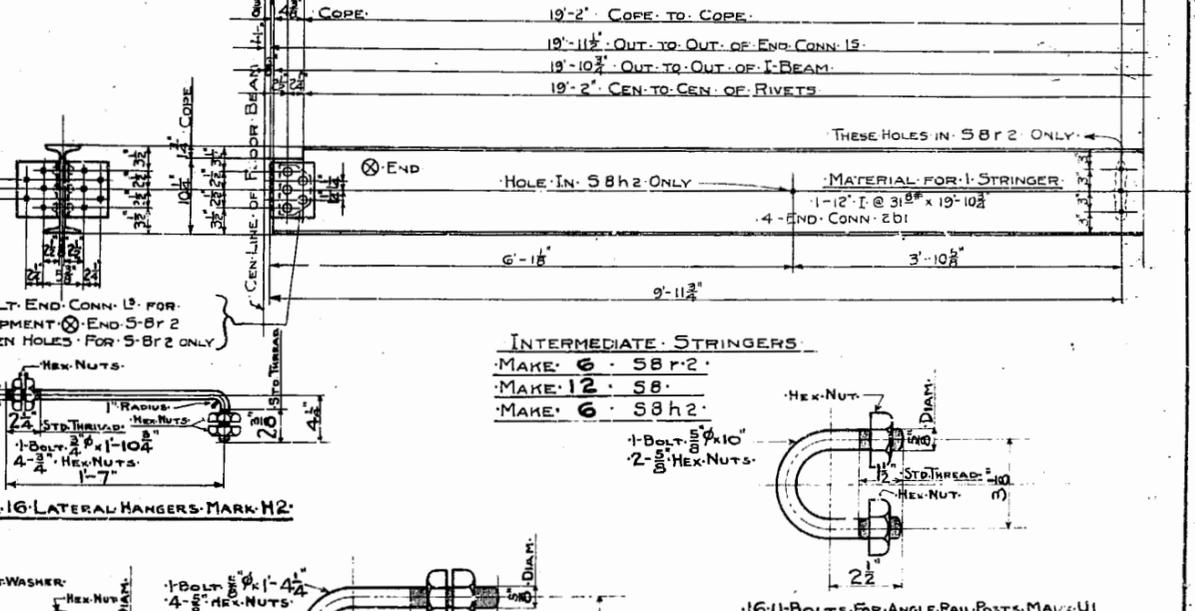
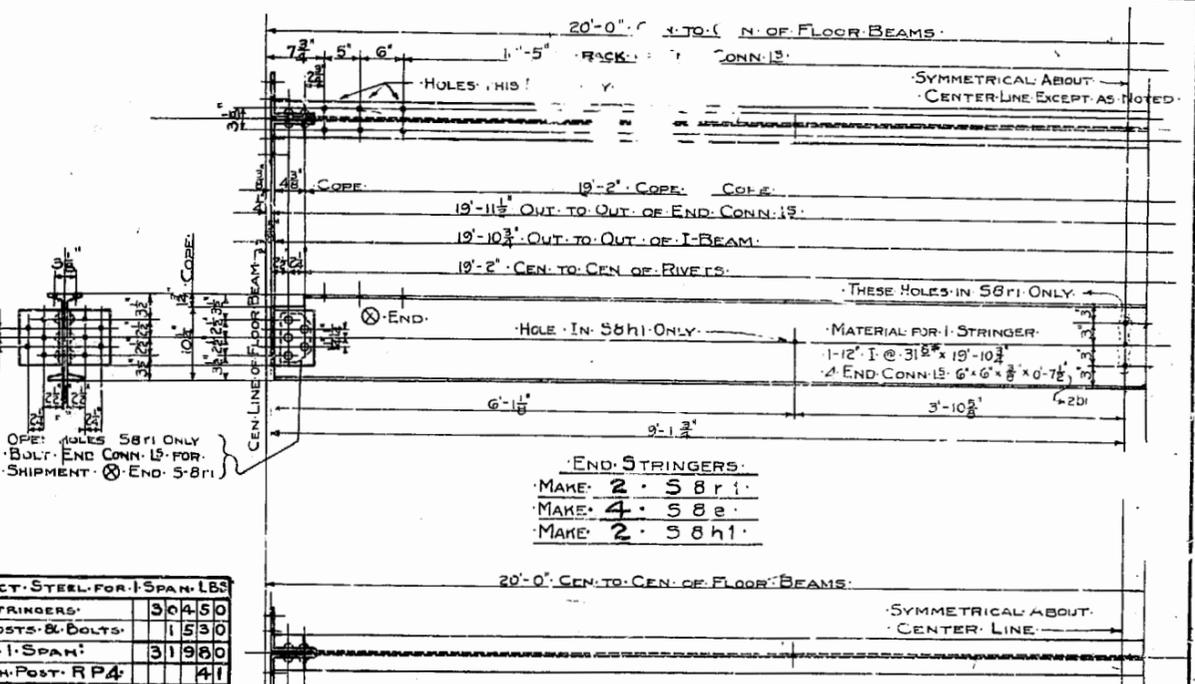
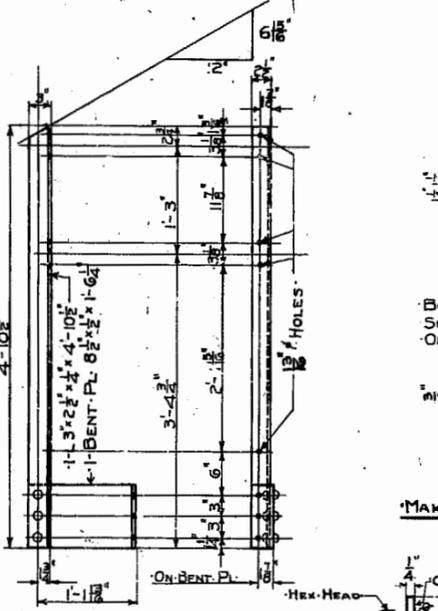
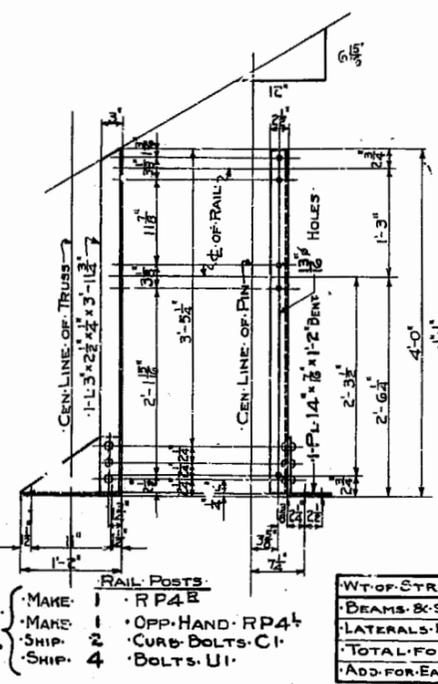
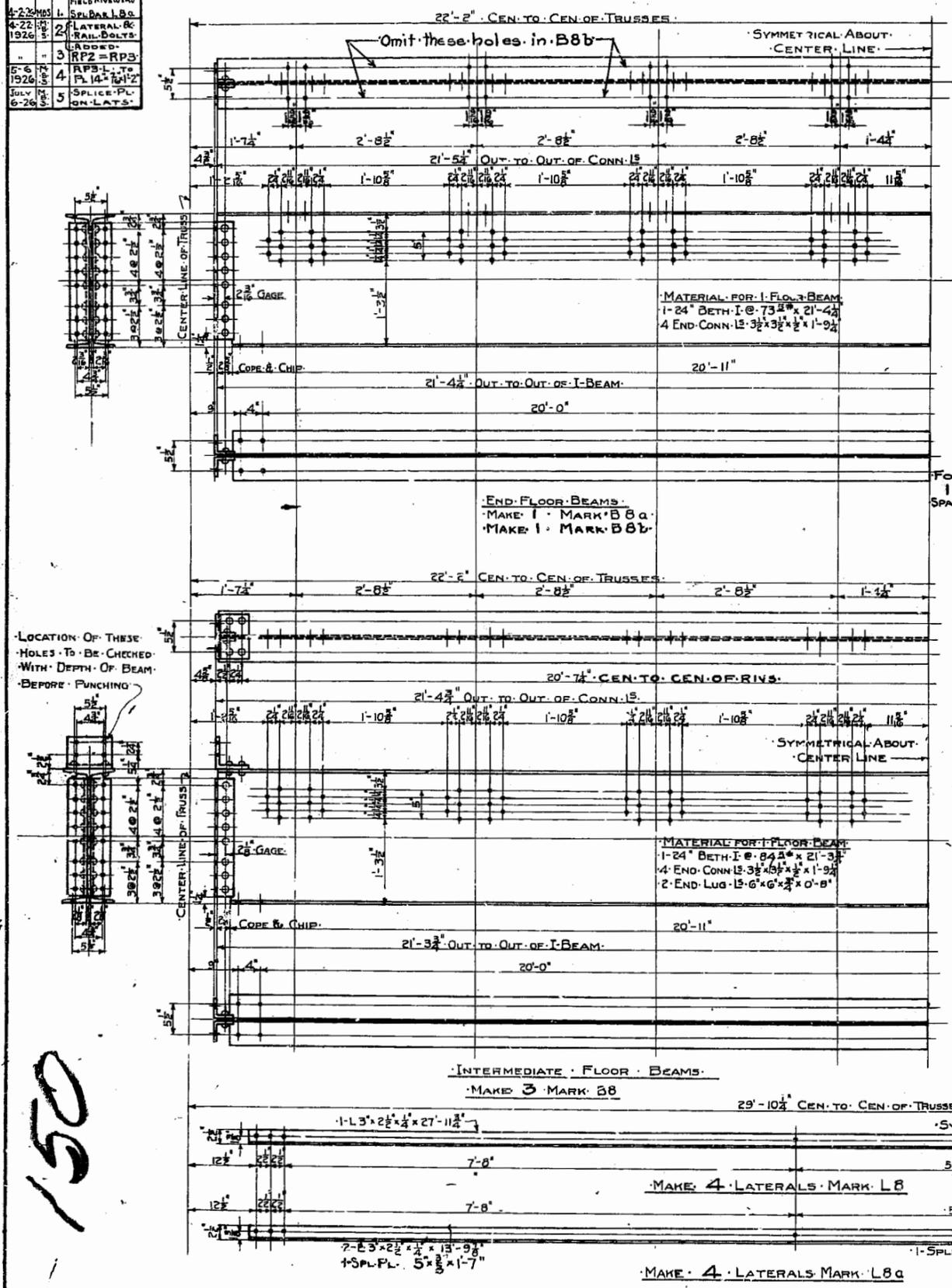
SUBMITTED BY *[Signature]* DATE 4/29/29
APPROVED BY *[Signature]* DATE
BRIDGE ENGINEER
CHIEF ENGINEER

STD. 58
STD. S18
STD. S19
STD. S8.1
STD. S818
STD. C6345
J 25

MISSOURI STATE HIGHWAY DEPARTMENT

Field No.	State	Federal Aid Project No.	Fiscal Year	Sheet No.	Total Sheets
5	Mo.	U.S. 24 S9A & S9B			

REVISION	DATE	BY	DESCRIPTION
1	4-22-26	MBS	FIELD REVISED
2	4-22-26	MBS	SPL. PL. L.B. & LATERAL & RAIL BOLTS
3			ADDED RP2 = RPB
4	5-6-26	WJ	RP3 - L. TO P. 14 - 1/2"
5	JULY 1926	WJ	SPLICE PL. ON LATS.



LAFAYETTE COUNTY
 PROJECT NO. U.S. 24 S9A & S9B
 STA. 5+00 (J-25)

SHOP DETAILS
 FOR
 80' STANDARD PONY TRUSS
 CON. 4TH FLOOR 20'-0" ROADWAY

OCT 1926
 SUBMITTED BY *W.P. Sack* 10/1/26
 BRIDGE ENGINEER

APPROVED BY *T.H. Kutt* J-25
 BRIDGE ENGINEER

SHEET 6 OF 13

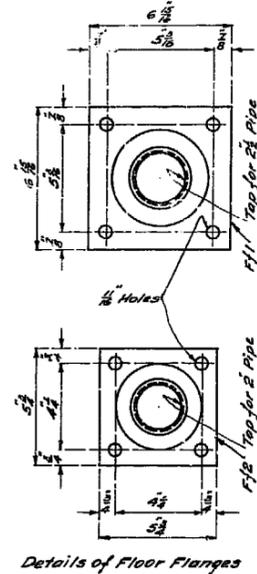
5880

150

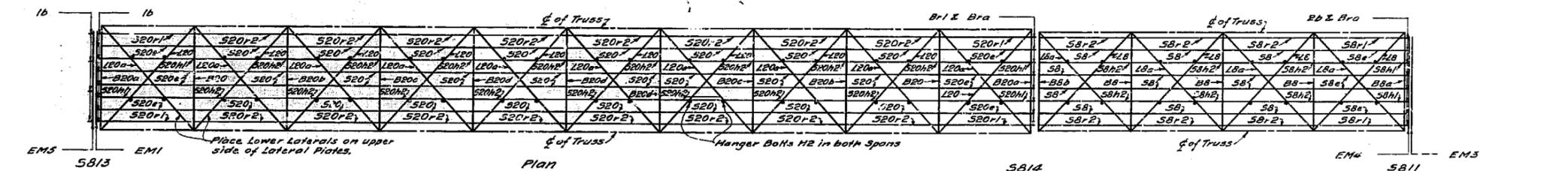
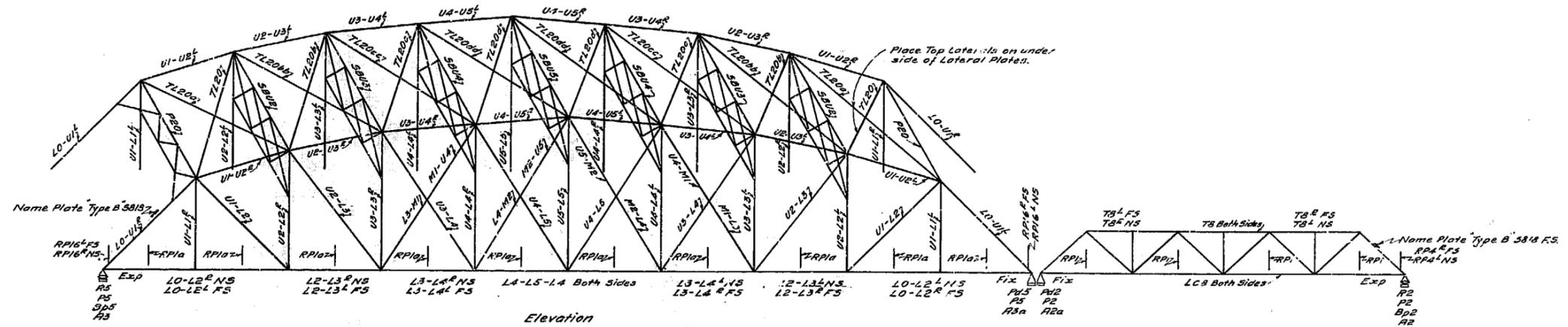
MADE JAN 1926 BY MBS
 TRACED FEB 1926 BY WJ
 CHECKED FEB 1926 BY WJ

MISSOURI STATE HIGHWAY DEPARTMENT

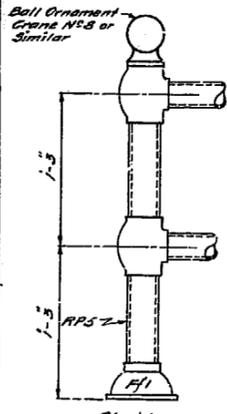
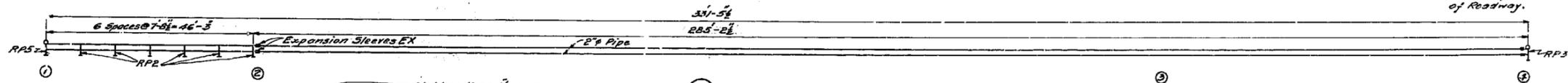
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.				



Details of Floor Flanges



ERECTION DIAGRAMS



Notes for Posts RP2 only.
Cut upper section to exact length.
Allow additional threads each end to secure tight bearing.
Bring up tight bearing after erection by turning this section of Post.
Room fittings to permit passage of horizontal pipe snug fit.
Lower section of Post to be cut to exact length to give firm bearing against horizontal pipe.
All tightening after erection to be done with top section of Post.
Lower end of Post in flange must be tight and distance from bottom of flange to E of horizontal pipe must be exact.

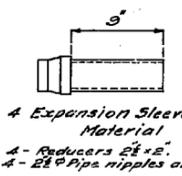
General Notes

All couplings to be threaded.
All fittings to be Ball Pattern Threaded Malleable Castings except as noted.
See design drawings for Ancho- Bolt Plan.

Abut 1
Make 2 End Posts RP5
Assemble in Shop
Material for 1 Post
2- 2 1/2" Reducing Tees, 2 1/2" x 2"
2- 2 1/2" x about 1-0 pipe, Thread 20 n.s.
1- 2 1/2" Ball Ornament
1- 2 1/2" Floor Flange F11.

Make 12 Intermediate Posts RP2
Assemble in Shop
Material for 1 Post
1- 2" Tee
1- 2" Cross RH x LH threads.
1- 2 1/2" x 1 1/2" pipe Thread Bands.
1- 2 1/2" x about 1 1/2" pipe Thread Bands.
1- 2" Floor Flange F12.

Make 2 End Posts RP3
Assemble in Shop
Material for 1 Post
2- 2 1/2" Tees.
2- 2 1/2" x about 1-0 pipe Thread Bands.
2- 2 1/2" x about 3/8" pipe Thread Band.
1- 2 1/2" Ball Ornament
1- 2" Floor Flange F11.



4 Expansion Sleeves EX.
Material
4 Reducers 2 1/2" x 2".
4 2 1/2" Pipe nipples about 3/8" thread lend.

Make 2 Lines of Railing as shown Mark R1
Material Required
2 End Posts RP3
2 End Posts RP5
12 Intermediate Posts RP2
4 Expansion Sleeves EX
64 3/8" x 10 Bolts Hex Heads & Nuts
64 Cut Washers for 3/8" Bolts
1325 Lin Ft of 2" WT Pipe Random Lengths. Ship

LIST OF DRAWINGS		
Sheets	Orig. No.	Details
1	58200	Trusses.
2	58200	Trusses.
3	58200	Tees, Sway Braces etc.
4	58200	Floor Beams, Stringers etc.
5	5880	Trusses.
6	5880	Floor Beams, Stringers etc.
7	5807	Rockers etc.
8	5810	Rockers etc.
9	5811	Expansion.
10	5813	Expansion.
11	5814	Br. Mats.
12	5818	Name Plates.
13	J25	Erection Diagram.

QUANTITIES PAID FOR BY MO. S.H.		
Items	Sfr. SH	Cost SH
Trusses	136240	
Trusses	28960	
Beams & Stringers	74050	
Beams & Stringers	30450	
Portals & Sway Braces	10380	
Lateral, Posts & Bolts	6290	
Lateral, Posts & Bolts	1610	
Rockers & Pedestals	1030	1280
Rockers & Pedestals	520	860
Expansions & Brackets	4230	
	2932'0"	2140

BRIDGE OVER SNI-A-BAR CREEK

STATE ROAD FROM WELLINGTON TO LEXINGTON
ABOUT 1 MILE EAST OF WELLINGTON
PROJECT NO. US24 58A & STA 5+00
58B

LAFAYETTE COUNTY
SUBMITTED BY: [Signature] DATE: 3/27/29
APPROVED BY: [Signature] BRIDGE ENGINEER
LATE CHIEF ENGINEER

FINISHED

Drawn February 1929 by C.F.B.
Checked March 1929 by M.B.S.

Sheet 13 of 13.

J25

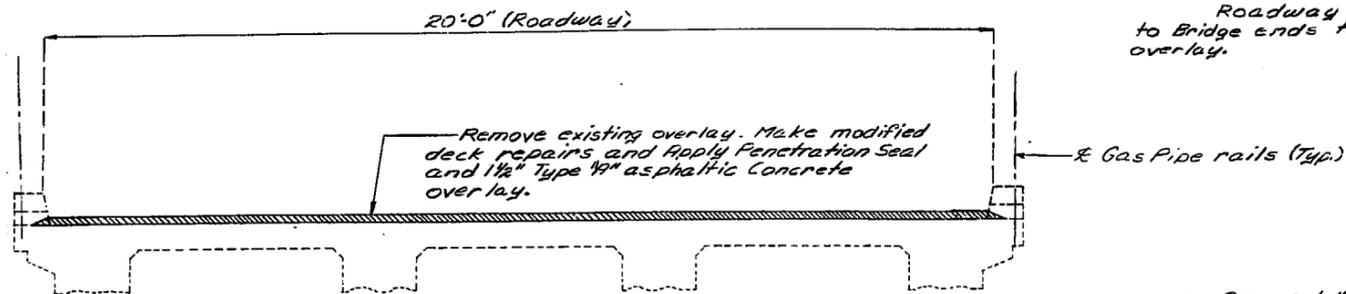
Note: The Contractor shall maintain one lane of traffic on bridge during construction (See Roadway Plans.)

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

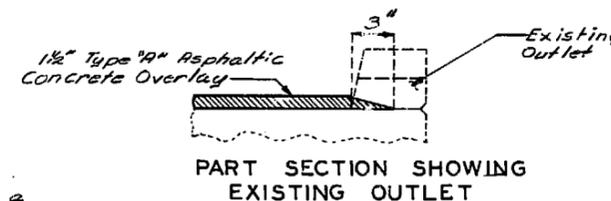
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MO.	4-5-224-900	2
SEC. 15	TWP. 50 N	RGE. 28 W

FINAL PLAN

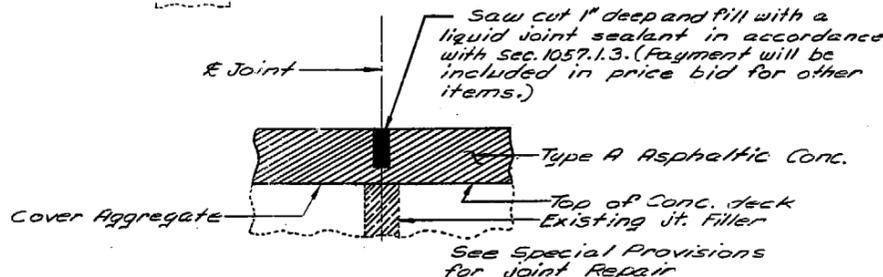
Note: Outline of old work is indicated by light dashed lines. Heavy lines indicates new work.
Roadway surfacing adjacent to Bridge ends to match Bridge overlay.



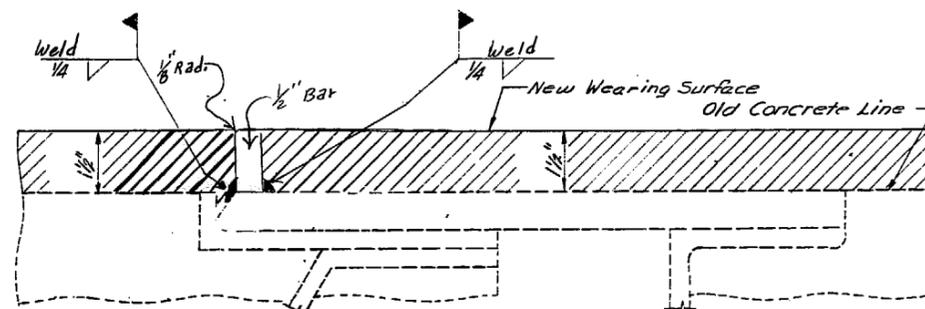
TYPICAL SECTION (SPAN (1-2) SHOWN)



PART SECTION SHOWING EXISTING OUTLET



TYPICAL PART SECTION THRU SLAB AT TRANSVERSE JOINT PIER NO. 3 & 2



PART SECTION THRU EXPANSION DEVICE AT END BT. NO. 4

ESTIMATED QUANTITIES		TOTAL
ITEM		
Mineral Aggregate (Asphaltic Concrete) (Type 'A' Mix.)	Tons	61
Asphalt Cement (Asphaltic Concrete) (AC-20) Type 'A' Mix.	Tons	2.8
Polymer Modified Asphalt (Seal Coat)	Gal.	250
Cover Aggregate, See Special Provisions	Tons	11
Modified Deck Repair	Sq. Ft.	97
Steel Bar Dams	Each	1
Asphalt Removal (Bridges)	Sq. Ft.	6594

Note: Polymer Modified Asphalt shall be applied at a rate of .35 gal. per sq. yd. (See Special Provisions.)
Cover Aggregate shall be applied at a rate of .015 Tons per sq. yd. (See Special Provisions.)

GENERAL NOTES:

STRUCTURAL STEEL SHALL BE ASTM A36.
QUALIFICATION OF WELDING OPERATORS WILL BE REQUIRED.
E7016 OR E7018 WELDING ELECTRODES SHALL BE USED.
THE STEEL DAMS SHALL EXTEND FULL ROADWAY WIDTH BETWEEN CURBS BUT SHALL BE INSTALLED IN SECTIONS OF SUCH LENGTHS TO PERMIT AT LEAST ONE WAY TRAFFIC AT ALL TIMES. BEFORE TRAFFIC IS PERMITTED TO CROSS OVER SECTIONS OF DAMS IN PLACE SUFFICIENT WEARING SURFACE SHALL BE PLACED ON ROADWAY SLAB ADJACENT TO BOTH SIDES OF EXPANSION DEVICE TO PREVENT ANY DAMAGE TO EITHER THE STEEL DAMS OR TIRES OF VEHICLES.
STEEL DAMS SHALL CONFORM TO CROWN OF ROADWAY.
STEEL BARS ON BOTH SIDES OF EXPANSION JOINT, FOR FULL WIDTH OF ROADWAY SHALL BE CONSIDERED AS A STEEL DAM ASSEMBLY AND PAID FOR AS ONE STEEL BAR DAM.
SHOP DRAWING WILL NOT BE REQUIRED FOR STEEL BAR DAMS.

REPAIRS TO
BRIDGE SNI-A-BAR CREEK
STATE ROAD FROM WELLINGTON TO LEXINGTON
ABOUT .1 MILES EAST OF WELLINGTON
PROJECT NO. STA. 5+00
JOB NO. 4 5224 900 RTE. 224
LAFAYETTE COUNTY

STD.
STD.
J-25 R

DATE 2/5/88

DESIGNED Oct. 1987
DETAILED NOV. 1987
CHECKED Nov. 1987

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1A of 1

805 508