
Documentation of the Historic Sandy Creek Bridge

Bridge No. K0340
Lincoln County, Route 79
September 2012



Historic Documentation
Bridge K0340, Sandy Creek Bridge
Lincoln County, Route 79

Location: Lincoln County, Route 79, North of Foley

Construction Date: 1938

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

Present Use: Highway Bridge, to be removed and replaced

Significance: The Sandy Creek Bridge is significant as a rare surviving example of a heavily skewed Pratt through truss. The heavy skew has resulted in a unique Pratt configuration in the end panels of the east truss and in the top chord connecting the end panels.¹

Historian: Karen L. Daniels, Historic Preservation Section, Design Division, Missouri Department of Transportation, September 2012

¹ Dawdy, Randall. "Memorandum: Replace Bridge K0340 over Sandy Creek 1.0 mile north of Route Y. Lincoln County, Rte 79 MoDOT Project J3P0460." 2009. Historic Preservation Section, Missouri Department of Transportation, Jefferson City, Missouri.

Introduction

The Sandy Creek Bridge (K0340) is being replaced by a new bridge on the same alignment. The bridge has been determined to be eligible for listing on the National Register of Historic Places for significance in engineering as a rare surviving heavily skewed Pratt through truss. The replacement will have an adverse effect on the character defining features of the bridge.² This documentation is partial mitigation of these adverse effects.

History of Bridge K0340

A preliminary layout for the bridge dated August 12, 1937 indicated the bridge would have two 50-foot I-beam spans and one 120-foot truss span, a skew of approximately 50 degrees, a 24-foot roadway and piles for footings with a light earth revetment.³

The following day E. E. Dittbrenner informed Norman Sacks, the State Bridge Engineer, that the Burlington Northern Railroad was planning on straightening the channel of the Sandy Creek and constructing a levee along its right bank to help prevent flooding of their rail line. This would require raising the grade of the bridge three feet and also require raising the grade of the approach road. Dittbrenner recommended raising the bridge to an elevation of 450 feet (it was originally planned for an elevation of 441 feet), which would raise it well above flood stage.⁴

The bridge was part of a 7.5-mile section of road improvements that included grading, paving with crushed stone and culverts. Acquisition of right of way began in late 1937 and continued into the early months of 1938. Several parcels would go through condemnation proceedings. State engineers were hopeful that the road would be complete and open to traffic by the beginning of 1939.⁵

By March most of the right of way issues had been resolved. E. O. (Red) Latham, the head of right of way from the Hannibal Division, estimated that right of way for the 7.5 mile road had cost around \$11,000.⁶

The State Highway Commission put out a bid call for a 7.5-mile section of Highway 79 to be opened on April 15, 1938. The project from Ringhausen's orchard to Winfield had been assigned

² Dawdy, Randall. "Memorandum: Replace Bridge K0340 over Sandy Creek 1.0 mile north of Route Y. Lincoln County, Rte 79 MoDOT Project J3P0460." 2009. Historic Preservation Section, Missouri Department of Transportation, Jefferson City, Missouri.

³ "Preliminary Layout." 12 August 1937. Correspondence file, Bridge K0340, Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

⁴ Dittbrenner, E. E., Letter to N. R. Sack, 13 August 1937. Correspondence file, Bridge K0340, Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

⁵ "Highway Hearing Set for January 28." *The Elsberry Democrat*, 7 January 1938, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

⁶ "Highway Damage in Local Area \$1,488.00." *The Elsberry Democrat*, 11 March 1938, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

project number FA-836 and been broken into four sections. Section A and B would be let later in the year. Section C included grading, construction of culverts, bridges and gravel or crushed stone surface, together with any incidental work, the exact mileage was 4.119 miles, it included the Sandy Creek Bridge. Section D was included in the same bid call, it was for 3.392 miles.⁷

The announcement that work would begin on this section of Highway 79 “is heartening news to the hundreds of motorists who use this highway and all residents of eastern Lincoln and Pike Counties” according to the *Elsberry Democrat*.⁸

The Highway 79 project received much attention from Missouri and regional construction companies. Thirty-five contractors from across Missouri and the surrounding states submitted 131 separate bids on the two projects included in the bid call.⁹ For Section C, R. B. Potashnick of Cape Girardeau had the low bid of \$99,174.98; the next lowest bid was offered by the Webb-Boone Paving Company of St. Louis at \$99,600.05. For Section D, Potashnick also had the low bid at \$59,532.73, with the next low bid being McNamee Brothers of Robertson, Missouri at \$62,042.30.¹⁰

In late April surveyors from the State Highway Department started to set grade stakes in anticipation of the arrival of the contractor. Potashnick and his crew were expected to be on the job by late April or early May.¹¹

In mid-June 1938 an eight-man crew started clearing the right of way for the new road. Excavation for culverts and the bridge began the same week. To speed work two 6-hour shifts were used by the excavation crew with one shift working 6 a.m. to noon and the other crew working noon to 6 p.m.¹²

Potashnick committed to using only union labor on the project. Common laborers earned 50 cents an hour with semi-skilled and skilled craftsmen paid in proportion to their ratings.¹³

⁷ “Highway Contract to Be Let April 15.” *The Elsberry Democrat*, 1 April 1938, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

⁸ *Ibid.*

⁹ “Bidding Active for Highway Contract.” *The Elsberry Democrat*, 22 April 1938, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

¹⁰ “Minutes of the Special Meeting of the State Highway Commission, held in Jefferson City, Missouri, Wednesday, April 27, 1938.” p. 10. As held by the Secretary to the Commission, Missouri Department of Transportation, Jefferson City, Missouri; “Bidding Active for Highway Contract.” *The Elsberry Democrat*, 22 April 1938, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

¹¹ “Bidding Active for Highway Contract.” *The Elsberry Democrat*, 22 April 1938, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

¹² “Highway Clearing Started This Week.” *The Elsberry Democrat*, 17 June 1938, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

¹³ *Ibid.*

In July 1938 the State Highway Department was informed that the company would not be able to construct the east footing of pier 2 according to the plans. They could not excavate below 419 feet above median sea level because of unsatisfactory amounts of water seeping into the excavations. The Department authorized a change to the plans—a 3-foot seal course at 419 feet, with the 4 foot footing and a 2-1/2 foot superbase on top of the seal course.¹⁴

In July 1938 the company was driving piles for pier 2. By the end of August 1938 all the pilings for the bridge had been driven.¹⁵ Concrete pours began in August, pours were done on the sub-footing for pier 2, bent 1, and the footings for pier 2, pier 3 and bent 4. In October 1938 they were pouring the deck for the slab spans.¹⁶

Although the road was originally planned to have a gravel surface, in October 1938 the State Highway Commission approved paving Highway 79 for its entire length during 1939, as long as there were funds available.¹⁷ In March 1939 the bids for paving Highway 79, except for a 12-mile section under construction in Lincoln County, were approved. The stretch from Winfield to Elsberry would be paved the following year. While reporting this news, the *Elsberry Democrat* also reported that workmen were almost finished, they were engaged in completing work on culverts and bridges.¹⁸

The project was completed on July 18, 1939 and given a final inspection on July 19.¹⁹

Construction Contractors

R. B. Potashnick—Contractor

R. B. Potashnick started his construction company in 1924, when he was awarded a contract for 3.9 miles of road for the Frisco Railroad in Memphis, Tennessee. He started that job with six mules. When the job was complete he bid on a larger project and bought 40 mules. In 1926 he purchased a tractor and a grader.²⁰

¹⁴ Enslow, V. W., Letter to Dean Wilson, 27 July 1938. Construction file, Bridge K0340, Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

¹⁵ "Pile Driving Data." Construction file, Bridge K0340, Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

¹⁶ "Report of Tests on Concrete Cylinders." Various Dates. Construction file, Bridge K0340, Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

¹⁷ "Highway Official Approve Paving 79." *The Elsberry Democrat*, 21 October 1938, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

¹⁸ "Will Blacktop No. 79 This Coming Year." *The Elsberry Democrat*, 24 March 1939, p. 1. Microfilm, State Historical Society of Missouri.

¹⁹ Corbett, J. J. "Inter-Department Correspondence to Dean Wilson." 23 July 1939. Construction file, Bridge K0340, Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

²⁰ Spell, Mary L. "It Takes More than Mules to do Job Now." *Southeast Missourian*, 17 September 1979, p. 11.

During the 1930s Potashnick won several projects from the Missouri Highway Commission for projects throughout the state.²¹ During World War II his company built military bases.²² Following World War II he formed additional companies including the Mary Construction Company, Potashnick-Badgett, Potashnick International and P&S Construction. The post-war era was a boom time for the company with pipe line construction, highways, and dam projects.²³

Potashnick personally ran the company until 1976, when he turned day to day operations over to Larry Dunger.²⁴

Potashnick was responsible for several hundred miles of interstate highway in the Midwest, toll roads and thousands of miles of pipelines. He was part of cooperatives that constructed the Alaskan pipeline and the Oroville Dam in California. He had one of the largest construction companies in the Midwest.²⁵

Spuck Iron & Foundry Company—Fabricator

The Spuck Iron & Foundry Company was founded in 1902, with five shareholders: John Spuck (610 shares), Louis Sommerhauser (60 shares), Frederick A. Meyer (40 shares), Julius E. Vollmer (20 shares) and William Geyer (20 shares), and an initial capital stock of \$75,000 divided among 750 shares. The purpose of the company was to manufacture iron castings and foundry outputs and structural ironwork.²⁶

John Spuck was a German immigrant to St. Louis, having arrived in 1865, at the age of 15. He trained as a blacksmith and locksmith with Henry Geyer and opened his own shop in 1880, which he operated until the Spuck Iron & Foundry was organized.²⁷

In 1911 the company expanded scope to include “purchasing of material for and the manufacture of structural iron and steel and ornamental iron, the selling of the same as merchantable commodities; also, the erection and repair of hotels office buildings, play houses, apartment

²¹ Missouri State Highway Commission, “Minutes of the Special Meeting of the State Highway Commission, held in Kansas City on Tuesday, August 18, 1936.”; “Minutes of the Special Meeting of the State Highway Commission, held at the Jefferson Hotel, St. Louis, Friday, December 2, 1932.” As held by the Secretary to the Commission, Missouri Department of Transportation, Jefferson City, Missouri.

²² Spell.

²³ Spell.

²⁴ Rotert, E. J., “Suit Filed Over Control of Local Construction Firm.” *Southeast Missourian*, 28 January 1992, p. 2A.

²⁵ “Potashnick Founder of Giant Construction Firm Dies at 91.” *Southeast Missourian*, 28 October 1992, p. 7A.

²⁶ Spuck Iron & Foundry Company. “Articles of Incorporation.” 15 March 1902. Corporations Division, Secretary of State Office, Jefferson City, Missouri. Downloaded 3 August 2011 from <https://www.sos.mo.gov/BusinessEntity/soskb/Filings.asp?13219#>.

²⁷ Leonard, John W., ed., *The Book of St. Louisans*. St. Louis: The St. Louis Republic, 1906, p. 547.

houses and steam laundries; and also the furnishing and erection of structural steel and iron and ornamental iron or bronze required in the erection or repair of any building or improvement so far as structural steel and iron and ornamental iron or bronze become a part thereof.”²⁸

The company continued in existence until 1977, when it was dissolved.²⁹

Physical Description of Bridge K0340

Bridge K0340 is a 120-foot, steel, rigid-connected, skewed, six-panel Pratt through truss with a 50-foot steel stringer approach span on each end. The west truss designated the near truss on the accompanying plan sheets, is a standard Pratt configuration. The east truss designated the far truss on the accompanying plan sheets, is a deviated Pratt configuration, with an additional diagonal in the end panels. The non-standard configuration of the end panels of the east truss also affects the connections in the top chord and the floor system.

The description below is based on the construction plans for the bridge (attached) and the bridge as it appeared in July 2011.³⁰

The substructure of the bridge is constructed on timber piles. The abutments (bents 1 and 4) are open abutments with three columns. Piers 2 and 3 have three columns with web.

The footings for abutment 1 are 6’ wide, 11’ 3” long and 2’ 6” deep. Centered on each footing, inset 21” from the edge, is a column that rises 15’ 6-7/8” and is battered on the back 4” per foot. Each column shoulders into the bent cap. The bent cap includes wingwalls and is 58’ 8” overall. The bent cap is 2’ 8-7/8” deep to the bridge seat and the backwall rises an additional 3’ 6-3/4”. The bridge seat is 18” deep and 39’ 8” long. The backwall is 12” thick. The wingwalls are 8’ long and taper from 6’ 11” to 3’ 4” high.

Pier 2 has footings that are 9’ wide, 12’ long and 4’ high. Centered on each footing, inset 12” from the edge is the pier base, which is 2’ 6” high. Inset 8” from the pier base is the column shaft, which rises 18’ 1-1/4” to the pier cap. The columns taper from 5’ 8” in diameter at the base to 4’ 2” at the top. The bottom of the web wall is 8’ above the footing. The web wall is 15” thick. The pier cap extends 3” beyond the edges of the columns and is 18” thick.

Pier 3 has footings that are 9’ wide, 12’ long and 3’ high. Centered on each footing, inset 12” from the edge, is a pier base that is 5’ high. Inset 2’ 6” from the edge of the base is the column shaft, which rises 18’ 6” to the pier cap. The columns taper from 5’ 6” in diameter at the base to

²⁸ Spuck Iron & Foundry Company. “Amendment.” 25 April 1911. Corporations Division, Secretary of State Office, Jefferson City, Missouri. Downloaded 3 August 2011 from <https://www.sos.mo.gov/BusinessEntity/soskb/Filings.asp?13219#>.

²⁹ Spuck Iron & Foundry Company. “Articles of Liquidation.” 16 February 1977. Corporations Division, Secretary of State Office, Jefferson City, Missouri. Downloaded 3 August 2011 from <https://www.sos.mo.gov/BusinessEntity/soskb/Filings.asp?13219#>.

³⁰ Missouri State Highway Department. “Bridge over Sandy Creek, State Road from Elsberry to Winfield, about 0.5 miles north of Foley, Project No. F836C (R79TR) Lincoln County.” Microfilm, Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

4' 2" at the top. The bottom of the web wall is 8' above the footing. The web wall is 15" thick. The pier cap extends 3" beyond the edges of the columns and is 18" thick.

The footings for abutment 4 are 6' wide, 10' 11-3/4" long and 2' 6" deep. Centered on each footing, inset 21" from the edge, is a column that rises 15' 6-7/8" and is battered on the back 4" per foot. Each column shoulders into the bent cap. The bent cap includes wingwalls and is 58' 8" overall. The bent cap is 2' 7-1/8" deep to the bridge seat and the backwall rises an additional 3'. The bridge seat is 18" deep and 39' 8" long. The backwall is 12" thick. The wingwalls are 8' long and taper from 6' 11" to 3' 0-7/8" high.

The stringer spans have plate bearing devices that are expansion on the abutments and fixed on the piers. The truss span has rocker and pedestal bearing devices. The rocker expansion bearing is on pier 3 and the fixed pedestal bearing is on pier 2.

The stringer spans have four 33" I-beam stringers. The end beam is connected by channels to the stringers and there are channel floor beams near the end of the span. The floor beams near the center of the span is composed of a pair of crossed angles connected by a gusset plate at the center and back to back angles that run from stringer to stringer across the bottom. On the outside stringers at each floor beam is a trapezoidal gusset plate that extends to the edge of the roadway curb which the posts for the railing are connected to.

The truss span has a bottom chord composed of back to back channels connected by short plates on top and bottom. The end floor beam and floor beams are I-beams. The five I-beam stringers are connected to the floor beams by riveted angles. The bottom lateral bracing is composed of one angle that stretches from one corner of the panel diagonally to the opposite corner and two short pieces of angle that meet it in the center of the panel and are riveted together at a gusset plate to form an "X" pattern, in four of the panels. The extreme skew of the bridge causes different configuration of the bottom lateral bracing in the end panel on the north end and the two panels on the south end. The north panel has diagonal bracing from the far truss to the intermediate stringer and a floor beam between the two outside stringers. The second panel from the south end has bottom lateral bracing that crosses at the intermediate stringer to the east of the centerline. A floor beam extends from the lateral on the west side to the same stringer. The floor system is shown on sheet 5 of the accompanying plan sheets.

The near truss has six 20' panels in the typical Pratt configuration with double diagonal bracing in the two center panels. The inclined end post and top chord are formed with back to back channels with solid plates on the top side and short bar lacing on the bottom side. The hip vertical and the verticals are composed of two pairs of back to back angles with short bar lacing in between. The diagonals are formed by a pair of angles connected by small plates.

The far truss has three 20' panels in an atypical Pratt configuration, only the center panel has the double diagonal bracing. The panels on each side of the center panel have a single diagonal. The end panels are thirty feet with a diagonal toward the center of the bridge and an additional diagonal toward the outside end of the bridge ending 10' from the inclined end post. The configuration of the diagonals and laterals can be seen in the diagram in the lower left corner of sheet 5 of the accompanying plans. The inclined end post and top chord are formed with back to

back channels with solid plates on the top side and short bar lacing on the bottom side. The hip vertical and the verticals are composed of two pairs of back to back angles with short bar lacing in between. The diagonals are formed by a pair of angles connected by small plates.

The portal strut and the struts are I-beams, there is no sway bracing. The top lateral bracing is composed of one angle. The configuration of the bracing varies among the panels because of the extreme skew of the bridge. The configuration is shown on the “Top Laterals” sketch on page 5 of the accompanying plans. From the north, the configuration of the laterals, by panel, is: in panel 1 there is no bracing. In panel 2 one angle extends from the far truss to the portal. In panels 3 and 4 one angle stretches from one corner of the panel diagonally to the opposite corner and two short pieces of angle that meet it in the center of the panel and are riveted together at a gusset plate to form an “X” pattern in the two center panels. In panel 5 one angle stretches from one corner of the panel diagonally to the opposite corner and two short pieces meet off center toward the far truss. In panel 6 there is no bracing.

The deck has a 24’ wide asphalt roadway with some remnants of concrete curbs at the posts for the guardrail, and exposed rebar between.

The bridge has guardrail on both sides, the length of the bridge. The guardrail has posts on the stringer spans. The posts are small sections of I-beam riveted to the gusset plates connected to the stringer spans. The rail is formed from two channels that are connected to the posts and the vertical and diagonal members of the truss by U-bolts. At the ends of the bridge the guardrail curves back and there is an angle riveted to form a closed end.

Photographic Methods and Processes

The archival photographs accompanying this documentation were taken and processed according to the standards for photographs accompanying NRHP documentation.³¹ Randall Dawdy took photographs on February 24, 2010 using a Canon G10 digital camera. Images were captured in a raw (nef) format, which was manipulated for light contrast before being converted to a tagged image file format (.tiff) and printed. Images were numbered according to the NRHP Photographic Imaging Policy³² and burned onto a Delkin Archival Gold compact disc, which was provided to the State Historic Preservation Office along with this report.

Prints were made on Epson Premium Glossy Photo Paper and used Epson Matte Black Ultra Chrome K3 Ink, both identified as “best” practices by the NRHP photo policy, and which Epson identifies as having 85-year permanence under glass.³³ Kept in archival conditions the materials

³¹ National Park Service, “Proposed Updated Photographic Policy National Register of Historic Places.” Downloaded 8 June 2008 from: www.nps.gov/history/nr/policyexpansion.html.

³² Ibid.

³³ Ibid, “Draft of a Proposed New National Register Photographic Imaging Policy.” Downloaded 26 March 2009 from: www.nps.gov/history/nr/policyexpansion.html; Epson. “Permanence ratings from Wilhelm Imaging Research.” Downloaded 30 April 2009 from www.epson.com/pdf/LightfastCPD_15334R2.pdf.

will exceed the 75 year permanence standard for the NRHP, which is the standard being used for this project.

A copy of the photographs and .tiff images on an archival compact disc will also be maintained by the MoDOT Historic Preservation Section.

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Photo Index and Photo Plates of Archival Photographs

**Sandy Creek Bridge (Bridge No. K0340)
Route 79, Lincoln County, Missouri**

Photographer: Randall Dawdy, Missouri Department of Transportation
Date: February 24, 2010
Location of Digital Images: Missouri State Historic Preservation Office

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- #3 of 42. Bridge K0340. East side. View to northwest.
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- #18 of 42. Bridge K0340. North portal. View to north.
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#21 of 42. Bridge K0340. West truss. View to northwest.

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#24 of 42. Bridge K0340. Top chord connections. View to west.

#25 of 42. Bridge K0340. Top chord connections. View to west.

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#27 of 42. Bridge K0340. West side. View to northeast.

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#34 of 42. Bridge K0340. West truss profile detail . View to east.

#35 of 42. Bridge K0340. North abutment. View to northeast.

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#37 of 42. Bridge K0340. Pier 3. View to south.

#38 of 42. Bridge K0340. South approach span. View to southeast.

#39 of 42. Bridge K0340. North approach. View to south.

#40 of 42. Bridge K0340. North end. View to southeast.

#41 of 42. Bridge K0340. East truss. View to southeast.

#42 of 42. Bridge K0340. Main span detail. View to southeast.



#1 of 42. Bridge K0340. South end. View to north.



#2 of 42. Bridge K0340. South end. View to northwest.



#3 of 42. Bridge K0340. East side. View to northwest.



#4 of 42. Bridge K0340. East side. View to west.



#5 of 42. Bridge K0340. East side. View to west.



#6 of 42. Bridge K0340. South approach span. View to west.



#7 of 42. Bridge K0340. South portal. View to west.



#8 of 42. Bridge K0340. Detail at Pier 3. View to west.



#9 of 42. Bridge K0340. Lower chord detail. View to west.



#10 of 42. Bridge K0340. South portal detail. View to west.



#11 of 42. Bridge K0340. East side. View to northwest.



#12 of 42. Bridge K0340. North end. View to northwest.



#13 of 42. Bridge K0340. North approach span. View to northwest.



#14 of 42. Bridge K0340. South approach. View to north.



#15 of 42. Bridge K0340. South portal. View to north.



#16 of 42. Bridge K0340. Top laterals and struts. View to north.



#17 of 42. Bridge K0340. Main span. View to north.



#18 of 42. Bridge K0340. North portal. View to north.



#19 of 42. Bridge K0340. East guardrail detail. View to northwest.



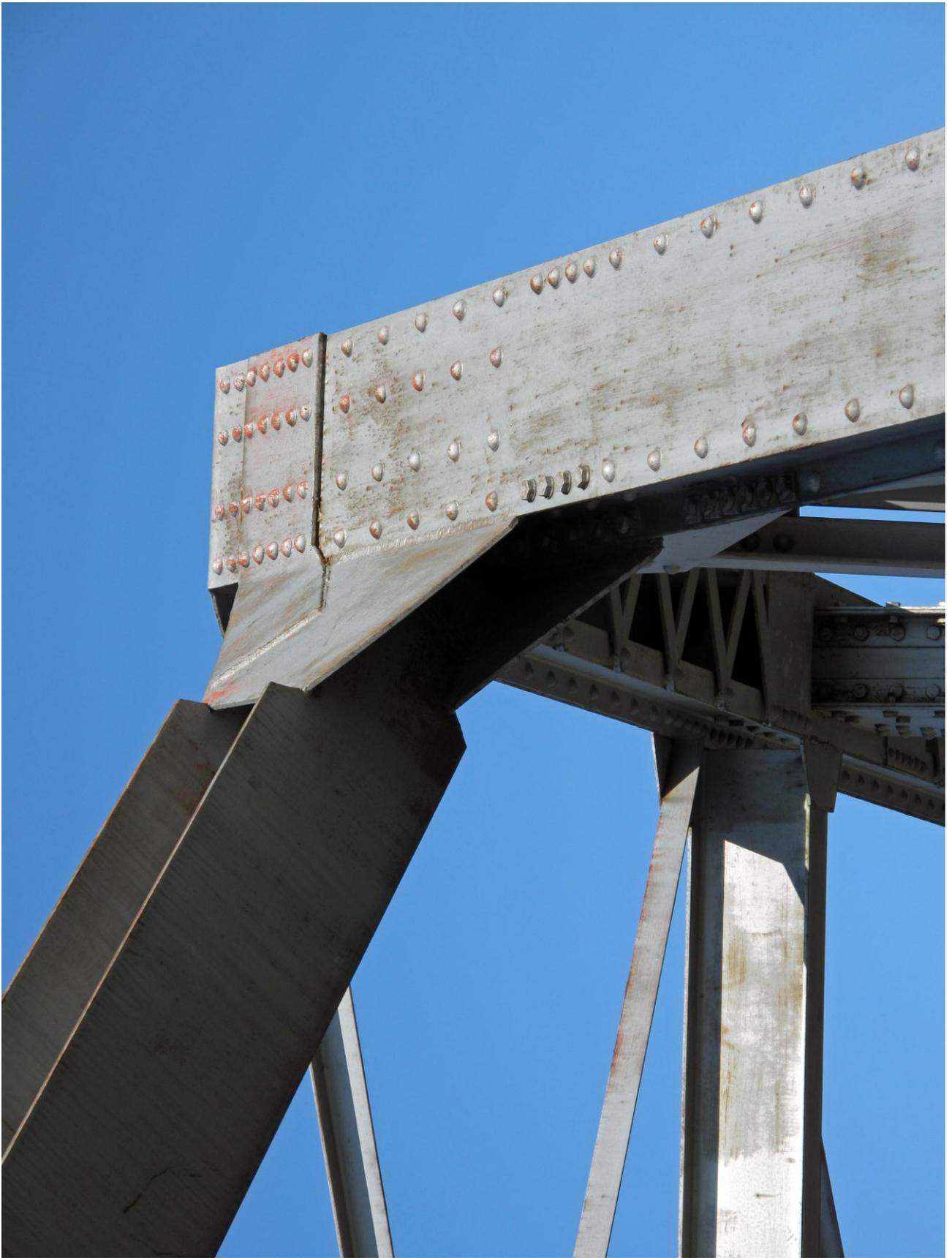
#20 of 42. Bridge K0340. West guardrail detail. View to west.



#21 of 42. Bridge K0340. West truss. View to northwest.



#22 of 42. Bridge K0340. South portal detail. View to northwest.



#23 of 42. Bridge K0340. South portal detail. View to north.



#24 of 42. Bridge K0340. Top chord connections. View to west.



#25 of 42. Bridge K0340. Top chord connections. View to west.



#26 of 42. Bridge K0340. North portal detail. View to west.



#27 of 42. Bridge K0340. West side. View to northeast.



#28 of 42. Bridge K0340. West side. View to northeast.



#29 of 42. Bridge K0340. West truss profile detail . View to east.



#30 of 42. Bridge K0340. West truss profile detail . View to east.



#31 of 42. Bridge K0340. West truss profile detail . View to east.



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#34 of 42. Bridge K0340. West truss profile detail . View to east.



#35 of 42. Bridge K0340. North abutment. View to northeast.



#36 of 42. Bridge K0340. Main span subdeck. View to south.



#37 of 42. Bridge K0340. Pier 3. View to south.



#38 of 42. Bridge K0340. South approach span. View to southeast.



#39 of 42. Bridge K0340. North approach. View to south.



#40 of 42. Bridge K0340. North end. View to southeast.



#41 of 42. Bridge K0340. East truss. View to southeast.

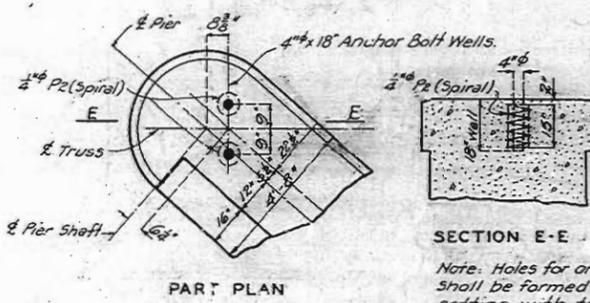
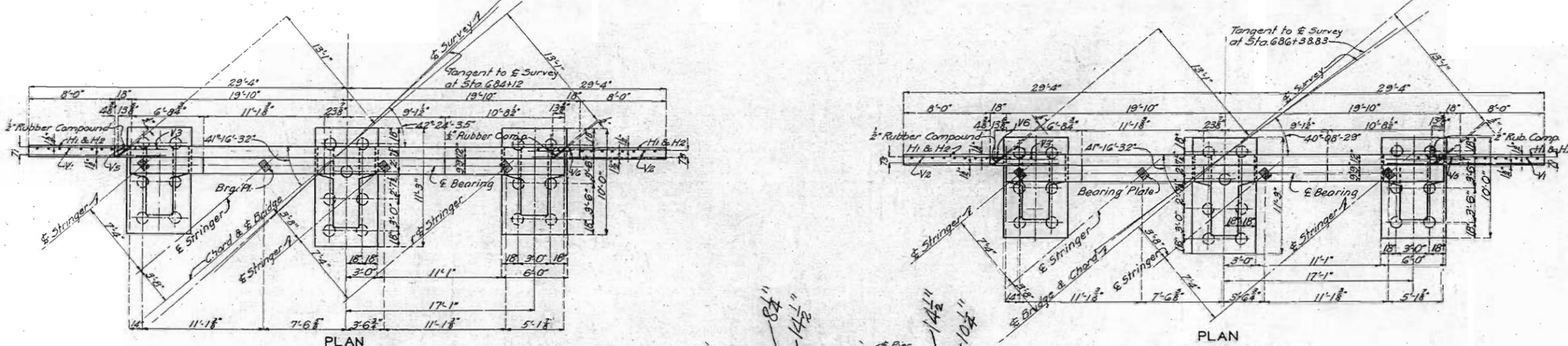
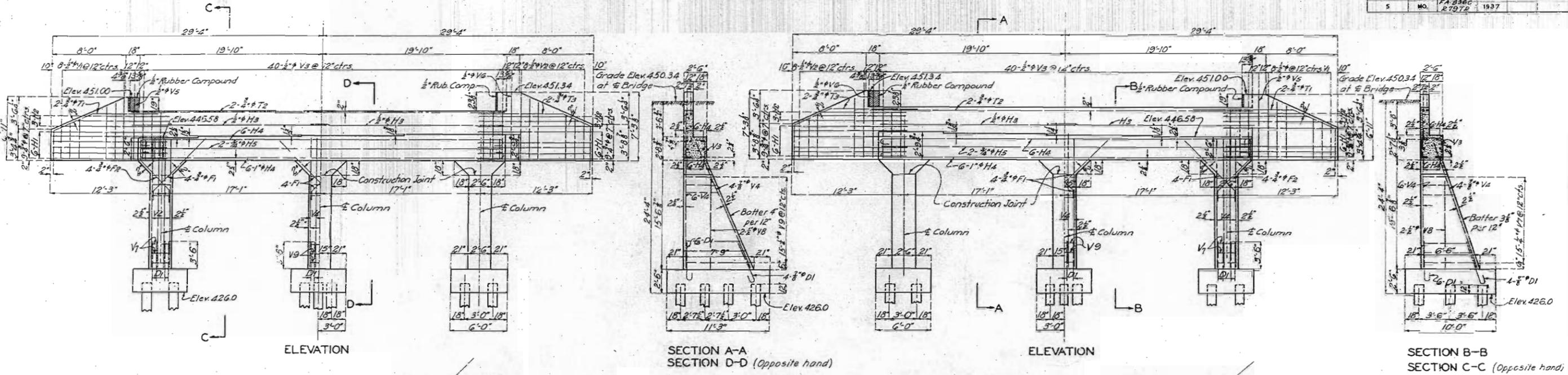


#42 of 42. Bridge K0340. Main span detail. View to southeast.

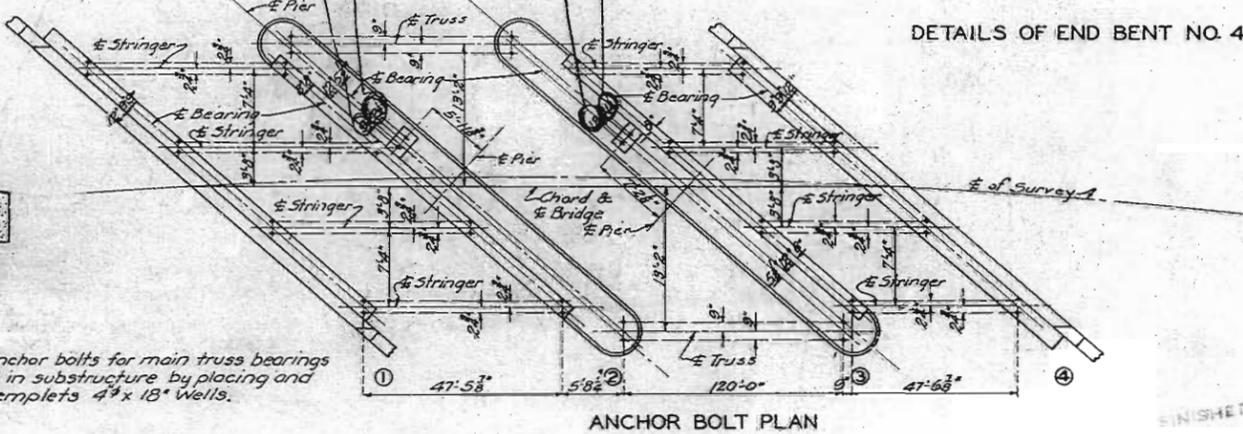
Plans for Original Bridge Construction

MISSOURI STATE HIGHWAY DEPARTMENT

FED. AID DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	FA 836C R 79TR	1937		



Note: Holes for anchor bolts for main truss bearings shall be formed in substructure by placing and setting with templates 4" x 18" wells.



Note: Bearing areas on bents and piers under and extending 2" beyond edges of bearings shall be built monolithically with bents & above plan elevation. These areas shall be ground with carbonum brick to horizontal plane surfaces at plan elevation and shall be adequately protected until road plates and bearings are in place. Cost of lead plates shall be included in price bid for other items.

BRIDGE OVER SANDY CREEK
STATE ROAD FROM ELSBERRY TO WINFIELD
ABOUT 0.5 MILE NORTH OF FOLEY
PROJECT NO FA 836C (R 79TR) STA 684 + 12
LINCOLN COUNTY

Checked Sept. 1937 by J.G.
Rev. Aug. 1937 by H.D. & C.S.A.
Rev. May 1936 by J.H.T.
Drawn Apr. 1935 by J.G.
Traced Apr. 1935 by C.R.F.
Checked Jun. 1935 by P.A.B.

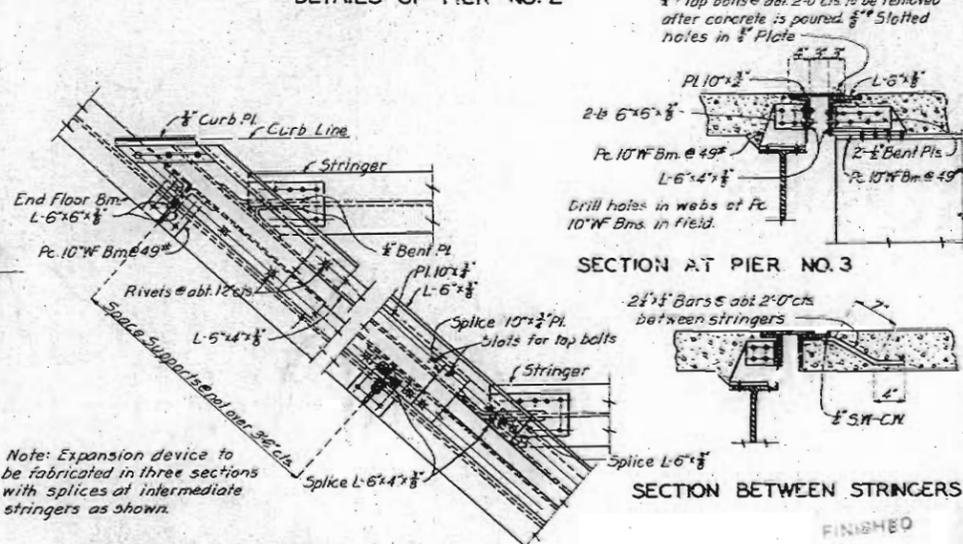
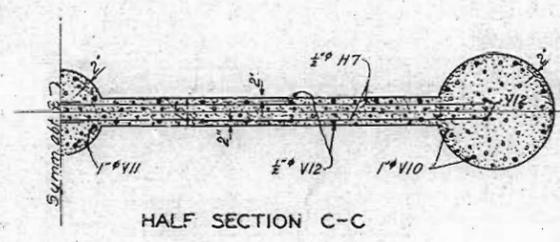
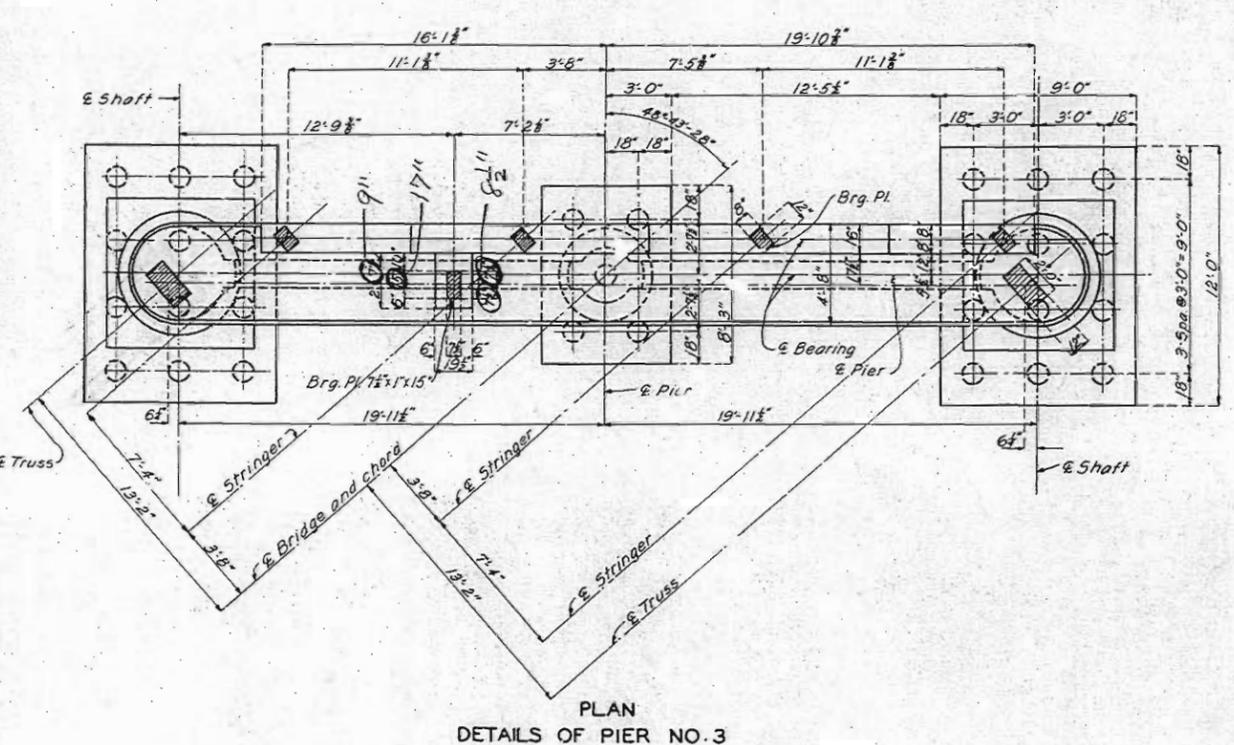
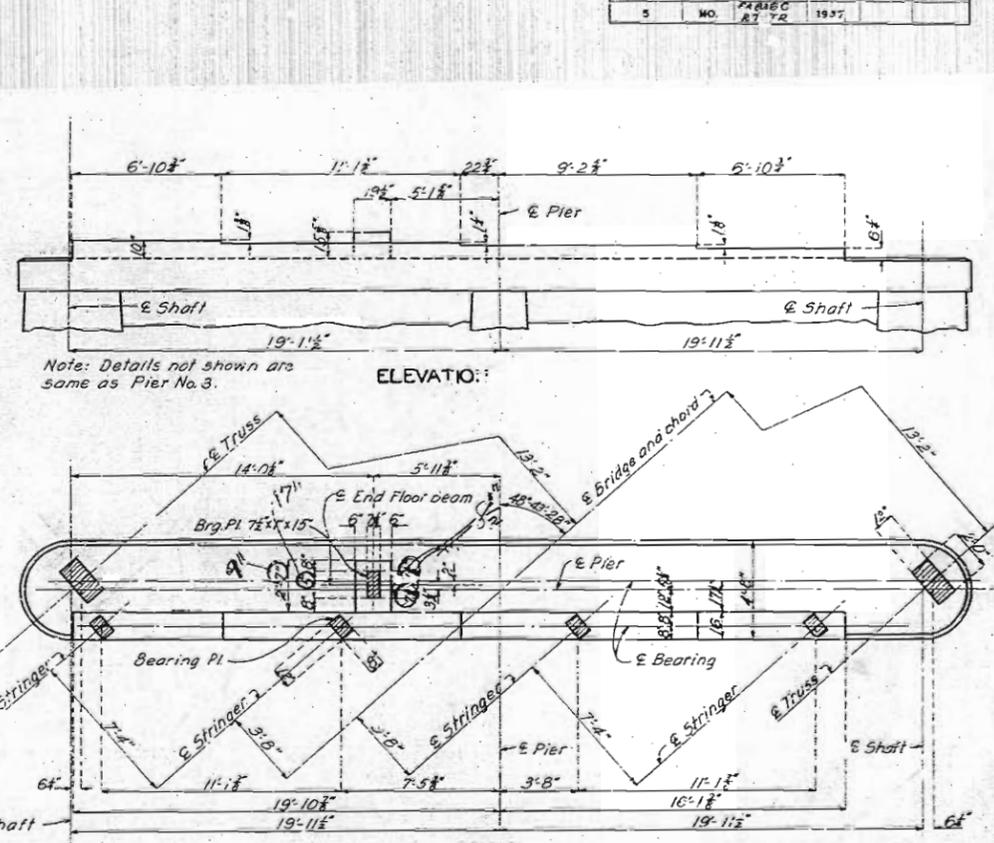
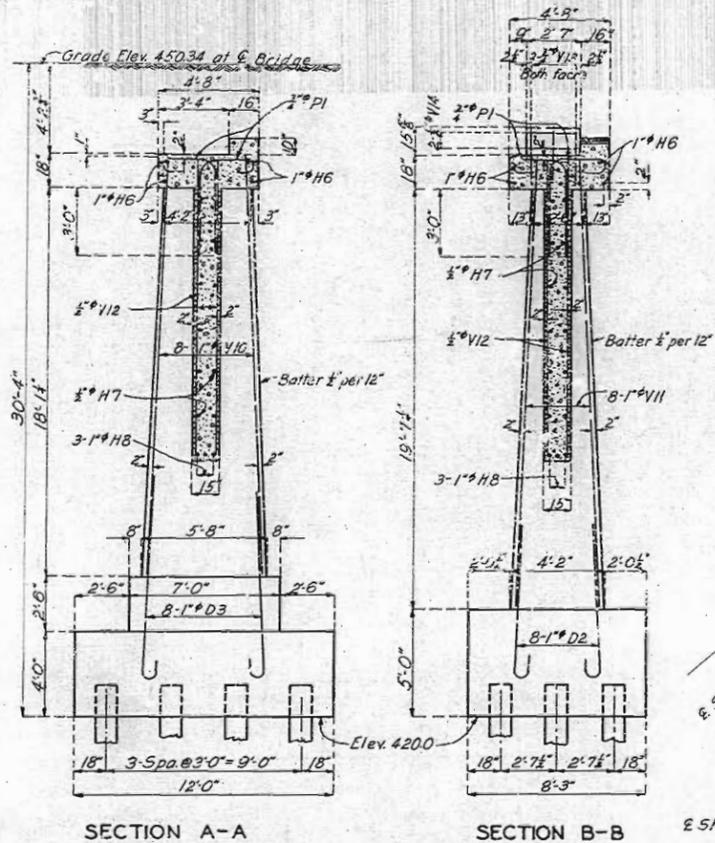
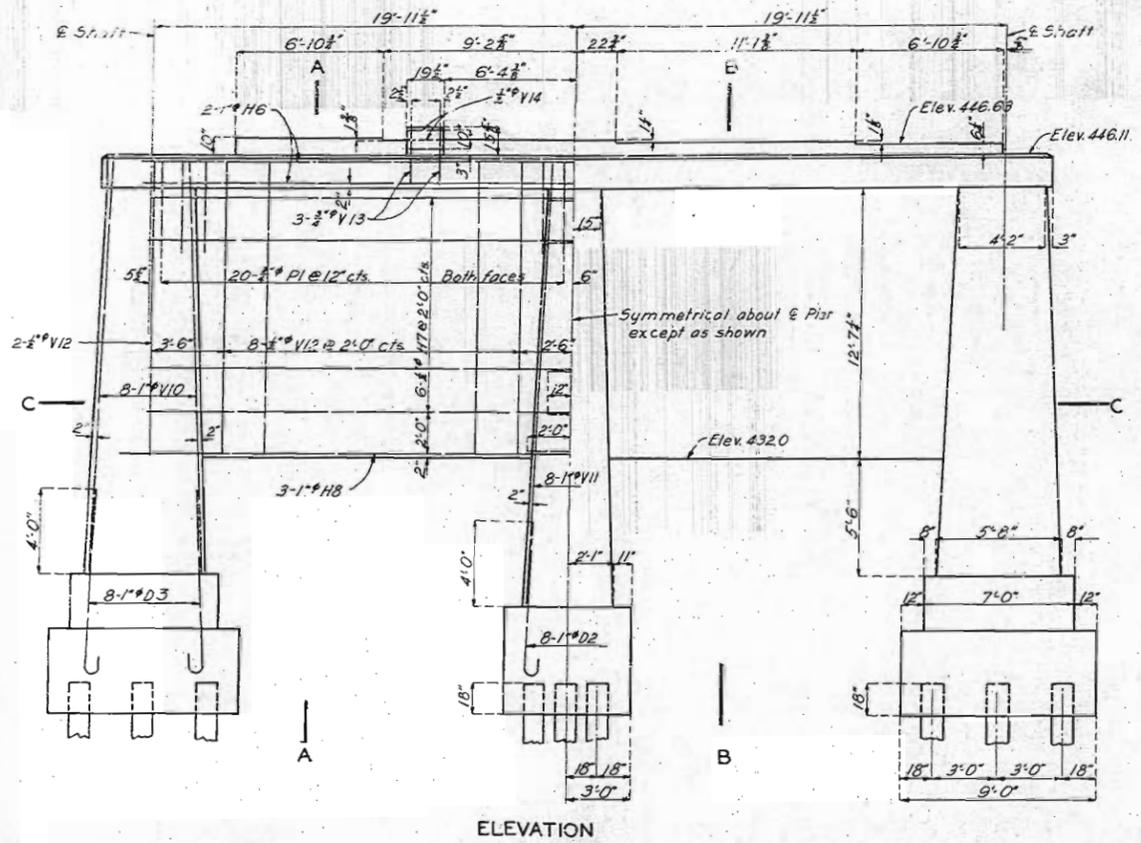
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 2 of 5.

K-340

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	FA836C R79TR	1937		



PART PLAN OF EXPANSION DEVICE AT PIER NO. 3

BRIDGE OVER SANDY CREEK
 STATE ROAD FROM ELSBERRY TO WINFIELD
 ABOUT 0.5 MILE NORTH OF FOLEY
 PROJECT NO. FA836C (R79TR) STA. 684+12
LINCOLN COUNTY

Drawn Aug. 1937 by H.D.
 Traced Sept. 1937 by C.S.R.
 Checked Sept. 1937 by J.G.

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

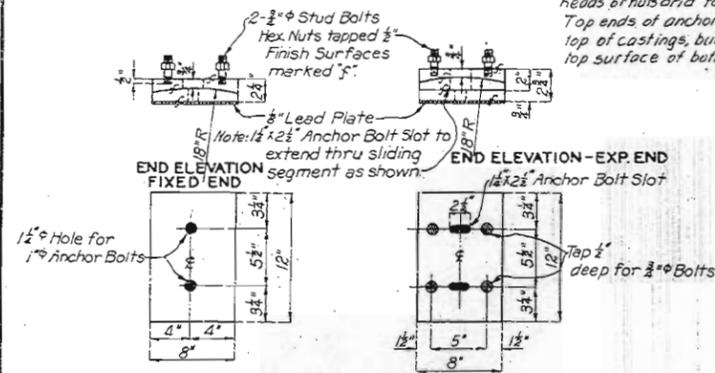
Sheet No. 3 of 5

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MISSOURI STATE HIGHWAY DEPARTMENT

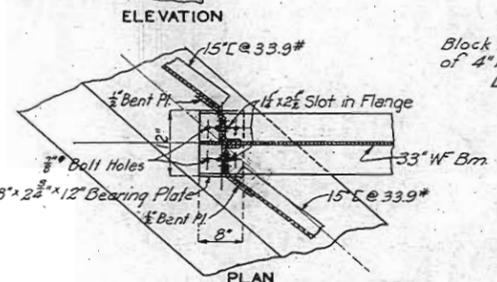
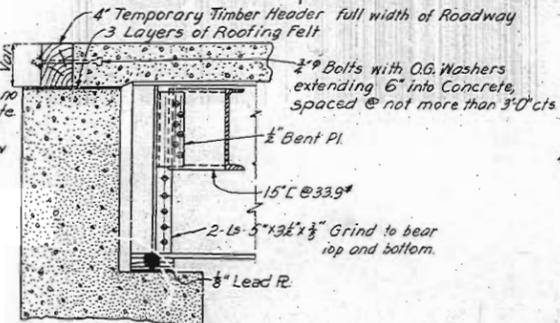
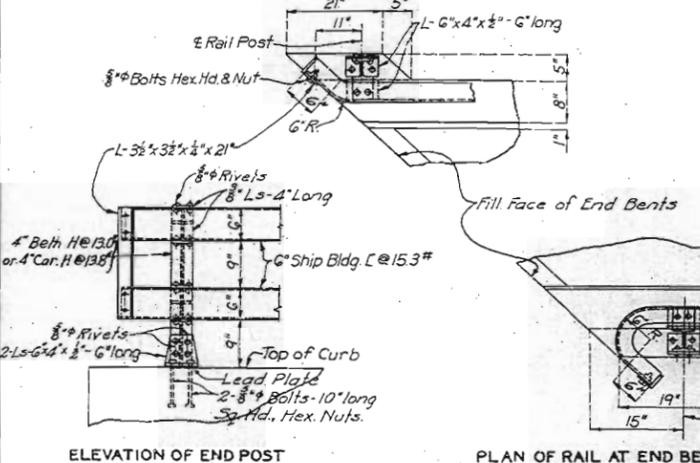
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	FA836C R79TR	1937		

Notes:
 Stud bolts and nuts to be paid for as structural steel.
 Bearings shall be either gray iron alloy castings or cast steel.
 Anchor bolts to be 1" swaged bolts, no heads or nuts and to extend 10" into concrete. Top ends of anchor bolts shall be above the top of castings, but not higher than 1/2" below top surface of bottom flange of beam.



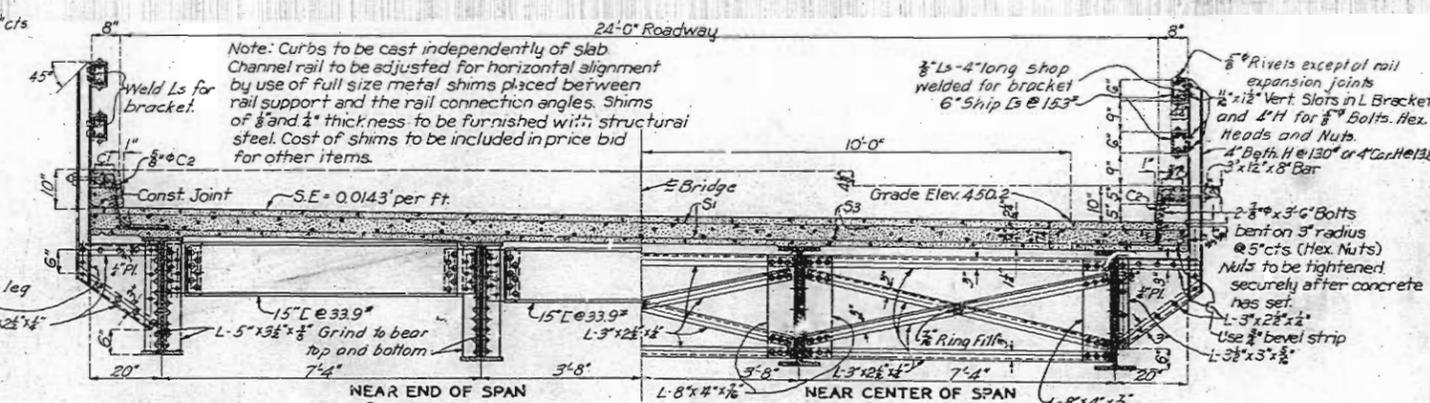
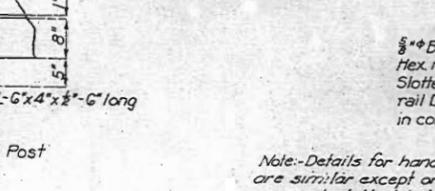
PLAN OF BOTTOM PLATES
 PLAN OF TOP PLATES
 Note: All machine-finished surfaces shall be coated with white lead and tallow before shipment or before being placed in the open. Before erection the white lead and tallow shall be completely removed and the contact surfaces shall be given a heavy coat of graphite and oil.
 Required: 8 Fixed and 8 Expansion Plates.

DETAILS OF BEARING PLATES



Note: Floor slab to be brought to grade and dead load deflection taken care of by increasing slab thickness. Depth of slab at outside face of curb to be kept uniform and bottom surface of slab warped between curb and outside beam to obtain required thickness at beam. Payment will be allowed for additional concrete required for thickening slab. This additional concrete is included in "Estimated Quantities".

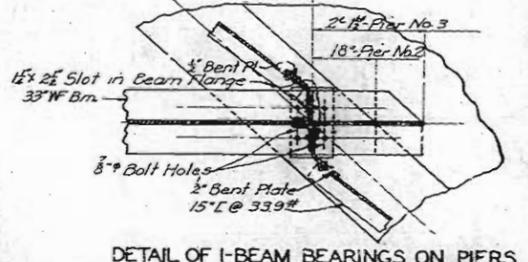
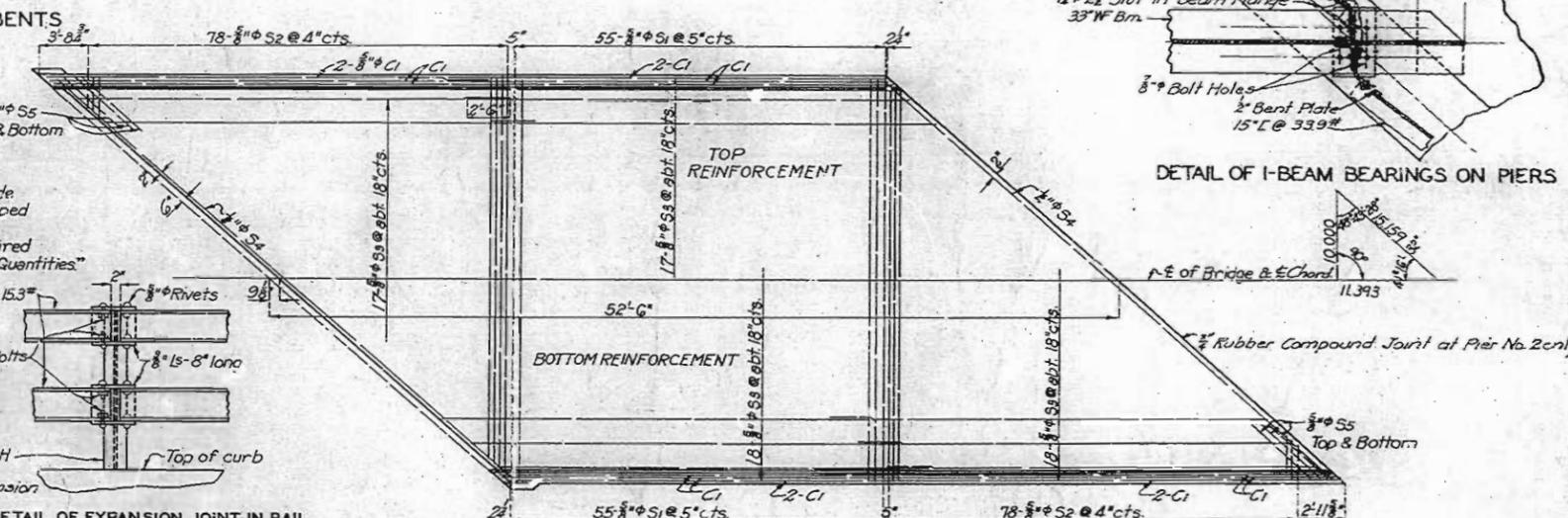
DEFLECTION DIAGRAM



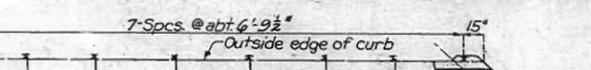
Note: Curbs to be cast independently of slab. Channel rail to be adjusted for horizontal alignment by use of full size metal shims placed between rail support and the rail connection angles. Shims of 1/8" and 1/4" thickness to be furnished with structural steel. Cost of shims to be included in price bid for other items.

Note: Haunch slab down to tops of channel separators at ends of spans.

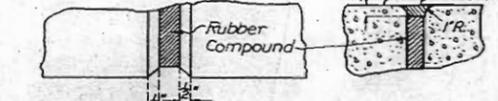
Note: 3/8" C2 bars to be spaced at about 12" ctrs. between outlets and at ends.



DETAIL OF EXPANSION JOINT IN RAIL



Note: Details for handrail splice are similar except omit 2" expansion gap and slotted holes.

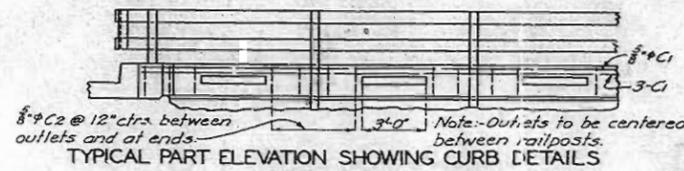


Note: Use bevel as shown for exposed faces of all joints consisting of rubber compound except at top surface of roadway slab. Use edging tool with 1" Radius of top surface of roadway slab each side of rubber compound joint and fill flush with joint filler as shown.

Note: Top of curbs under end handrail posts shall be finished to a smooth, level surface. Not less than one nor more than four soft lead plates of 1/8" thickness shall be used under angles of each end rail post for aligning rail to correct elevation. Plates shall be 8 1/2" x 6" and shall be punched 3/8" on same gauge as the angles. No grouting permitted. Cost of lead plates to be included in price bid for other items.

Checked Sept. 1937 by J.G.
 Revised Aug. 1937 by H.D. & C.S.A.
 Drawn April 1935 by J.G.
 Traced April 1935 by H.W.H.
 Checked June 1935 by R.P.B.

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



Sheet No. 4 of 5

BRIDGE OVER SANDY CREEK

STATE ROAD FROM ELSBERRY TO WINFIELD
 ABOUT 0.5 MILE NORTH OF FOLEY
 PROJECT NO. FA836C (R79TR.) STA. 684+12

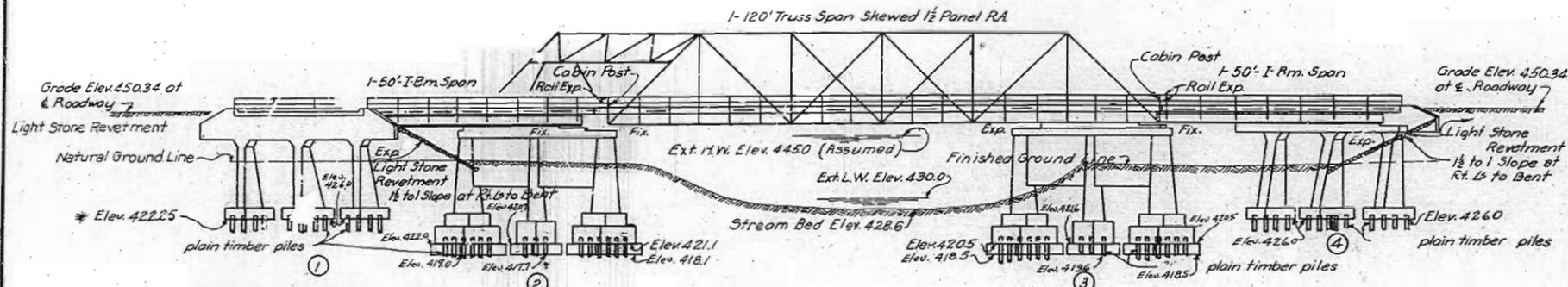
LINCOLN COUNTY

K-340

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	FA 836C R79TR	1937		

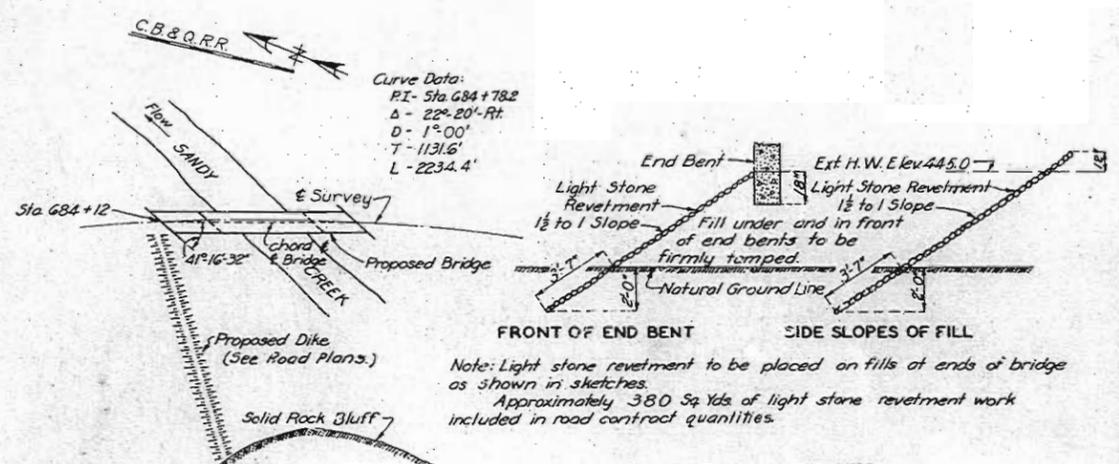
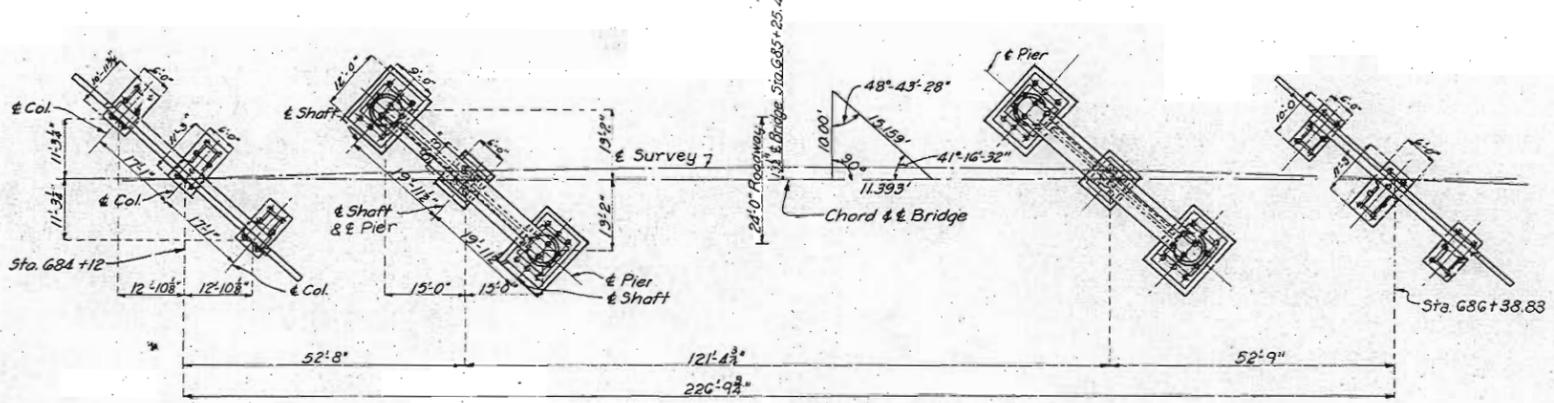
FINAL PLANS



Note: Banks to be maintained during construction or restored to natural position.

GENERAL ELEVATION

Two timber test piles shall be driven; one near Pier No.2 and one near Pier No.3.



Note: Light stone revetment to be placed on fills at ends of bridge as shown in sketches. Approximately 380 Sq Yds of light stone revetment work included in road contract quantities.

ESTIMATED QUANTITIES			
ITEM	SUPERSTR.	SUBSTR.	TOTAL
Class 1 Exc. for Structures Cu.Yds.		51.2	552.0
Class 2 Exc. for Structures Cu.Yds.		51.3	533.0
Class "B" Concrete Cu.Yds.	142	334.3	476.3
Timber Test Piles Lin.Ft.			75
Fabricated Structural Steel (I-Beam Spans) Lbs.	72,900		72,900
Fabricated Structural Steel (Truss Span) Lbs.	139,200		139,200
Steel Castings (Truss Span) Lbs.	970		970
Reinforcing Steel Lbs.			5,963.0
Plain Timber Piles Lin.Ft.			2,601
Cl. 2 Exc. for Structures Below Piles Cu.Yds.		65.5	65.5
Gray Iron Alloy Castings Lbs.	1,030		1,030

Note: Excavation above Elev. 431.0 will be paid for as Class 1 Excavation for Structures. Excavation below Elev. 431.0 will be paid for as Class 2 Excavation for Structures.

Class 1 Exc. for Structures Below Piles Cu.Yds.	85.4
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COMPLETE BILL OF REINFORCING STEEL						
NO.	SIZE	LENGTH	MARK	LOCATION	BENDING SKETCHES & CUTTING DIAGRAMS	
I-BEAM SPANS						
220	3/8"	25'-0"	S1	Slab		
312	3/8"	27'-0"	S2	"		
140	3/8"	27'-0"	S3	"		
8	3/8"	37'-9"	S4	"		
24	3/8"	5'-0"	S5	"		
32	3/8"	27'-6"	C1	Curb		
152	3/8"	2'-0"	C2	"		
TRUSS SPAN						
444	3/8"	24'-9"	A1	Slab		
160	3/8"	26'-0"	A2	"		
66	3/8"	26'-0"	B1	"		
16	3/8"	47'-3"	D2-B3	"		
32	3/8"	32'-0"	C3	Curb		
209	3/8"	12"	F1	"		
68	3/8"	22'-6"	E1	Slab		
17	3/8"	43'-0"	E2-E3	"		
4	3/8"	37'-6"	S3	"		
END BENTS NO. 1 & NO. 4						
24	3/8"	12'-6"	H1	Wing		
6	3/8"	22'-0"	H2	"		
4	3/8"	20'-0"	H3	"		
12	3/8"	13'-6"	V8	Col.		

Note: Dimensions given are along center line of bars and are for computed lengths. Reinforcing bars 3/8" or over in diameter which are bent to an angle greater than 90° shall be of structural grade.

GENERAL NOTES:

All concrete shall be Class "B". Exposed edges shall be beveled 1/4" where no other bevel is noted. Where rubber compound is specified on plans for use in partition and expansion joints the pre-moulded joint shall be securely stitched to one face of concrete with copper wire. Excavation for structure shall be in accordance with Spec. 1 of Standard Specifications issued Nov. 12, 1935. Quantities paid for will be computed from Est. L.W. Elev. 430.0 where existing ground line is below this elevation. Piling to be driven to sustain a load of 20 tons per pile and with tops to at least Elev. 400.00. Paint: Shop, none. Field, contact surfaces of bolted field connections one coat of red lead and surfaces inaccessible after erection three coats of red lead. No other paint to be applied by contractor. Red lead required shall be furnished by the contractor. Payment for cleaning and painting will be included in price bid for struct steel. Rivets to be 3/4", holes 1 1/8", except in handrail where rivets shall be 5/8", holes 3/4". Field connections for handrail channels shall be 3/4" button head bolts, and for connections of rail to railposts shall be 5/8" machine bolts, holes 1 1/8". All other field connections riveted except as noted. Nuts for turned bolts shall be sub-punched and reamed to a driving fit. For details of shoes see Std. S-808. Anchor bolts to be 2" shorter than those shown. Finish bottom of all pedestals and plates. Design Specifications A.A.S.H.O.-1931, one Lane H-15 Loading. Structural Steel Stress 16000 %* Reinforcing Steel Stress 16000 %* concrete, Class B 750 %* } single line. All concrete shall be proportioned by the weight proportioning method. Detail shop drawings for all structural steel and cast steel shall be submitted to the State Highway Department in duplicate and shall be approved before material is ordered or work started. Truss details similar to those shown on Std. S-8120. Bar supports and spacers will be required for reinforcing steel in superstructure. See Std. C-110R1. Beam flanges shall be squared up at all points of bearing. Qualification of welding operators and electrodes for welding shown on plans will not be required. Drainage area 21.0 Square miles. Hills.

BRIDGE OVER SANDY CREEK

STATE ROAD FROM ELSBERRY TO WINFIELD
ABOUT 0.5 MILE NORTH OF FOLEY
PROJECT NO. FA 836C (R79TR) STA. 684+12

LINCOLN COUNTY

SUBMITTED BY: *N. R. Saut* DATE: 11/3/37
APPROVED BY: *C. W. Brown* DATE: 11/3/37

STDC-110R1
K-340

376

59-15-37
Checked Sept. 1937 by J.G.
Rev. Sept. 1937 by H.D. BCSA
Rev. June 1936 by BOM.
Drawn April 1935 by J.G.
Traced April 1935 by A.J.B.
Checked June 1935 by P.A.C.

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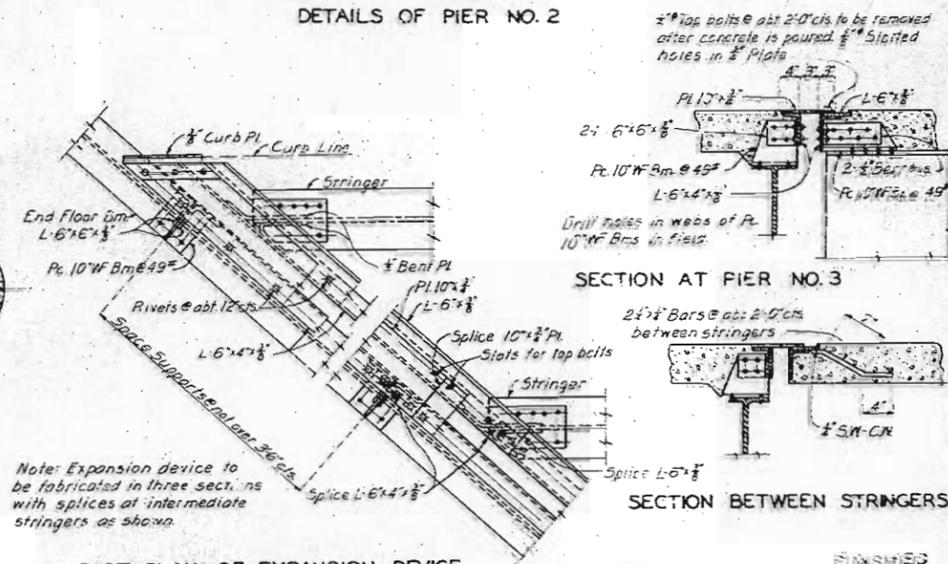
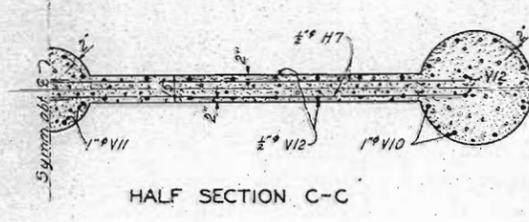
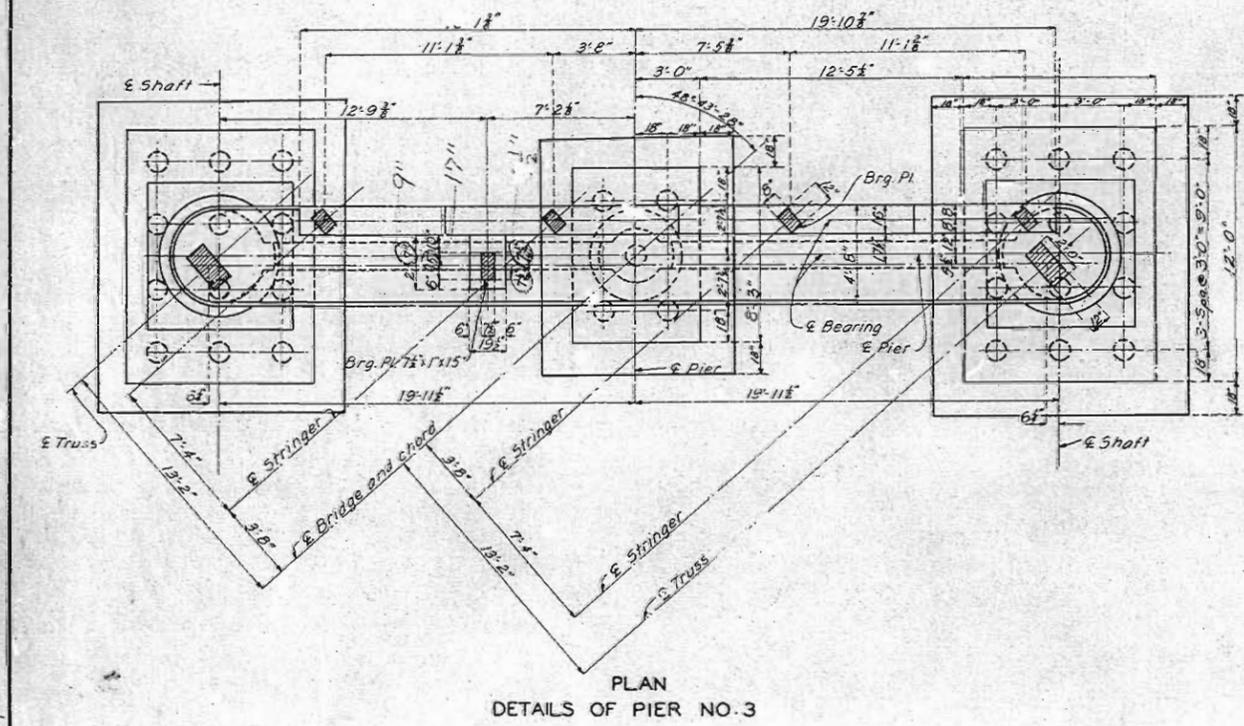
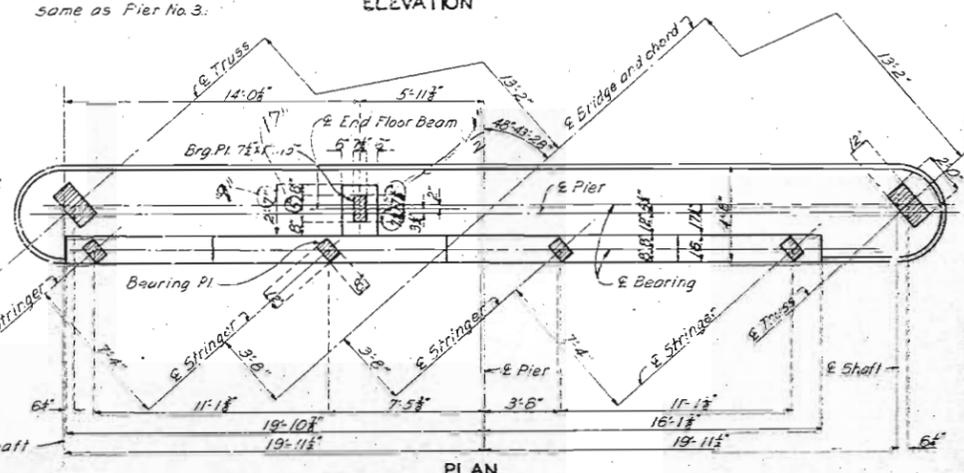
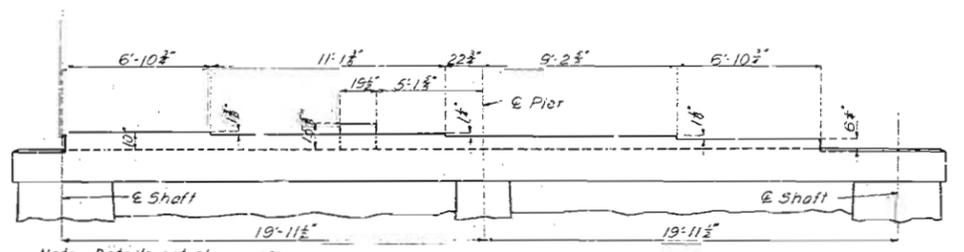
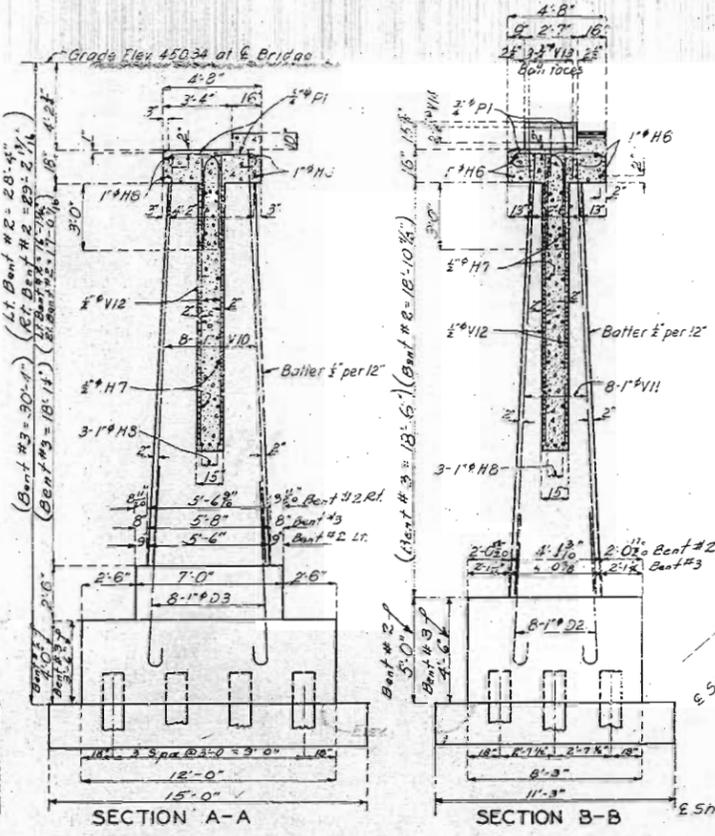
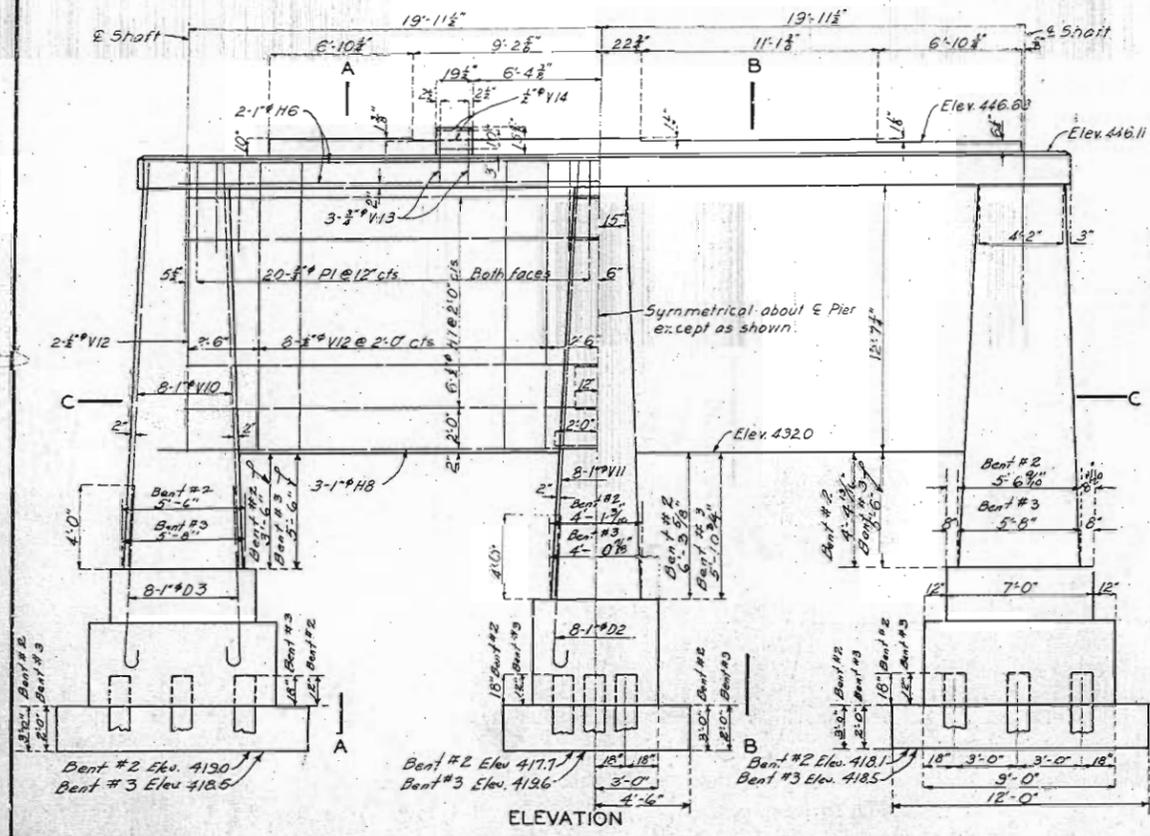
Sheet No. 1A of 3

FA

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	FA836C R79TR	1937		

FINAL PLANS



PART PLAN OF EXPANSION DEVICE AT PIER NO. 3

BRIDGE OVER SANDY CREEK

STATE ROAD FROM ELSBERRY TO WINFIELD
ABOUT 0.5 MILE NORTH OF FOLEY
PROJECT NO. FA836C (R79TR) STA. 684+12

LINCOLN COUNTY

FINISHED FINAL PLANS

K-340

378

Drawn Aug. 1937 by H.D.
Traced Sept. 1937 by C.S.A.
Checked Sept. 1937 by J.G.

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

Sheet No. 3A of 3.

FA