Daniel Boone Bridge
Historical and Photographic Documentation

MoDOT Bridge No. J1000
St. Charles and St. Louis Counties, Interstate 64/U. S. Highways 40/61
September 2013

MoDOT
U.S. Department of Transportation
Federal Highway Administration

Daniel Boone Bridge

MoDOT Bridge No. J1000

St. Charles & St. Louis Counties
Interstate 64
U. S. Highways 40/61

Historical and Photographic Documentation

Prepared by:
Karen L. Daniels
Senior Historic Preservation Specialist

Submitted to:
State Historic Preservation Office
Jefferson City, Missouri

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

David B. Nichols, Director
Missouri Department of Transportation

September 2013

This page left blank for copying purposes

Historic Documentation
Bridge J1000, Daniel Boone Bridge
St. Louis & St. Charles Counties, Route 40/61
MoDOT Job Number J6P1436

Location: Across the Missouri River, Highway 40/61, St. Louis and St. Charles Counties

Construction Dates: 1936-1937

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

Present Use: Highway Bridge carrying U. S. Highways 40/61 (Interstate 64) westbound, to be removed

Significance: The Daniel Boone Bridge (J1000) is a steel, four-span, rigid-connected, continuous through truss with a Warren web, and four steel Warren deck truss approach spans. It is 2,614-feet long with a roadway width of 32-feet. It was designed by the Missouri State Highway Department and built by the Kansas City Bridge Company. It has Moderne details on the concrete spill through piers. The bridge played an integral role in the expansion of the St. Louis metropolitan area by facilitating transportation across the Missouri River. The bridge is significant in the areas of engineering and transportation.[1]

Historian: Karen L. Daniels, Historic Preservation Section, Design, Missouri Department of Transportation, Jefferson City, Missouri, September 2013

[1] Fraser, Clayton. "Missouri Historic Bridge Inventory, Daniel Boone Bridge Data Sheet." 1996. Historic Preservation Section, Missouri Department of Transportation, Jefferson City, Missouri.

Contents

Figures

Tables

Appendix A: Bridge Plans
Appendix B: Plates of Archival Photographs

Introduction

The Daniel Boone Bridge (J1000) is located on U. S. Highway 40/61 over the Missouri River between St. Louis County and St. Charles County. The bridge is a steel, four-span, rigid-connected continuous through truss with a Warren web and four Warren deck truss approach spans. It measures 2,614 feet long and has a roadway width of 32 feet.[2]

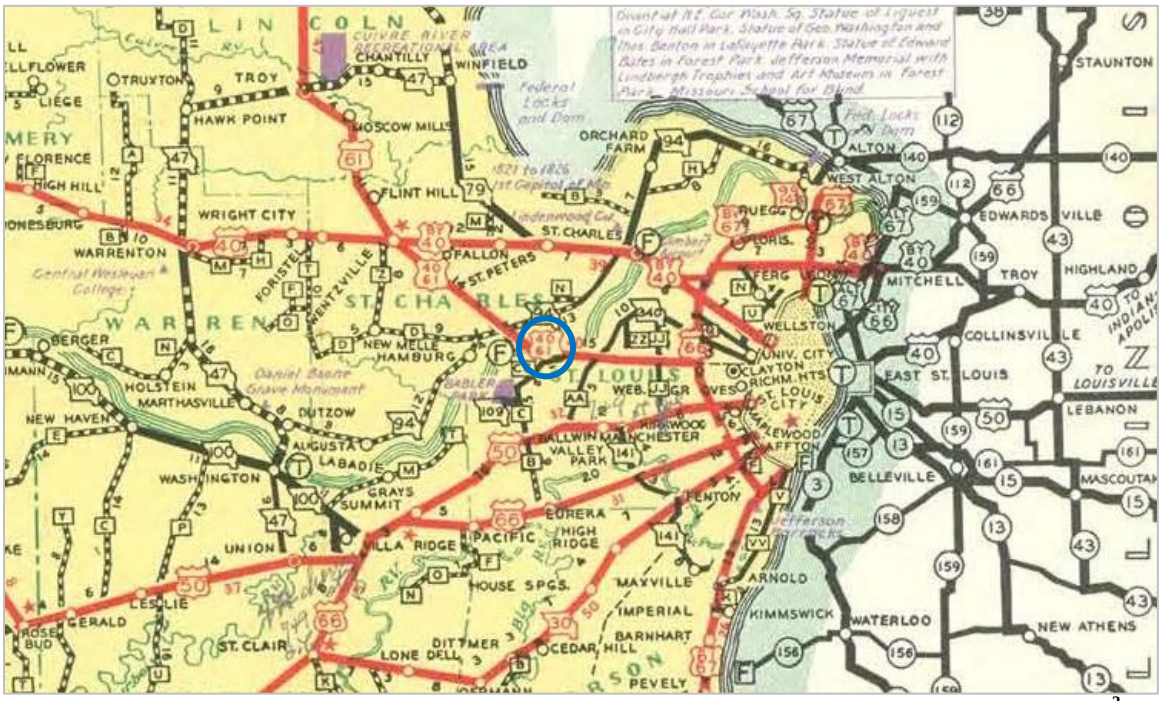


Figure 1: The location of the Daniel Boone Bridge, US 40/61, St. Louis & St. Charles Counties.[3]

The historic 1936-37 spans, J1000, carry westbound traffic and a companion bridge (A4017), constructed in the 1980s carries eastbound traffic. As part of job J6P1436 the Missouri Department of Transportation plans to construct a new bridge upstream of the existing bridges, this bridge would carry eastbound traffic and westbound traffic would be transferred to A4017. Recent bridge inspections have indicated that the Daniel Boone Bridge has suffered extreme deterioration and it is not feasible to rehabilitate. It will be removed as part of the project. This will have an adverse effect on the character defining features of the bridge.[4] This documentation is prepared as partial mitigation of these adverse effects.

---

[2] Fraser.

[3] Missouri State Highway Commission. "Missouri (Official) Highway Map 1939." Jefferson City, MO: Missouri State Highway Department, 1939.

[4] Dawdy, Randall. "Memorandum: Routes 40/61 and I-64, St. Louis/St. Charles County, MoDOT Job No. J6P1436, Westbound Daniel Boone Bridge (Bridge J1000R), Replacement of Bridge J1000R over the Missouri River." 2011. Historic Preservation Section, Missouri Department of Transportation, Jefferson City, Missouri.

Historic Overview

Introduction

Planning for a bridge at Weldon Spring[5] began in the late 1920s but construction was delayed by channel improvements to the Missouri River, arguments over funding for roads in Missouri, lawsuits over the location of the connective highway improvements in St. Louis County and St. Charles concerns about losing prestige with possible rerouting of highway 40 onto the new highway. Each of these obstacles presented challenges to the construction of the bridge at Weldon Spring. The bridge also became a rallying point for opponents of Proposition 3, a proposal to increase highway funding by issuing $75 million in bonds. Only as each of these issues was addressed was construction of the bridge able to move forward.

Early Bridge Planning 1927-1932

By 1927 traffic congestion on U. S. Highway 40 between St. Charles and St. Louis had gotten very bad. The bridge over the Missouri River at St. Charles was a toll bridge and the western approach road had sharp curves and the highway through St. Louis County was a two lane highway with a streetcar line running down the middle of it. In September the State Highway Department outlined three options for reducing traffic congestion:

1. Early construction of the St. Louis belt line between Pattonville and Mehlville on the Lemay Ferry Road, which would connect all the radial state highways and would divert some traffic off of Highway 40. This would cost about $900,000 of which $500,000 was currently available.
2. Construction of a branch Highway 40 beginning at Wentzville, which would cross the Missouri River on a new bridge, near Chesterfield, and go into St. Louis on the Olive Street Road.
3. Widen Highway 40 between St. Charles and St. Louis from the present width of 18-feet to 36-feet, which would permit four lanes of traffic instead of the existing two lanes.[6]

State Highway Department Chief Engineer T. H. Cutler said widening the existing road would be possible within the existing right of way, but questions would be raised about placing that ahead of other primary roads on the state system. The branch road would depend on the State Highway Department being given the authority to add more miles to the primary road system.[7] Since the toll bridge at St. Charles was a bottleneck on Highway 40 the State Highway Department would monitor traffic conditions in the area and would work with the community to find solutions to the

[5] The community name is "Weldon Spring" although it was, and is, frequently referred to as "Weldon Springs". In this document the proper community name will be used except when referred to in a quote or title, in which case it will be used as it was in the original material.

[6] "Highway Department Plans Taking Traffic Around St. Charles." *St. Charles Banner-News*, 8 September 1927, p. 5; "Wellston and St. Charles in Same Boat." *St. Charles Cosmos-Monitor*, 14 September 1927, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[7] "Highway Department Plans Taking Traffic Around St. Charles." *St. Charles Banner-News*, 8 September 1927, p. 5. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

problem. On Sundays and holidays there were usually long delays at the bridge caused by the small force of toll collectors.[8]

In November 1927 Theodore Gary, former member of the State Highway Commission, began advocating for two more bridges across the Missouri River—one at Washington and another six miles south of St. Charles with a new highway built from Gilmore connecting with the Olive Street Road in St. Louis County.[9]

On December 21, 1927 the St. Louis County Court issued a permit to build a bridge at the end of the Olive Street Road to E. M. Elliott and Associates, a bridge building company from Chicago.[10] St. Charles County concerns pointed out that this bridge, in connection with the new branch highway being discussed by the State Highway Department, would "relieve traffic congestion out of St. Louis, but only at a tremendous expense to the taxpayers of this state." They recommended instead that the Natural Bridge Road be extended and improved, saying it "would do as much for St. Louis as the 2 or 3 million dollar extension to Wentzville."[11]

In January 1928 Representative Niedringhaus introduced a bill seeking Congressional approval to build a bridge over the Missouri River on Olive Street Road. The *St. Louis Globe-Democrat* reported the bridge would be constructed by E. M. Elliott and Associates. The "purpose of the bridge would be to relieve the traffic congestion on the St. Charles Rock road, which is a federal highway. It would, therefore, be necessary for St. Charles to construct a road branching off the State Highway No. 40 to connect with the new bridge." The new bridge would be a toll bridge until the cost of construction was recouped and would then be turned over to the state.[12]

In January 1928 the Olive Street Bridge promoters appeared before the St. Charles County Court for authority to build and operate in the county. The E. M. Elliot and Associates was described as having about $50 million available in foreign bonds which it had decided to withdraw from and invest in American improvements. The County Court was told the bridge would not be built unless the traffic existed to justify the expenditure of the funds and the State Highway Department guaranteed to build the branch highway to connect the bridge to highway 40 at Wentzville. If those two requirements were met, the bridge would be constructed immediately. When bonds were sold to pay for the bridge, 10% would be allowed for promotion, 7.5% would

[8] "Seeks to Relieve Traffic Jam at St. Charles Bridge." *St. Charles Cosmos-Monitor*, 21 September 1927, p. 2. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[9] "Judge Gary Wants Bridge Near St. Charles." *St. Charles Cosmos-Monitor*, 16 November 1927, p. 3. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[10] "Permit Granted for Construction of Olive St. Bridge." *St. Charles Banner-News*, 22 December 1927, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[11] "Construct the Natural Bridge Road to St. Charles." *St. Charles Banner-News*, 29 December 1927, p. 6. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[12] "New Missouri River Bridge Asked in Bill." *St. Charles Cosmos-Monitor*, 11 January 1928, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

pay interest on the debt, and the balance would pay for bridge maintenance and retiring the bonds. A trustee would be appointed to receive all monies collected.[13]

The St. Charles County Court decided to postpone granting authority for the bridge company. They reasoned that since the project was dependant on the State Highway Department agreeing to construct the branch highway, and it being unclear that the State Highway Department would ever build the road, granting the authority would be premature. The County would lose the opportunity to work with a company that was less dependent on State Highway Department activities.[14]

In early March newspapers were reporting that there were questions about the E. M. Elliott and Associates firm, and members of the Missouri delegation to the U. S. Congress were opposed to granting them any additional franchises for bridges. The *St. Charles Banner-News* reported that according to Congressman John J. Cochran, opposition was centered on Elliott's "schemes for 33 bridge projects."[15] Engineers for the J. G. White Company of New York were reporting negatively on the proposed Olive Street Road and three other Missouri projects proposed by the Elliot Company: the Carondalet Bridge, a Missouri River Bridge near Kansas City, and a Missouri River Bridge near Arrow Rock, they had no intention of financing the construction of the bridge or acquiring the franchise for the bridge.[16]

On March 27, 1928 the St. Louis County Chamber of Commerce sponsored a mass meeting at Schneider's Hall in Gumbo to discuss the building of a bridge across the Missouri River near Gumbo and the proposed widening of the Olive Street Road. The meeting was called as efforts to block the granting of a franchise to build the bridge to E. M. Elliott and Associated were being made by Congressman Cochran.[17] The Chamber of Commerce position was that it favored building as many bridges as possible across the Missouri and Mississippi Rivers. If the county and state could not build free bridges then "a toll bridge is better than no bridge at all."[18]

Over 200 people attended the meeting in Gumbo. They were told by presiding County Judge Albert Wehmeyer that E. M. Elliott & Associates "had been well recommended and that until an attack had been made on the firm there appeared no question but that the bridge would be

---

[13] "Olive Street Bridge Project Now Put Up to Our County Court." *St. Charles Banner-News*, 12 January 1928, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[14] "This County Postpones Granting New Olive Street Bridge Franchise." *St. Charles Banner-News*, 19 January 1928, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[15] "Engineers Turn Down Olive Street Bridge Project." *St. Charles Banner-News*, 8 March 1928, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[16] *ibid*.; "Olive Street Bridge Rejected By Financiers." *St. Charles Cosmos-Monitor*, 7 March 1928, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[17] "Mass Meeting at At [sic] Gumbo Tuesday to Discuss Bridge." *Watchman Advocate*, 23 March 1928, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[18] *ibid*.

constructed."[19] Wehmeyer continued by indicating that the only charge lodged against the firm was that they were attempting to secure bridge franchised throughout the country. M. C. Kessler, a representative of the Elliott firm, said his company would assist the citizens of the county in securing a franchise, even if it was not to the Elliott firm, "as the bridge was really needed."[20] A committee was formed to find a St. Louis citizen willing to take the franchise, if that would make giving it more palatable to the Congress. The committee included Dr. Denny, Mr. Ruth (president of the St. Louis County Chamber of Commerce), Mr. Stevens, Mr. Hartnett and Mr. Wilmas.[21]

In April 1928 the U. S. House of Representatives debated the Missouri River bridge franchise. They questioned "the propriety of passing bills authorizing the construction of bridges over navigable streams by Eugene M. Elliott."[22] Evidence was introduced that Elliott had pleaded guilty to tax law violations in 1925 and had been fined $500.[23]

On May 9, 1928 Chief Engineer Cutler announced that a toll free bridge would be constructed across the Missouri River at Olive Street Road, by the State Highway Department, unless some other interest starts definite plans and provided the $75 million bond issue (Proposition 3) passed. The State Highway Commission proposed to build a "broad new outlet from St. Louis to Wentzville, by way of Olive Street Road, to relieve congestion around St. Charles if the bonds are voted."[24]

On May 29, 1928 the U. S. Congress granted J. H. Haley and his heirs, legal representatives and assigns, the rights to build a bridge across the Missouri River at or near a point about 3,500 feet downstream from mile 45, approximately 5,000 feet downstream from where Olive Street Road would intersect with the Missouri River, if projected out.[25]

On July 25, 1928 the Olive Street Road Bridge Company was formed. The company was created with 500 shares of capital stock, each valued at $100. The Board of Directors consisted of ten shareholders. The original board consisted of W. G. Simrall, Susan Simrall, Ralph W. Nolen and J. H. Haley of Clayton, Paul Ring and E. E. Stith of St. Louis, A. G. Schumacher of Kirkwood,

---

[19] "200 Attend Bridge Meeting Held At Gumbo Tuesday." *Watchman Advocate*, 30 March 1928, p. 6. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[20] *ibid*.

[21] *ibid*.

[22] "House Debates Some Length on County Bridge Bill." *Watchman Advocate*, 11 April 1928, p. 9. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[23] *ibid*.

[24] "The State Would Build Highway Bridge." *St. Charles Cosmos-Monitor*, 9 May 1928, p. 2. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[25] United States Government Printing Office. *The Statutes at Large of the United States of America from December, 1927, to March, 1929*. Volume XLV. Washington, DC: Government Printing Office, 1929, p. 962.

William Stoecker of Webster Groves, and G. M. McLain and J. F. McLain of Valley Park. J. H. Haley was the President of the Company. Each of the original board members was subscribed for fifty shares of stock. The purpose of the company was to construct and maintain a bridge over any body of water in Missouri, including approaches and to charge tolls for vehicles, pedestrians and livestock crossing the bridge.[26]

That same day, the St. Charles County Court adopted a resolution granting Haley a franchise to build the bridge opposite the Olive Street Road near Weldon Spring. The bridge was described as a toll bridge to be constructed on a 100-foot right of way along and across the Missouri River. The County Court was assured that work on the bridge would begin within one year and that the bridge would be completed within two years. Tolls were not to exceed 75 cents for a car and driver, $1.25 for a bus and driver, $1.00 for a half-ton truck and driver, and 5 cents for each additional passenger or animal.[27] The State Highway Department would build a concrete road from Wentzville at the intersection of Highways 40 and 61 to the new bridge. The road depended on the November bond issue, and would require several years for plans, right of way acquisition and construction.[28]

Haley contracted with Sverdrup & Parcel for the engineering of a new bridge and the Kansas City Bridge Company for soundings to identify the best location for the bridge.[29] By August Sverdrup & Parcel had developed preliminary plans for a bridge with two continuous spans over the main Missouri River channel with 400 feet clearance between piers and six simple approach spans on the St. Louis County side and a deck truss approach span on the St. Charles County side (see Figure 2 below for a profile of the Sverdrup design).[30]

In November of that year Haley approached the State Highway Commission about assuming the contract for designing the proposed bridge, since the passage of Proposition 3 meant more funds for state highways.[31] Haley proposed giving the Commission the franchise to build the bridge in

---

[26] Olive Street Road Bridge Company. "Articles of Incorporation." 25 July 1928. Charter 49179. Corporation's Division, Missouri Secretary of State Office. Downloaded 5 December 2011 from: https://www.sos.mo.gov/BusinessEntity/soskb/Corp.asp?47747.

[27] "Court Favors New Span Over River at Olive Street." *St. Charles Banner-News*, 26 July 1928, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[28] "Franchise is Granted for Highway Bridge." *St. Charles Cosmos-Monitor*, 18 July 1928, p. 8. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[29] Missouri State Highway Commission. "Minutes of the Meeting of the State Highway Commission, held in Jefferson City, Missouri, November 10, 1928." p. 6. As held by the Secretary to the Commission, Missouri Department of Transportation, Jefferson City, Missouri.

[30] Sverdrup & Parcel. "Proposed Highway Bridge over Missouri River at Weldon Springs, Mo." 23 August 1928. Correspondence file, Bridge J1000. Microfiche. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[31] Missouri State Highway Commission. "Minutes of the Meeting of the State Highway Commission, held in Jefferson City, Missouri, November 10, 1928." p. 6. As held by the Secretary to the Commission, Missouri Department of Transportation, Jefferson City, Missouri.

return for assurances that it would be constructed as a free bridge. Funding from Proposition 3 would be available in late 1929, since legislation enabling the sale of bonds needed to be passed by the Missouri Legislature in early 1929, and the bonds would need to be issued and sold.[32]

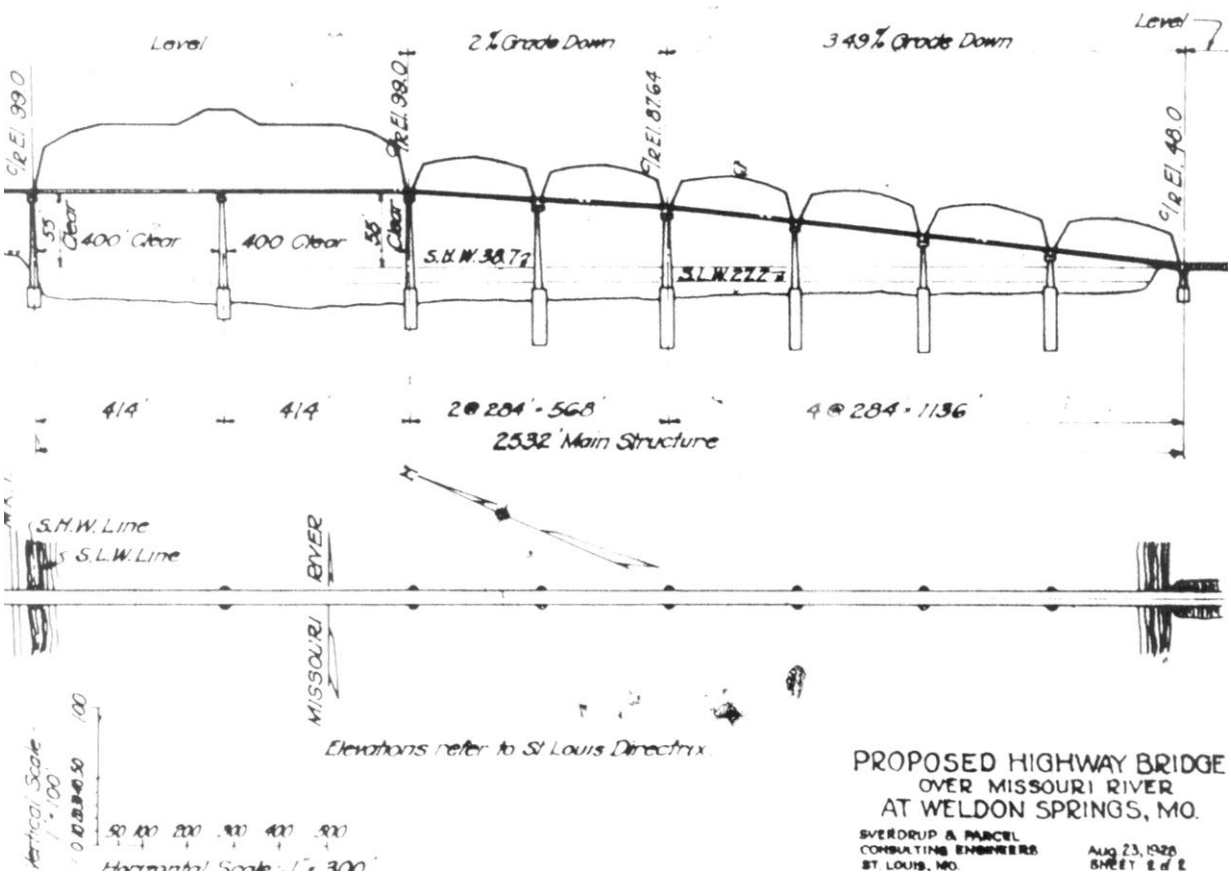


Figure 2: Sverdrup & Associates Proposed Bridge Profile

Although the Commission did not immediately accept Haley's proposal, by April 1929 they had, and were in negotiations with him for appropriate compensation for the franchise. The parties eventually settled on $3,500 compensation.[33] In June 1929 the Olive Street Road Bridge Company officially dissolved.[34]

Sverdrup & Parcel offered to make preliminary studies for the location of the bridge and to design the bridge for the State Highway Department. In March 1929, Chief Engineer Cutler presented the State Highway Commission with a letter from Sverdrup offering his services for a

[32] "Proposed Bridge At End of Olive Street Road Will Be Toll Free." *Watchman Advocate*, 16 November 1928, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[33] Mather, J. W., "Memorandum to Mr. Stuckey." 8 November 1929. Correspondence file, Bridge J1000. Microfiche. Bridge Division. Missouri Department of Transportation, Jefferson City, Missouri.

[34] Olive Street Road Bridge Company. "Affidavit of Dissolution." 22 June 1929. Charter 49179. Corporation's Division, Missouri Secretary of State Office. Downloaded 5 December 2011 from: https://www.sos.mo.gov/BusinessEntity/soskb/Corp.asp?47747.

commission of 2.5%. The Commission instructed the Chief Engineer to give the matter consideration and to report later concerning the matter.[35]

The State Highway Department proceeded with planning to the bridge and associated roadways. In April 1929 the Commission authorized the Chief Engineer to execute whatever instruments were necessary to get War Department approval to build a bridge over the Missouri River.[36] The application was forwarded to the War Department in early May[37] and was approved by the Secretary of War before the end of the month.[38] The highway department intended to take bids on the project during the first part of October 1929[39] and had received interest in bidding from many companies including the Independent Bridge Company, the Wisconsin Bridge Company, the General Contracting Corporation, the Missouri Valley Bridge & Iron Works, the Kansas City Bridge Company and the Stupp Brothers Bridge Company.[40]

In May 1929 the State Highway Commission indicated it intended to let the contract for the Weldon Spring Bridge in August and that the bridge should be ready for use in August 1931.[41]

On May 14th the Army Corp of Engineers scheduled a public hearing in Jefferson City on the application by the State Highway Commission to build a bridge across the Missouri River. The bridge was described as three channel spans with the left, center and right spans being level and three approach spans on the right (south) would have a down grade of 3.3%. It would have a clearance of 55 feet above standard high water.[42]

Few spoke in support or opposition to the bridge at the public hearing held by the Corp of Engineers. As the project sponsor, T. H. Cutler, Chief Engineer of the State Highway

---

[35] Missouri State Highway Commission. "Minutes of the Meeting of the State Highway Commission, held in Jefferson City, Missouri, March 12, 1929." p. 18. As held by the Secretary to the Commission, Missouri Department of Transportation, Jefferson City, Missouri.

[36] Missouri State Highway Commission. "Minutes of the Meeting of the State Highway Commission, held in Jefferson City, Missouri, April 9, 1929." p. 29a. As held by the Secretary to the Commission, Missouri Department of Transportation, Jefferson City, Missouri.

[37] Cutler, T. H., Letter to C. R. Young, Corp of Engineers. 2 May 1929. Correspondence file, Bridge J1000. Microfiche. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[38] Wyman, T., Telegram to T. H. Cutler. 24 May 1929. Correspondence file, Bridge J1000. Microfiche. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[39] Cutler, T. H., Letter to Independent Bridge Company. 30 August 1929. Correspondence file, Bridge J1000. Microfiche. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[40] Correspondence file, Bridge J1000. Microfiche. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[41] "Weldon Spring Bridge Contract to be Let in August, Article Says." *St. Charles Banner-News*, 2 May 1929, p. 2. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[42] "New Highway Bridge Hearing in Jefferson City on May 14th." *St. Charles Cosmos-Monitor*, 8 May 1929, p. 2. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

Department, was asked to make a statement on the bridge. Cutler's statement indicated that the proposed bridge was being considered as a response to "rapidly increasing traffic congestion on U. S. 40 and U. S. 61, west of St. Louis." A study by the State Highway Department, in cooperation with the St. Louis County Court, the County Engineer, and the County Plan Commission showed that the "best plan for relieving this traffic congestion would be by means of an additional road from Wentzville, in St. Charles County, to St. Louis, making necessary a new bridge over the Missouri River at some point near Weldon Springs."[43]

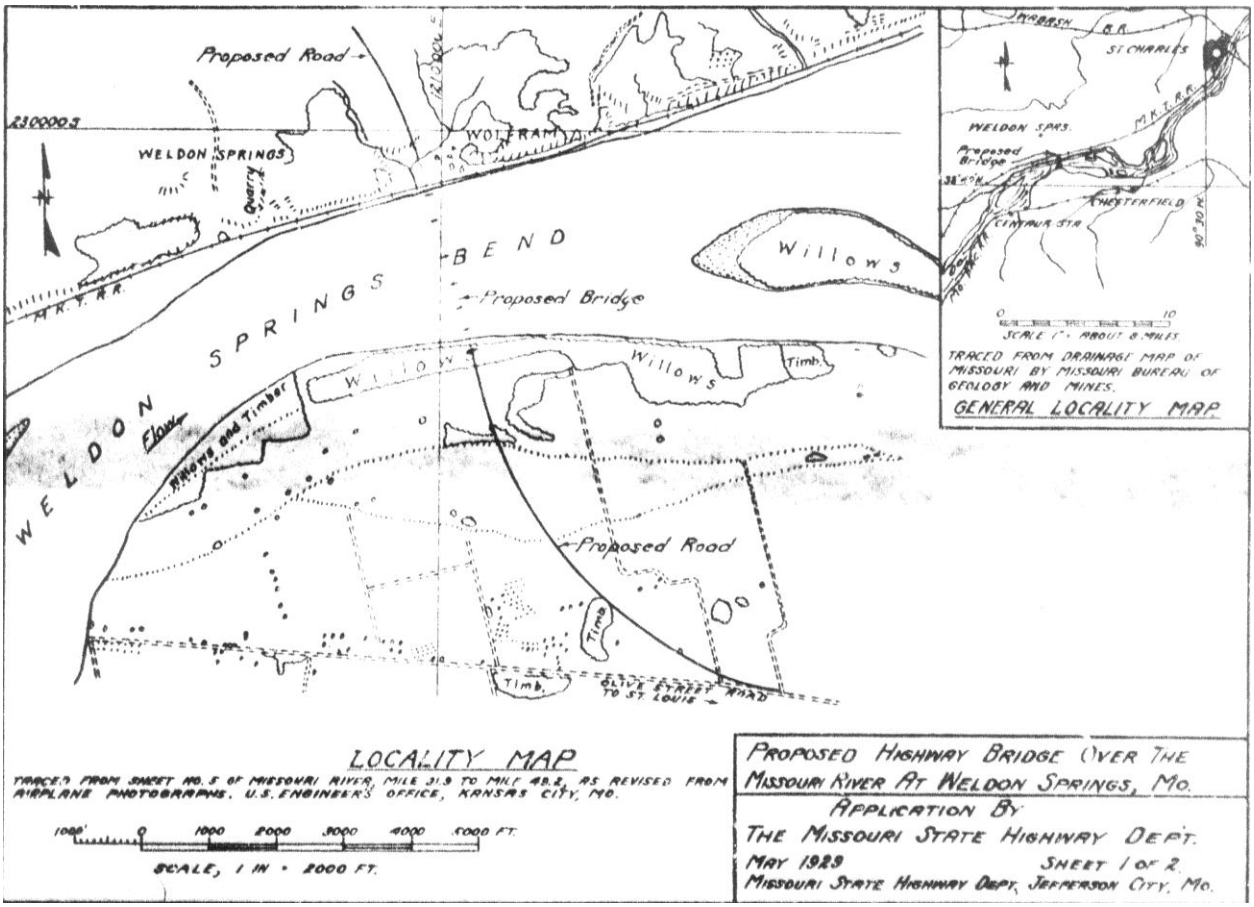


Figure 3: Proposed bridge location in 1929

Bridge Engineer N. R. Sack described the preparatory work that had been done for the bridge. Sack said that bridge plans were approximately one-third completed, three soundings had been made, and three days of clearing had been done at the bridge approach sites.[44]

One comment was received against the proposed bridge, from the Pilot of the Snagboat Horatio G. Wright, Gerald Friemonth. He opposed building a bridge across any navigable stream, and

[43] "Report on Public Hearing Held in the State Highway Building on May 15, 1929, at 10 o'clock, on the Application of the State Highway Commission to the United States War Department for Permission to Construct a Bridge over the Missouri River, Near Weldon Springs, Missouri, 43.7 miles above the mouth." Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[44] *ibid.*

thought that the channel changes along this stretch of the Missouri River made building a bridge across it particularly challenging to navigation. He recommended that the proposed channel work be completed across the river before any bridge be approved.[45]

The St. Charles Free Bridge Committee also provided comments. Sam Hodgdon, Chairman of the Committee, wrote on its behalf, indicating that it had "no desire to in any way interfere with the building of a bridge at the end of Olive Street. On the contrary we would like to cooperate with you in the effort to solve the traffic congestion through St. Louis County." He went on to say that people in St. Charles and Wellston had been assured, during the campaign for the Proposition 3 bond issue, that if a bridge was constructed at Olive Street before the St. Charles Bridge was made free; the State Highway Commission would pay off the balance due on the bridge. He wanted reassurance that would happen for the community in exchange for support for the bridge.[46]

John Mather, Assistant Attorney for the State Highway Department, closed by saying:

> "The construction of this bridge will make it possible for us to carry out the promises made to the people of St. Louis and St. Louis County during the campaign last fall for the constitutional amendment authorizing a new $75,000,000 bond issue for the completion of the state highway system in Missouri. In that a part of this bond issue is to be used in the relief of traffic congestion in St. Louis and St. Louis County by the construction of additional roads and the widening of existing highways. In order to adequately relieve this traffic situation, it is necessary to have some means of crossing the Missouri River beside the present bridge at St. Charles. The construction of this bridge will meet a long felt need and provide traffic with an easier access to the City of St. Louis. This situation is very urgent and is one of the reasons urged so that the early construction of this bridge may be begun."[47]

In May the *Cosmos-Monitor* was reporting that local farmers were unlikely to donate right of way for the new superhighway between Weldon Spring and Wentzville. William Boehle of Dardenne was quoted as saying landowners were not inclined to donate.[48] The State Highway Commission policy was to require local communities to acquire, through purchase or donation, the right of way for state highways, and then give the land to the State for the highway. Property owners who could not come to an agreement with the local purchase committee were purchased through condemnation of their property by the State Highway Department.[49]

---

[45] *ibid*.

[46] *ibid*.

[47] *ibid.*

[48] "Farmers Want Pay for the Right-of-Way." *St. Charles Cosmos-Monitor*, 15 May 1929, p. 7. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[49] Missouri State Highway Commission. Seventh Biennial Report of the State Highway Commission of Missouri for the Period Ending December 1, 1930. Jefferson City, MO: Botz Printing Co., 1930.

By early July the plans for the bridge had been approved by the War Department. The estimated cost of the bridge was $1.25 million and it was estimated that the bridge would be completed about 18 months after construction began. The State Highway Department was still planning to let contracts in August 1929.[50]

Bridge planning had caused a "considerable land boom" in the Weldon Spring area. Land prices in the area had "been boosted about twice its normal value" since the bridge planning started.[51] Weldon Spring was "alive with expectation. The boom is already on which will make it a town of probably 1000 people."[52]

In July the *Post-Dispatch* printed a picture of what the new bridge would look like. It was indicated that the new road would leave highways 40/61 at Wentzville and would cross the Missouri River at a free bridge at a point near the Olive Street Road, and enter St. Louis on a route to be decided later.[53]

The U. S. Army Corp of Engineers informed the State Highway Department that there was a "grave possibility" that the Missouri River might change its course at the site of the proposed bridge at Weldon Spring. Chief Engineer Cutler recommended to the State Highway Commission that further work toward the letting of the contract be suspended until an investigation into the report had been made and recommendations as to location could be made. The Commission approved the action, and active work on the bridge letting stopped.[54]

By late October 1929 the State Highway Department was informing companies that they were planning on waiting until the following spring to receive bids for the project to determine if the river was likely to alter channels again.[55]

In December 1929 the State Highway Department announced that funding for the Weldon Spring Bridge and the relief highway would not be included in the 1930 highway construction program because the route for the highway had not been selected. The letting of the bridge was also

---

[50] "Work on Weldon Springs Bridge Starts in August." *St. Charles Banner-News*, 4 July 1929, p. 3. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[51] "Land Boom in Upper Part of This County." *St. Charles Banner-News*, 4 July 1929, p. 7. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[52] "Site of Weldon Spring Bridge Already Chosen." *St. Charles Banner-News*, 15 August 1929, p. 4. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[53] "St. Charles to Keep Highway 40 Is Indicated." *St. Charles Cosmos-Monitor*, 3 July 1929, p. 6. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[54] Missouri State Highway Commission. "Minutes of the Meeting of the State Highway Commission, held in Jefferson City, Missouri, September 10, 1929." p. 8. As held by the Secretary to the Commission, Missouri Department of Transportation, Jefferson City, Missouri.

[55] Cutler, T. H., Letter to General Contracting Corporation. 28 October 1929. Correspondence file, Bridge J1000. Microfiche. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

deferred until a route was selected. Further action on the route had been held up pending completion of a survey of the proposed route.[56]

Despite not being included in the 1930 construction program, the bridge design continued. In February 1930 the design for the Weldon Spring Bridge was approved. It was a 3,454 foot steel truss bridge with a concrete substructure with an estimated cost of $1,250,000.[57]

Toward the end of 1931 surveys were being made for the superhighway location and of the Missouri River, to obtain the most economical location. The new location for the bridge was about one-half mile upstream from the original location and was near the Weldon Spring quarry. The new location had been submitted to the Corp of Engineers, but had not yet been approved. The location was between 200 and 300 feet narrower than the previous one, and would save between $80,000 and $120,000 in construction costs. The bridge would still cost about $1,000,000 to construct.[58]

Division Engineer Sam Rudder tried to dispel rumors that the State Highway Commission was considering abandoning the Weldon Spring project in March of 1932. He said that the rumors were untrue, that there was "no question" the bridge would be built, and that he expected construction to begin within the next year. Construction had been delayed because of an injunction against the superhighway location in St. Louis County, but with Congressional authority to build the bridge expiring on March 3, 1933, the State Highway Department wanted to begin construction before that time.[59]

[56] "Weldon Spring Bridge Delayed Another Year." *St. Charles Banner-News*, 26 December 1929, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[57] "Six Highway Bridges Planned in Missouri." *St. Charles Cosmos-Monitor*, 5 February 1930, p. 6. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[58] "Survey Being Made For Weldon Spring Bridge Location." *St. Charles Cosmos-Monitor*, 9 September 1931, p. 5. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[59] "Proposed Weldon Springs Bridge Will Be Built." *St. Charles Cosmos-Monitor*, 2 March 1932, p. 7. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

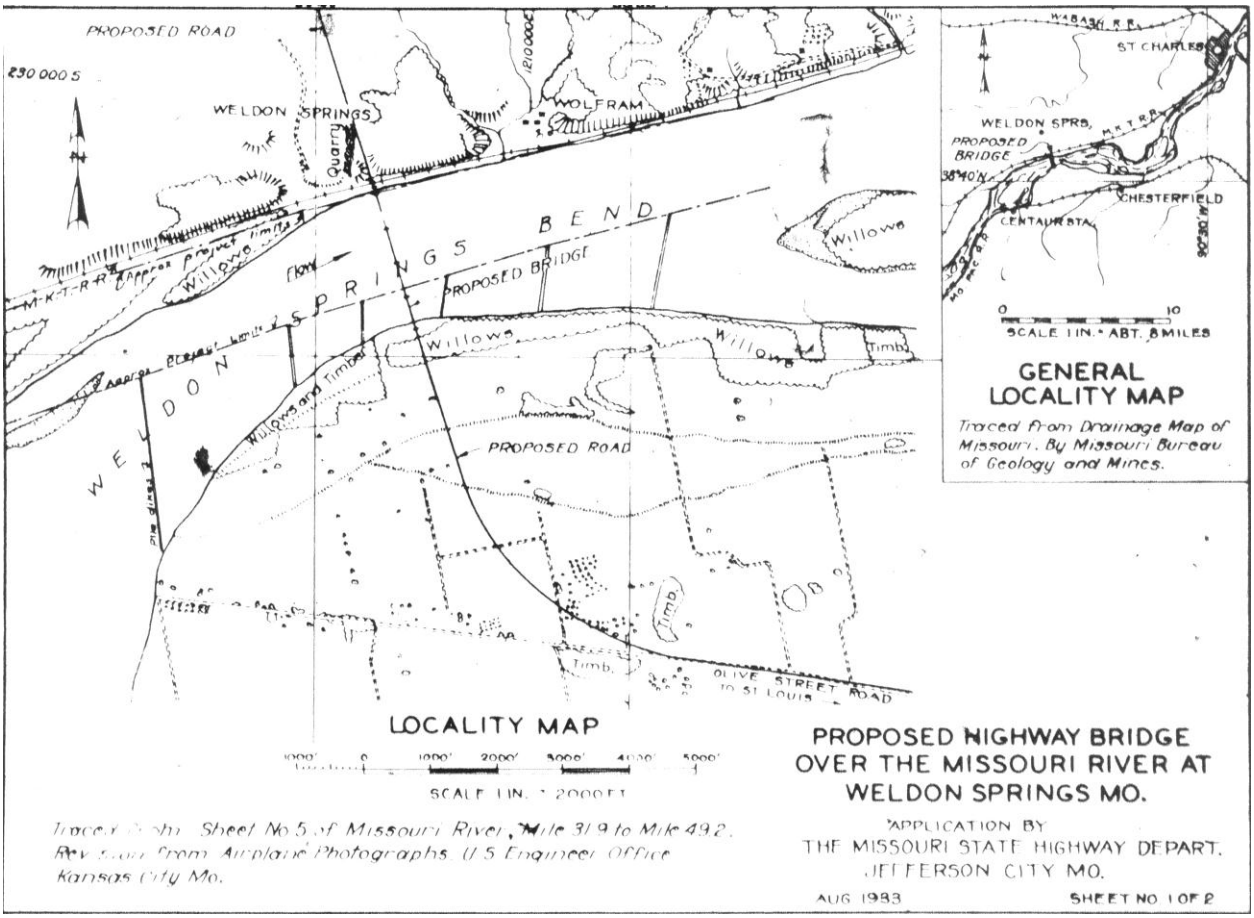


Figure 4: Bridge location in 1933

Proposition 3 and the Weldon Spring Bridge

By the mid-1920s it was apparent that with the existing funding sources for construction the Centennial Road System would not be completed to meet the demands of Missouri motorists. In 1927 the Automobile Club of Missouri proposed a $120 million bond issue for road construction. The State Highway Commission felt that sum was too much, and proposed instead a $60 million bond program. In early 1928 Governor Sam A. Baker was asked to help the parties reach an agreement that could be brought before the voters. He appointed a Special Compromise Committee with one representative from the Automobile Club of Missouri, one from the State Highway Commission and four members of his own choosing. The Committee met several times, and reached agreement that a $75 million bond proposal would meet the existing road construction needs.[60]

The bond issue was placed on the 1928 general election ballot by initiative petition, and was known as Proposition 3. The proposition called for a $75 million bond issue with the money to be used:

- To expedite the completion of the 7,640-mile Centennial Road Law System,

[60] State of Missouri. *Official Manual for Years Nineteen Twenty-nine and Nineteen Thirty*. Jefferson City, Mo: Botz-Hugh Stephens Press, 1929, p. 741.

- To reimburse counties and other civil subdivisions for roads taken into the state system,
- To add 300 miles to the Centennial Road Law System,
- To relieve traffic congestion in St. Louis and Kansas City by constructing about 200 miles of traffic relief routes,
- To construct 7,000 miles of supplementary state highways and bridges in each county of the state, and
- To make connections to state parks.[61]

In October 1928 the *St. Charles Banner-News* was predicting that the bond issue would not receive strong support in the county. Residents concern about rerouting highway 40 "certainly arouses a strong antipathy" toward the issue.[62] The paper did go on to recommend support for the issue since the State Highway Commission was determined to build a new bridge near Weldon Springs and a highway to connect it to highway 40 near Wentzville. The paper argued that building a free bridge at St. Charles would alleviate the need for the alternate route and predicted that Proposition 3 would fail because it "is not enthusiastically supported" in many parts of the state.[63]

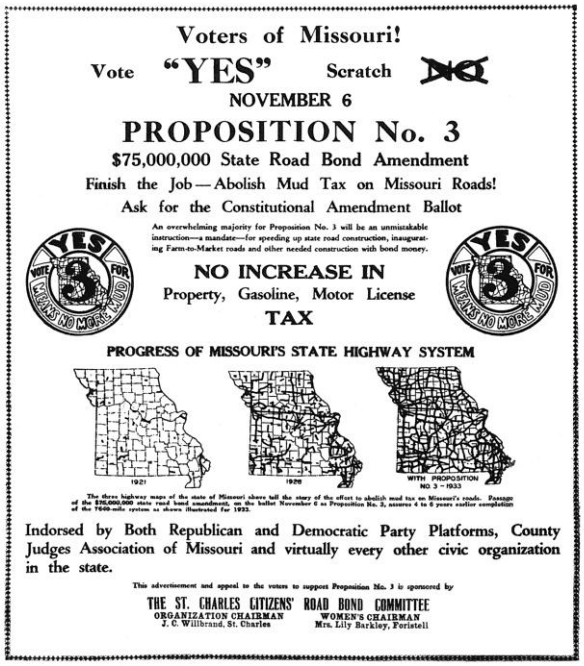


Figure 5: Pro Proposition 3 Ad from *Wentzville Union*[64]

The *Cosmos-Monitor* described voters as being in a "quandary as to their duty in voting for or against the proposed $75,000,000 bond issue for roads in Missouri. It is the duty of voters to vote

[61] *ibid*, pp. 741-743.

[62] "Bridge Situation Only What has Been Anticipated." *St. Charles Banner-News*, 11 October 1928, p. 2. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[63] *ibid*.

[64] *Wentzville Union*, 2 November 1928, p. 8. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

for the best interests of the state, the county, the city and themselves. That's what our people are thinking about. For the best interest of the State we believe we had better vote for the bond issue, for the better interests of the county, perhaps we had better vote for the bonds, but how about the best interests of the City of St. Charles, the best interests of the citizens of St. Charles? That's the perplexing question which confronts the St. Charles voter."[65]

The *Cosmos-Monitor* postulated that if St. Charles had some guarantee that highway 40 would not be routed away from the City, leaving it off the map, it would be easier to support the bond issue. However Sam Rudder, Division Engineer for the State Highway Department, was quoted by the *Globe-Democrat* [sic, it was actually in the *Post-Dispatch*] as saying highway 40 would be routed over the new highway and St. Charles would not be on the federal highway system. If that is correct, "St. Charles is going to vote solidly against the bond issue."[66]

In late October 1928 voters in St. Charles County were told by the St. Louis Chamber of Commerce that the proposed bridge was not dependant on the bond issue, that the company was ready to start work on the structure.[67]

The St. Charles Citizens Road Bond Committee supported the proposition, and placed advertisements in local newspapers, including *The Wentzville Union*, urging support saying a "vote for 3 means no more mud."[68]

In St. Louis County it was noted that if Proposition 3 passed with the $75 million in bond sales, nine additional highways would be built in the county with state funds.[69]

Proposition 3 passed with the necessary two-thirds majority needed to become law. It passed in St. Louis County but did not pass in St. Charles County. S. M. Rudder, Division Engineer for the St. Louis Division of the State Highway Department sent a letter to J. C. Willbrand, chairman of the St. Charles County Good Road Boosters, in which he expressed his regret that "St. Charles County is the only county in Division 6 which voted down Proposition No. 3. … I am sure that the people of St. Charles County who voted yes will not have any regrets for helping to pass this measure and I hope a great majority of those voting no will realize the seriousness of their error

[65] "Will St. Charles Lose Federal Highway No. 40?" *St. Charles Cosmos-Monitor*, 10 October 1928, p. 2. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[66] *ibid*.

[67] "Assurance St. Charles Will Keep Highway 40." *St. Charles Cosmos-Monitor*, 24 October 1928, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[68] "Yes, Vote for 3 Means No More Mud." *The Wentzville Union*, 2 November 1928, p. 8. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[69] "Splendid 609 Mile Road System Proposed by Local Plan Association." *Watchman Advocate*, 26 October 1928, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

in the not distant future."[70] The Editor of the *Cosmos-Monitor* wrote, "The only way it can be accounted for that our people voted adverse to the bond issue is that they were under a misapprehension. It is hoped that the actions of our voters will not cause the Highway Commission to retaliate, and not build the roads they had anticipated in this county."[71]

An analysis of township voting patterns in St. Charles County by the *Banner-News* revealed that the proposition was not supported in the townships that would be most directly benefited by it—those in the path of the new bridge and the new pavement that would join with highway 40 at Wentzville.[72]

In mid-November 1928, after Proposition 3 passed, John Haley and Senator Ralph met with the State Highway Commission and offered the franchise for the bridge at Olive Street Road, as long as it would be operated as a free bridge and that it would be constructed as soon as possible.[73] The State Highway Department indicated that money from the bond issue should be available in late 1929. Before it would be available the Missouri General Assembly needed to pass legislation enabling the bond sales, and then the bonds had to be issued and sold.[74]

In 1929 some state legislators in the House of Representatives attempted to change Proposition 3. The St. Charles Representative, Louis Ringe, was among "the insurgents."[75]

Missouri River Channel Improvement Delays 1929-1933

In March 1929 a dredge boat arrived from Memphis to begin work on a $2.5 million program to deepen and clear the Missouri River channel between St. Louis and Kansas City to improve navigation and facilitate shipping.[76]

In 1930 there was additional work done in the Missouri River in the vicinity of Weldon Spring when 9000 feet of dikes were constructed.[77]

---

[70] "Rudder Feels Those Favoring No. 3 Will Be Glad." *St. Charles Banner-News*, 15 November 1928, p. 1; "St. Charles County Made a Bad Record." *St. Charles Cosmos-Monitor*, 14 November 1928, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[71] "St. Charles County Made a Bad Record." *St. Charles Cosmos-Monitor*, 14 November 1928, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[72] "How St. Charles County Fought Road Bond Issue Analyzed by Precinct." *St. Charles Banner-News*, 22 November 1928, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[73] "Proposed Bridge At End of Olive Street Road Will Be Toll Free." *Watchman Advocate*, 16 November 1928, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[74] "Proposed Bridge At End of Olive Street Road Will Be Toll Free." *Watchman Advocate*, 16 November 1928, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[75] "Road Amendment Will Go Thru As Planned." *St. Charles Banner-News*, 7 February 1929, p. 3. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[76] "Channel Work on Missouri River Will Begin Here." *St. Charles Banner-News*, 21 March 1929, p. 2. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

In 1931 Congressional approval to construct a bridge was sought. This new authorization required that the bridge be started within two years and completed within five years.[78] Work did not commence on the bridge at that time due to an injunction filed against the State Highway Department. The Department was advised not to do any work on the bridge until the suit had been disposed of.[79]

The new federal public works programs made it possible to proceed with the Weldon Spring bridge in 1933. Although plans had been prepared in 1929, the channel changes made by the Corp of Engineers had changed the conditions and it necessitated relocating the bridge.[80] The project was resubmitted to the U. S. Army Corp of Engineers (War Department) for approval in September 1933.[81] The application was approved, with the proviso that a new congressional approval would be obtained, since the 1931 act had expired.[82]

In 1934 Congressional authority to construct the bridge was extended two years, from a starting date of March 3, 1933.[83]

Fighting in St. Charles County about the Bridge & U. S. Highway 40 1927-1937

In mid-1927 a traffic study was conducted to determine where vehicles crossing the Mississippi River at St. Louis than travelled. The study revealed that Route 66 was increasing in patronage 60-70% and that the popularity of the National Old Trails Road (Highway 40) was decreasing by about 85%. Since it was estimated that the average tourist spent between $8 and $10 in each town they stopped in, this was a major cause for concern for communities on highway 40.[84]

---

[77] "Large Sums Being Spent on Improving River." *St. Charles Banner-News*, 4 December 1930, p. 4. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[78] Public Law 71-812. 3 March 1931. Correspondence file, Bridge J1000. Microfiche. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[79] Rudder, S. M., Letter to T. H. Cutler. 26 October 1931. Correspondence file, Bridge J1000. Microfiche. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[80] Sack, N. R., Letter to P. H. Daniells. 23 May 1933. Correspondence file, Bridge J1000. Microfiche. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[81] Cutler, T. H., Letter to W. A. Snow. 6 September 1933. Correspondence file, Bridge J1000. Microfiche. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[82] Cutler, T. H., Letter to W. A. Snow. 15 November 1933. Correspondence file, Bridge J1000. Microfiche. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[83] Public Law 73-103. 24 February 1934. Correspondence file, Bridge J1000. Microfiche. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[84] "Traffic Leaving Highway No. 40—Why?" *St. Charles Cosmos-Monitor*, 17 July 1927, p. 3. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

By September 1927 communities along highway 40 recognized that something had to be done to relieve congestion along the highway between St. Louis and St. Charles but were determined to fight the road being detoured around them, causing them to be taken "off the map."[85] The communities considered being removed from the highway as a death sentence.

As early as December 1927, residents of the City of St. Charles recognized the possibility that placing a free bridge over the Missouri River at Weldon Spring could mean moving highway 40 away from the City. They viewed the bridge as a rival, fearing the "that the [passage] of the big bond issue would mean a misfortune to this city, because of the strong movement to place a bridge across the Missouri River, south of town, which would connect up with a road joining the State Highway near Wentzville. Such a road would detour traffic away from St. Charles. It was feared this bond issue would furnish the money for the rival bridge."[86]

Even the toll bridge that received Congressional approval in 1927 worried St. Charles, because they feared highway 40 would be moved away from the city. The toll bridge was not the only traffic issue in the city, there was also the highway route through the city and parking along the highway. The State Highway Commission had been working with the City to improve traffic flow but "St. Charles refused to cooperate with the Commission." After local protest about the parking ban near the bridge the ordinance was repealed and instead of employing the twelve toll collectors that were necessary to keep traffic moving the city employed only six, causing traffic backups that could last "an hour or two".[87]

Chief Engineer Cutler wrote that the proposed cutoff highway from Wentzville to the Olive Street Road was "one of the new outlets to handle congested traffic in St. Louis, which the Commission believes should be built to properly handle traffic in the vicinity of that population center."[88]

The Editor of the *Cosmos-Monitor* wrote that the only way St. Charles could fight the proposal would be to put up a fight in the legislature when the proposed new road law is put before the body. "St. Charles must wake up now and put up a good strong fight to hold the airline road [highway 40] between St. Louis and Kansas City."[89]

In January 1928, just after E. M. Elliott and Associates came to the St. Charles County Court for approval to build the bridge, the St. Charles Chamber of Commerce appointed a committee to go

---

[85] "Wellston and St. Charles in Same Boat." *St. Charles Cosmos-Monitor*, 14 September 1927, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[86] "Keeping St. Charles Place on Highway a Vital Problem." *St. Charles Banner-News*, 22 December 1927, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[87] "Will St. Charles Lose the Highway?" *St. Charles Cosmos-Monitor*, 28 December 1927, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[88] *ibid*.

[89] *ibid*.

to the State Highway Commission to oppose the new bridge and the diversion of highway 40 away from St. Charles. The committee was composed of H. H. Wilmes, Paul Houser, R. M. Thomson, Harry Osiek, Elmer Bruns, Charles Cappel, George Dierker, John Walkup, Edward Pundman, Joe Machens, Dr. W. S. O'Neal, Charles B. Mudd, Charles E. Richtern, Fred B. Meyer, Guy Motley, Herbert Sandfort, Henry Broeker, Judge August Weinrich, Judge William Nolle, Judge Fred Keisting, and Edwin Werner.[90]

When Elliott's financing fell through, the *Cosmos-Monitor* crowed, "This means there will be no bridge built in competition with the St. Charles Highway Bridge for some years to come at least."[91]

In October 1928 Sam Rudder, the St. Louis District Engineer of the State Highway Department, was quoted in the *St. Louis Post-Dispatch* as saying that highway 40 would be pulled away from St. Charles when the new highway and bridge were completed and St. Charles would be left off the federal highway system.[92] Rudder denied making the statement, and the reported admitted that he added his own thoughts about relocating the highway to the article, and they ended up attributed to Rudder.[93]

In May 1929 the St. Charles Junior Chamber of Commerce met to set up a committee to meet with Sam Rudder, the district engineer for the St. Louis district, and the State Highway Commission about the effort to make sure highway 40 was not rerouted away from the City of St. Charles.[94]

Rudder spoke at a luncheon in St. Charles later in the month, and told the citizens of the St. Charles that the new road would inevitably divert a large percentage of traffic away from St. Charles, but he saw no immediate reason to change the designation of highway 40. He said that the construction of the Chain of Rocks bridge and the Lewis and Clark bridges, then under construction, would make up for the diverted traffic. He also said the city must fix the city streets that lead to the bridge, including redirecting traffic and enforcing no parking zones near the bridge to improve the traffic conditions around the bridge.[95]

---

[90] "Permit Asked to Build Bridge South of Our City." *St. Charles Cosmos-Monitor*, 18 January 1928, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[91] "Olive Street Bridge Rejected By Financiers." *St. Charles Cosmos-Monitor*, 7 March 1928, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[92] "Will St. Charles Lose Federal Highway No. 40?" *St. Charles Cosmos-Monitor*, 10 October 1928, p. 2. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[93] "Removal of Highway No. 40 Never Discussed." *St. Charles Cosmos-Monitor*, 17 October 1928, p. 1; "Assurance St. Charles Will Keep Highway 40." *St. Charles Cosmos-Monitor*, 24 October 1928, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[94] "Effort to Retain Highway 40 Made by Junior C. of C." *St. Charles Banner-News*, 2 May 1929, p. 2. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[95] "St. Charles Must Begin Now to Solve Traffic Situation, Rudder Says." *St. Charles Banner-News*, 9 May 1929, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

An editorial in the *St. Charles Banner-News* on May 16 responded to Rudder's speech by saying that St. Charles must depend "upon her natural strategic position as a traffic center and in no way upon the inclination of the State Highway Department." It went on to say that it was apparent the Weldon Spring Bridge would be among the first project financed by the new bond money and could be carrying traffic before the St. Charles bridge could be freed from tolls. Rudder's speech gave no reassurance for the retention of the highway 40 designation, and "the best that can be hoped for consistently is that both the route across the Weldon Spring Bridge and that across the St. Charles Bridge will be designated as 40."[96]

Congressman Clarence Cannon sent a letter to the Junior Chamber of Commerce in St. Charles voicing his support for their efforts to keep highway 40 routed through the community. He wrote that he was glad to note the aggressive stand the group was taking on the diversion, and that in his opinion highway 40 was correctly routed through the city. He told the group that it was his understanding that the State Highway Commission had agreed to continue to designate highway 40 along the present route.[97]

In December 1930 the *St. Charles Banner-News* reported that Chief Engineer T. H. Cutler had announced that the State Highway Department was planning to award the contract for the substructure of the new bridge the next fall (in 1931). The article went on to say that the announcement indicates Cutler takes it for granted the new route will be designated as highway 40, completely ignoring the present highway thru St. Charles.[98]

In June 1931 St. Charles was again hopeful of receiving improvements, including the new bridge, rather than them occurring elsewhere in the county. The *St. Charles Banner-News* reported on the difficulties selecting a superhighway route in St. Louis County, and reported that Chief Engineer Cutler had said that if a route could not be selected highway 40 through St. Charles might have to be improved, including a new bridge. The paper speculated that if that occurred, and a new bridge was constructed in St. Charles, than there would be no need for construction of the Weldon Spring bridge and that project would be dropped.[99]

A "Keep the Highway" organization was formed by St. Charles businessmen and all interested parties from Wentzville to the Page Avenue district in St. Louis in 1932. The movement was sponsored by the St. Charles Junior Chamber of Commerce with the aid of "prominent parties" in St. Louis County. Although they were resigned to the superhighway being built, they were

---

[96] "Sidelights on Bridge Outlook in this County." *St. Charles Banner-News*, 16 May 1929, p. 6. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[97] "Clarence Cannon Says Highway 40 is Routed Right." *St. Charles Cosmos-Monitor*, 4 December 1929, p. 7. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[98] "Weldon Spring Bridge Contract Delayed Till Fall." *St. Charles Banner-News*, 25 December 1930, p. 5. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[99] "St. Charles Still Has Chance For a New State-Built Highway Bridge." *St. Charles Banner-News*, 11 June 1931, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

determined to fight having the highway 40 designation being removed from the current alignment. They stated, "U. S. Highway 40 has always been the main source of travelers coming into this city and with the route changed it would keep thousands of people out of here each year. Unless action is taken, St. Charles will just be another city off the highway."[100] Judge Sam D. Hodgdon of Clayton was named Chairman of the committee to "Keep the Highway"; Brick Travis was named Secretary, and Charles Cappel, Treasurer. Two members from each service club in St. Charles and St. Louis counties formed the rest of the committee. Hodgdon stated that "Business men are taking steps to keep the highway here, where it rightfully belongs."[101]

In February 1932 the *St. Charles Banner-News* again speculated that the Weldon Spring Bridge project might be dropped when the State Highway Commission acquired the right of way formerly owned by the St. Charles streetcar line down the center of highway 40 and across the recently freed St. Charles Bridge. This would enable the State Highway Department to build a 40-foot wide highway between Lindberg Boulevard and the St. Charles Bridge. The paper said that if St. Charles could improve street conditions through the city the State Highway Department "will probably abandon the Weldon Spring bridge."[102]

New attacks were made against the new superhighway and bridge in early 1933. An editorial in the *St. Charles Cosmos-Monitor*, titled "Millions for Superhighway—Farmer in Mud" blasted the money being spent on the superhighway for the perceived benefit of St. Louis pleasure drivers, saying there was "no earthly need of the new road." The editorial called for

> "…a change to take place in the Highway Department at Jefferson City. Governor Park is going to make changes in the Commission and it is hoped the new Commission will see the light and spend the money for necessary roads before piling up for pleasure seekers and letting Missouri people drive in the mud without making any effort to build roads for the farmers and small town people. Every county in Missouri needs farms to market roads and not a cent should be spent for unnecessary roads until "Missouri Gets Out of the Mud," which was the slogan when the big bond issues were put over. Missouri is not out of the mud and never will be unless money is taken care of instead of being used for such a road as is now being proposed."[103]

The article included statements that St. Charles had lost many amenities recently, including the streetcar line across the bridge and the Wabash passenger depot. Now it would be removed from highway 40 "without one word of protest against the imposition to be imposed upon us."[104]

---

[100] "Organization to Keep Hiyay [sic] Will Be Formed." *St. Charles Cosmos-Monitor*, 13 January 1932, p. 7. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[101] "Committee to Maintain Hiway No. 40 Named." *St. Charles Cosmos-Monitor*, 20 January 1932, p. 6. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[102] "Highway Department May Dispense With the Weldon Spring Bridge." *St. Charles Banner-News*, 25 February 1932, p. 5. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[103] "Millions For Superhighway—Farmer in Mud." *St. Charles Cosmos-Monitor*, 18 January 1933, p. 7. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[104] *ibid.*

In January 1933, after the injunctions against the superhighway had been dismissed, residents of St. Charles increased their opposition to the highway and the bridge. A group of businessmen again organized to fight the construction of the highway, arguing that the road would cost $5 million and the bridge $3 million and "would merely afford St. Louis motorists with a Sunday pleasure ground." The group further argued that highway 40 and the St. Charles Bridge could be widened at a much lower cost.[105] J. Ed. Travis was elected Chairman of the committee, Dr. B. H. Neabeiser was elected Secretary, and Charles Cappel was appointed treasurer of the group and was expected to be soliciting subscriptions from area businesses to support the fight against the new superhighway.[106] As the St. Charles group organized a group of farmers from the western part of the county also organized to support the highway and "offset any influence brought by groups fighting the new highway."[107]

On February 19th a mass meeting was held at the St. Charles County Courthouse for the purposes of showing support for keeping the highway 40 alignment along its existing route. Representatives from St. Peters and O'Fallon were also present at the well attended meeting. The finance committee to fight the new highway raised $100 for the effort.[108]

The St. Charles branch of the Daughters of the American Revolution (DAR) also joined the controversy by endorsing the movement to retain and improve existing highway 40. They supported the effort because St. Charles was a historically significant community and tourists using the new alignment would miss historic spots if the highway was deflected toward Weldon Spring and they thought it was a bad idea to build a new bridge when one already existed. They encouraged other DAR chapters to use their influence to keep the highway routed through St. Charles.[109]

On March 11 the farmers supporting the new highway and bridge held a mass meeting in Howell. Speakers included Senator Williams of Matson, L. A. Orf of Dardenne and Matthew Schenbendrien of the Howell area. Farmers from New Melle, Weldon Spring, Hamburg, Augusta, Matson, Dardenne and Howell attended. They passed a resolution petitioning the State

---

[105] "Proposed Highway Would Only Shorten Distance to St. Louis One Mile." *St. Charles Banner-News*, 26 January 1933, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[106] "St. Charles Will Make Strong Effort to Retain Markers on Highway 40." *St. Charles Cosmos-Monitor*, 25 January 1933, p. 2; "Chas. Chappel to Gather Funds to Fight New Roads." *St. Charles Banner-News*, 26 January 1933, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[107] Farmers Resent Move Against Super Highway." *St. Charles Banner-News*, 26 January 1933, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[108] "Resolutions to be Sent to State Highway Department." *St. Charles Banner-News*, 23 February 1933, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[109] "D. A. R. on Record for Retaining the Present Highway 40." *St. Charles Banner-News*, 23 February 1933, p. 6. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

Highway Commission to proceed with the construction of the new highway and bridge as soon as possible.[110]

William Hirth, President of the Missouri Farmer's Association, also opposed the Wentzville cut-off, contending "there is little, if any, traffic congestion on highway 40, except on Sunday evening, and this does not justify spending $3 million to build the 40-mile cut-off."[111] Since Governor Guy Park opposed cutting the cost of automobile tags since it would delay the building of farm to market roads, Hirth responded, "Somebody should tell the Governor that the Highway Commission is getting ready to spend $3,000,000 on a 'luxury road' for the pleasure seekers of St. Louis, joy riders, instead of spending the money on farm to market roads." Hirth further said the State Highway Department should "devote practically all its available funds to an improvement to farm to market roads, rather than adding to our cross-state system at this time."[112]

In May 1933 a delegation from St. Charles, lead by Dr. Ben Neuheiser, J. Ed. Travis and C. J. Harris went to the State Highway Commission and filed a protest against spending money on the superhighway and bridge. The delegation supported improving the existing Route 40, and said that the traffic relief route was "unnecessary, as there is little congestion on the route except for certain hours on holidays."[113] A rival delegation from St. Charles, Lincoln and Warren Counties, led by T. E. Pitman of Wentzville, and Mr. Russell, Secretary of the Hannibal Chamber of Commerce, appeared in support of the traffic relief route and "urged that US 40TR, between Wentzville and St. Louis, be built as soon as possible."[114]

In July the State Highway Commission announced work on the superhighway would be started soon, and that it would be designated 40-TR, "which, otherwise expressed, is 40 for traffic and will be so labeled" the existing highway 40 would continue to be known as that, but would have

[110] "Enthusiasm was Strong for Weldon Spring Bridge." *St. Charles Banner-News*, 16 March 1933, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[111] "Hirth Opposes Wentzville's Short Cut-Off." *St. Charles Banner-News*, 30 March 1933, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[112] "Wm. Hirth President of Missouri Farm Bureau Against the Super-Highway." *St. Charles Cosmos-Monitor*, 1 March 1933, p. 2. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[113] "St. Charles Men Opposed Super Hiway." *St. Charles Cosmos-Monitor*, 10 May 1933, p. 1; "Another Protest Filed Against Superhighway." *Watchman Advocate*, 19 May 1933, p. 9. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[114] Missouri State Highway Commission. "Minutes of the Meeting of the State Highway Commission, held in Jefferson City, Missouri, Tuesday, May 9, 1933." p. 10. As held by the Secretary to the Commission, Missouri Department of Transportation, Jefferson City, Missouri.

no initials associated with it.[115] With federal aid the road would be constructed from Wentzville to a point near Denny Road.[116]

Wentzville saw opportunity in the new superhighway; the highway and bridge across the Missouri River gave the city "a wonderful chance to increase its population and induce large business enterprises to locate here."[117] To take advantage of that opportunity, a new Community Club was formed in an effort to stimulate business and work for the general welfare of the community.[118]

Wentzville's activities were noticed by neighboring communities in the county, inflaming the rivalry caused by the possible prominence the community would gain with the new road and the possible relocation of highway 40. The editor of the St. Charles Banner-News:

> would call attention of our [St. Charles City] local business men and residents to the present activities of Wentzville, our neighboring city. There is every indication that means a fight to stay on the map. It's the only way of surviving. Wentzville has exceptional possibilities brought about by the new bridge and highway to be built in the near future by way of Weldon Springs from St. Louis County. It's laying the foundation to make the best of its opportunity and unless St. Charles wakes up and does its part for itself, Wentzville will step into the lead.[119]

St. Charles had not given up on preventing the Weldon Spring Bridge even by the end of 1933 with the philosophy that until it had been built, it was possible to steal the money away and build the bridge in St. Charles instead. In December 1933, the *St. Charles Cosmos-Monitor* speculated that if "St. Charles, with a united front, laying aside all selfish likes and dislikes can bring the matter [of building a new bridge in St. Charles] before the Highway Commission and show that body where the proposed traffic relief can be secured and at the same time save at least $3 million of the peoples money" the Highway Commission would improve existing highway 40 from Wentzville to St. Charles, skirt St. Charles, cross the Missouri River on a new bridge built just below the city, and rejoin the existing highway where there was already sufficient right of

[115] "New Road West to Be Known as No. 40-TR." *St. Charles Banner-News*, 13 July 1933, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[116] "Super-Hiway Depends Upon Federal Aid." *St. Charles Cosmos-Monitor*, 12 July 1933, p. 3. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[117] "Opportunity." *The Wentzville Union*, 17 November 1933, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[118] "Wentzville Community Club Born at Enthusiastic Meeting." *The Wentzville Union*, 29 December 1933, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[119] "Wentzville's Opportunities." *The Wentzville Union*, 30 May 1934, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

way to widen the highway. They continued "St. Charles would retain its present bridge, and secure the new bridge both within the city limits."[120]

Suggestions on marking the new highway and the existing highway continued to come to the State Highway Commission. In August 1934, the Assistant Chief Engineer, Sam Rudder, presented the Commission with a letter from Charles W. Meyer of Moscow Mills requesting that the traffic relief route between Wentzville and St. Louis be marked U. S. Highway 61 and the existing highway be designated U. S. Highway 40. The Commission "expressed approval of the change being made after the construction of the traffic relief route and agreed that in order to avoid confusion in the records, action should be delayed until after the construction of the traffic relief route."[121]

As construction of the superhighway and bridge were underway, there were calls in St. Charles for improvements to highway 40. Service clubs "declared war" on local leaders for not pushing the State Highway Department to widen the bridge and assure the city "at least a goodly portion of traffic after the auxiliary highway is completed." Each service club appointed committees to spur the City Council and the State Highway Department to action on improvement to the existing route.[122]

In May 1936 local attorney William Waye, Junior, in a Letter to the Editor, said the State Highway Department would be more likely to keep highway 40 routed through St. Charles if the County took over the Lewis and Clark bridges between St. Charles and Alton, and developed a plan to free them from tolls within twenty years. If not, he said it was likely that highway 40 would be rerouted since the State Highway Department had not signed an agreement to keep it in St. Charles.[123]

The City and County Club of St. Charles worked to send a delegation of 500 citizens to Jefferson City in June to visit the State Highway Department and present petitions for various improvements and widening the highway 40 bridge approach at St. Charles.[124]

In 1937, as the Weldon Spring Bridge neared completion, plans were made to close the St. Charles Bridge for two to four months for extensive repairs. This upset the community because

---

[120] "Millions of Dollars Can Be Saved and St. Charles Get Another Hiway Bridge." *St. Charles Cosmos-Monitor*, 6 December 1933, p. 3. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[121] Missouri State Highway Commission. "Minutes of the Meeting of the State Highway Commission, held in Jefferson City and Sedalia, Monday and Tuesday, August 13 and 14, 1934." p. 34. As held by the Secretary to the Commission, Missouri Department of Transportation, Jefferson City, Missouri.

[122] "Service Clubs to Encourage Officials to Rush Proceedings for Widening of Bridge Here." *St. Charles Banner-News*, 16 January 1936, p. 5. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[123] "State May Keep 40 Route Here if County Acts." *St. Charles Banner-News*, 14 May 1936, p. 5. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[124] "Committee of 500 to Call on Highway Dept." *The Wentzville Union*, 29 May 1936, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

"while the bridge is closed here three or four months, motorists and truckers will be educated to use the Weldon Spring route. Then it will be hard to coax them to again use the old route."[125]

St. Louis County Residents Fight Superhighway Plans 1929-1937

A delegation from St. Louis County appeared before the State Highway Commission in April 1929 to protest the use of Conway Road as a state highway. Jefferson Smith, President of the St. Louis Chamber of Commerce let the delegation. He protested the use of Conway Road as part of the traffic relief highway saying it "passes through one of the best residential sections of St. Louis County, that right of way would be very expensive to obtain, and that the designation of a state highway through such a residential section would destroy much of its value." He recommended the routing the highway over Clayton or Hibler Roads instead. The Commission instructed the Chief Engineer to investigate the matter, to determine is some other location could be worked out and to report his findings at a later date.[126]

The following month, a delegation from Wellston, led by Stanley Sidmon, appeared before the Commission to protest against the traffic relief route. He represented citizens of Wellston and the surrounding area who believed that instead of providing traffic relief through the construction of the cut off, better results could be obtained by widening the existing road.[127]

In May 1929 the St. Louis County Court sent a written invitation to the State Highway Commission and Chief Engineer T. H. Cutler, asking them to meet with the Court and go "over the ground" before selecting a route for the superhighway to be established as the new U. S. Highway 40.[128] Residents along Conway Road were also to participate in the discussion. Conway Road residents were suggesting the use of Hibler Road as an alternative location to the route.[129] The State Highway Commission gladly accepted the invitation, and set May 29 as a convenient day for the meeting.[130]

The State Highway Department announced that it would hold a public hearing in St. Louis County about the location of highway 40. The new route would begin in Wentzville and come

---

[125] "New Floor For Bridge and New East Approach Among the Improvements." *St. Charles Banner-News*, 1 April 1937, p. 5. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[126] Missouri State Highway Commission. "Minutes of the Meeting of the State Highway Commission, held in Jefferson City, Missouri, April 9, 1929." pp. 4-5. As held by the Secretary to the Commission, Missouri Department of Transportation, Jefferson City, Missouri.

[127] Missouri State Highway Commission. "Minutes of the Meeting of the State Highway Commission, held in Jefferson City, Missouri, May 14, 1929." p. 2. As held by the Secretary to the Commission, Missouri Department of Transportation, Jefferson City, Missouri.

[128] "Highway Commission Invited to County." *Watchman Advocate*, 3 May 1929, p. 2. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[129] *ibid.*

[130] Missouri State Highway Commission. "Minutes of the Meeting of the State Highway Commission, Held in Jefferson City, Missouri, May 14, 1929." pp. 7-8. As held by the Secretary to the Commission, Missouri Department of Transportation, Jefferson City, Missouri.

into St. Louis County over the proposed free bridge near Olive Street Road. The route from there to the St. Louis City limit was under consideration:

- Conway and Clayton Road--residents on Conway were opposed to this route because it would "destroy what is being built into an exclusive residential district"
- Hibler Road--which was opposed for the same reason
- Olive Street Road was supported by some
- Delmar Boulevard was considered an option by other.[131]

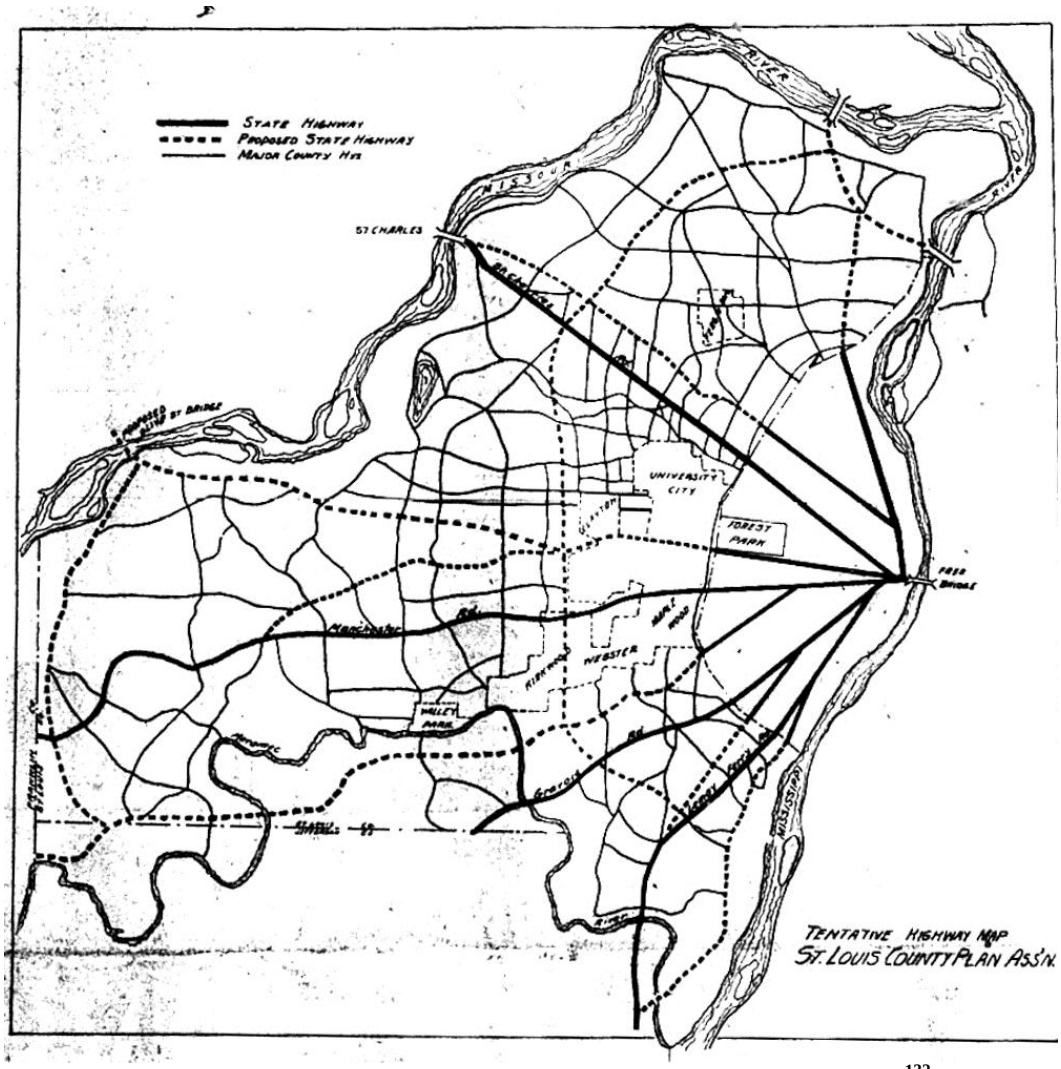


Figure 6: Map Showing Proposed State and County Highways, 1928[132]

Chief Engineer T. H. Cutler said that from an engineering perspective he believed the Conway route would be best with the Hibler route a second choice. He further stated, "I believe everyone

[131] "To Set Date for Hearing On Highway Location." *Watchman Advocate*, 10 May 1929, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[132] "Splendid 609 Mile Road System Proposed," *Clayton Watchman-Advocate*, 26 October 1928, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

is agreed on the fact that there should be a road somewhere in that vicinity, but the general feeling is that it should be some place other than past their property."[133]

County Court Judge James S. Gardner was quoted as assailing the motives of those opposed to routing the proposed new state highway, from Wentzville in St. Charles County, to St. Louis, over the Conway and Clayton Roads. He said it was "purely from selfish motives that they [the wealthy people with country homes on county highways] are interfering with plans to reduce congestion of traffic into St. Louis from St. Charles County."[134]

In May 1929 efforts were made to promote the Olive Street Road option. An Olive Street Road Association formed to promote the use of the alignment for the highway.[135] In addition, Eugene Ruth, the Mayor of University City offered the State Highway Commission four miles of 100-foot wide concrete paved roadway as an inducement to select the Olive Street Road for the superhighway.[136]

On May 29 the public hearing was held, and about 175 people attended. Residents of Conway Road attended to protest the consideration of that route, declaring the highway would spoil their homes. Petitions were presented both supporting and opposing the Olive Street Road option. Using Page Avenue was also mentioned as an option with some landowner support.[137]

In August 1929 it was reported that the selection of a route had been delayed because property owners wanted too much money for right of way. It was also reported that three alternates were being considered: one just south of and parallel to Clayton Road, through the Hibler Road, and through Clayton and Ladue Roads. The St. Louis Chamber of Commerce was trying to iron out difficulties so the State Highway Department could proceed with planning and selection of a route.[138]

In October 1929 supporters of Page Avenue formed the St. Louis County Highway League to support using Page Avenue as the superhighway route. League president, William Beban,

---

[133] "To Set Date for Hearing On Highway Location." *Watchman Advocate*, 10 May 1929, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[134] "Judge Says Rich are Selfish For Fighting Highway." *St. Charles Banner-News*, 16 May 1929, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[135] "Olive Street Road Association Formed." *Watchman Advocate*, 24 May 1929, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[136] "Four Miles 100-Feet Wide of Made Road Offered For Highway." *Watchman Advocate*, 31 May 1929, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[137] *ibid.*

[138] "Route of New Super-Highway To City Delayed." *St. Charles Cosmos-Monitor*, 14 August 1929, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

appointed a committee charged with acquiring the necessary right of way for the option, which would then be donated to the State Highway Commission without cost.[139]

The Clayton *Watchman Advocate* published an editorial encouraging property owners not to object to the superhighway. The editorial noted that sixty residents of the Conway-Clayton route do not object to the superhighway. Other residents, "many of whom own large homes, more valuable because of their distance from heavily traveled roads, have objected" to the location stating it would reduce property values according to the editorial.[140]

In November 1929 St. Louis County hired Harland Bartholomew and E. O. Mills (working as Bartholomew and Associates) to undertake a highway planning study to determine where improvements needed to be made and what the scale of those improvements needed to entail.[141]

In March 1930 the Page Avenue alternative was eliminated from consideration for the superhighway route by the State Highway Commission. Although the Page alternative had been endorsed by the St. Louis County Chamber of Commerce, the North St. Louis Business Men's Association and the County Highway League, the State Highway Commission decided that instead of routing the new superhighway along the highway, it would instead carry part of Highway 61. The Clayton and Conway/Hibler Road alternates were opposed by property owners who had built in the area "to avoid heavily traveled roads."[142]

As 1930 continued it was speculated that the superhighway would not tie into highway 40/61 at Wentzville, as previously stated, but could tie into highway 40 west of the city, to better relieve congestion. It was stated that it could tie in as far west as Wright City, and that highway 40 would be assigned to the new route and Highway 61 assigned to the present highway through St. Charles.[143]

In June 1930 seventy residents along the Conway-Clayton route presented a petition to the State Highway Commission protesting the proposed highway location. Their reasons for protesting the location were:

> "That such route would greatly impair the present value of this property and render the same almost useless for the purposes for which most of it was purchased.

---

[139] "Highway League Holds Meeting to Boost Page Avenue as Superhighway." *Watchman Advocate*, 4 October 1929, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[140] "Do Not Object to Proposed Superhighway." *Watchman Advocate*, 11 April 1930, p. 9. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[141] "County Court Employs Two Engineers to Draw Road Plan." *Watchman Advocate*, 22 November 1929, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[142] "Route for New Superhighway Still Debated." *St. Charles Cosmos-Monitor*, 26 March 1930, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[143] "New Highway May Not Connect at Wentzville." *St. Charles Cosmos-Monitor*, 4 June 1930, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

> "That a number of sites upon which residences and other buildings of great value are constructed were selected in order to be remote from highways and thus to insure privacy and quiet.
>
> "That the various parcels of land at present serve to protect each other, and improvements of great value have been erected on many of them in reliance upon the continuance of said protection.
>
> "That the proposed route will divide various tracts in such a manner that valuable acreage will be cut off from residence and be rendered totally useless for the purposes for which said acreage is now used.
>
> "That there will be no benefits whatever accruing to the property through which this superhighway will pass as there will be no access to it from any of the land through which it will pass, because of the proposed fences or barriers to be erected on each side of it.
>
> "That these tracts are of peculiar value to the respective owners and the destruction of them could not be adequately compensated for by a money award on condemnation.
>
> "That in the opinion of the undersigned this tract surrounded as it is by large estates and beautiful homes, within such a short distance of St. Louis, is the most desirable tract in St. Louis County, and should be preserved as it is, no only in the interest of the owners, but in the interest of real estate values in this entire section of St. Louis County.
>
> "The undersigned further state that in their opinion, the proposed super-highway could be more economically constructed along the Olive Street road where they understand the abutting property owners are very anxious to have it located."[144]

In August 1930 the Bartholomew and Associates report was released.[145] The report, entitled *A Preliminary Report on a System of Major Highways for St. Louis County, Missouri*, identified Route 40 as soon to be constructed by the State Highway Department. The route was described as including a new bridge constructed over the Missouri River west of Chesterfield, and running across Missouri Bottom land to Olive Street Road to Chesterfield. From there it ran to just west of the intersection of the Clayton Road and the North and South Road (Lindbergh Boulevard) on a new right of way to be acquired.[146]

---

[144] Seventy Countians Protest Location of Superhighway." *Watchman Advocate*, 13 June 1930, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[145] "Plans for County Roads Submitted." *Watchman Advocate*, 15 August 1930, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[146] Bartholomew, p. 42.

The Clayton Road route as one of six dominant radial routes the Bartholomew report recommended to be developed; it was to include a 150 foot cross section to accommodate rapid transportation facilities. The road was to be relocated to about half way between Clayton Road and Conway Road. West of the North and South Road the new alignment was described as "only a few large estates, fronting on these two streets [Clayton Road and Conway Road] between Gay Avenue and Ballas Road. The new location is through unsubdivided and unimproved land and should be acquired immediately with a minimum width of 150 feet, which should be increased to 200 feet where unusual topographic conditions are met."[147] The report said the alignment should be "unobjectionable" to the large property owners on the new alignment.[148]

The area was further described as "improved with buildings with an ample set-back so that the right of way necessary to provide for an eight-lane thoroughfare may be acquired at this time without interfering with any existing expensive improvements."[149]

It was reported that "numerous alternative locations have been studied but none have been found with equal advantages."[150]

Chief Engineer T. H. Cutler reported that there were no conflicts between residents of St. Louis County and the State Highway Department over the route of the superhighway. The superhighway would be routed south of the Clayton Road from the intersection of the North & South Road and Clayton Road, it would run south of the the Log Cabin Country Club, cross Clayton Road and Warson Road and continue west between Conway and Clayton Roads until it ran into Conway Road at Bellefontaine, where it would join the Olive Street Road. Cutler said no time had been set for the construction of the superhighway as right of way still needed to be acquired.[151] Work would also not progress on the new bridge because the Corp of Engineer had not been able to locate the channel of the Missouri River, so the State Highway Department had not been able to definitely locate where to place the bridge.[152]

In December 1930 the *Watchman Advocate* informed citizens that the State Highway Commission would be spending $2 million on highways in the St. Louis area in 1931. One project not in the plan for 1931 was the highway 40, "because of the controversy over the route

[147] Bartholomew, p. 59.

[148] Bartholomew, p. 59.

[149] Bartholomew, p. 60.

[150] Bartholomew, p. 60.

[151] "Super-Highway to be Held Up for Free Bridge." *St. Charles Cosmos-Monitor*, 9 October 1930, p. 7. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[152] "No Time Set to Start Work on New Highway." *St. Charles Cosmos-Monitor*, 22 October 1930, p. 12. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

of the road from the new bridge over the Missouri River to the St. Louis limits." A hearing on the route had been scheduled for January.[153]

At least 200 people attended the January 14, 1931 special meeting of the State Highway Commission. Attorney Walter R. Mayne led the group opposed to the Clayton-Conway option. He represented about 70 property owners from the Fair Oaks, Ladue, Price and McKnight Roads areas. Baxter Brown and W. C. Bernard had a printed booklet outlining their arguments opposing the option. Opponents described the area as "the most beautiful residential and estate district of St. Louis County."[154]

Supporters of other alternates also spoke at the hearing. Downtown merchants spoke in favor of both the Olive Street and Page Avenue options, since they would be able to bring traffic into downtown via Franklin; the St. Louis Real Estate Club was also in favor of either of these options. Mayor Eugene Ruth of University City offered to give the State Highway Commission a 100-foot wide paved Olive Street if the highway was routed on that street. The University City Kiwanis Club spoke in favor of the Olive Street option.[155]

Harland Bartholomew defined a superhighway as a rapid transit road at least 200-feet wide. He stated his belief that the Clayton-Conway route was the only practical route. He said that there are only three true estates along the route; the other acreage will probably develop like subdivisions. He further said that a basic plan was needed and "while there must be some recognition of local conditions entire route cannot be shifted at will merely because some individual or group does not wish it in that particular location." As to the extra cost of the route, Bartholomew said, "what if the Clayton route does cost $50,000 to $100,000 more, you are getting a superhighway, not an ordinary street."[156]

Another meeting on the superhighway was held on January 20. The plan selected by the State Highway Commission was not the plan preferred by St. Louis County. Property owners objected because they did not want a superhighway near their homes while those with property to sell wanted the highway routed near their land. It was anticipated that many condemnation suits would be necessary for the State Highway Department to get the necessary right of way for the highway.[157]

In February 1931 the County Plan Association held a meeting to take a position on the routing of the proposed superhighway. About 200 people attended the meeting, including representatives of

---

[153] "$2,000,000 for State Highway in This Section." *Watchman Advocate*, 26 December 1930, p. 9. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[154] "Highway Commission Hears Arguments on Superhighway No. 40." *Watchman Advocate*, 16 January 1931, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[155] *ibid*.

[156] *ibid*., p. 2.

[157] "State Having Hard Time To Get Right of Way." *St. Charles Cosmos-Monitor*, 21 January 1931, p. 8. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

nearly all 20 of the communities in the Plan Association. At the meeting Walter Mayne suggested a new alternate for the superhighway that would route the highway across a relatively undeveloped area of the county and adjacent to the Terminal Railroad Association tracks. The Association, on a split vote, decided to oppose the Clayton route for the superhighway, but did not support an alternate route. At the meeting Harland Bartholomew reiterated his support for the Clayton route as the only logical solution to future traffic problems.[158]

Also in February the County Highway League voted to protest the Conway-Clayton route and support the Page Avenue Route.[159]

In March the St. Louis County Highway Engineer, the County Court and Walter Mayne presented the State Highway Commission with the new alternate that had been discussed by the County Plan Association. The alternate would use Clayton Road between the city limits and the North and South road, then parallel the Terminal railroad to a point where the tracks, McKnight and Delmar would meet (if extended), then go due west 11-½ miles to Chesterfield to meet Olive Street Road and the bridge proposed by the state. The State Highway Commission agreed to consider this option.[160]

In late March the *Watchman Advocate* printed an editorial on the business of locating state roads. In a dig at the *St. Louis Post Dispatch*, the editor reminded readers that the business of locating state roads rests with the State Highway Engineer and his staff, not to property owners or newspapers. It continued, "Fortunately, the State Highway Department is not obliged to give consideration to political or personal influence brought to bear."[161]

In June the State Highway Commission announced that the new superhighway would be located on the Clayton-Conway alternate. Opponents immediately promised to fight the decision, saying they would go to the Supreme Court with their argument, if necessary. The controversy had already delayed the construction of the highway for two years, and construction could not begin until the next year, since funds for the year had already been allocated. The State Highway Commission "had not decided what action it will take on the erection of a bridge" that had also been delayed by the controversy.[162]

---

[158] "Oppose Using Clayton Road for Route 40." *Watchman Advocate*, 6 February 1931, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[159] "State Highway Dept. Postpones Decision on 40." *Watchman Advocate*, 13 February 1931, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[160] "Highway Board Considers New Superhighway." *Watchman Advocate*, 13 March 1931, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[161] "Locating the 'Super-Highway'." *Watchman Advocate*, 20 March 1931, p. 10. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[162] "Court Fight is Planned on New Superhighway." *Watchman Advocate*, 12 June 1931, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

The *Watchman Advocate* congratulated the commission for having "courage of conviction" in the location of the new superhighway. It further urged opponents to stop "quarrelling with the State Highway Commission, and threatening to delay construction of an important thoroughfare by resorting to litigation, it would be infinitely better to sit around a council table and consider without prejudice all factors which enter into the location, construction and maintenance of a super-highway and the probable volume of traffic it will carry."[163]

In a letter to the Editor, signed "Wayfarer" opponents of the super-highway were asked to acquiesce to the Commission decision since the "the building of this much needed road and the bridge at Weldon Spring to carry it over the Missouri River has been already delayed two years by the tactics of the objectors."[164]

An injunction was filed in US District Court on September 7, 1931 to prevent the St. Louis County portion of the superhighway from being constructed. Property owners contended that the highway would spoil their residential district.[165]

In March 1932 it was reported by the *Watchman Advocate* that the injunction, filed in the federal court, against the superhighway should be heard during the March term of the Federal Court in Jefferson City. The injunction had been filed by Griffin Watkins, a shoe salesman and resident of Illinois who owned property along Clayton Road, and 71 other property owners. By the time of the news report the project had already been delayed for more than one year.[166] Motions to strike portions of the State Highway Commission answer to the restraining suit were heard in March. Hearings on the merits of the suit were delayed until the October session of the court, due to the court schedule.[167]

In July 1932 a Letter to the Editor, signed "Iconoclast" appeared in the *Watchman Advocate*. The writer accused property owners of delaying the project for three years, and went on to say he "hoped Judge [A. J.] Reeves will decide [the] matter decisively at an early date so work on the highway can be started."[168]

---

[163] "The Super-(Sensitive) Highway." *Watchman Advocate*, 12 June 1931, p. 10. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[164] "Asks Clayton-Conway Objectors to Be 'Good-Sports'." *Watchman Advocate*, 19 June 1931, p. 10. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[165] "Survey Being Made for Weldon Spring Bridge Location." *St. Charles Cosmos-Monitor*, 9 September 1931, p. 5. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[166] "Conway-Clayton Road Issue May Be Decided Soon." *Watchman Advocate*, 26 February 1932, p. 2. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[167] "The Superhighway Dispute Aired in Federal Court." *St. Charles Cosmos-Monitor*, 23 March 1932, p. 2. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[168] "Conway Road Hearing." *Watchman Advocate*, 15 July 1932, p. 10. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

In the July 22 edition of the *Watchman Advocate* published a Letter to the Editor following the court granting a sixth continuance to Watkins. R. R. DeArmond called on citizens to voice their support for the superhighway and the bridge. He also called the County Court, civic and welfare organizations hypocrites because in their ongoing "War on Depression" they had remained silent about the superhighway and bridge project while pleading for funds to feed the unemployed.[169]

In late September 1932 it was announced that the Federal Court hearing on the Watkins injunction would be heard on October 31. The suit had been filed in September 1931 on behalf of 72 property owners concerned that their property values would be diminished by construction of the highway. Judge A. L. Reeves would hear the case and expected it to last several days.[170]

In early October 1932 another Letter to the Editor on the superhighway appeared in the *Watchman Advocate*. Signed "Conway", the writer hoped that the court would "tolerate no further delay" in the building of the road and stated that three million dollars would do much to relieve unemployment.[171]

The Chief Engineer informed the State Highway Commission, in November 1932, that the citizens of St. Louis opposed to proposed location of traffic relief 40 had dismissed their injunction suit against the project in federal court and had filed a similar suit in circuit court in Cole County. "Action was taken to delay the surveying of the proposed highway and hold off work on this route. [Cutler] further stated that the new suit does not prohibit the department from making surveys" and requested the Commission advise him of the proper policy to pursue regarding surveys for the highway. The Commission instructed Cutler to proceed with surveys and plans.[172]

In November 1932, in another Letter to the Editor, a writer signed "Ladue" accused the "coterie" of St. Louis County residents who were delaying the project of attempting to defeat the will of the people and prevent money from being spent providing work for the unemployed. The author said taxpayers should demand that those filing lawsuits against the project should be forced to post a large bond for losses caused by construction delays. By the time this letter was published Watkins had withdrawn his suit and a new lawsuit had been filed against the State Highway Commission.[173]

---

[169] "An Insult to the Intelligence of the Citizens of St. Louis County." *Watchman Advocate*, 22 July 1932, p. 10. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[170] "Super-Highway Hearing Oct. 31." *Watchman Advocate*, 30 September 1932, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[171] "Build the Superhighway Now." *Watchman Advocate*, 7 October 1932, p. 10. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[172] Missouri State Highway Commission. "Minutes of a Special Meeting of the State Highway Commission of Missouri, held at the Jefferson Hotel, St. Louis, Missouri, November 10, 1932." p. 25. As held by the Secretary to the Commission, Missouri Department of Transportation, Jefferson City, Missouri.

[173] "More Delay in Building the Super Highway." *Watchman Advocate*, 11 November 1932, p. 10. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

At the January 10, 1933 meeting of the State Highway Commission, the Chief Engineer informed the Commission that the lawsuit filed by St. Louis County property owners to restrain the traffic relief 40 project had been dismissed by the plaintiffs. He recommended the Commission approve construction between Wentzville and Route 77 in accordance with the engineer's survey. The recommendation was unanimously approved.[174]

Chief Engineer T. H. Cutler announced to the public that the project would be able to move forward. The last restraining lawsuit, filed in Cole County Circuit Court by J. Gates Williams in October 1931, had been withdrawn. Williams was quoted as saying he withdrew the suit "because [he] knew it was useless to fight the State's plan any longer."[175] T. H. Cutler estimated that the new superhighway would cost $3 million and that work would commence before the end of the year.[176]

Due to rising property prices and the possibility of large properties being subdivided, the State Highway Department began acquiring options on right of way required for the superhighway route through St. Louis County in 1935. To wait would increase costs because of the "innumerable hands" the property would be in.[177]

As the state began getting estimates for the right of way in 1936 the costs caused concern. The right of way between Bellefontaine and Route 77 was estimated to cost $431.91 an acre or $13,771.10 a mile; between Bellefontaine and Mason it was $430.65 an acre or $10,797.77 a mile. The members of the State Highway Commission decided to see the property personally before authorizing the expenditure.[178] After viewing the property, and reviewing a report on right of way costs prepared by the St. Louis Chamber of Commerce, the Commission authorized securing the right of way.[179]

---

[174]Missouri State Highway Commission. "Minutes of the Meeting of the State Highway Commission, held in Jefferson City on Tuesday, January 10, 1933." p. 24. As held by the Secretary to the Commission, Missouri Department of Transportation, Jefferson City, Missouri.

[175] "Way Cleared to Build Superhighway." *Watchman Advocate*, 13 January 1933, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[176] "New Superhighway from Wentzville to St. Louis Will Cost $3,000,000." *St. Charles Cosmos-Monitor*, 18 January 1933, p. 3. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[177] Missouri State Highway Commission. "Minutes of the Meeting of the State Highway Commission, held in Jefferson City, Missouri, Tuesday, August 13, 1935." p. 32. As held by the Secretary to the Commission, Missouri Department of Transportation, Jefferson City, Missouri.

[178] Missouri State Highway Commission. "Minutes of the Meeting of the State Highway Commission, held in Jefferson City, Missouri, Tuesday, March 10, 1936." p. 74. As held by the Secretary to the Commission, Missouri Department of Transportation, Jefferson City, Missouri.

[179] Missouri State Highway Commission. "Minutes of the Special Meeting of the State Highway Commission, held at the Statler Hotel, St. Louis, Missouri, Friday, March 20, 1936." p. 3. As held by the Secretary to the Commission, Missouri Department of Transportation, Jefferson City, Missouri.

In 1937 residents of Ladue again vigorously protested the plan to extend the superhighway through Ladue to connect it to the Oakland Expressway south of Forest Park in St. Louis City. The opponents were concerned the extension would change the residential character of the community and they would prefer the state to take ownership of Clayton Road and use it as part of the state highway system.[180] Two delegations appeared before the State Highway Commission meeting in April. One group, represented by S. B. McPheeters, Boyle Rhodes and William Reeder opposed the location recommended by the engineers through Ladue Village and urged that 40TR be located on Clayton Road. The second group, led by Mr. Shallcross, Neal Wood and Dean Hefferman opposed locating 40TR on Clayton Road.[181]

F. R. Windegger, the road engineer for Ladue Village, hoped to make a statement to the Commission representing the Village position, and sent a copy of the testimony he hoped to make to Governor Lloyd Stark. The Village preferred that the state build a parkway connection noting that a number of hazards lined Clayton Road including 41 entrances to private places, including a country club; 6 entrances to subdivisions; 2 major crossroads; 6 blind roads, including one with school traffic; 2 bridle paths; 1 church; 1 convent; 1 fire department; 1 established restaurant; 1 sandwich shop and a grocery store.[182]

The same month, the St. Louis County Court adopted a resolution urging the State Highway Commission to route the superhighway over Clayton Road rather than use the southern alternate that Harland Bartholomew had recommended. Residents of Ladue Village had appeared before the County Court asking for the County support saying it would be more appropriate than routing heavy traffic in a residential area.[183]

By May 1937 there were only two routes being studied by the State Highway Commission for the location of 40TR—the engineers surveyed line was the south route, and improving Clayton Road was the north route. Chief Engineer Carl Brown explained the differences between the two routes in a letter to H. G. Simpson:

> "There is only about one-tenth of a mile difference in the length of these two routes from the Belt route and U. S. 61, to their junction east of the North and South Road, the Clayton Road being a little shorter.

[180] "Trouble Brews with No. 40 and Weldon Sp. Bridge." *St. Charles Banner-News*, 8 April 1937, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[181] Missouri State Highway Commission. "Minutes of the Meeting of the State Highway Commission, held in Jefferson City, Missouri, Tuesday, April 13, 1937." p. 2. As held by the Secretary to the Commission, Missouri Department of Transportation, Jefferson City, Missouri.

[182] Windegger, F. R. "Testimony before State Highway Commission, 5 April 1937." Lloyd C. Stark Papers (Collection 4, folder 2547), Western Historical Manuscript Collection, State Historical Society of Missouri, Columbia, Missouri.

[183] "Urge Highway 40 Be Routed on Clayton Road." *Watchman Advocate*, 16 April 1937, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

"Clayton Road

This is, at present, a four lane road from North and South Road to a point near U. S. 61, and many homes have been located rather close to the present right-of-way, which is sixty feet wide. To widen this road with two additional lanes would bring the right-of-way line, in many cases, very close to some of these homes and would destroy a large amount of beautification and trees, for which many of these property owners have gone to great expense. When widened to six lanes, it would be almost a physical and financial impossibility to ever widen again, and the widening of this twenty to thirty feet on each side would undoubtedly be very expensive right of way.

"It would be practically impossible to separate grades with the Clayton Road and intersecting roads, such as Warson Road, Price Road, Lay Road, and McKnight Road, which cross it. The estimated cost for the right-of-way and grade separation at Clayton and North and South Road would undoubtedly be in the neighborhood of $350,000. Due to the narrow right-of-way, there would be many drives and roads leading into this road, which would be hazardous for motorists.

"South Road

The South Road is an entirely new location from U. S. 61 to its junction with Clayton Road, east of the North and South Road. It is planned for a 200 foot right-of-way with four lanes of traffic, two on each side of a thirty foot parkway center. This would leave sixty-five feet on each side from the outer edge of the pavement to the right-of-way line, which would allow additional traffic lanes to be constructed when necessary, without having to secure additional right-of-way and would also leave room for serve driveways which could be built when needed.

"It is planned to separate grades at U. S. 61, at the crossing of Clayton Road, at Warson Road, at Lay Road, and North and South Road, therefore, traffic on this route would not have to cross traffic on these main county roads.

"Due to this being a new location, there are only two or three houses which would have to be moved or where the right-of-way would come close to the improvement. The right-of-way for this route would not be as expensive as the right-of-way on Clayton Road.

"Conclusion

"If the South Road is constructed, Clayton Road would be adequate as at present built, to handle the local traffic, which will use this route, and the two roads would immediately have eight traffic lanes instead of six, which would be the case if the Clayton Road is selected and widened.

> "To make the Clayton Road in any way comparable by separating grades, as can be done on the South road, would for only two additional lanes be very much more expensive than construction the South route."[184]

At the May 11, 1937 meeting, the State Highway Commission designated the South route, as described by Carl Brown to H. G. Simpson as the location for the routing for U. S. 40 Traffic Relief Road.[185]

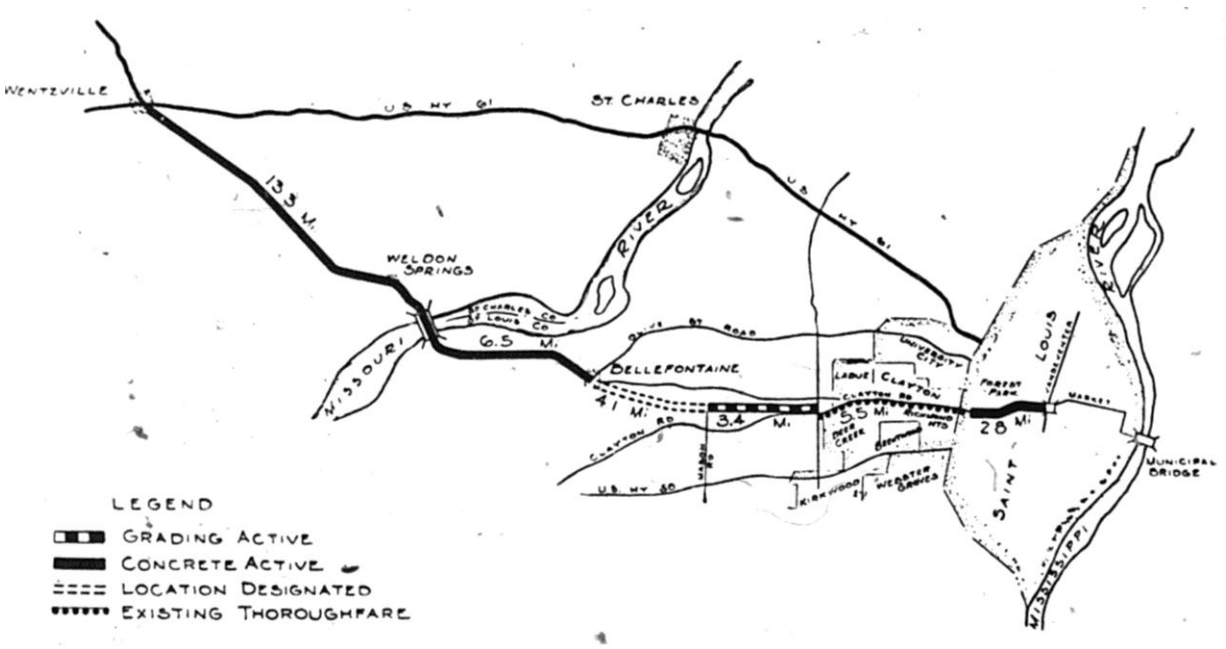


Figure 7: Map showing the location of the Superhighway in St. Louis & St. Charles Counties[186]

This option had been preferred by Harland Bartholomew and the State Highway Department. Large property owners had been fighting the route since 1929. The State Highway Commission issued a report saying it had considered four alternative routes over the course of their study, but had determined that the other routes would not provide the same level of service as the southern alternate or their cost would be out of proportion to the benefits of building the road.[187]

The State Highway Commission report continued by saying if the route was abandoned because a few landowners object, it would be reasonable to predict that objections will be made to other

---

[184] Missouri State Highway Commission. "Minutes of the Meeting of the State Highway Commission held in Jefferson City, Missouri, Tuesday, May 11, 1937." pp. 4-6. As held by the Secretary to the Commission, Missouri Department of Transportation, Jefferson City, Missouri.

[185] *ibid.*

[186] "Highway to be Opened Tomorrow," *St. Louis Daily Globe-Democrat*, 25 June 1937. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[187] "Count Route for New Superhighway Through the City of Ladue." *Watchman Advocate*, 14 May 1937, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

highway projects, which will then be halted for the same reasons. The Commission said that "satisfying of individual desires would cast an intolerable burden on the taxpayers of the future" because it would leave substandard roads with heavy traffic, that would have to be accommodated in the future. They concluded by saying that "a few property owners should not be able to disrupt the arterial system of the city and county."[188]

Resolution of Legal Issues and the Continuation of Bridge Planning 1933-1935

Following the resolution of the injunctions against the superhighway project in 1933, planning on the road and bridge projects were able to move forward. Chief Engineer T. H. Cutler announced the State Highway Department would "start plans tomorrow morning [the morning after the last injunction was dropped] and hope to have construction underway before long."[189] Cutler hoped the plans for the new superhighway would be completed within the year, that the right of way would be acquired, and that the new bridge and part of the superhighway paving would be under contract. The plan was to acquire 200 feet of right of way as far west as Mason Road and 100 feet of right of way beyond there. The pavement would be 40 feet wide between the city limits and Bellefontaine, 30 feet wide between Bellefontaine and the new bridge, and 20 feet wide from the bridge to Wentzville.[190]

It was hoped that construction of the superhighway would greatly aid with the unemployment the county was experiencing. St. Charles City Clerk Henry Bloetamm and County Clerk Walter Borgelt, in cooperation with the State Highway Department, organized an unemployment league to obtain a list of all the unemployed residents of the county for future reference in hiring of highway projects. Applicants were classed according to their need, with married men with families given highest priority.[191]

Plans for the superhighway between the junction of highways 40/61 at Wentzville and Route 77 in St. Louis County were nearly complete in July 1933 and the right of way acquisition was beginning. The State would acquire the needed right of way through a combination of acquisition by deed (donation or small sum purchase by local supporters) or condemnation.[192]

Because of the workload of the State Highway Department Bridge Division, the Chief Engineer recommended that the work of preparing plans for the Weldon Spring Bridge be turned over to a firm of consulting engineers in August 1933. The National Recovery Act program had created a

---

[188] *ibid.*

[189] "Last Obstacle to New No. 40 Said to Be Removed." *St. Charles Banner-News*, 12 January 1933, p. 5. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[190] "Way Cleared to Build Superhighway." *Watchman Advocate*, 13 January 1933, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[191] "New Superhighway from Wentzville to St. Louis Will Cost $3,000,000." *St. Charles Cosmos-Monitor*, 18 January 1933, p. 3. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[192] Missouri State Highway Commission. "Minutes of the Meeting of the State Highway Commission, held in Jefferson City, Missouri on July 11, 1933." pp. 20-21. As held by the Secretary to the Commission, Missouri Department of Transportation, Jefferson City, Missouri.

high workload, and the bridge plans could not be prepared in adequate time. Cutler recommended that the plans could be prepared on a fee basis of 3.5% of the estimated $750,000 cost of the bridge. The State Highway Commission indicated it preferred to have the bridge designed by the Department "because of the importance of this bridge."[193]

In September 1933 it was announced that highway supporters in St. Charles County had secured all the necessary parcels for the right of way, with the exception of one.[194]

In January 1934 the State Highway Commission approved a proposal to establish Route 40 Traffic Relief (40 TR) between St. Louis and Wentzville via Weldon Spring. The Wentzville Union reported:

> "By the action of the Commission a strong controversy has been settled, and we believe in the interest of the traveling public. This change will relieve the congestion and daily increasing dangers encountered on the narrow highway carrying a very heavy traffic.
>
> On the other hand the establishing of the new super-highway should mean a great deal to this community and may have important bearing on its growth and the development of industrial activity here."[195]

In February 1934 right of way for the new superhighway was being purchased by the State Highway Department. The purchase eased fears that the project might again be delayed, as the papers reported "there is no longer any doubt about the project being carried through at the earliest possible moment."[196] The plat of the superhighway location between Wentzville and Weldon Spring was filed in St. Charles County on March 21. The *Cosmos-Monitor* reported that almost all the right of way had been secured, meaning "the road is going to be built if it can be financed by federal aid."[197]

In March 1934 Cutler announced that contracts for construction of sections of the superhighway and the bridge would be let that year, provided that Congress passed legislation allocating additional funds to the state. The state had all the right of way in St. Charles County, except six parcels, and all the right of way in St. Louis County between the river and Bellefontaine except

---

[193] Missouri State Highway Department. "Minutes of the Special Meeting of the State Highway Commission, held in Jefferson City, Missouri, Thursday, August 31, 1933." pp. 5-6. As held by the Secretary to the Commission, Missouri Department of Transportation, Jefferson City, Missouri.

[194] "Auxiliary Highway Promoters Secure the Right of Way." *St. Charles Banner-News*, 28 September 1933, p. 6. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[195] "Super Highway 40 Project is Approved." *The Wentzville Union*, 12 January 1934, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[196] "Right of Way Checks Delivered." *The Wentzville Union*. 2 February 1934, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[197] "Super-Highway Plat Filed This Morning." *St. Charles Cosmos-Monitor*, 21 March 1934, p. 6. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

for twelve parcels which would have to be condemned. The State Highway Department had received an extension from Congress on the authority to build the bridge, but construction had to start no later than 1936 and be completed by 1939.[198] The estimated cost was $3,045,000, which included $1,000,000 for the Missouri River Bridge.[199]

The inevitability of the superhighway and bridge construction became evident in August 1934 when the State Highway Department started condemnation proceedings in the St. Charles Circuit Court to obtain the right of way it had not already secured. According to the *Cosmos-Monitor*, immediate benefits were that the bridge would be built and a large number of people would have work on the road and bridge building jobs. The road would open up that part of the county and would mean a great deal to those it serves. The community of Wentzville would receive particular advantage from the construction:

> "It will mean more to Wentzville than to any other place in the county. There is not a place in the county with a brighter outlook before it then Wentzville. The new road will place Wentzville in a location where there will be a wonderful future for it as the terminal of present highway 40, the state highway and highway 61. Real estate values should take a boost there and a better investment could not be found."[200]

On October 31, 1934 the State Highway Department Right of Way and Legal Departments were at the Circuit Court leaving money for the restitution of those properties that had been condemned for the new superhighway. The community began anticipating that bids would be advertised for grading on the road at any time.[201]

In January 1935 the State Highway Department advertised for bidders for bridges and grading of the section of the superhighway between Wentzville and the Missouri River in St. Charles County and for bridges and grading in St. Louis County between the Missouri River and Bellefontaine Road. Plans for the bridge were expected to be completed in time for construction to begin the next spring, and it was expected to take between twelve and eighteen months to complete construction. The new highway would "provide an alternate route between Wentzville and St. Louis and will eliminate delays caused by traffic congestion on the present route through St. Charles" according to news articles at the time.[202]

---

[198] "Superhighway May Be Started in St. Louis Co." *Watchman Advocate*, 30 March 1934, p. 8; "Super Highway Construction Awaiting Federal Funds." *The Wentzville Union*, 30 March 1934, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[199] "Superhighway in County May Start This Year." *St. Charles Cosmos-Monitor*, 28 March 1934, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[200] "Work Will Start on the Super-Highway." *St. Charles Cosmos-Monitor*, 1 August 1934, p. 3. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[201] "All Ready to Award the Contract for Grading Highway 40TR Now." *St. Charles Cosmos-Monitor*, 31 October 1934, p. 8. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[202] "Highway 40 Cutoff Work Begins Soon." *St. Charles Banner-News*, 17 January 1935, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

The *St. Louis Post-Dispatch* reported that bids on the three lane bridge at Weldon Spring would be accepted within the year since the State Highway Department and the Public Works Administration had reached agreement on the bridge and superhighway. According to the *Post-Dispatch* the "chief gain from this diversion will be avoidance of the St. Charles Bridge. This is not a modern structure, suitable for heavy automobile traffic."[203]

Bids for the 13-miles of grading, culverts and bridges between Bellefontaine in St. Louis County and Wentzville in St. Charles County (excepting the Weldon Spring Bridge) were opened on Saturday, January 26, 1935. This project was the largest road job in St. Charles County in several years and it was hoped that as many as 170 local men would find employment on the road.[204] The nine mile project in St. Charles County was divided into two projects, one 4.872 miles the other 4.167 miles.[205] Six additional miles of three lane road was located in St. Louis County.[206] A. W. Mosley and Boyle-Pryor Contractors of Kansas City were the successful bidders for the road project, with a bid of $127,923.20 and the associated bridges were awarded to F. T. Adell Construction of Hannibal for an additional $99,290.21. Contractors were prohibited by federal rules from hiring men from other counties, so 120 skilled and unskilled laborers from St. Charles County would be employed on the project.[207]

By January 1935 negotiations between the State Highway Department and the Public Works Administration over the width of the bridge were complete and plans were under review. The Public Works Administration had favored construction of a four lane bridge since it was on a superhighway that the State Highway Department was assuming would be widened in the future. The State Highway Department was insisting that a three lane bridge was sufficient since the superhighway was a three lane highway leading to the bridge on the south side and would be a two lane (and could be expanded to a three lane) highway on the north side. After considerable

[203] "Bids for Offset on No. 40 to be Received Jan. 26." *St. Charles Banner-News*, 12 January 1935, p. 8. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[204] "Bid for 'Largest Road Job' to be Let Saturday." *St. Charles Banner-News*, 24 January 1935, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[205] "Highway Commission Asks Bids for Highway 40TR." *The Wentzville Union*, 18 January 1935, p. 1; "State Road Work Notice to Contractors." *The Wentzville Union*, 18 January 1935, p. 3. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[206] "To Receive Bids on Superhighway and 7 Bridges." *Watchman Advocate*, 18 January 1935, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[207] "Work on Grading Route of Super-Highway 40 Starts Within the Next 30 Days." *St. Charles Banner-News*, 31 January 1931, p. 1; "Work on Super-Highway Will Commence Soon." *The Wentzville Union*, 1 February 1935, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

negotiation the State Highway Department point of view was accepted.[208] The firm of Sverdrup & Parcel was retained to check the design of the bridge.[209]

Speaking to the Wentzville Community Club in February 1935, P. H. Daniells, Division Engineer of the St. Louis Division, said that the new 40 would shorted the route to St. Louis by 30 minutes. He also said that pouring concrete on the highway would not occur until the following year. He told the group that the plans for the three-lane bridge had been accepted and that nothing was holding up its construction.[210] In May 1935 the State Highway Department was announcing that bids for the new bridge would be called for within the next month.[211]

Chief Engineer T. H. Cutler announced that work on Traffic Relief 40 should be completed before the summer of 1937, in late October 1935. He also said the new bridge, estimated to cost more than $750,000 should be under contract in the next thirty to forty days.[212]

In November the call for bids for the bridge was announced. The bids would be received by the State Highway Commission for Project 40TR, Section 4, Project PWA-76, Docket 2981 in St. Louis and St. Charles Counties until 10:00 a.m. on November 26, 1935. The bid call included grading, constructing a bridge and any incidental work on the state road at Weldon Spring crossing the Missouri River.[213]

The Kansas City Bridge Company was the low bidder with a bid of $1,221,670. They expected to begin work within the next thirty to sixty days and work was expected to be completed by the spring of 1937.[214] Grading on the new road was almost done and culverts had been built. Many local farmers and farm boys had found work on the grading job. Building the bridge would require more skilled labor.[215]

---

[208] Correspondence file, Bridge J1000R. Microfiche. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[209] Missouri State Highway Commission. "Minutes of the Meeting of the State Highway Commission, held in Jefferson City, Missouri, Tuesday, April 9, 1935." p. 25. As held by the Secretary to the Commission, Missouri Department of Transportation, Jefferson City, Missouri.

[210] "Grade of Highways Intersecting Will Be Established." *St. Charles Banner-News*, 21 February 1935, p. 2. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[211] "Bids for $1,000,000 Highway Bridge Across Missouri to be Asked." *Watchman Advocate*, 31 May 1935, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[212] "Wentzville-St. Louis Road Will Relieve Traffic." *St. Charles Cosmos-Monitor*, 23 October 1935, p. 2; "New Route 40 Can Be Used in Summer 1937." *St. Charles Banner-News*, 31 October 1935, p. 4. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[213] "State Road Work Notice to Contractors." *Watchman Advocate*, 15 November 1935, p. 10. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[214] "$1,221,670 Low Bid on Bridge at Gumbo, Mo." *Watchman Advocate*, 29 November 1935, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[215] "Kansas City Bridge Co. Low Bidder Highway at Weldon Spring." *St. Charles Cosmos-Monitor*, 27 November 1925, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

In July 1936 contracts for paving the superhighway in St. Charles County between Wentzville and Weldon Springs were let. The concrete roadbed was to be twenty-one feet wide and was to be laid in such a way that it could be easily widened to a full three-lane highway in the future.[216] The Regenhardt Construction Company of Cape Girardeau was awarded the contract for $372,975. Paving had already been completed on the 6-1/2 miles between the bridge and Bellefontaine, and it was open to traffic.[217]

Construction of the Bridge 1935-1937

In May 1934 the State Highway Department was making soundings of the Missouri River to locate the best positions for the bridge piers.[218]

Since some funding for the bridge construction was coming from National Industrial Recovery Act programs (the Public Works Administration), there were several rules and regulations relating to work hours and wages that were included in the contract for the job. Federal requirements included provisions that:

- No convict labor would be employed on the project, and no materials manufactured by convict labor would be used in the project.
- A thirty-hour work week was imposed, except in executive, administrative and supervisory positions, no individual could work more than eight hours in a day, and work on Sunday and legal holidays was not permitted. This rule could be suspended, but only with the approval of the PWA.
- A federal wage scale for labor had to be used with skilled labor paid $1.10 per hour, semi-skilled labor paid 65 cents per hour and unskilled labor paid 45 cents per hour.
- A preference given to ex-service men with dependents.
- Human labor used over machinery whenever possible—examples included in clearing and grubbing and trimming of slopes and ditches.[219]

Skilled laborers were carpenters (including form builders), bricklayers, asphalt rakers, compressed air workers, machinists, blacksmiths and operators of power shovels. Semi-skilled workers included operators of derricks, paving mixers, drag lines, air compressors, pile drivers, hoists, tractors, jack hammers, graders, paving breakers, cranes, small concrete mixers, power rollers, painters, structural iron workers, carpenter's helpers, form setters, concrete finishers,

---

[216] "Contract for Super-Highway to Be Let July 17." *The Wentzville Union*, 10 July 1936, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[217] "$372,975 Is Low Bid On Highway 40 From Bridge to Wentzville." *Watchman Advocate*, 24 July 1936, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[218] "Wentzville Marches On!" *The Wentzville Union*, 4 May 1934, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[219] "Special Provisions for Highway Projects Financed in Whole or in Part Under Title II of the National Recovery Act." Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

concrete spudders, timekeepers, truck drivers, pipe jointers, teamsters over 2-up, reinforcing steel placers, second class machinists and powder men. Unskilled laborers included concrete laborers, water boys, painter's helpers, pipe layers, teamsters 2-up, and night watchmen.[220]

The State Highway Department retained S. J. White to serve as project engineer for the Weldon Spring Bridge in November 1935. White had taken a leave of absence from the Department to serve as project engineer for the construction of the Hannibal Bridge over the Mississippi River. White was retained at a salary of $250 per month.[221] White reported to the job site on December 16.[222]

The Kansas City Bridge Company arrived on site December 20, 1935.[223] In December, January and February materials for the bridge arrived by barge and rail, and crews worked to unload those and to clear areas around the work site for the project office and tool shack and along the rail road right of way for a spur to piers 2 and 3. The weather was very cold, and in late January the river was frozen over.[224] Minimal engineering work occurring during the winter, the locations for piers 8 and 9 were identified and chaining and running levels across the frozen river was done.[225]

Kansas City Bridge Company Project Engineer H. P. Treadway reported that the company had begun assembling equipment and organizing work at the bridge site upon receipt of the notice to proceed. Unusually severe winter weather and river conditions were keeping them from being able to do much work. They had to suspend operations on January 20, 1936, and on February 14 they requested permission from the State Highway Department for an official suspension of their contract.[226] The suspension was not granted, Cutler informed Treadway that a break in the

[220] *ibid.*

[221] Missouri State Highway Commission. "Minutes of the Meeting of the State Highway Commission, held in Jefferson City, Missouri, Tuesday, November 12, 1935." p. 24. As held by the Secretary to the Commission, Missouri Department of Transportation, Jefferson City, Missouri.

[222] Sack, N. R., Letter to P. H. Daniells, 16 December 1935. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[223] Engineers Weekly Report. Week Ending December 26, 1935, Week Ending January 2, 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[224] Engineers Weekly Report. Weeks Ending December 26, 1935, January 2, 9, 16, 23, 30 and February 2, 13, 20, 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[225] Engineers Weekly Report. Weeks Ending January 23 and February 6, 13, 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[226] Treadway, H. P., Letter to T. H. Cutler, 14 February 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

weather was expected and if the company needed an extension of their contract later it would be sought from the federal government.[227]

To help prevent flooding damage to the bridge and the highway in the Missouri River floodplain on the St. Louis side of the River, the State Highway Department constructed a levee in 1936. The levee cost $8,000, with the levee district providing $1,000, and the St. Louis County Court providing $1,000. Flooding could cause "considerable damage…to Route 40TR" and the approaches to the Weldon Spring Bridge.[228]

The extremely cold weather ended on Friday, February 21, it was followed by mild weather. On February 26, 1936 workers began excavating at pier 9, and the ice in the river began to break up.[229] By the end of the month the river was completely clear of ice for the first time since work had begun at the site. Work continued at pier 9 and setting the upstream cofferdam began on March 2. At pier 3 work began driving a trestle.[230]

Labor trouble came to the bridge site in early March. The union representative for the carpenters and pile drivers union would not allow his workers to work on the north side of the bridge since there was one non-union carpenter working. This shut down carpentry work on the project for a week until the union decided to allow their men to work with non-union men.[231]

As March progressed the cofferdams for pier 9 were set and excavation inside was begun. Excavation was begun at pier 8 and abutment 1, they began to build a tramway to pier 7 and trestle work at pier 3 continued. Work crews of between 30 and 76 men occupied the site six days a week.[232]

The Kansas City Bridge Company received authorization to work on Sundays and holidays while sinking pneumatic caissons for pier bases 4, 5, 6 and 7, although individual workers still could not exceed the 30 hour work week.[233] The company also requested and received permission to

---

[227] Cutler, T. H., Letter to H. P. Treadway, 19 February 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[228] Missouri State Highway Commission. "Minutes of the Meeting of the State Highway Commission, held in Jefferson City, Missouri, Tuesday, February 11, 1936." p. 20. As held by the Secretary to the Commission, Missouri Department of Transportation, Jefferson City, Missouri.

[229] Engineers Weekly Report. Week Ending February 27, 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[230] Engineers Weekly Report. Week Ending March 5, 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[231] Engineers Weekly Report. Week Ending March 12, 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[232] Engineers Weekly Report. Weeks Ending March 5, 12, 19 and April 2, 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[233] Sack, N. R., Letter to O. A. Zimmerman, 3 March 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

use machine tools to bore holes in the heavy timbering for the false work for the steel and the pier docks for the caissons. In the request, the company said they were not trying to get around the hand labor requirements, and understood the intent of the restrictions. They pointed out that hand boring heavy timber, like hand riveting, had become passé with the advent of machine tools and that workers were likely to foul a hole of any depth. They successfully argued that machine augers would save time, save an "excessive" amount of money over using an antiquated hand tool method, and be safer for workers.[234]

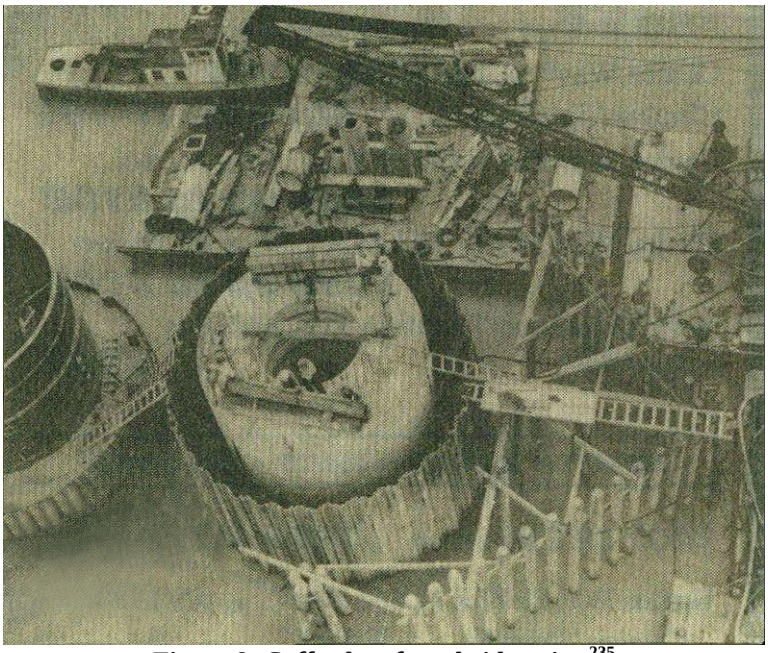


Figure 8: Cofferdam for a bridge pier.[235]

In April workers built a dock for pier 4, drove piles for pier 8, excavated for abutment 1 and pier 2 and worked on the mixing plant.[236] By mid-month they started dredging at pier 3 and had received the caisson for pier 4 and launched it, and had begun the cofferdam there.[237] On April 20 the dredgers reached rock on pier 3, the same week concrete pours began for the footings at pier 2 and the pilings were completed at pier 8.[238]

---

[234] Zimmerman, O. A. Letter to N. R. Sack. 30 March 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[235] "Boone Bridge Turns 50," Clipping File, Daniel Boone Bridge, St. Charles County Historical Society, St. Charles, Missouri.

[236] Engineers Weekly Report. Week Ending April 9, 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[237] Engineers Weekly Report. Week Ending April 16, 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[238] Engineers Weekly Report. Week Ending April 23, 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

April 26 was the first Sunday that the Kansas City Bridge Company had a work crew on site, a crew of sand hogs, but did not put them to work, because the river was not considered high enough to cause an emergency.[239]

On April 27, 1936 S. J. White reported to Norman Sack that rock, satisfactory for footings, had been uncovered at abutment 1.[240] Concrete pours continued at piers 3 and 8, and excavation continued at abutment 1. Forms were being constructed at piers 2 and 4.[241]

By the first week of May the workers were ready to pour footings for pier 3, were pumping out pier 8, and the cutting edge of the caisson had reached rock on the north side of pier 4. Good progress was being made, but a rising river was making pouring concrete difficult.[242]

In early May P. H. Daniells, Division Engineer in the St. Louis District, wrote Chief Engineer Cutler that he and Mr. Kerby of the National Reemployment Services in charge of veterans had been discussing the labor at the Weldon Spring Bridge project. Kerby felt that there was labor difficulties on the project that needed to be brought to the attention of the Highway Department and that could potentially slow down the project.[243] The nature of these labor difficulties was not recorded in newspapers of the time or in Highway Department correspondence.

On May 4, 1936 the Bureau of Public Roads made an inspection at the Weldon Spring Bridge site. They found the overall quality of the work satisfactory and the rate of progress normal. They noted that work had practically shut down in January and February due to weather conditions. In work done to date they noted that abutment 1 the excavation had been completed; pier 2, concrete shafts had been poured to 19 feet above the top of the footing; pier 3, the steel sheet pile coffer dam was in place and excavation was made 2' into the rock; pier 4, the air caisson was partially sunk; pier 5, the guide piles were driven; pier 8, the steel piles were driven and the concrete seal poured; abutment 9, the excavation made and a test pile driven. They also noted work in progress on pier 3 (cleaning off rock bottom in preparation for pouring concrete) and pier 4 (excavation under air).[244]

---

[239] Engineers Weekly Report. Week Ending April 30, 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[240] White, S. J., Letter to N. R. Sack, 27 April 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[241] Engineers Weekly Report, Week Ending April 30, 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[242] Engineers Weekly Report. Week Ending May 7, 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[243] Daniells, P. H., Letter to T. H. Cutler, 4 May 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[244] Bureau of Public Roads, Inspection Report, 4 May 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

Sand hogs had been on the work site since late April. Workers were paid more as they got deeper, and worked fewer hours as they got deeper because of increased air pressure (see Table 1 below). They worked in shifts. The majority of the 120 workers were African-Americans brought in from other parts of the state, although a call was made for local labor. All were required to pass a physical exam before they were allowed to work.[245]

Table 1. Hours and Pay Scale for Sand Hogs[246]

Between Depths	Hours Could Work	Pay Received per Hour
To 45 feet	8 hours	65¢
46-64 feet	6 hours	86-2/3¢
65-79 feet	4 hours	$1.40
80-95 feet	3 hours	$2.10
96-105 feet	2 hours	$3.75

The caisson for pier 6 arrived on May 9, and was launched on May 19. Other work being done in May included building forms at abutment 1 and pier 2, removing rock from pier 4, pouring the concrete for the icebreaker on pier 3 and capping the piles on pier 8. Rainy weather slowed progress slightly, and caused the formula of the cement being poured to be changed.[247] The last week of May the rainy weather ended and the workers made good progress completing the backwall of abutment 1 and pouring fourteen feet of shafts on pier 8. Pier 3 was poured to the bottom of the arch ring. Piers 4 and 8 were completed and the forms were removed. Iron workers began erecting false work for span one on May 28.[248]

In June the sand hogs were working at piers 6, and concrete pours continued. By the end of the month abutment 1 and piers 2 and 3 were complete, pier 4 had forms 75% complete and concrete 60% complete and pier 6 had 40% forms completed and 45% concrete complete, pier 8 and abutment 9 had all the pilings driven, forming was underway and about 50% of the concrete had been poured. Piers 5 and 7 had not been begun. Spans 1 and 2 were underway with the false work and steel erected and the riveting in both spans underway.[249] In mid-June steel work stopped until Pier 4 was complete.[250]

---

[245] "Sand Hoggers Busy on Weldon Spring Bridge." *St. Charles Cosmos-Monitor*, 13 May 1936, p. 5. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[246] *ibid.*

[247] Engineers Weekly Report. Weeks Ending May 14 and May 21, 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[248] Engineers Weekly Report. Week Ending May 28, 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[249] Engineers Weekly Report. Week Ending June 25, 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[250] Engineers Weekly Report. Week Ending June 18, 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

In July 1936 construction saw a delay when the steel gang working on the piers was temporarily laid off because necessary shipments of cement had not arrived.[251] Steel workers were not on the job site between mid-June and July 13.[252] By the end of July pier 4 and abutment 9 were completed, pier 5 had about 15% of the concrete poured, pier 6 had 70% of the concrete poured and pier 7 had not yet been started. The span 3 false work was about 50% complete and the steel was just beginning to be erected.[253]

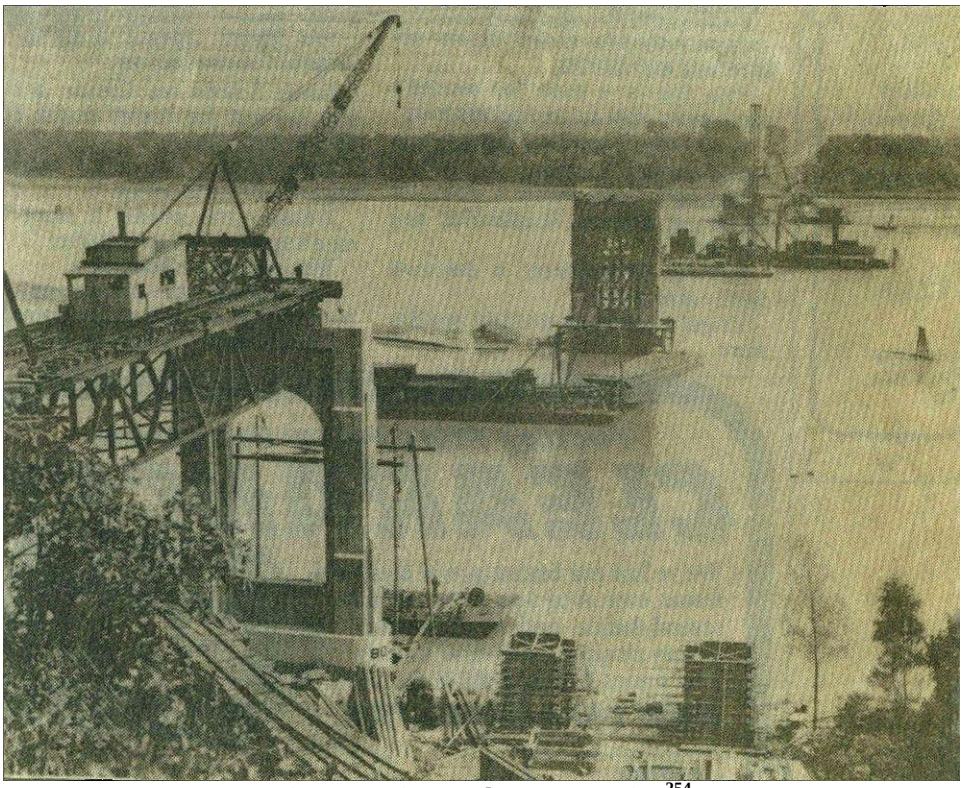


Figure 9: Piers under construction[254]

On July 11 the Kansas City Bridge Company requested permission to move from a thirty hour work week to a forty hour work week. They noted that the construction of the Wabash Railroad Bridge in St. Charles, another PWA project, would be utilizing a forty hour week. Since it was located close to a labor force, the existing thirty hour restriction would create a hardship in

[251] "Steel Gang on the Weldon Spring Bridge is Temporarily Laid Off." *St. Charles Banner-News*, 2 July 1936, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[252] Engineers Weekly Report. Weeks Ending June 25, July 2, July 9, July 16, 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[253] Engineers Weekly Report. Week Ending July 30, 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[254] "Daniel Boone Bridge Turns 50," Clipping File, Daniel Boone Bridge, St. Charles County Historical Society, St. Charles, Missouri.

obtaining labor for the project, which was sixteen miles from town.[255] Sack responded on the 13th by supplying a revision in hours of employment for skilled labor for Works Program projects. The policy allowed for the Chief of the Bureau of Public Roads to suspend the requirement for highway projects were a contractor was unable to get skilled labor because of the thirty hour week requirement upon application.[256]

On Thursday, July 30, 1936, Sylvester M. Park, a 27-year old carpenter on the bridge, fell 48 feet from the top of the forms for pier 6 to the sandbar below. During the fall he struck the top of the coffer dam, fracturing his skull, both legs above the knee, and his right arm; he died five hours later at St. Joseph's Hospital in St. Charles, the first casualty of bridge construction.[257]

Pier 7 was started the first week in August, the last of the substructure to be started. The work was "greatly handicapped" because low river levels made getting material loaded on barges difficult. [258] Iron work had progressed to erecting steel at span 4 and riveting span 3.[259]

August brought additional problems, as the upstream cylinder for pier 5 landed on rock but out of position nine inches upstream from the correct position. Since the extent of the displacement could not be corrected once the caisson reached bedrock it had to be accommodated in the pier design and seal.[260]

In late August falling river levels caused problems. On Sunday, August 9 an emergency situation arose when two large boats and one small boat with three barges were stuck in the chute where they were loading material for the piers. It was necessary to keep the boats moving to prevent them running aground, this was a labor violation, but had been necessary. It was a concern, because river levels continued to fall and the piers were not yet complete.[261]

---

[255] Zimmerman, O. A. Letter to N. R. Sack. 11 July 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[256] Sack, N. R. Letter to O. A. Zimmerman. 13 July 1936; Bureau of Public Roads. "Revision in Hours of Employment—Skilled Labor." Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[257] "48-Ft. Fall Off Weldon Spring Bridge Pier Fatal." *St. Charles Cosmos-Monitor*, 5 August 1936, p. 5. Microfilm, State Historical Society of Missouri, Columbia, Missouri; Missouri State Board of Health, Bureau of Vital Statistics. "Certificate of Death, No. 2774P." Sylvester Moran Park, filed 31 July 1936. Missouri Secretary of State web-site, accessed on-line 15 September 2011 at: http://www.sos.mo.gov/archives/resources/deathcertificates/Results.asp?type=basic&tLName=Park&tFName=&sCounty=all&tYear=1936#null.

[258] Engineers Weekly Report. Week Ending August 6, 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[259] Engineers Weekly Report. Weeks Ending August 6, 13, 20, 27, 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[260] Zimmerman, O. A. Letter to N. R. Sack, 4 August 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[261] Corbett, J. J., Letter to Clifford Shoemaker, 22 August 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

The thirty hour work week was causing problems on the job site by the fall of 1936. The Kansas City Bridge Company requested permission for workers to work a longer week, but since the requirement was federal it required an exemption from the Bureau of Public Roads. The request was forwarded on September 14.[262]

In early October S. J. White reported that the contractor had been delayed due to a shortage of three drum hoisting engineers and structural steel workers. He also reported that the contractor had been erecting steel with four man crews where they needed an eight man crew, or more. They also had not had enough riveters on site since construction began.[263] Two weeks later White reported delays due to a shortage of head mechanics—electric welders that had passed a state examination. Twenty were needed for the project. The contractor had furnished two, the Missouri State Employment Service had provided three and the National Reemployment Service had provided one. The contractor had located five more in Kansas City, but because of the Public Works Administration 30 hour work week requirement, and a 32 mile drive from St. Charles to get to the job site, they would not report to the Weldon Spring site. White reported the St. Louis welders were also objecting to a five hour work day after a 90 minute drive to the site.[264]

In September work began on span 4-5 of the bridge, and continued on span2-3. Fair progress was being made on the bridge, with the substructure 81% complete the week of September 17. That week pier 5 was completed.[265] In mid-October the weekly report indicated that pier 7 was still being excavated, pier 8 still had form work being done, and abutments 1 and 9, and piers 2, 3, 4, 5 and 6 were complete. The false work of spans 1-2, 2-3, 3-4 and 4-5 was complete the steel erected, and false work was started on span 5-6.[266] Workers had also starting to weld the floor in the spans.[267]

---

[262] Sack, N. R., Letter to S. J. White, 14 September 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[263] White, S. J., Letter to N. R. Sack, 3 October 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[264] White, S. J., Letter to N. R. Sack, 15 October 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[265] Engineers Weekly Report. Week Ending September 17, 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[266] Engineers Weekly Report. Week Ending October 15, 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[267] Engineers Weekly Report. Weeks Ending October 8, 15, 22, and 29, 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

Because the State Highway Department did not have a bridge inspector available to inspect the superstructure of the bridge, they made arrangements with Sverdrup & Parcel to provide a bridge inspector while the superstructure was being erected.[268]

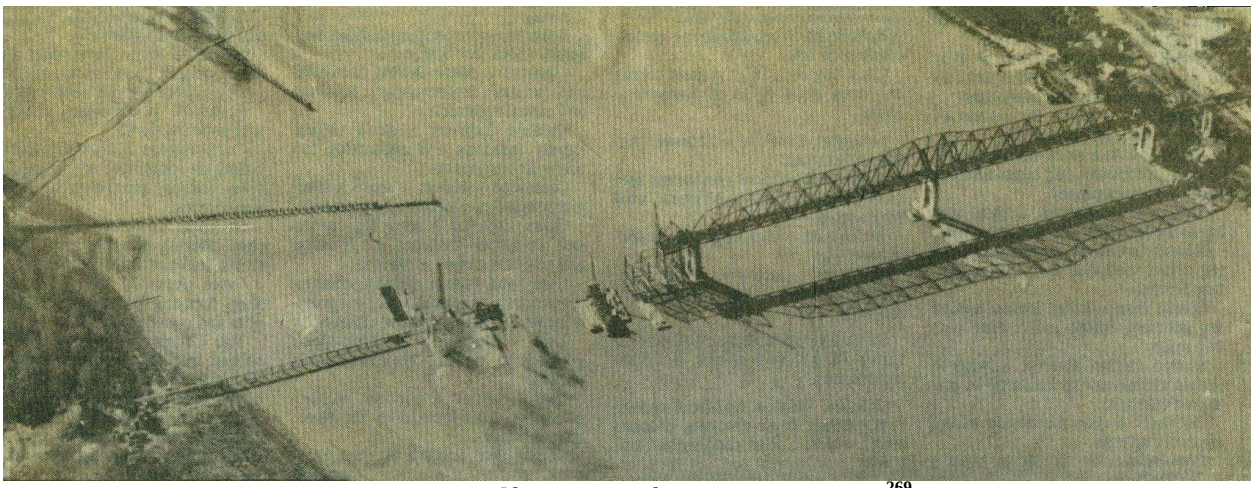


Figure 10: Halfway point of Truss Construction[269]

In mid-December 1936 work on the Weldon Spring Bridge stopped for the winter. Piers had been completed and concrete poured for some of the piers. Because of falling temperatures, no further work would be done until the following spring.[270]

The bridge was included in the State Highway Commission's *Tenth Biennial Report* as an example of the major bridges the Bridge Division had been working on during the previous period. The bridge was described as being 2,614 feet in length with a superstructure consisting of two 145-foot and two 130-foot deck trusses and two 2-span continuous through trusses. All the foundations were concrete piers and bents carried to rock with the exception of the two south bents, which rest on steel piling. The total cost of the bridge was $1,213,548.[271]

On April 27, 1937, Carl Brown, Chief Engineer of the State Highway Department, announced that a 20-mile section of the new superhighway between Wentzville and Bellefontaine Road, including the new Missouri River Bridge at Weldon Spring would open to traffic in June.[272] The steel work on the bridge was complete and laying the concrete floor would begin within the

[268] Sack, N. R., Letter to C. W. Brown, 7 October 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[269] "Boone Bridge Turns 50," Clipping File, Daniel Boone Bridge, St. Charles County Historical Society, St. Charles, Missouri.

[270] "Work to Stop on the Weldon Spring Bridge." *St. Charles Cosmos-Monitor*, 16 December 1936, p. 8. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[271] Missouri State Highway Commission. *Tenth Biennial Report of the State Highway Commission of Missouri for the Period Ending December 1, 1936*. Jefferson City, MO: Midland Printing Co., 1936, p. 262.

[272] "State to Open 20 Miles of New Highway in June." *St. Charles Banner-News*, 29 April 1937, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

week. Painting the bridge would begin within the next two weeks. No date had been set, but it would not be before the middle of May.[273]

The early June opening of the bridge was postponed as workers painted the bridge spans.[274]

Naming the Bridge

In September 1936 the Editor of the *Missouri Motor News*, George Marsh, sent a letter to the State Highway Department inquiring about the progress of the Weldon Spring Bridge. In the letter he asked if a name had been chosen. He said "Weldon" or "Weldon Springs" would make logical sense since Weldon is the name of an early pioneer family contemporary with Daniel Boone. He wrote, "If a name has not already been decided I would like to suggest the use of it at this time."[275]

The Automobile Club of Missouri sent a letter to the State Highway Commission requesting the Weldon Spring Bridge be officially named the Daniel Boone Bridge, offering to provide nameplates for the bridge. Chief Engineer Carl Brown presented the proposal to the State Highway Commission at the April 13, 1937 meeting. The Commission held the matter for further consideration.[276]

The Chief Engineer explained there was no precedent set for naming a bridge—the Commission was on record as being opposed to giving names to highway and "tried to inform the traveling public of routes by numbers." The Public Works Administration also took a great deal of interest when "matters of this kind" are proposed by a state. The Commission thought it advisable not to take any action on officially naming the bridge, but "had no objection to the local people identifying this bridge by any unofficial name they preferred."[277]

In mid-June it was announced that the bridge would be known as the Daniel Boone Bridge, and would be officially opened to traffic on June 27 at 2:30. Governor and Mrs. Lloyd C. Stark, members of the State Highway Commission and others would take part in the ceremony, which would include an all day picnic in Wentzville. Other activities would include a barbeque, a

---

[273] "Outline of Proposed Valley Highway Which Will End at Wentzville." *St. Charles Banner-News*, 29 April 1937, p. 1; "Weldon Spring Bridge Will Be Ready For Use in June." St. *Charles Cosmos-Monitor*, 28 April 1937, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[274] "Opening of the Weldon Spring Bridge Postponed." *St. Charles Cosmos-Monitor*, 9 June 1937, p. 8. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[275] Marsh, George P., Letter to Carl Brown, 9 September 1936. Construction file, Bridge J1000. Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

[276] Missouri State Highway Commission. "Minutes of the Meeting of the State Highway Commission, held in Jefferson City, Missouri, Tuesday, April 13, 1937." p. 2. As held by the Secretary to the Commission, Missouri Department of Transportation, Jefferson City, Missouri.

[277] Missouri State Highway Commission. "Minutes of the Meeting of the State Highway Commission, held in Jefferson City, Missouri, Tuesday, May 11, 1937." p. 8. As held by the Secretary to the Commission, Missouri Department of Transportation, Jefferson City, Missouri.

program of speeches, afternoon entertainment, and conclude with an outdoor dance in the evening. The program was sponsored and managed by the Wentzville Community Club. The organizing committees were preparing for a crowd of 10,000.[278]

The suggestion for the name, Daniel Boone, had come from Colonel Francis M. Curlee, owner of the Nathan Boone home in Femme Osage. The Automobile Club of Missouri adopted and promoted the idea and urged the State Highway Department to accept the name.[279] There was great local support for the name, with one editor opining "the settlement of the northern part of Missouri and the great West virtually began in St. Charles County as a result of the work done by Daniel Boone. We sincerely hope the State Highway Commission will see the justice and appropriateness of the request…and name the Weldon Spring Bridge accordingly."[280]

The State Highway Commission let it be known that it had no objections to letting the bridge be known by the name "Daniel Boone Bridge" but that it, by policy, did not designate bridges by name.[281]

Bridge Dedication

The dedication was to take place at the bridge approach and at Wentzville. Plans were for a procession to meet Governor Stark at the junction of highway 40 and the cutoff at 2:00 and arrive at the bridge site at 2:15. The Jefferson Barracks Band would give a concert followed by a Dedication address by Governor Stark and the ribbon cutting by Mrs. Stark. A parade of cars across the bridge would be formed and would proceed to the recreation park for additional addresses, concerts and a dance.[282] During the dedication a squadron of planes from the Missouri National Guard would fly in formation over the bridge and the superhighway.[283]

The St. Charles County Court declared June 26 a legal holiday with all public offices closed, except the Collector's Office, and issued a proclamation:

> "WHEREAS, Saturday, June 26, 1937 has been selected as the day for the official opening and dedication of the Weldon Spring Bridge across the Missouri River

---

[278] "'Daniel Boone Bridge' Dedication June 26." *St. Charles Banner-News*, 17 June 1937, p. 1; "New Weldon Spring Bridge Dedication Saturday, June 26." *St. Charles Cosmos-Monitor*, 16 June 1937, p. 2. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[279] "How New Bridge Got Its Name—'Daniel Boone'." *St. Charles Banner-News*, 17 June 1927, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[280] "Editorial Musings." *The Wentzville Union*, 4 June 1937, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[281] "'Daniel Boone Bridge' is Acceptable Generally." *The Wentzville Union*, 18 June 1937, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[282] "Dedication Program at Wentzville." *St. Charles Banner-News*, 24 June 1937, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[283] "Elaborate Plans Made for Bridge Dedication Sat." *St. Charles Cosmos-Monitor*, 23 June 1937, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

and the new concrete highway extending from the West end of the bridge to Wentzville, and

"WHEREAS, the opening of this bridge and highway will be an event of great importance to St. Charles County and many of our citizens are desirous of attending the opening ceremonies at the bridge and the celebration to be held immediately afterword at Wentzville,

"NOW THEREFORE, We, the undersigned Judges of the St. Charles County Court do hereby declare the afternoon of Saturday, June 26, 1937, a holiday, and request the various county offices to enable as many as desire to attend the ceremonies.

"IN TESTEMONY WHEREOF, we have hereunto affixed our signatures this 22nd day of June, 1937.

Signed: Henry F. Ohlm, Presiding Judge
Henry S. Hoffman, Judge Western District
J. L. Rothermich, Judge Eastern District"[284]

About 2,500 people attended the dedication of the bridge. Governor Stark and Major Robert B. Brooks of the State Highway Department delivered addresses and at 3:00 in the afternoon Mrs. Stark cut a white ribbon across the middle of the bridge, allowing hundreds of cars to make the first trip across the $1,250,000 span. Among the dignitaries in attendance were Mayor Bernard Dickman of St. Louis, Mayor Charley Kansteiner of St. Charles and other city and county officials.[285]

In his address Governor Stark complimented St. Charles County people on the name of the new bridge, and reviewed some of the highlights of the pioneer's life. Among those in attendance were descendents, including a two-year old Daniel Boone.[286] Governor Stark described the bridge as the "last word" in bridge construction, and since it carried two national routes (40 and 61) it would reach all over the nation. The bridge was the most expense bridge constructed by the State Highway Department as well as the widest across the Missouri River, except for the A. S. B. Bridge in Kansas City. It was the thirteenth free bridge across the river between St. Joseph and the mouth of the river and the seventeenth bridge across the river in Missouri.[287]

---

[284] Holiday Here When Bridge is Dedicated." *St. Charles Banner-News*, 24 June 1937, p. 5. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[285] "New Bridge Over River is Opened." *St. Charles Banner-News*, 1 July 1937, p. 1; "$1,250,000 Bridge at Weldon Springs Over Mo. River Dedicated." *Watchman Advocate*, 2 July 1937, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[286] "New Bridge Over River is Opened." *St. Charles Banner-News*, 1 July 1937, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[287] "$1,250,000 Bridge at Weldon Springs Over Mo. River Dedicated." *Watchman Advocate*, 2 July 1937, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

Major Brooks spoke of the improvements that had been made in the St. Louis and St. Charles area, including the freeing of the St. Charles Bridge, and the relocation of the St. Charles streetcar line, which will enable an additional lane to be constructed on the highway in the coming year.[288] Sam Rudder, Assistant Chief Engineer of the State Highway Department, said there was enough concrete in the bridge to pave seven miles of two-lane road and ten million pounds of steel. The Public Works Administration funded about 30% of the construction costs of the bridge.[289]

After the addresses the cars formed a parade across the bridge into St. Louis County. Many returned to Wentzville for additional celebrations, others toured a new "loop" drive—the route over the (old) existing "highway to St. Charles, through to Wentzville and back to St. Louis County over the new route. Filling station attendants west of St. Charles reported exceptionally good business yesterday from those who took the trip."[290]

As the Daniel Boone Bridge was dedicated, the editor of *The Wentzville Union* wrote that the dedication marked a milestone. He urged readers to be proud of the State Highway Department "whose officials cannot be swerved from the pathway of common sense and the best interests of our state highway system." He noted that the Department had not had an easy time in building the superhighway and bridge. St. Charles had wanted them to widen the existing route, St. Louis wanted a "wide highway and a short-cut" to Kansas City. St. Charles "tried hard to stop the building of the superhighway and bridge." The battle continued for several years, but the State Highway Department "recognized the fact that our highway system cannot be made subject to local objections or financial gain sought by especially affected sections."[291]

Effects of Bridge Construction

By early 1937, even before the bridge and superhighway had opened, effects were being felt in western St. Charles County. It was reported that there was a demand for real estate in the townships the superhighway passed through and that land values were booming. Several large transactions were completed in the early weeks of the year in the district and a new filling station and restaurant were under construction at the junction of highway 40 and the spur highway in Wentzville. *The Wentzville Union* reported that "houses in Wentzville are at a premium and demand is growing steadily."[292]

---

[288] "New Bridge Over River is Opened." *St. Charles Banner-News,* 1 July 1937, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[289] "$1,250,000 Bridge at Weldon Springs Over Mo. River Dedicated." *Watchman Advocate*, 2 July 1937, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[290] "New Bridge Over River is Opened." *St. Charles Banner-News,* 1 July 1937, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[291] "All's Well That Ends Well." *The Wentzville Union,* 25 June 1937, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[292] "Building on Highway Begins." *The Wentzville Union,* 12 March 1937, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

The Editor of *The Wentzville Union* speculated that the third lane of the superhighway would be laid out in St. Charles county "before winter sets in" because it is expected to be very popular.[293]

Less than a month after the bridge had opened, on July 11, 1937, Theodora C. Duncan of St. Louis became the first bridge suicide when she jumped from the center span of the bridge and drowned in the Missouri River.[294]

Weldon Spring Ordnance Works

In 1940 it was announced that a large TNT plant would be constructed at Weldon Spring. The location was ideal because of proximity to rail and water transportation for the product and water for the production of the TNT. Since the construction of the Daniel Boone Bridge, a large labor supply was easily accessible from St. Louis. It was estimated that the plant would employ 10,000 people.[295] The construction of this plant would change the character of this part of St. Charles County forever.

On September 9, 1940 the Congress passed Public Law 781 giving authority to the War Department to spend over $540 million for ordnance services and supplies, and authorized the Secretary of War to enter into contracts for an additional $902 million for ordnance services and supplies before July 1, 1941.[296] On October 17, 1940 President Franklin Roosevelt authorized a plant at Weldon Spring, Missouri, at an estimated cost of $14,500,000.[297]

On October 23, 1940 the War Department issued a press release announcing that Weldon Spring had been selected for a TNT and DNT plant. The announcement stated that agents had been ordered to proceed with the purchase of approximately 18,000 acres of land that would be needed by the government.[298] Most of the workers needed for the plant, 800 for the construction of the plant and 10,000 when production was at full capacity, would come from St. Louis and the

---

[293] "Daniel Boone Bridge Dedicated." *The Wentzville Union*, 2 July 1937, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[294] "Woman Dies in Bridge Leap Sunday." *St. Charles Banner-News*, 15 July 1937, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri; Mo. State Board of Health, Bureau of Vital Statistics. "Certificate of Death, No. 28299, Theodora C. Duncan." Filed 12 July 1937. Downloaded from Secretary of State website on 1 September 2011 at: http://www.sos.mo.gov/archives/resources/deathcertificates/Results.asp?type=basic&tLName=Duncan&tFName=Theodora&sCounty=all&tYear=1937#null.

[295] "TNT Plant to Locate at Weldon Spring, Will Employ Up to 10,000 People." *St. Charles Daily Banner-News*, 22 October 1940, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[296] United States Government Printing Office. *United States Statutes at Large 1939-1941, Vol. 54, Part I*. Washington, DC: United States Government Printing Office, 1941, p. 874.

[297] Smith, Adam and Sunny Stone. Weldon Spring Ordnance Works Historic Context. Champaign, IL: United States Army Corp of Engineers, Engineer Research and Development Center 2005, p. 18.

[298] *ibid*.

surrounding area. Every employable person in St. Charley County would be working by the time all the units were constructed.[299]

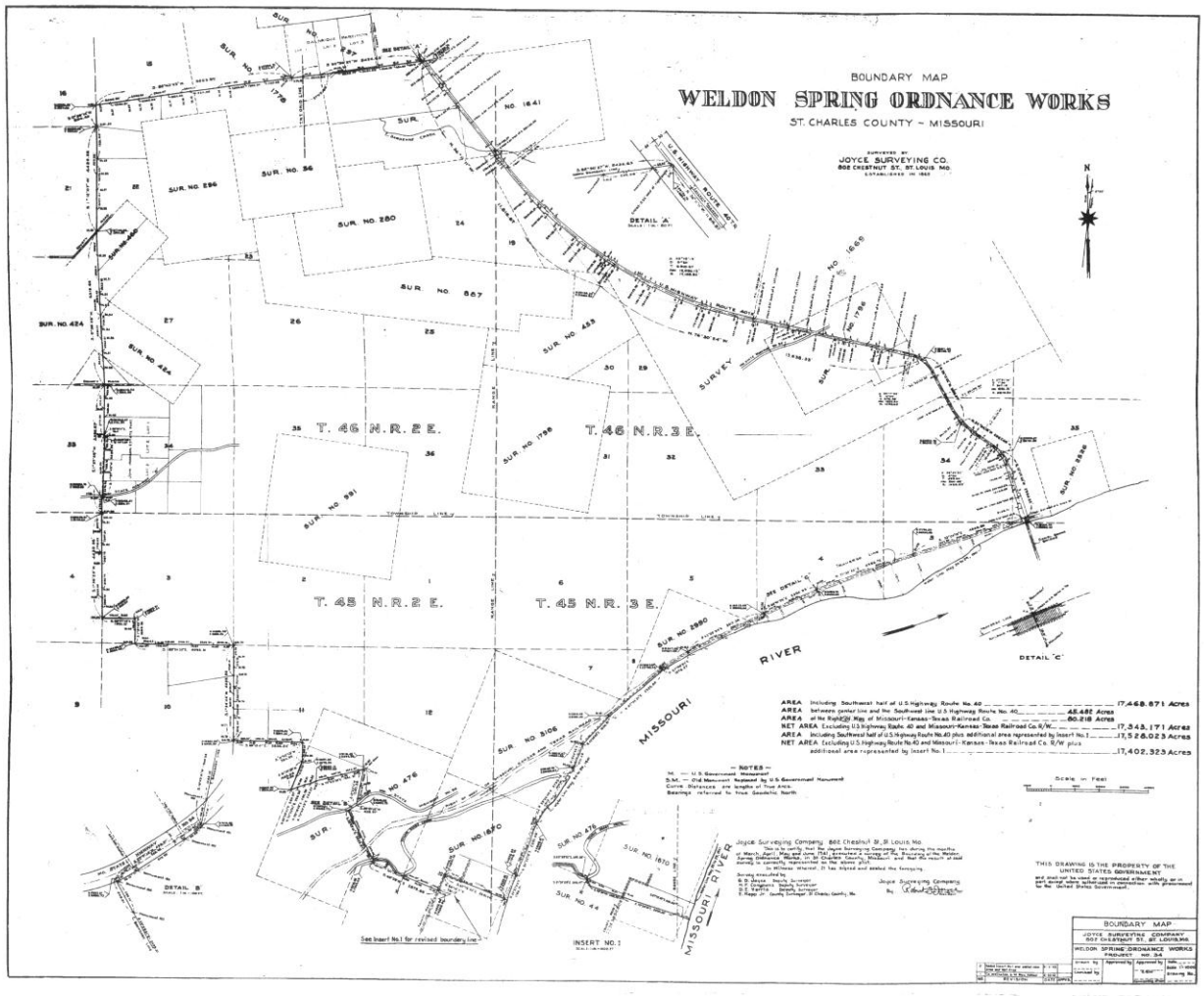


Figure 11: Weldon Spring Ordnance Works Boundary[300]

At a protest meeting held by area farmers in early November, Congressman Clarence Cannon had explained the rationale behind the War Department siting of the plant, saying "such plants must be far away from the sea coasts and boarders beyond the reach of enemy planes, near great rivers for the needed supply of water, near highway, railroad and waterway transportation and close enough to a great city for labor and materials."[301] By November 28 almost all of the 270 tracts the government wanted were under option by R. Newton McDowell, the government

[299] "TNT Plant Employing 10,000 Biggest Industry Ever to Locate Here," *St. Charles Daily Banner News*, 22 October 1940, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

[300] Smith, p. 21.

[301] "Farmers will Meet in TNT area Tonight," *St. Charles Daily Banner News*, 6 November 1940, p. 1. Microfilm, State Historical Society of Missouri, Columbia, Missouri.

contractor for the acquisition. Displaced residents started auctioning their personal property and moving from the area.[302]

Ground was broken for the Ordinance Works on November 28, 1940, and crews worked around the clock in three shifts until November 1, 1942 to complete the plant, which included over 1,038 buildings, 114 miles of roads, 23.38 miles of railroad, 9 miles of tram tracks, 20 miles of sewers, 55 miles of water lines, 63 miles of fencing, 25 miles of electric lines and 125 miles of electric distribution lines and many other features needed for production.[303]

At the height of production, the Weldon Spring Ordinance Works could produce, in a 24-hour period over one million pounds of TNT and ammonia oxidation, forty thousand pounds of DNT, 800,000 pounds of nitric concentration, and four million pounds of sulfuric concentration.[304]

The Weldon Spring Ordinance Works received word that the plant would suspend production in 1944 due to improved production process at other plants and a huge surplus of TNT. Production officially terminated on August 15, 1945.[305]

After the Ordinance Works features were destroyed, the acreage was sold. Seven thousand acres was donated to the Missouri Department of Conservation, due to a donation made by Mrs. August A. Busch, Sr., that land became the August A. Busch Wildlife Area. The University of Missouri acquired 7,900 acres for an experimental farm; those acres are now the Weldon Spring Conservation Management Area. The staff housing was sold as a single unit as auction. The Army reserved 200 acres.[306]

Post-War St. Charles County

The construction of the Daniel Boone Bridge and the superhighway contributed to the expanding population growth in St. Charles County. The bridge and highway provided easy access to the St. Louis metropolitan area, as demonstrated by the growth in the along the corridor, especially after World War II.

[302] Smith, p. 23.

[303] Smith, p. 29.

[304] Smith, p. 36.

[305] Smith, p. 89.

[306] Smith, p. 107.

Table 2. Population in the St. Charles County Superhighway Corridor.

	1920	1930	1940[307]	1950[308]	1960[309]
St. Charles County	22,828	24,354	25,562	29,834	52,970
Cuivre Twp.	2,924	2,758	3,084	3,658	6,090
Dardenne Twp.	3,473	3,299	3,433	3,692	9,467
Wentzville City	514	596	752	1,227	2,742

Bridge Rehabilitations and Construction of the New Bridge

In October 1978 controlled reversible lane markers were installed on the bridge. The controls had green arrows above the lanes traffic was to use and a red "x" above the lanes traffic was not to use. Prior to the installation of these controls the third lane on the bridge was used as a passing lane for traffic going either direction, with the controls rush hour traffic would be given two lanes in the direction of heaviest traffic flow and one lane in the other direction.[310]

In July 1983 work began on a companion bridge upstream from the Daniel Boone Bridge.[311] The new bridge opened on August 10, 1989 and the Daniel Boone Bridge was closed for a year for rehabilitation, including replacement of the bridge deck.[312] When the Daniel Boone Bridge reopened, it carried west-bound traffic.

Bridge Design and Construction Contractors

State Highway Department, Bridge Division

The Bridge Bureau of the State Highway Department was formed in 1918 and was given the task of preparing bridge specifications, standard and special plans and designs, estimating the cost of structures, checking shop drawings and checking change orders. The standard bridge designs

[307] United States Department of Commerce, Bureau of the Census. *Sixteenth Census of the United States: 1940 Population, Volume I Number of Inhabitants*. Washington, DC: Government Printing Office, 1942, p. 593. Population statistics for 1920, 1930 and 1940.

[308] United States Department of Commerce, Bureau of the Census. *A Report of the Seventeenth Decennial Census of the United States Census of Population: 1950 Volume I Number of Inhabitants, Part 25, Missouri*. Washington, DC: Government Printing Office, 1952, p. 25-20.

[309] United States Department of Commerce, Bureau of the Census. *The Eighteenth Decennial Census of the United States Census of Population: 1960 Volume I Characteristics of the Population, Part 27 Missouri*. Washington, DC: Government Printing Office, 1962, p. 27-42 (St. Charles County) p. 27-41 (Wentzville), p. 27-97 (Cuivre and Dardenne Townships).

[310] *St. Charles Daily Banner News*, 13 October 1978. Clipping File, Daniel Boone Bridge, St. Charles County Historical Society. St. Charles, Missouri.

[311] Work May Start in July on Bridge at Gumbo Bottom, *St. Louis Globe Democrat*, 30 May 1983, Clipping File, Daniel Boone Bridge, St. Charles County Historical Society, St. Charles, Missouri.

[312] "Bridge Opens on Highway 40," *St. Charles Post*, 11 August 1989, Clipping File, Daniel Boone Bridge, St. Charles County Historical Society, St. Charles Missouri.

were for bridges on both the state highway system as well as for county roads.[313] As the Bureau of Bridges grew, additional responsibilities were acquired, including inspecting bridges and overseeing the construction of large bridge projects. In 1923 and 1924 the Bureau oversaw the construction of the Gasconade River Bridge and four Missouri River bridges (Lexington, Waverly, Boonville, and Glasgow).[314]

In the first decade of the existence of the Bridge Bureau it produced standard designs for concrete culverts, concrete bridges and steel bridges, special designs for 1,640 bridges and a Manual of Bridge Construction for project engineers and bridge inspectors.[315]

By the late 1920s the Traffic Relief highways in Kansas City and St. Louis were presenting special challenges to the Bridge Bureau. Bridges for these highways not only had to cross streams but included grade separations for railroads and grade separations for major highway intersections. Challenges included wider roadway widths, providing for the passage of traffic from one roadway to another and special consideration given to aesthetics for the structures.[316]

The same time period also had the Bureau developing new standard bridge designs for the new supplementary highway system. These roads had the same road width as the primary highways, twenty feet, but did not have to have the load capacity, which reduced their cost.[317]

The State Highway Department Bridge Bureau designed the Daniel Boone Bridge and acted as general overseer for the construction of the bridge.

Kansas City Bridge Company

The Kansas City Bridge Company had been formed in 1893 by Paul H. Everhard, Edward B. Watts, Reuben D. Swainn, and Frank N. Chick of Kansas City, Missouri and William W. Miller of Osage City, Kansas. They incorporated as the "Kansas City Bridge Company" with the purpose to "work in wood and iron, to design, build and sell railway and highway bridges and all kinds of structural work."[318]

---

[313] Missouri State Highway Commission, *Third Biennial Report of the State Highway Commission for the Period ending December 1, 1922*, no publisher, 1922, p. 127.

[314] Missouri State Highway Commission, *Fourth Biennial Report of the State Highway Commission for the Period ending December 1, 1924*, Jefferson City, Mo: Hugh Stephens Press, 1924, p. 118.

[315] *ibid*, p. 118; Missouri State Highway Commission, *Fifth Biennial Report of the State Highway Commission for the Period ending December 1, 1926*, Jefferson City, Mo: Hugh Stephens Press, 1926, p. 140.

[316] Missouri State Highway Commission, Seventh Biennial Report of the State Highway Commission of Missouri for the Period ending December 1, 1930, Jefferson City, Mo: Botz Printing and Stationary Co, 1930, p. 255.

[317] *ibid*.

[318] Kansas City Bridge Company, "Articles of Association." 30 January 1893. Charter Number 6863. Corporations Division, Secretary of State's Office. Downloaded 10 March 2010 from: https://www.sos.mo.gov/BusinessEntity/soskb/Filings.asp?6824#.

Joseph W. Hoover was the first president of the Kansas City Bridge Company, and served in that position from 1893 until before 1912. By 1912 Alexander Mainland, Junior had become the president of the Kansas City Bridge Company.[319]

The Kansas City Bridge Company constructed a number of iron bridges around Missouri and the Middle West in the early twentieth century. The bridges constructed included small stream crossings and large structures over the Missouri River.[320]

The company was originally chartered to exist for 50 years but this article of the incorporation was amended in 1933, along with the purpose of the business.[321] The business expanded to provide general engineering and contracting work for buildings, roads and highways, bridges and bridge piers, manufacturing plants, mines and mine shafts, drainage and irrigation systems, and railroads and railway structures. This amendment also made the company a perpetual entity, removing the 50 year life span of the original charter.[322]

In 1953 the company charter was amended again, the revised articles of incorporation restated the general business practices that the company had been involved with to date. The common stock of the company was also reallocated to recapitalize the company.[323] In 2000 the Kansas City Bridge Company was dissolved by an act of the shareholders.[324]

The Kansas City Bridge Company constructed the substructure and superstructure of the Daniel Boone Bridge.

Sverdrup & Parcel

The firm of Sverdrup & Parcel was formally founded on April 1, 1928 by Leif J. "Jack" Sverdrup and John Ira Parcel. The first commission for the company was the design and construction of the Missouri River crossing at Herman Missouri.[325] Sverdrup had been the

---

[319] Alkire, Arthur N., ed., *Men of Affairs in Greater Kansas City 1912*. Kansas City, MO: Gate City Press, 1912, p. 43.

[320] Gubbels, Thomas J., "Lexington Bridge Historic American Engineering Record." Historic Preservation Section, Missouri Department of Transportation, Jefferson City, Missouri, pp. 29-30.

[321] Kansas City Bridge Company, "Articles of Association." 30 January 1893. Charter Number 6863. Corporations Division, Secretary of State's Office. Downloaded 10 March 2010 from: https://www.sos.mo.gov/BusinessEntity/soskb/Filings.asp?6824#.

[322] Kansas City Bridge Company, "Certificate of Amendment." 25 November 1933. Corporations Division, Secretary of State's Office. Downloaded 10 March 2010 from: https://www.sos.mo.gov/BusinessEntity/soskb/Filings.asp?6824#.

[323] Kansas City Bridge Company. "Certificate of Amendment." 5 May 1953 Corporations Division, Secretary of State's Office. Downloaded 10 March 2010 from: https://www.sos.mo.gov/BusinessEntity/soskb/Filings.asp?6824#.

[324] Kansas City Bridge Company, "Articles of Dissolution by Voluntary Action." 25 July 2000. Corporations Division, Secretary of State's Office. Downloaded 10 March 2010 from: https://www.sos.mo.gov/BusinessEntity/soskb/Filings.asp?6824#.

[325] Franzwa, Gregory M., *Legacy: The Sverdrup Story*. St. Louis, MO: The Patrice Press, 1978, p. 9.

Bridge Engineer for the Missouri State Highway Department for several years before he left to form the company and Parcel was a professor of engineering at the University of Minnesota, where he had taught Sverdrup.[326] Sverdrup decided to headquarter the company in St. Louis because it was close to the three major American rivers, was home to several railroads, and because it had no other bridge engineering firm located there.[327]

Sverdrup & Parcel did preliminary site work for the bridge and provided bridge inspection services.

Description of Bridge J1000

Bridge J1000 is a steel, rigid-connected, four-span, cantilever through truss with a polygonal top chord and a Warren web, with four deck truss approach spans with Warren web. The bridge has reinforced concrete abutments and piers with art deco detailing. The bridge has a total length of 2614 feet, individual span lengths are noted in the table below. Spans are numbered from the north (St. Charles County side) to the south (St. Louis County side); the configuration is shown on sheet 1 of the accompanying plans, found in Appendix A. Appendix B contains plates showing general photographs and detail photographs of the bridge.

Table 3. Span Configuration and Length

Span	Span Type	Span Configuration	Span Length
1	Approach	Deck Truss	146’ 0 ¼”
2	Approach	Deck Truss	147’ 7 ½”
3	Main	Through Truss	512’ 6”
4	Main	Through Truss	513’ 5 ½”
5	Main	Through Truss	513’ 3 ¾”
6	Main	Through Truss	512’ 0 ½”
7	Approach	Deck Truss	131’ 1 ¼”
8	Approach	Deck Truss	131’ 5”

The bridge substructure consists of reinforced concrete abutments and reinforced concrete dumbbell and flow-through piers. Dumbbell bents (2 and 8) and piers 3 and 7 have a solid web. These are shown on pages 7 and 8 of the plans in Appendix A and plates 11, 14, 15 and 16 in Appendix B. Piers 4, 5 and 6 have a single arched opening and have Art Deco influenced detailing including stepped detailing on the pier columns. These piers are shown on pages 4, 5 and 6 of the plans in Appendix A and plates 18 and 22 in Appendix B.

The bridge has four through truss spans, symmetrical around the center point of the bridge. Each truss has sixteen panels, at the bottom chord the side panels are each 32-foot wide and contain a diagonal member forming the Warren web. Details of the truss construction are in plans in

[326] Franzwa, pp. 2-9.

[327] Franzwa, p. 11.

Appendix A, multiple views of the through truss, including details of the connections, are found in Appendix B.

The bridge has a deck width of 34 feet. The vertical clearance is 14 feet 2 inches. The sway bracing is an "X" form with a vertical stabilizer dividing the bottom quadrant. Views of the portal bracing and sway bracing are found in plates 6, 8, 9 and 19 in Appendix B.

The portal bracing has been modified by the removal of knee braces and the placement of a horizontal member at the bottom of the chord. The photograph below shows the St. Louis end of the bridge before the change was made.

Figure 12: Daniel Boone Bridge, showing original configuration of portal bracing.

Photographic Methods and Processing

The archival photographs accompanying this documentation were taken and processed according to the standards for photographs accompanying National Register of Historic Places (NRHP) documentation.[328]

Aerial photographs are being used to fulfill part of the mitigation requirements for this bridge. These images were taken by Cathy Morrison on June 4, 2010 and December 16, 2011 using a Nikon D300 camera. These images were captured in a jpeg format, which has been converted to a tagged image file format (.tiff) and printed. This process is an "acceptable" practice according

[328] National Park Service. "Proposed Updated Photographic Policy National Register of Historic Places." Downloaded 8 June 2008 from: www.nps.gov/history/nr/policyexpansion.html.

to the National Register Photo Policy.[329] Karen Daniels took photographs on January 8, 2013 using a Canon G10 digital camera. Images were captured in a raw (cr2) format, which was manipulated for light contrast before being converted to a .tiff and printed.

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[330], and which Epson identifies as having 85-year permanence under glass.[331] Kept in archival conditions the materials will exceed the 75 year permanence standard for the NRHP, which is the standard being used for this project.

All images were numbered according to the NRHP Photographic Imaging Policy[332] and burned onto a Delkin Archival Gold compact disc, which was provided to the SHPO along with this report. A copy of the photographs and .tiff images on an archival compact disc will also be maintained by the MoDOT Historic Preservation Section.

[329] National Park Service. "National Register Photo Policy Factsheet." Downloaded 9 January 2013 from: www.nps.gov/history/nr/policyexpansion.html.

[330] *ibid.*

[331] Epson, "Permanence ratings from Wilhelm Imaging Research." Downloaded 30 April 2009 from www.epson.com/pdf/LightfastCPD_15334R2.pdf.

[332] National Park Service. "Proposed Updated Photographic Policy National Register of Historic Places." Downloaded 8 June 2008 from: www.nps.gov/history/nr/policyexpansion.html.

Sources

Alkire, Arthur N., ed. *Men of Affairs in Greater Kansas City 1912*. Kansas City, MO: Gate City Press, 1912.

Bartholomew, Harland. *A Preliminary Report on A System of Major Highways for St. Louis County, Missouri*. St. Louis, MO: Harland Bartholomew & Associates, 1930.

Boone-Duden Historical Society. "The TNT Story." n.d. Accessed 19 December 2011 at http://thetntstory.blogspot.com/p/story.html.

Construction File. Bridge J1000. Bridge Division. Missouri Department of Transportation, Jefferson City, Missouri.

Correspondence File. Bridge J1000. Bridge Division. Missouri Department of Transportation, Jefferson City, Missouri.

Dawdy, Randall. "Memorandum: Routes 40/61, St. Louis/St. Charles County, MoDOT Job No. J6P1436, Westbound Daniel Boone Bridge (Bridge No. J1000R), Replacement of Bridge J1000R over the Missouri River." 2011. Historic Preservation Section, Missouri Department of Transportation, Jefferson City, Missouri.

Epson. "Permanence ratings from Wilhelm Imaging Research." Downloaded 30 April 2009 from www.epson.com/pdf/LightfastCPD_15334R2.pdf.

Franzwa, Gregory M. *Legacy: The Sverdrup Story*. St. Louis, MO: The Patrice Press, 1978.

Fraser, Clayton. "Missouri Historic Bridge Inventory Daniel Boone Bridge data sheet." 1996. Historic Preservation Section, Missouri Department of Transportation, Jefferson City, Missouri.

Fine, Lenore and Jesse A. Remington. *United States Army in World War II The Technical Services The Corp of Engineers: Construction in the United States*. Washington, DC: Center of Military History, 1972.

Gubbels, Thomas J., "Lexington Bridge. Historic American Engineering Record." Historic Preservation Section, Missouri Department of Transportation, Jefferson City, Missouri.

Kansas City Bridge Company. "Articles of Association." 30 January 1898. Corporations Division, Secretary of State's Office. Downloaded 1 March 2010 from: https://www.sos.mo.gov/BusinessEntity/soskb/Filings.asp?6824#.

_____. "Articles of Dissolution by Voluntary Action." 25 July 2000. Corporations Division, Secretary of State's Office. Downloaded 1 March 2010 from: https://www.sos.mo.gov/BusinessEntity/soskb/Filings.asp?6824#.

_____. "Certificate of Amendment." 25 November 1933. Corporations Division, Secretary of State's Office. Downloaded 1 March 2010 from: https://www.sos.mo.gov/BusinessEntity/soskb/Filings.asp?6824#.

_____. "Certificate of Amendment." 5 May 1953. Corporations Division, Secretary of State's Office. Downloaded 1 March 2010 from: https://www.sos.mo.gov/BusinessEntity/soskb/Filings.asp?6824#.

Mo. State Board of Health, Bureau of Vital Statistics. "Certificate of Death, No. 2774P, Sylvester Moran Park." Filed 31 July 1936. Downloaded from Secretary of State web-site on 19 September 2011 at: http://www.sos.mo.gov/archives/resources/deathcertificates/Results.asp?type=basic&tLName=Park&tFName=&sCounty=all&tYear=1936#null.

_____."Certificate of Death, No. 28299, Theodora C. Duncan." Filed 12 July 1937. Downloaded from Secretary of State website on 1 September 2011 at: http://www.sos.mo.gov/archives/resources/deathcertificates/Results.asp?type=basic&tLName=Duncan&tFName=Theodora&sCounty=all&tYear=1937#null.

Missouri State Highway Commission. Minutes. Various dates. As held by the Secretary to the Commission, Missouri Department of Transportation, Jefferson City, Missouri.

_____. "Missouri (Official) Highway Map 1939." Jefferson City, MO: Missouri State Highway Department, 1939.

_____. *Third Biennial Report of the State Highway Commission of Missouri for the Period Ending December 1, 1922*. No publisher, 1922.

_____. *Fourth Biennial Report of the State Highway Commission of Missouri for the Period Ending December 1, 1924*. Jefferson City, MO: Hugh Stephens Press, 1924.

_____. *Fifth Biennial Report of the State Highway Commission of Missouri for the Period Ending December 1, 1926*. Jefferson City, MO: Hugh Stephens Press, 1926.

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

_____. *Tenth Biennial Report of the State Highway Commission of Missouri for the Period Ending December 1, 1936*. Jefferson City, MO: Midland Printing Co., 1936.

Missouri State Highway Department. "Bridge Over Missouri River, St. Charles Co.—St. Louis Co., Near Weldon Spring, U. S. Route 40 TR—S4 PWA 76 Station 10+48.39, Docket No. 2981." Microfilm, Bridge Division, Missouri Department of Transportation, Jefferson City, Missouri.

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

_____. "Draft of a Proposed New National Register Photographic Imaging Policy." Downloaded 26 March 2009 from: www.nps.gov/history/nr/policyexpansion.html.

_____. "National Register Photo Policy Factsheet." Downloaded 9 January 2013 from: www.nps.gov/history/nr/policyexpansion.html.

Olive Street Road Bridge Company. "Articles of Incorporation." 25 July 1928. Charter 49179. Corporation's Division, Missouri Secretary of State Office. Downloaded 5 December 2011 from: https://www.sos.mo.gov/BusinessEntity/soskb/Corp.asp?47747.

_____. "Affidavit of Dissolution. 29 June 1929. Charter 49179. Corporation's Division, Missouri Secretary of State Office. Downloaded 5 December 2011 from: https://www.sos.mo.gov/BusinessEntity/soskb/Corp.asp?47747.

Smith, Adam and Sunny Stone. *Weldon Spring Ordnance Works Historic Context*. Champaign, IL: United States Corps of Engineers Engineer Research and Development Center, 2005.

State of Missouri. *Official Manual for Years Nineteen Twenty-nine and Nineteen Thirty*. Jefferson City, MO: Botz-Hugh Stephens Press, 1929.

St. Charles Banner-News (weekly). Microfilm. State Historical Society of Missouri, Columbia, Missouri.

St. Charles Cosmos-Monitor (weekly). Microfilm. State Historical Society of Missouri, Columbia, Missouri.

St. Louis Post Dispatch (daily). Microfilm. State Historical Society of Missouri, Columbia, Missouri.

United States Department of Commerce, Bureau of the Census. *The Eighteenth Decennial Census of the United States Census of Population: 1960 Volume I Characteristics of the Population Part 27 Missouri.* Washington, DC: Government Printing Office, 1962.

_____. *A Report of the Seventeenth Decennial Census of the United States Census of Population: 1950 Volume I Number of Inhabitants Part 25 Missouri*. Washington, DC: Government Printing Office, 1952.

_____. *Sixteenth Census of the United States: 1940 Population Volume I Number of Inhabitants*. Washington, DC: Government Printing Office, 1942.

United States Department of Energy, Office of Legacy Management. "Weldon Spring Site History." Downloaded 12 December 2011 from: http://www.lm.doe.gov/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=1347

United States Geological Service. *Weldon Spring, MO*. 7.5-minute topographic series map. Denver, CO: United States Department of the Interior, 1954, photorevised 1968.

_____. *Weldon Spring, MO*. 7.5-minute topographic series map. Denver, CO: United States Department of the Interior, 1954, photorevised 1982.

_____. *Weldon Spring, MO*. 7.5-minute topographic series map. Denver CO: United States Department of the Interior, 1994.

United States Government Printing Office. *Statutes at Large of the United States of America from December, 1927 to March, 1929*. Volume XLV. Washington, DC: Government Printing Office, 1929.

_____. *Statutes at Large of the United States of America from April, 1929 to March, 1931*. Volume XLVI. Washington, DC: Government Printing Office, 1931.

_____. *Statutes at Large of the United States of America from March 1933 to June 1934*. Volume XLVIII. Washington, DC: Government Printing Office, 1934.

_____. *Statutes at Large of the United States of America from January 1935 to June 1936*. Volume XLIX. Washington, DC: Government Printing Office, 1936.

_____. *United States Statutes at Large 1939-1941, Vol. 54, Part I*. Washington, DC: United States Government Printing Office, 1941.

Watchman Advocate [Clayton] (weekly). Microfilm. State Historical Society of Missouri, Columbia, Missouri.

Wentzville Union, The (weekly). Microfilm. State Historical Society of Missouri, Columbia, Missouri.

Windegger, F. R. "Testimony before State Highway Commission, 5 April 1937." Lloyd C. Stark Papers (Collection 4, folder 2547), Western Historical Manuscript Collection, State Historical Society of Missouri, Columbia, Missouri.

Appendix A
Bridge Plans

·BRIDGE·OVER·MISSOURI·RIVER·

ST. CHARLES CO. ·—· ST. LOUIS CO.

·NEAR WELDON SPRINGS·

U.S.ROUTE 40 T.R.-S4 · PWA 76 · STATION 10+48.39

DOCKET NO.2981

— LIST OF DRAWINGS —

1 GENERAL PLAN AND ELEVATION
2 SOUNDINGS, BENCH CUT AND REVETMENT
3 BARBILL AND ANCHOR BOLT PLAN
4 BENT NO.1 AND PIER NO.2
5 PIERS NO.3 AND 4
6 PIERS NO.5 AND 6
7 PIERS NO.7 AND 8
8 BENT NO.9
9 STRESS SHEET, CONTINUOUS SPANS
10 FLOOR SLAB DETAILS
11 HANDRAIL AND CURB
12 RDWY. EXP. DEV. THRU TRUSS FLOOR SYSTEM
13 DETAILS, 512' CONTINUOUS SPAN
14 DETAILS, 512' CONTINUOUS SPAN
15 DETAILS, 512' CONTINUOUS SPAN
16 DETAILS, 512' CONTINUOUS SPAN
17 SHOES, 512' CONTINUOUS SPAN
18 CROSS SECTIONS 145' & 130' DECK TRUSSES
19 DETAILS, 145' DECK TRUSS
20 DETAILS, 130' DECK TRUSS
21 SHOES FOR DECK TRUSSES
22 NAVIGATION LIGHTS AND CHANNEL GAUGES

185

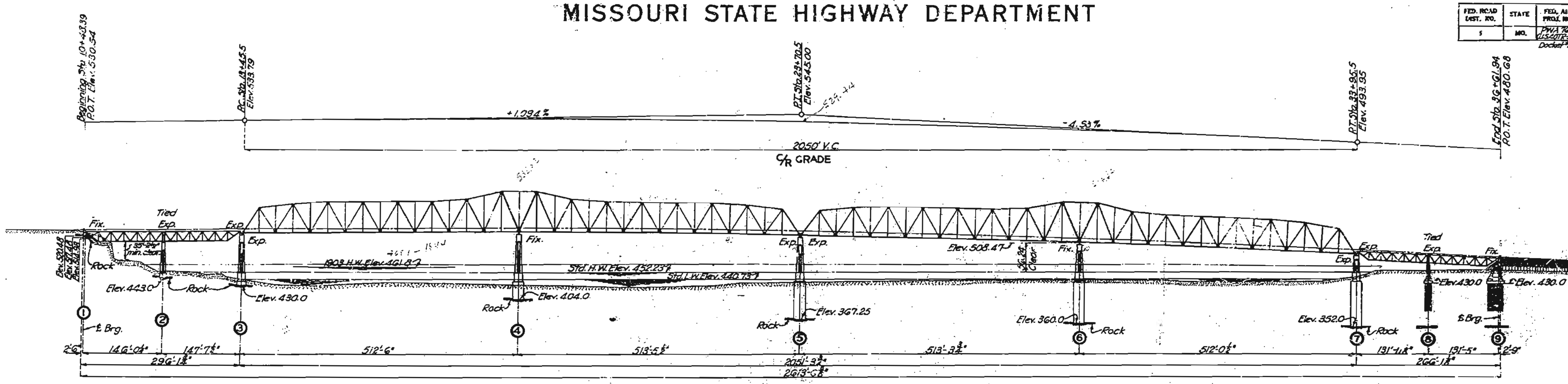
H.E.C.

J-1000

MISSOURI STATE HIGHWAY DEPARTMENT

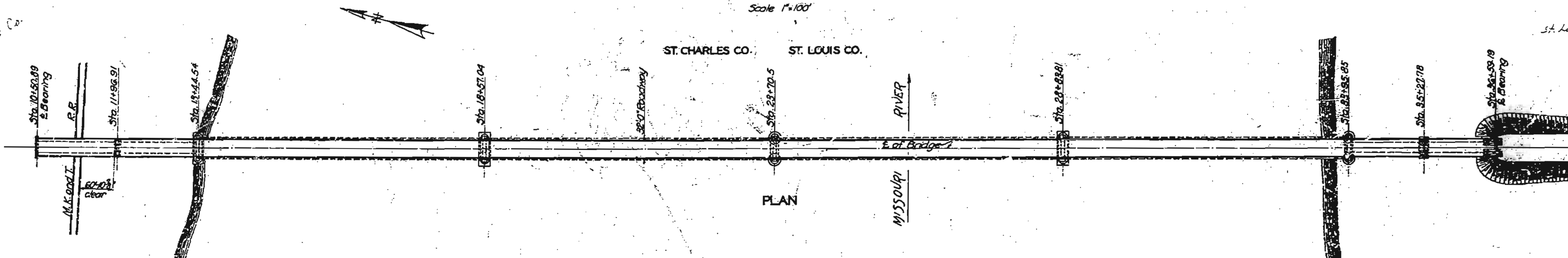
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	PWA 76 (US40TR-34)	19		

Docket #2381



GENERAL ELEVATION

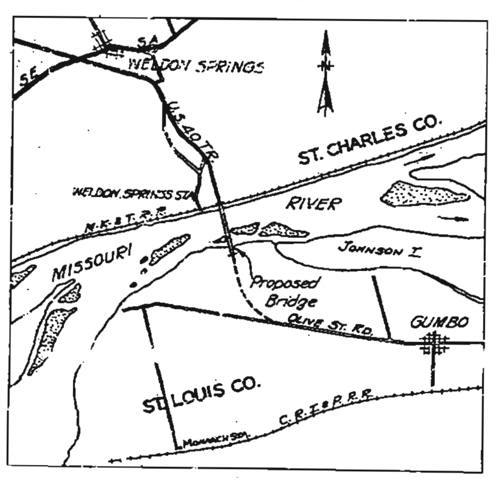
Scale 1" = 100'



PLAN

ESTIMATED QUANTITIES			
ITEMS		SUBSTRUCT.	SUPERSTRUCT.
Bench Cut Excavation	Cu. Yds.	830	
Class 1 Bridge Excavation	Cu. Yds.	875	
Class 2 Bridge Excavation	Cu. Yds.	1034	
Class "B" Concrete in Seal Course	Cu. Yds.	211.5	
Class "B" Concrete in Bases of Piers No. 4, 5, 6 & 7	Cu. Yds.	9042.6	
Class "B" Concrete in Shafts of Piers	Cu. Yds.	5482.4	
Concrete - Steel Bridge Floor in Place	Sq. Ft.		88296
Fabricated Carbon Steel in Shoes	Lbs.		53100
Fabricated Carbon Steel in Floor System	Lbs.		2180000
Fabricated Carbon Steel in Trusses and Bracing	Lbs.		2428000
Fabricated Silicon Steel in Trusses and Bracing	Lbs.		3257000
Fabricated Copper Bearing Steel in Handrail and Curb	Lbs.		333500
Cast Steel in Shoes	Lbs.		115400
Cast Steel in Expansion Devices	Lbs.		32400
Reinforcing Steel in Substructure	Lbs.	274240	
Structural Steel Piles in Place	Lin. Ft.	5389	
Structural Steel Pile Cut-offs	Lin. Ft.	231	
2" Galvanized Metal Conduit	Lin. Ft.		2890
1½" Galvanized Metal Conduit	Lin. Ft.		300
Navigation Lights			Lump Sum

Bridge excavation above Elev. 442.0 will be paid for as Class 1 Bridge Excavation.
Bridge excavation below Elev. 442.0 will be paid for as Class 2 Bridge Excavation.



LOCATION SKETCH

BENCH MARKS:
- B.M. #2 Elev. 507.62 Spike in trunk 10" R. Oak 50' Lt. Sta. 10+78.
- B.M. #3 Elev. 473.68 R.R. Spike in Tel. Pole 100' Rt. Sta. 11+44.
- B.M. #5 Elev. 458.09 Spike in root 14" Cottonwood 65' Rt. Sta. 35+00.
- B.M. #6 Elev. 458.92 Tie tack in root 48" Cottonwood 22' Rt. Sta. 40+03.

BRIDGE OVER MISSOURI RIVER

STATE ROAD FROM WENTZVILLE TO ST. LOUIS

ABOUT 2½ MILE EAST OF WELDON SPRINGS STATION

PROJECT NO. PWA 76 (US40 TR-34) STA. 10+48.39

ST. CHARLES – ST. LOUIS COUNTIES

SUBMITTED BY: W. R. Laws — BRIDGE ENGINEER — DATE: Oct. 18, 1935

APPROVED BY: T. H. Cutler — CHIEF ENGINEER — DATE: Oct. 18, 1935

STD. S918R

J-1000

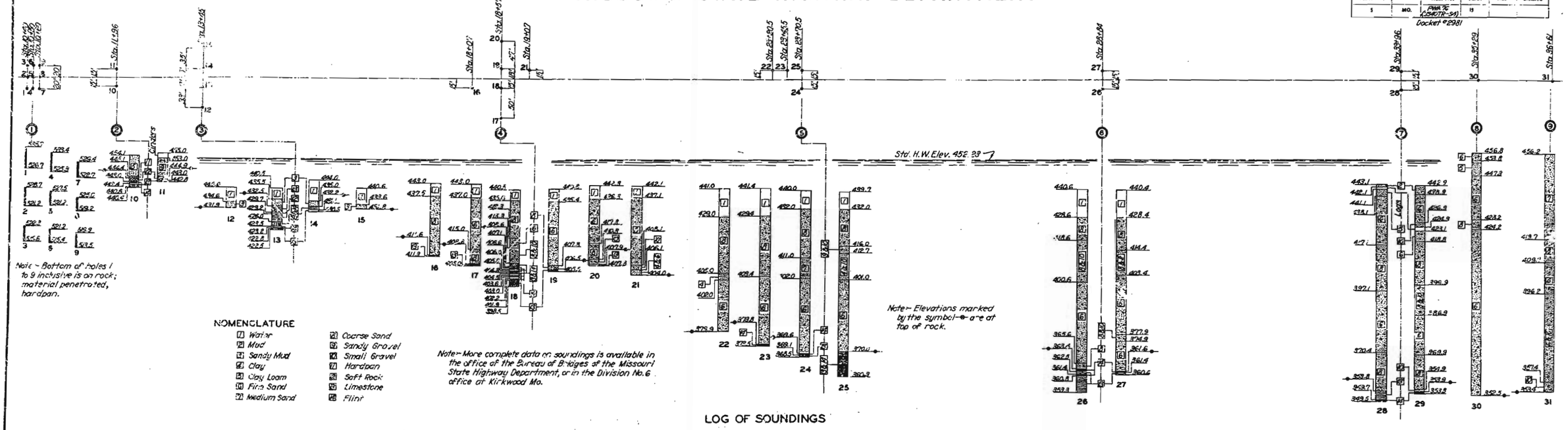
Designed April 1935 by F.W.H.
Drawn May 1935 by H.E.C.
Traced May 1935 by G.W.
Checked Oct. 1935 by Sverdrup & Parcel (L.F. - C.E.S. Jr.)

Sheet No. 1 of 22.

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	PWA 76 (US40TR-S4)	19		

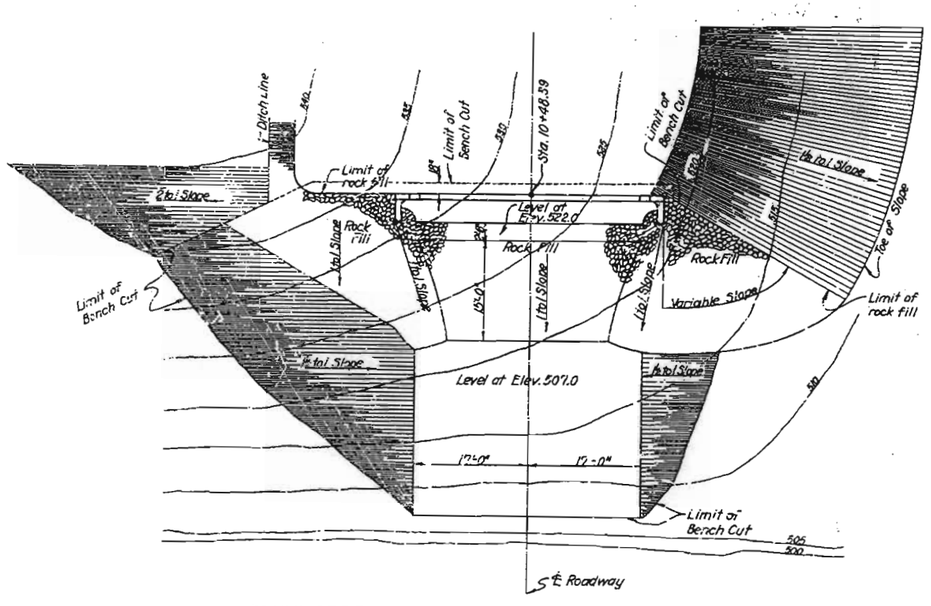
Docket #2981



NOMENCLATURE

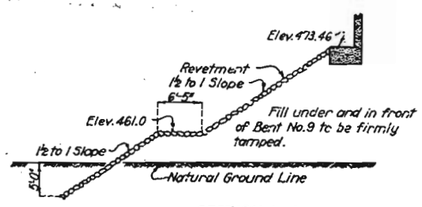
1 Water	6 Coarse Sand
2 Mud	6 Sandy Gravel
3 Sandy Mud	6 Small Gravel
4 Clay	7 Hardpan
5 Clay Loam	8 Soft Rock
6 Fine Sand	8 Limestone
6 Medium Sand	8 Flint

LOG OF SOUNDINGS

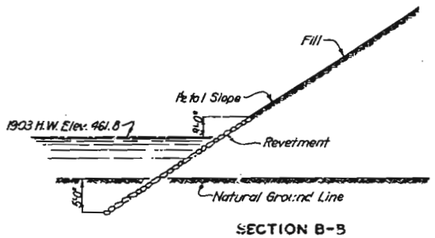


DETAIL OF BENCH CUT AND ROCK FILL AT BENT NO. 1

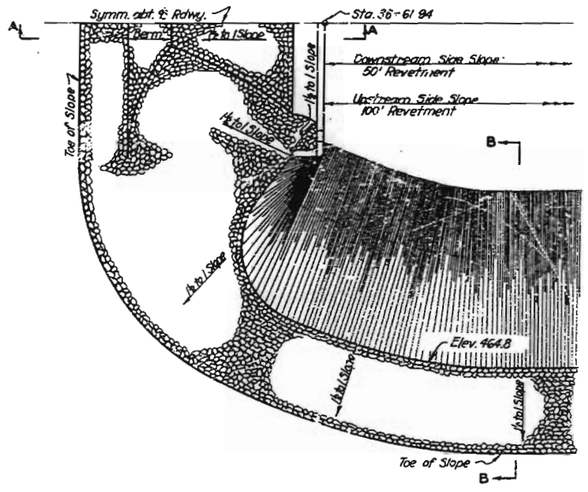
Note:- Bench cut and rock fill at Bent No. 1 as shown in detail.
Approximately 860 cubic yards of excavation and 130 cubic yards of rock fill.
All earth to be removed down to rock before building rock fill.
Excavation required for Bent No. 1 below Elev. 522.0 will be paid for as Bridge Excavation.
See Special Provisions.
Approximately 130 cubic yards of rock fill to be included in Roadway Quantities.



SECTION A-A



SECTION B-B



DETAILS OF HEAVY STONE REVETMENT AT BENT NO. 9

Note:- Heavy stone revetment shall be placed on fill at Bent No. 9 as shown in details.
Approximately 950 square yards of revetment work included in road contract.

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

BRIDGE OVER MISSOURI RIVER

STATE ROAD FROM WENTZVILLE TO ST. LOUIS

ABOUT .25 MILE EAST OF WELDON SPRINGS STATION

PROJECT NO. PWA 76 (US40TR-S4) STA. 10+48.39

ST. CHARLES-ST. LOUIS COUNTIES

J-1000

Designed May 1935 By F.W.H.
Drawn Aug. 1st 1935 By H.E.C.
Traced August 1935 By H.E.C.
Checked Oct. 1935 By Sverdrup & Parcel (L.F.)

MISSOURI STATE HIGHWAY DEPARTMENT

FINAL PLANS

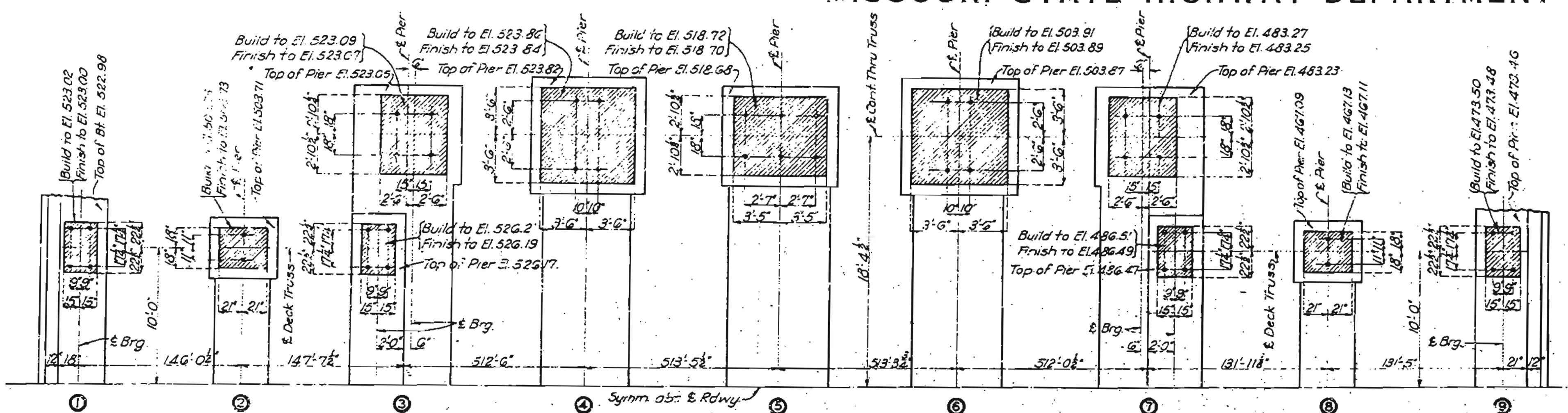
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	SHS.
5	MO.	PWA 76 (US40TR-54) Docket #2981	19		

INSTRUCTIONS FOR PREPARATION OF SHOE SEATS:

Substructure contractor shall place and protect anchor bolt wells, see Special Provisions. Substructure contractor shall build tops of bents and piers to elevations given and the raised shaded areas to not less than the elevations given on the anchor bolt plan. These shaded areas shall be monolithic with the bent or pier cap.

The superstructure contractor shall grind these areas down to the elevation given for finish on the anchor bolt plan, and set the shoe bases on 1/8" lead sheets in accordance with the Special Provisions.

All shoe bases shall be set to dimensions given on anchor bolt plan.



HALF ANCHOR BOLT PLAN

Reinf. Steel Notes:–
Bars in substructure units to be billed and tagged separately.
Dimensions given are along ℄ of bars and are for computed lengths.
Reinforcing bars 3/4" or over in diameter, which are bent to an angle greater than 90°, shall be of structural grade.

SUBSTRUCTURE BILL OF REINFORCING STEEL

NO.	SIZE	LENGTH	MARK	LOCATION
		BENT NO. 1		
6	1"φ	22'-0"	F1	Columns
3	1"φ	16'-0"	F2	"
2	5/8"φ	15'-0"	F3	"
9	1"φ	8'-0"	F4	"
12	1"φ	11'-6"	F11	"
11	1"φ	39'-9"	G16	Beam
6	1"φ	25'-3"	G17	"
10	5/8"φ	25'-3"	H1	Backwall
14	5/8"φ	21'-0"	H2	"
8	1/2"φ	5'-9"	H3	Wing Wall
41	5/8"φ	14'-3"	U1	Beam
66	5/8"φ	9'-6"	V1	Backwall
8	5/8"φ	11'-3"	V2	"
4	5/8"φ	10'-9"	V3	"
4	5/8"φ	16'-9"	V4	"
6	5/8"φ	16'-6"	V5	Wing Wall
4	5/8"φ	11'-9"	V6	"
8	5/8"φ	11'-0"	S1	Bridge Seat
8	5/8"φ	8'-3"	S2	"
8	1/2"φ	20'-3"	S3	"
4	5/8"φ	3'-6"	V21	Backwall
8	1/2"φ	20'-9"	U49	Columns
5	1/2"φ	21'-9"	U50	"
		PIER NO. 2		
110	1"φ	9'-0"	D1	Base
6	1"φ	22'-0"	F5	Web Haunch
16	1"φ	21'-6"	G2	Bm. & Web
6	1"φ	30'-0"	G4	Beam
2	1"φ	25'-0"	G5	Arch Web
6	1"φ	23'-6"	G6	Beam
14	5/8"φ	18'-6"	H4	Web Wall
8	5/8"φ	20'-6"	H5	Arch Web
20	1"φ	18'-0"	P1	Column
16	1"φ	22'-0"	P2	"
20	1"φ	19'-0"	P3	"
24	1"φ	22'-9"	P4	"
30	1"φ	17'-9"	P5	"
4	1"φ	26'-6"	P6	Web Wall
12	1"φ	23'-0"	P7	Col. & Web
76	1/2"φ	12'-9"	U2	Column
92	1/2"φ	11'-9"	U3	
80	1/2"φ	11'-9"	U4	"
80	1/2"φ	10'-9"	U5	"
32	1/2"φ	19'-6"	U6	"
24	1/2"φ	7'-0"	U7	Web Wall
34	1/2"φ	8'-0"	U8	" "
12	5/8"φ	15'-6"	U9	Beam
16	5/8"φ	13'-6"	U10	"
19	1/2"φ	11'-5"	U11	Arch Web
15	5/8"φ	10'-9"	V7	Web Wall
8	5/8"φ	9'-0"	V8	Arch Web
12	5/8"φ	10'-9"	V9	" "
16	5/8"φ	7'-0"	S4	Bridge Seat
16	5/8"φ	7'-6"	S5	" "
4	5/8"φ	9'-0"	S6	" "
4	1/4"φ	23'-3"	S7	" "

NO.	SIZE	LENGTH	MARK	LOCATION
		PIER NO. 2 CONTINUED		
6	1"φ	20'-6"	F12	Arch Web
12	5/8"φ	19'-6"	U43	Column
		PIER NO. 3		
126	1"φ	14'-9"	B1	Nosing
30	5/8"φ	44'-6"	B2	"
60	5/8"φ	23'-3"	B3	"
31	5/8"φ	15'-3"	B4	"
13	5/8"φ	31'-6"	B5	"
244	1"φ	9'-0"	D1	Base & Nosing
8	1"φ	28'-0"	F13	Web Haunch
4	1"φ	34'-6"	G7	Web Wall
6	1"φ	25'-0"	G8	Haunch
7	1"φ	51'-6"	G9	Beam
10	1"φ	37'-6"	G10	"
4	1"φ	42'-0"	G11	Arch Web
24	5/8"φ	31'-6"	H6	Web Wall
12	5/8"φ	34'-6"	H7	Arch Web
32	1"φ	18'-0"	P1	Column
22	1"φ	22'-0"	P2	"
16	1"φ	23'-0"	P7	Col. & Web
32	1"φ	33'-3"	P8	Column
22	1"φ	37'-3"	P9	"
32	1"φ	22'-9"	P10	"
20	1"φ	18'-9"	P11	"
16	1"φ	31'-3"	P12	Col. & Web
92	1/2"φ	18'-0"	U12	Column
136	1/2"φ	18'-0"	U13	"
136	1/2"φ	16'-6"	U14	"
64	1/2"φ	16'-6"	U15	"
42	1/2"φ	10'-0"	U16	Web Wall
42	1/2"φ	11'-5"	U17	" "
78	1/2"φ	12'-0"	U18	Arch Web
17	5/8"φ	14'-9"	U19	Haunch
20	5/8"φ	24'-6"	U20	Beam
76	1/2"φ	19'-6"	U42	Column
32	5/8"φ	12'-6"	V10	Web Wall
22	5/8"φ	14'-0"	V11	Arch Web
16	5/8"φ	17'-6"	V12	" "
8	5/8"φ	11'-0"	S1	Bridge Seat
8	5/8"φ	8'-3"	S2	" "
8	1/4"φ	20'-3"	S3	" "
28	5/8"φ	10'-6"	S8	" "
8	1/4"φ	31'-0"	S9	" "
8	5/8"φ	10'-3"	S10	" "
8	5/8"φ	11'-3"	S11	" "
8	1"φ	31'-6"	F14	Arch Web
24	3/4"φ	16'-6"	U44	Column
		PIER NO. 4		
134	1"φ	14'-9"	B1	Nosing
14	5/8"φ	31'-6"	B5	"
30	5/8"φ	49'-3"	B6	"

NO.	SIZE	LENGTH	MARK	LOCATION
		PIER NO. 4 CONTINUED		
60	5/8"φ	23'-9"	B7	Nosing
29	5/8"φ	16'-9"	B8	"
128	1"φ	9'-0"	D1	Base
114	1 1/4"φ	10'-6"	D3	Nosing
58	1 1/4"φ	11'-3"	D4	Column
8	1"φ	28'-0"	F13	Web Haunch
4	1"φ	34'-6"	G7	Web Wall
4	1"φ	37'-6"	G10	Beam
5	1"φ	52'-9"	G12	"
6	1"φ	37'-6"	G13	"
4	1 1/4"φ	40'-3"	G15	Arch Web
24	5/8"φ	31'-6"	H6	Web Wall
12	5/8"φ	34'-6"	H7	Arch Web
68	1 1/4"φ	18'-0"	P13	Column
22	1 1/4"φ	22'-0"	P14	"
36	1 1/4"φ	33'-9"	P15	"
22	1 1/4"φ	37'-9"	P16	"
32	1 1/4"φ	20'-0"	P17	"
36	1"φ	23'-0"	P18	"
16	1"φ	19'-0"	P19	"
24	1 1/4"φ	24'-0"	P20	Col. & Web
16	1 1/4"φ	32'-9"	P21	" " "
4	1"φ	32'-9"	P22	Web Wall
66	1/2"φ	12'-0"	U18	Arch Web
72	1/2"φ	22'-6"	U21	Column
88	1/2"φ	20'-6"	U22	"
140	1/2"φ	20'-6"	U23	"
140	1/2"φ	18'-6"	U24	"
64	1/2"φ	18'-3"	U25	"
44	1/2"φ	10'-9"	U26	Web Wall
46	1/2"φ	12'-9"	U27	" "
9	5/8"φ	22'-9"	U28	Beam
28	5/8"φ	12'-6"	V10	Web Wall
18	1/2"φ	19'-0"	V11	Arch Web
21	5/8"φ	17'-6"	V12	" "
62	5/8"φ	11'-0"	S12	Bridge Seat
8	5/8"φ	25'-3"	S13	" "
8	5/8"φ	8'-6"	S14	" "
8	1/4"φ	[illegible]	S15	" "
8	1 1/4"φ	34'-9"	F15	Arch Web
24	3/4"φ	[illegible]'-3"	U45	Column
		PIER NO. 5		
92	1"φ	14'-9"	B1	Nosing
62	5/8"φ	14'-9"	B9	"
60	5/8"φ	20'-9"	B10	"
30	5/8"φ	27'-3"	B11	"
30	5/8"φ	25'-9"	B12	"
26	1"φ	36'-0"	B13	"
62	5/8"φ	15'-9"	B14	"
224	1"φ	9'-0"	D1	Cylinder & Nosing
8	1"φ	28'-0"	F13	Web Haunch
4	1"φ	34'-6"	G7	Web Wall
8	1"φ	51'-6"	G9	Beam

NO.	SIZE	LENGTH	MARK	LOCATION
		PIER NO. 5 CONTINUED		
10	1"φ	37'-6"	G10	Beam
4	1"φ	42'-0"	G11	Arch Web
24	5/8"φ	31'-6"	H6	Web Wall
12	5/8"φ	34'-6"	H7	Arch Web
32	1"φ	18'-0"	P1	Column
22	1"φ	22'-0"	P2	"
24	1"φ	23'-0"	P7	Col. & Web
32	1"φ	22'-9"	P10	Column
20	1"φ	18'-9"	P11	"
32	1"φ	29'-0"	P23	"
22	1"φ	33'-0"	P24	"
16	1"φ	25'-6"	P25	Col. & Web
92	1/2"φ	18'-0"	U12	Column
116	1/2"φ	16'-6"	U14	"
46	1/2"φ	10'-0"	U16	Web Wall
30	1/2"φ	11'-6"	U17	" "
78	1/2"φ	12'-0"	U18	Arch Web
20	5/8"φ	24'-6"	U20	Beam
76	1/2"φ	20'-0"	U29	Column
116	1/2"φ	18'-6"	U30	"
68	1/2"φ	17'-0"	U31	"
32	5/8"φ	12'-6"	V10	Web Wall
22	5/8"φ	14'-0"	V11	Arch Web
16	5/8"φ	17'-6"	V12	" "
12	5/8"φ	11'-3"	S11	Bridge Seat
[illegible]	5/8"φ	11'-0"	S12	" "
[illegible]	1/4"φ	32'-0"	S15	" "
[illegible]	5/8"φ	9'-9"	S16	" "
8	5/8"φ	15'-6"	S17	" "
8	1"φ	31'-6"	F14	Arch Web
24	3/4"φ	17'-0"	U46	Column
116	5/8"φ	19'-6"	A4	East Cylinder
		PIER NO. 6		
132	1"φ	14'-9"	B1	Nosing
13	5/8"φ	31'-6"	B5	"
60	5/8"φ	23'-9"	B7	"
29	5/8"φ	15'-9"	B14	"
30	5/8"φ	46'-3"	B15	"
126	1"φ	9'-0"	D1	Base
8	1"φ	28'-0"	F13	Web Haunch
4	1"φ	34'-6"	G7	Web Wall
4	1"φ	37'-6"	G10	Beam
6	1"φ	52'-9"	G12	"
6	1"φ	37'-6"	G13	"
4	1"φ	40'-3"	G15	Arch Web
24	5/8"φ	31'-6"	H6	Web Wall
12	5/8"φ	34'-6"	H7	Arch Web
36	1"φ	18'-3"	P26	Column
22	1"φ	22'-3"	P27	"
36	1"φ	22'-0"	P28	"
22	1"φ	26'-0"	P29	"
36	1"φ	19'-6"	P30	"
16	1"φ	15'-6"	P31	"
24	1"φ	23'-0"	P32	Col. & Web

NO.	SIZE	LENGTH	MARK	LOCATION
		PIER NO. 6 CONTINUED		
16	1"φ	17'-0"	P33	Col. & Web
74	1/2"φ	12'-0"	U16	Arch Web
52	1/2"φ	18'-3"	U25	Column
48	1/2"φ	10'-9"	U26	Web Wall
19	5/8"φ	22'-9"	U28	Beam
76	1/2"φ	21'-3"	U32	Column
92	1/2"φ	19'-3"	U33	"
72	1/2"φ	19'-9"	U34	"
72	1/2"φ	17'-9"	U35	"
30	5/8"φ	12'-6"	V10	Web Wall
18	5/8"φ	14'-0"	V11	Arch Web
20	5/8"φ	17'-6"	V12	" "
62	5/8"φ	11'-0"	S12	Bridge Seat
8	5/8"φ	15'-3"	S13	" "
8	5/8"φ	8'-6"	S14	" "
8	1/4"φ	32'-0"	S15	" "
82	1"φ	9'-0"	D2	Column
8	1"φ	36'-6"	F16	Arch Web
24	3/4"φ	18'-3"	U45	Column
		PIER NO. 7		
88	1"φ	14'-9"	B1	Nosing
62	5/8"φ	14'-9"	B9	"
60	5/8"φ	20'-9"	B10	"
24	1"φ	36'-0"	B13	"
60	5/8"φ	24'-9"	B16	"
62	5/8"φ	14'-3"	B17	"
154	1"φ	9'-0"	D1	Cylinder & Nosing
34	5/8"φ	5'-3"	D5	Nosing
4	1"φ	10'-0"	F17	Web Haunch
6	1"φ	25'-0"	G8	Haunch
7	1"φ	51'-6"	G9	Beam
14	1"φ	37'-6"	G10	"
30	5/8"φ	32'-6"	H8	Web Wall
32	1"φ	18'-0"	P1	Column
22	1"φ	22'-0"	P2	"
32	1"φ	17'-3"	P35	"
20	1"φ	13'-3"	P36	"
12	1"φ	26'-0"	P37	Col. & Web
44	1/2"φ	16'-6"	U15	Column
44	1/2"φ	10'-0"	U16	Web Wall
34	5/8"φ	14'-9"	U19	Haunch & Web
20	5/8"φ	24'-6"	U20	Beam
72	1/2"φ	18'-6"	U36	Column
88	1/2"φ	17'-0"	U37	"
34	5/8"φ	25'-6"	V13	Web Wall
8	5/8"φ	11'-0"	S1	Bridge Seat
8	5/8"φ	8'-3"	S2	" "
8	1/4"φ	20'-3"	S3	" "
28	5/8"φ	10'-6"	S8	" "
8	1/4"φ	31'-0"	S9	" "
8	5/8"φ	10'-3"	S10	" "
8	5/8"φ	11'-3"	S11	" "
24	3/4"φ	16'-6"	U44	Column

NO.	SIZE	LENGTH	MARK	LOCATION
		PIER NO. 7 CONTINUED		
296	5/8"φ	18'-9"	B4	Cyliners
		PIER NO. 8		
24	1"φ	10'-0"	D6	Footing
20	5/8"φ	8'-6"	D7	"
6	1"φ	30'-0"	G4	Beam
6	1"φ	23'-6"	G6	"
30	5/8"φ	20'-6"	H5	Web Wall
24	1"φ	26'-3"	P38	Column
48	1/2"φ	19'-0"	U48	"
16	5/8"φ	13'-6"	U10	Beam
20	5/8"φ	25'-3"	V14	Web Wall
16	5/8"φ	7'-0"	S4	Bridge Seat
16	5/8"φ	7'-6"	S5	" "
4	5/8"φ	9'-0"	S6	" "
4	1/4"φ	23'-3"	S7	" "
8	3/4"φ	23'-0"	F18	Footing
18	3/4"φ	25'-9"	F19	"
12	5/8"φ	19'-0"	U47	Column
		BENT NO. 9		
20	1"φ	12'-8"	D8	Footing
20	1"φ	14'-0"	D9	"
12	1"φ	9'-6"	F21	Haunch
16	1"φ	23'-0"	F6	Footing
8	1"φ	18'-0"	F7	"
6	1"φ	9'-9"	F8	Haunch
6	1"φ	11'-6"	F9	Column
6	5/8"φ	8'-3"	F10	"
24	1"φ	11'-6"	F11	Haunch
[illegible]	1"φ	39'-9"	G16	Beam
6	1"φ	25'-3"	G17	"
10	5/8"φ	25'-3"	H1	Backwall
14	5/8"φ	21'-0"	H2	"
8	1/2"φ	6'-0"	H9	Wing Wall
6	1"φ	31'-6"	P39	Column
14	1"φ	29'-6"	P40	"
12	1"φ	32'-0"	P41	"
8	1"φ	30'-0"	P42	"
22	1/2"φ	19'-6"	U38	Beam
70	1/2"φ	13'-8"	U39	"
66	1/2"φ	15'-6"	U40	"
41	5/8"φ	16'-9"	U41	"
66	5/8"φ	9'-3"	V15	Backwall
8	5/8"φ	11'-0"	V16	"
4	5/8"φ	10'-6"	V17	"
4	5/8"φ	12'-6"	V18	"
6	5/8"φ	16'-0"	V19	Wing Wall
4	5/8"φ	11'-6"	V20	" "
8	5/8"φ	11'-0"	S1	Bridge Seat
8	5/8"φ	8'-3"	S2	" "
8	1/2"φ	20'-3"	S3	" "
28	3/4"φ	19'-9"	F20	Footing
4	5/8"φ	3'-5"	V21	Backwall

BENDING SKETCHES AND CUTTING DIAGRAMS

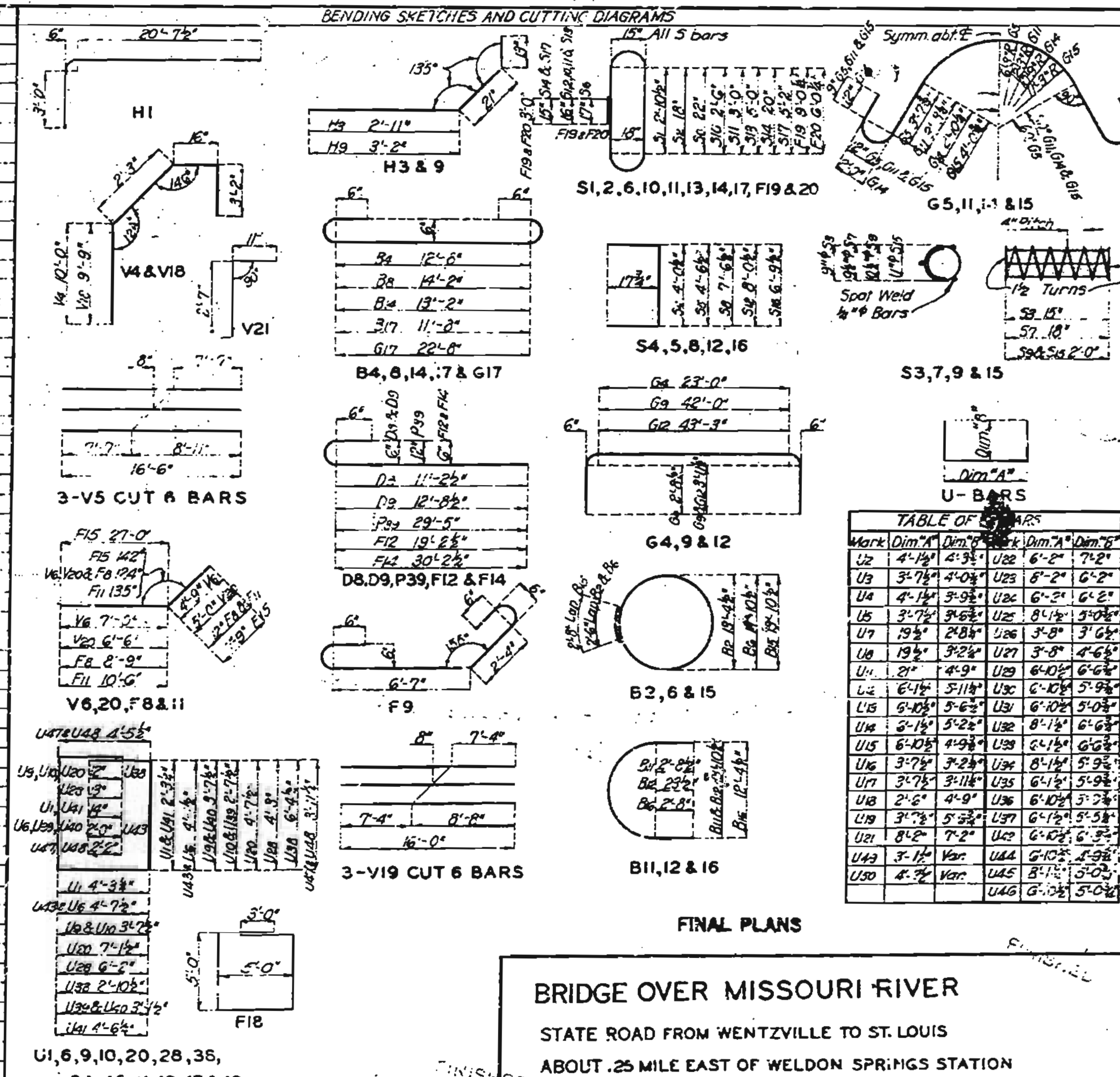


TABLE OF U-BARS

Mark	Dim."A"	Dim."B"	Mark	Dim."A"	Dim."B"
U2	4'-1 1/2"	4'-3 3/4"	U22	6'-2"	7'-2"
U3	3'-7 1/2"	4'-0 3/4"	U23	8'-2"	6'-2"
U4	4'-1 1/2"	3'-9 3/4"	U24	6'-2"	6'-2"
U5	3'-7 1/2"	3'-6 3/4"	U25	8'-1 1/2"	5'-0 3/4"
U7	19 1/2"	2'-8 3/4"	U26	3'-8"	3'-6 1/2"
U8	19 1/2"	3'-2 1/4"	U27	3'-8"	4'-6 1/2"
U11	21"	4'-9"	U29	6'-10 1/2"	6'-6 3/4"
U12	6'-1 1/2"	5'-11 3/4"	U30	6'-10 1/2"	5'-9 3/4"
U13	6'-10 1/2"	5'-6 3/4"	U31	6'-10 1/2"	5'-0 3/4"
U14	6'-1 1/2"	5'-2 3/4"	U32	8'-1 1/2"	6'-6 3/4"
U15	6'-10 1/2"	4'-9 3/4"	U33	6'-1 1/2"	6'-6 3/4"
U16	3'-7 1/2"	3'-2 3/4"	U34	8'-1 1/2"	5'-9 3/4"
U17	3'-7 1/2"	3'-11 3/4"	U35	6'-1 1/2"	5'-9 3/4"
U18	2'-6"	4'-9"	U36	6'-10 1/2"	[illegible]
U19	3'-7 1/2"	5'-5 3/4"	U37	6'-1 1/2"	5'-5 3/4"
U21	8'-2"	7'-2"	U42	6'-10 1/2"	6'-5 3/4"
U43	3'-1 1/2"	Var.	U44	5'-10 1/2"	4'-9 3/4"
U50	4'-7 1/2"	Var.	U45	8'-1 1/2"	5'-0 3/4"
			U46	6'-10 1/2"	5'-0 3/4"

FINAL PLANS

Designed May 1935 by F.W.H.
Drawn July 1935 by H.E.C.
Traced July 1935 by G.W.
Checked Oct. 1935 by Sverdrup & Parcel (L.F.)

FINISHED

BRIDGE OVER MISSOURI RIVER

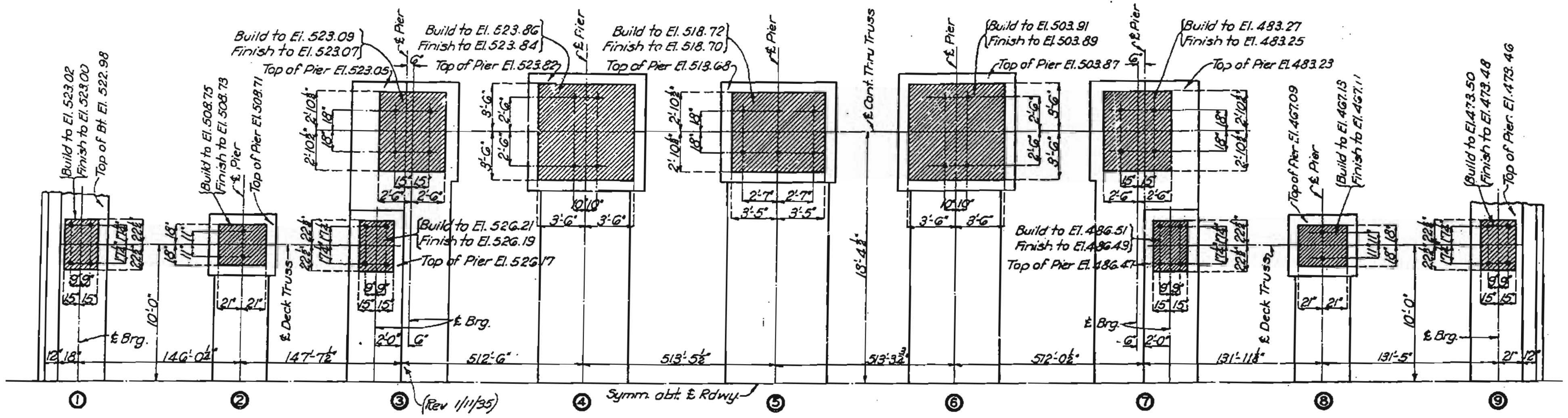
STATE ROAD FROM WENTZVILLE TO ST. LOUIS
ABOUT .25 MILE EAST OF WELDON SPRINGS STATION
PROJECT NO. PWA76 (US40TR-54) STA. 10+48.39

ST. CHARLES–ST. LOUIS COUNTIES

J-1000

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	PWA 76 (US40TR-54) Docket #2981	19		



HALF ANCHOR BOLT PLAN

INSTRUCTIONS FOR PREPARATION OF SHOE SEATS:

Substructure contractor shall place and protect anchor bolt wells, see Special Provisions. Substructure contractor shall build tops of bents and piers to elevations given and the raised shaded areas to not less than the elevations given on the anchor bolt plan. These shaded areas shall be monolithic with the bent or pier cap.

The superstructure contractor shall grind these areas down to the elevation given for finish on the anchor bolt plan, and set the shoe bases on ⅛" lead sheets in accordance with the Special Provisions.

All shoe bases shall be set to dimensions given on anchor bolt plan.

Reinf. Steel Notes:–

Bars in substructure units to be billed and tagged separately.

Dimensions given are along ℄ of bars and are for computed lengths.

Reinforcing bars ¾" or over in diameter, which are bent to an angle greater than 90°, shall be of structural grade.

SUBSTRUCTURE BILL OF REINFORCING STEEL

NO.	SIZE	LENGTH	MARK	LOCATION
BENT NO. 1				
15	5/8"φ	5'-0"	F1	Footing
14	5/8"φ	7'-6"	F2	"
4	5/8"φ	9'-6"	F3	"
4	5/8"φ	19'-6"	F4	"
16	5/8"φ	21'-0"	G1	Beam
10	5/8"φ	25'-3"	H1	Backwall
14	5/8"φ	21'-0"	H2	"
8	1/2"φ	5'-9"	H3	Wing Wall
31	5/8"φ	14'-3"	U1	Beam
66	5/8"φ	9'-6"	V1	Backwall
8	5/8"φ	11'-3"	V2	"
4	5/8"φ	10'-9"	V3	"
4	5/8"φ	16'-9"	V4	"
6	5/8"φ	16'-6"	V5	Wing Wall
4	5/8"φ	11'-9"	V6	" "
8	5/8"φ	11'-0"	S1	Bridge Seat
8	5/8"φ	8'-3"	S2	" "
8	1/4"φ	20'-3"	S3	" "
4	5/8"φ	3'-6"	V21	Backwall
PIER NO. 2				
110	1"φ	9'-0"	D1	Base
6	1"φ	22'-0"	F5	Web Haunch
16	1"φ	21'-6"	G3	Bm. & Web
6	1"φ	30'-0"	G4	Beam
2	1"φ	25'-0"	G5	Arch Web
6	1"φ	23'-6"	G6	Beam
14	5/8"φ	18'-6"	H4	Web Wall
8	5/8"φ	20'-6"	H5	Arch Web
20	1"φ	18'-0"	P1	Column
16	1"φ	22'-0"	P2	"
20	1"φ	19'-0"	P3	"
24	1"φ	22'-9"	P4	"
30	1"φ	17'-9"	P5	"
4	1"φ	26'-6"	P6	Web Wall
12	1"φ	23'-0"	P7	Col. & Web
76	1/2"φ	12'-9"	U2	Column
92	1/2"φ	11'-9"	U3	"
80	1/2"φ	11'-9"	U4	"
80	1/2"φ	10'-9"	U5	"
32	1/2"φ	19'-6"	U6	"
24	1/2"φ	7'-0"	U7	Web Wall
34	1/2"φ	8'-0"	U8	" "
12	5/8"φ	15'-6"	U9	Beam
16	5/8"φ	13'-[illegible]	U10	"
19	1/2"φ	11'-3"	U11	Arch Web
16	5/8"φ	10'-9"	V7	Web Wall
8	5/8"φ	9'-0"	V8	Arch Web
12	5/8"φ	10'-9"	V9	" "
16	5/8"φ	7'-0"	S4	Bridge Seat
16	5/8"φ	7'-6"	S5	" "
4	5/8"φ	9'-0"	S6	" "
4	1/4"φ	23'-3"	S7	" "

NO.	SIZE	LENGTH	MARK	LOCATION
PIER NO. 2 CONTINUED				
6	1"φ	20'-6"	F12	Arch Web
12	5/8"φ	19'-6"	U43	Column
PIER NO. 3				
126	1"φ	14'-9"	B1	Nosing
30	5/8"φ	44'-6"	B2	"
60	5/8"φ	23'-3"	B3	"
31	5/8"φ	15'-3"	B4	"
13	5/8"φ	31'-6"	B5	"
244	1"φ	9'-0"	D1	Base & Nosing
8	1"φ	28'-0"	F13	Web Haunch
4	1"φ	34'-6"	G7	Web Wall
6	1"φ	25'-0"	G8	Haunch
7	1"φ	51'-6"	G9	Beam
10	1"φ	37'-6"	G10	"
4	1"φ	42'-0"	G11	Arch Web
24	5/8"φ	31'-6"	H6	Web Wall
12	5/8"φ	34'-6"	H7	Arch Web
32	1"φ	18'-0"	P1	Column
22	1"φ	22'-0"	P2	"
16	1"φ	23'-0"	P7	Col. & Web
32	1"φ	33'-3"	P8	Column
22	1"φ	37'-3"	P9	"
32	1"φ	22'-9"	P10	"
20	1"φ	18'-9"	P11	"
16	1"φ	31'-3"	P12	Col. & Web
92	1/2"φ	18'-0"	U12	Column
136	1/2"φ	18'-0"	U13	"
136	1/2"φ	16'-6"	U14	"
64	1/2"φ	16'-6"	U15	"
46	1/2"φ	10'-0"	U16	Web Wall
42	1/2"φ	11'-6"	U17	" "
78	1/2"φ	12'-0"	U18	Arch Web
17	5/8"φ	14'-9"	U19	Haunch
20	5/8"φ	24'-6"	U20	Beam
76	1/2"φ	19'-6"	U42	Column
32	5/8"φ	12'-6"	V10	Web Wall
22	5/8"φ	14'-0"	V11	Arch Web
16	5/8"φ	17'-6"	V12	" "
8	5/8"φ	11'-0"	S1	Bridge Seat
8	5/8"φ	8'-3"	S2	" "
8	1/4"φ	20'-3"	S3	" "
28	5/8"φ	10'-6"	S8	" "
8	1/4"φ	31'-0"	S9	" "
8	5/8"φ	10'-3"	S10	" "
8	5/8"φ	11'-3"	S11	" "
8	1"φ	31'-6"	F14	Arch Web
24	3/4"φ	16'-6"	U44	Column
PIER NO. 4				
134	1"φ	14'-9"	B1	Nosing
14	5/8"φ	31'-6"	B5	"
30	5/8"φ	49'-3"	B6	"

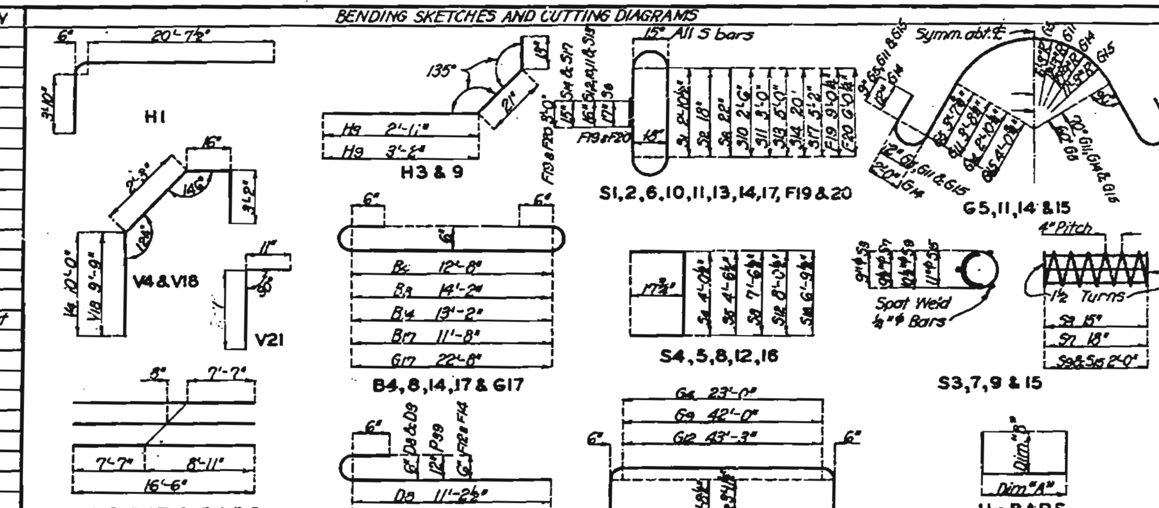
NO.	SIZE	LENGTH	MARK	LOCATION
PIER NO. 4 CONTINUED				
60	5/8"φ	23'-9"	B7	Nosing
29	5/8"φ	16'-9"	B8	"
128	1"φ	9'-0"	D1	Base
114	1¼"□	10'-6"	D3	Nosing
58	1¼"□	11'-3"	D4	Column
8	1"φ	28'-0"	F13	Web Haunch
4	1"φ	34'-6"	G7	Web Wall
4	1"φ	37'-6"	G10	Beam
6	1"□	52'-9"	G12	"
6	1"□	37'-6"	G13	"
4	1¼"□	40'-3"	G14	Arch Web
24	5/8"φ	31'-6"	H6	Web Wall
12	5/8"φ	34'-6"	H7	Arch Web
68	1¼"□	18'-0"	P13	Column
22	1¼"□	22'-0"	P14	"
36	1¼"□	33'-9"	P15	"
22	1¼"□	37'-9"	P16	"
32	1¼"□	20'-0"	P17	"
36	1"φ	23'-0"	P18	"
16	1"φ	19'-0"	P19	"
24	1¼"□	24'-0"	P20	Col. & Web
16	1¼"□	32'-9"	P21	" " "
4	1"φ	32'-9"	P22	Web Wall
66	1/2"φ	12'-0"	U18	Arch Web
72	1/2"φ	22'-6"	U21	Column
88	1/2"φ	20'-6"	U22	"
140	1/2"φ	20'-6"	U23	"
140	1/2"φ	18'-6"	U24	"
64	1/2"φ	18'-3"	U25	"
44	1/2"φ	10'-9"	U26	Web Wall
46	1/2"φ	12'-9"	U27	" "
19	5/8"φ	22'-9"	U28	Beam
28	5/8"φ	12'-6"	V10	Web Wall
18	5/8"φ	14'-0"	V11	Arch Web
20	5/8"φ	17'-6"	V12	" "
62	5/8"φ	11'-0"	S12	Bridge Seat
8	5/8"φ	15'-3"	S13	" "
8	5/8"φ	8'-6"	S14	" "
8	1/4"φ	32'-0"	S15	" "
8	1¼"□	34'-9"	F15	Arch Web
24	3/4"φ	18'-3"	U45	Column
PIER NO. 5				
92	1"φ	14'-9"	B1	Nosing
62	5/8"φ	14'-9"	B9	"
60	5/8"φ	20'-9"	B10	"
30	5/8"φ	27'-3"	B11	"
30	5/8"φ	25'-9"	B12	"
26	1"φ	36'-0"	B13	"
62	5/8"φ	15'-9"	B14	"
224	1"φ	9'-0"	D1	Cylinder & Nosing
8	1"φ	28'-0"	F13	Web Haunch
4	1"φ	34'-6"	G7	Web Wall
8	1"φ	51'-6"	G9	Beam

NO.	SIZE	LENGTH	MARK	LOCATION
PIER NO. 5 CONTINUED				
10	1"φ	37'-6"	G10	Beam
4	1"φ	42'-0"	G11	Arch Web
24	5/8"φ	31'-6"	H6	Web Wall
12	5/8"φ	34'-6"	H7	Arch Web
32	1"φ	18'-0"	P1	Column
22	1"φ	22'-0"	P2	"
24	1"φ	23'-0"	P7	Col. & Web
32	1"φ	22'-9"	P10	Column
20	1"φ	18'-9"	P11	"
32	1"φ	29'-0"	P23	"
22	1"φ	33'-0"	P24	"
16	1"φ	25'-6"	P25	Col. & Web
92	1/2"φ	18'-0"	U12	Column
116	1/2"φ	16'-6"	U14	"
46	1/2"φ	10'-0"	U16	Web Wall
30	1/2"φ	11'-6"	U17	" "
78	1/2"φ	12'-0"	U18	Arch Web
20	5/8"φ	24'-6"	U20	Beam
76	1/2"φ	20'-0"	U29	Column
116	1/2"φ	18'-6"	U30	"
68	1/2"φ	17'-0"	U31	"
32	5/8"φ	12'-6"	V10	Web Wall
22	5/8"φ	14'-0"	V11	Arch Web
16	5/8"φ	17'-6"	V12	" "
12	5/8"φ	11'-3"	S11	Bridge Seat
28	5/8"φ	11'-0"	S12	" "
12	1/4"φ	32'-0"	S15	" "
32	5/8"φ	9'-9"	S16	" "
8	5/8"φ	15'-6"	S17	" "
8	1"φ	31'-6"	F14	Arch Web
24	3/4"φ	17'-0"	U46	Column
PIER NO. 6				
132	1"φ	14'-9"	B1	Nosing
13	5/8"φ	31'-6"	B5	"
60	5/8"φ	23'-9"	B7	"
29	5/8"φ	15'-9"	B14	"
30	5/8"φ	46'-3"	B15	"
126	1"φ	9'-0"	D1	Base
8	1"φ	28'-0"	F13	Web Haunch
4	1"φ	34'-6"	G7	Web Wall
4	1"φ	37'-6"	G10	Beam
6	1"□	52'-9"	G12	"
6	1"□	37'-6"	G13	"
4	1"□	40'-3"	G15	Arch Web
24	5/8"φ	31'-6"	H6	Web Wall
12	5/8"φ	34'-6"	H7	Arch Web
36	1"□	18'-3"	P26	Column
22	1"□	22'-3"	P27	"
36	1"□	22'-0"	P28	"
22	1"□	26'-0"	P29	"
36	1"φ	19'-6"	P30	"
16	1"φ	15'-6"	P31	"
24	1"□	23'-0"	P32	Col. & Web

NO.	SIZE	LENGTH	MARK	LOCATION
PIER NO. 6 CONTINUED				
16	1"□	17'-0"	P33	Col. & Web
74	1/2"φ	12'-0"	U18	Arch Web
52	1/2"φ	18'-3"	U25	Column
48	1/2"φ	10'-9"	U26	Web Wall
19	5/8"φ	22'-9"	U28	Beam
76	1/2"φ	21'-3"	U32	Column
92	1/2"φ	19'-3"	U33	"
72	1/2"φ	19'-9"	U34	"
72	1/2"φ	17'-9"	U35	"
30	5/8"φ	12'-6"	V10	Web Wall
18	5/8"φ	14'-0"	V11	Arch Web
20	5/8"φ	17'-6"	V12	" "
62	5/8"φ	11'-0"	S12	Bridge Seat
8	5/8"φ	15'-3"	S13	" "
8	5/8"φ	8'-6"	S14	" "
8	1/4"φ	32'-0"	S15	" "
82	1"□	9'-0"	D2	Column
8	1"□	36'-6"	F16	Arch Web
24	3/4"φ	18'-3"	U45	Column
PIER NO. 7				
88	1"φ	14'-9"	B1	Nosing
62	5/8"φ	14'-9"	B9	"
60	5/8"φ	20'-9"	B10	"
24	1"φ	36'-0"	B13	"
60	5/8"φ	24'-9"	B16	"
62	5/8"φ	14'-3"	B17	"
154	1"φ	9'-0"	D1	Cylinder & Nosing
34	5/8"φ	5'-3"	D5	Nosing
4	1"φ	10'-0"	F17	Web Haunch
6	1"φ	25'-0"	G8	Haunch
7	1"φ	51'-6"	G9	Beam
14	1"φ	37'-6"	G10	"
30	5/8"φ	32'-6"	H8	Web Wall
32	1"φ	18'-0"	P1	Column
22	1"φ	22'-0"	P2	"
32	1"φ	17'-3"	P35	"
20	1"φ	13'-3"	P36	"
12	1"φ	26'-0"	P37	Col. & Web
44	1/2"φ	16'-6"	U15	Column
44	1/2"φ	10'-0"	U16	Web Wall
34	5/8"φ	14'-9"	U19	Haunch & Web
20	5/8"φ	24'-6"	U20	Beam
72	1/2"φ	18'-6"	U36	Column
88	1/2"φ	17'-0"	U37	"
34	5/8"φ	25'-6"	V13	Web Wall
8	5/8"φ	11'-0"	S1	Bridge Seat
8	5/8"φ	8'-3"	S2	" "
8	1/4"φ	20'-3"	S3	" "
28	5/8"φ	10'-6"	S8	" "
8	1/4"φ	31'-0"	S9	" "
8	5/8"φ	10'-3"	S10	" "
8	5/8"φ	11'-3"	S11	" "
24	3/4"φ	16'-6"	U44	Column

NO.	SIZE	LENGTH	MARK	LOCATION
PIER NO. 7 CONTINUED				
PIER NO. 8				
24	1"φ	10'-0"	D6	Footing
20	5/8"φ	8'-6"	D7	"
6	1"φ	30'-0"	G4	Beam
6	1"φ	23'-6"	G6	"
30	5/8"φ	20'-6"	H5	Web Wall
24	1"φ	26'-3"	P38	Column
48	1/2"φ	19'-0"	U48	"
16	5/8"φ	13'-6"	U10	Beam
20	5/8"φ	25'-3"	V14	Web Wall
16	5/8"φ	7'-0"	S4	Bridge Seat
16	5/8"φ	7'-6"	S5	" "
4	5/8"φ	9'-0"	S6	" "
4	1/4"φ	23'-3"	S7	" "
8	3/4"φ	23'-0"	F18	Footing
18	3/4"φ	25'-9"	F19	"
12	5/8"φ	19'-0"	U47	Column
BENT NO. 9				
20	1"φ	12'-6"	D8	Footing
20	1"φ	14'-0"	D9	"
12	1"φ	9'-6"	F21	Haunch
16	1"φ	23'-0"	F6	Footing
8	1"φ	18'-0"	F7	"
6	1"φ	9'-9"	F8	Haunch
6	1"φ	11'-6"	F9	Column
8	5/8"φ	8'-3"	F10	"
24	1"φ	11'-6"	F11	Haunch
9	1"φ	39'-9"	G16	Beam
6	1"φ	25'-3"	G17	"
10	5/8"φ	25'-3"	H1	Backwall
14	5/8"φ	21'-0"	H2	"
8	1/2"φ	6'-0"	H9	Wing Wall
6	1"φ	31'-6"	P39	Column
14	1"φ	29'-6"	P40	"
12	1"φ	32'-0"	P41	"
8	1"φ	30'-0"	P42	"
22	1/2"φ	19'-6"	U38	Beam
70	1/2"φ	13'-6"	U39	"
66	1/2"φ	15'-6"	U40	"
41	5/8"φ	14'-9"	U41	"
66	5/8"φ	9'-3"	V15	Backwall
8	5/8"φ	11'-0"	V16	"
4	5/8"φ	10'-6"	V17	"
4	5/8"φ	16'-6"	V18	"
6	5/8"φ	16'-0"	V19	Wing Wall
4	5/8"φ	11'-6"	V20	" "
8	5/8"φ	11'-0"	S1	Bridge Seat
8	5/8"φ	8'-3"	S2	" "
8	1/4"φ	20'-3"	S3	" "
14	3/4"φ	19'-9"	F20	Footing
4	5/8"φ	3'-6"	V21	Backwall

BENDING SKETCHES AND CUTTING DIAGRAMS



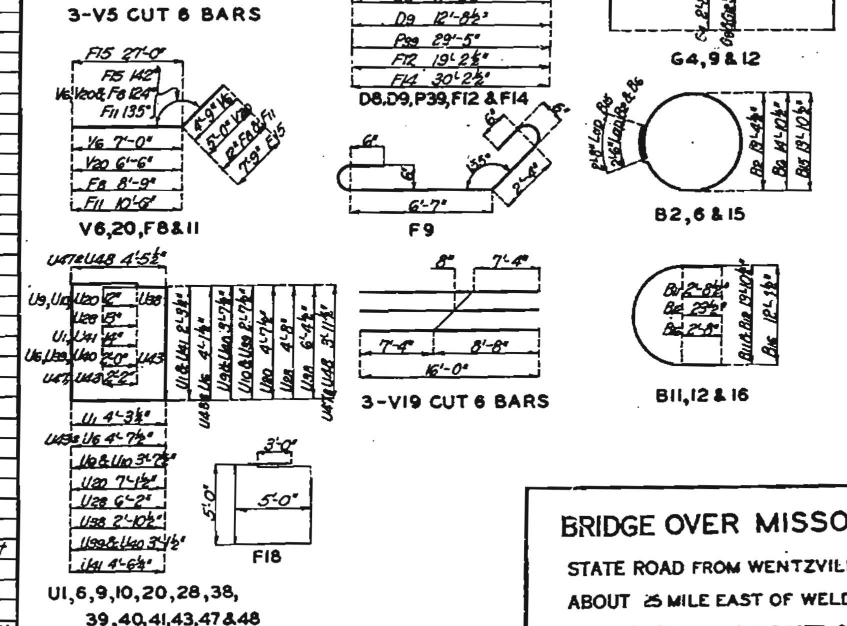


TABLE OF U-BARS					
Mark	Dim. "A"	Dim. "B"	Mark	Dim. "A"	Dim. "B"
U2	4'-1½"	4'-3¾"	U22	6'-2"	7'-2"
U3	3'-7½"	4'-0¾"	U23	8'-2"	6'-2"
U4	4'-1½"	3'-9¾"	U24	6'-2"	6'-2"
U5	3'-7½"	3'-6¾"	U25	8'-1½"	5'-0¾"
U7	19½"	2'-8¾"	U26	3'-8"	3'-6½"
U8	19½"	3'-2¾"	U27	3'-8"	4'-6½"
U11	21"	4'-9"	U29	6'-10½"	6'-6¾"
U12	6'-1½"	5'-11¾"	U30	6'-10½"	5'-9¾"
U13	6'-10½"	5'-6¾"	U31	6'-10½"	5'-0¾"
U14	6'-1½"	5'-2¾"	U32	8'-1½"	6'-6¾"
U15	6'-10½"	4'-9¾"	U33	6'-1½"	6'-6¾"
U16	3'-7½"	3'-2¾"	U34	8'-1½"	5'-9¾"
U17	3'-7½"	3'-11¾"	U35	6'-1½"	5'-9¾"
U18	2'-6"	4'-9"	U36	6'-10½"	5'-9¾"
U19	3'-7½"	5'-6¾"	U37	6'-1½"	5'-5¾"
U21	8'-2"	7'-2"	U42	6'-10½"	6'-3¾"
			U44	6'-10½"	4'-9¾"
			U45	8'-1½"	5'-0¾"
			U46	6'-10½"	5'-0¾"

BRIDGE OVER MISSOURI RIVER

STATE ROAD FROM WENTZVILLE TO ST. LOUIS

ABOUT 2.5 MILE EAST OF WELDON SPRINGS STATION

PROJECT NO. PWA76 (US40TR-54) STA. 10+48.39

ST. CHARLES-ST. LOUIS COUNTIES

J-1000

Designed May 1935 by F.W.H.
Drawn July 1935 by H.E.C.
Traced July 1935 by G.W.
Checked Oct. 1935 by Sverdrup & Parcel (L.F.)

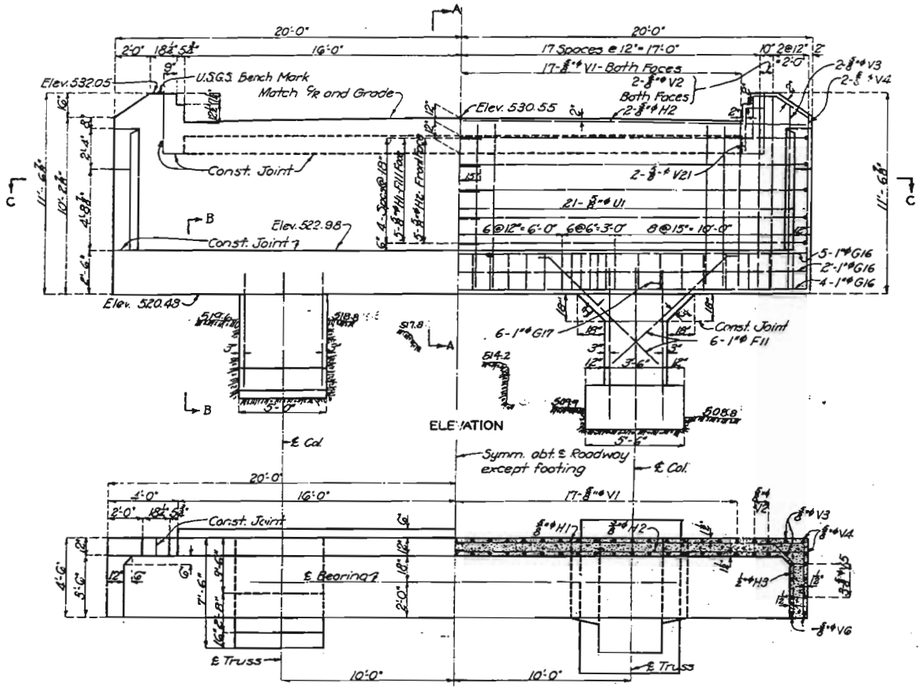
100

MISSOURI STATE HIGHWAY DEPARTMENT

FINAL PLANS

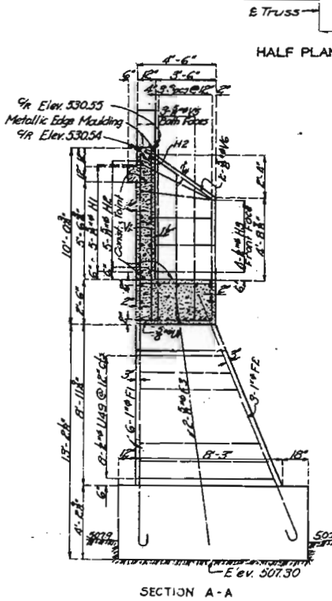
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	PWA 76 (U.S.40TR-S4) Docket #2581	19		

Note:-No backfill shall be placed against Bent No. 1 until the full dead load of the superstructure is in place.



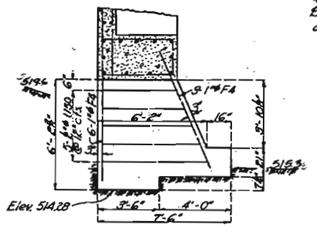
HALF PLAN

HALF HORIZONTAL SECTION C-C

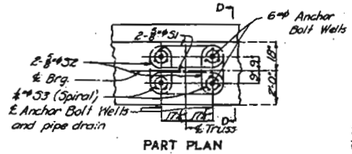


SECTION A-A

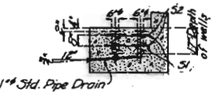
DETAILS OF BENT NO. 1



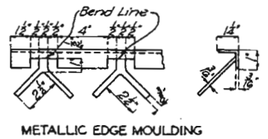
SECTION B-B



PART PLAN

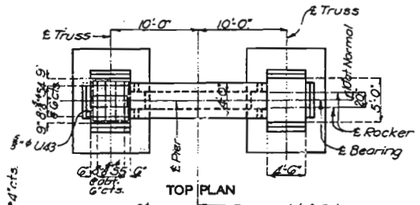


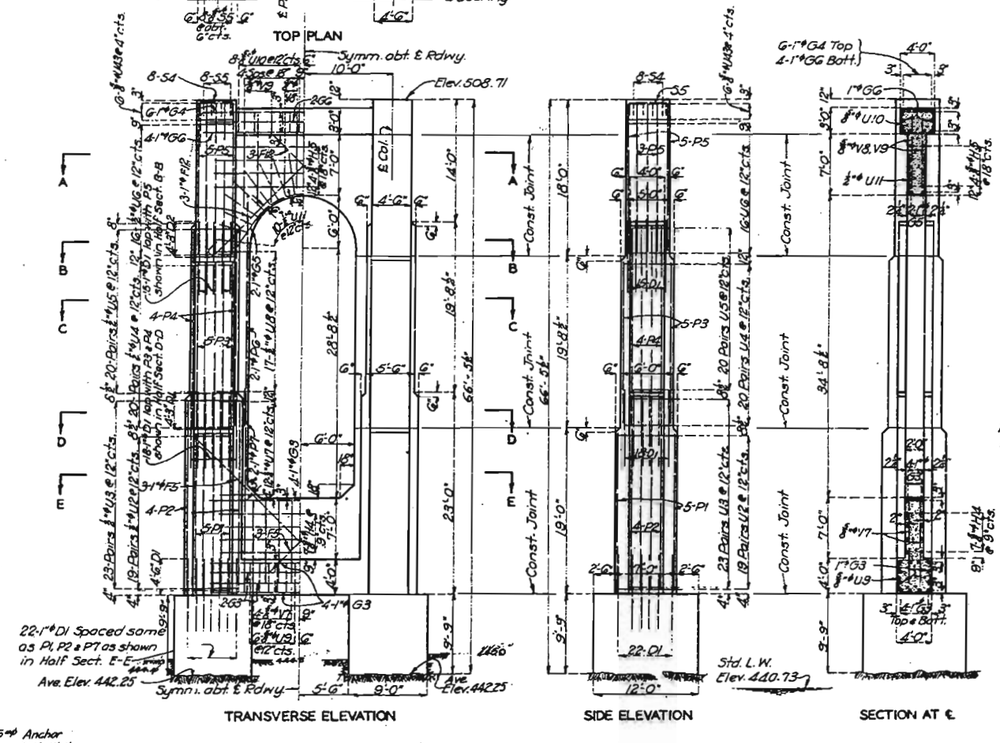
SECTION D-D

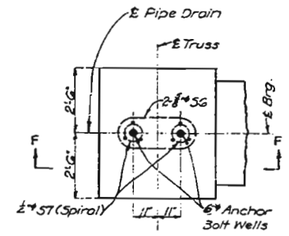


METALLIC EDGE MOULDING

Note: Cost of metallic edge moulding to be included in unit bid price for concrete.

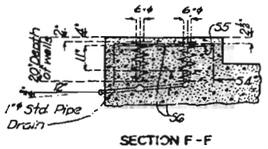






PART PLAN

Note: S4 and S5 bars not shown in plan.



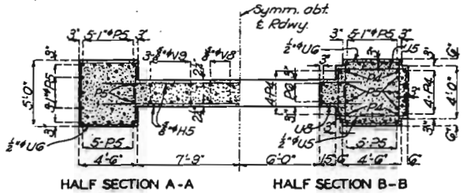
SECTION F-F

Note: (Anchor bolt well, pipe drain)

1"ø Std. pipe drain, as shown and noted on these drawings, shall consist of one elbow, one tee, one pipe cap, and such lengths of 1"ø pipe as will be required to build. All pipe and fittings shall be galvanized.

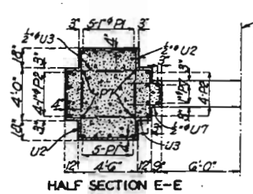
These drains shall be so placed that their tops will be flush with the bottom of anchor bolt wells, and the protruding drainage end shall not be capped until after anchor bolts have been grouted in place.

The cost of forming wells, furnishing and placing pipe drains, shall be included in the price bid for other items of the substructure.

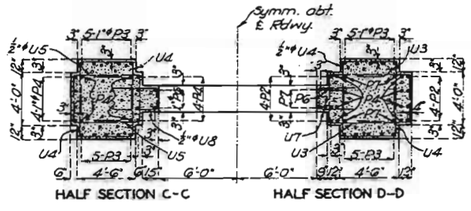


HALF SECTION A-A

HALF SECTION B-B



HALF SECTION E-E



HALF SECTION C-C

HALF SECTION D-D

DETAILS OF PIER NO. 2

NOTES:

Footing for bent No. 1 shall be carried at least 6' into solid rock. Rock to be capable of carrying a foundation pressure of at least 4 ton per sq. ft.

Footing for pier No. 2 shall be carried at least 12' into solid rock. Rock to be capable of carrying a foundation pressure of at least 12 ton per sq. ft. Footings shall not be founded higher than Elevation 440.0.

Bent No. 1 and Pier No. 2 footings shall be placed in the dry.

All bridge seats under shoes are to be built to elevations given and finished in accordance with instructions on anchor bolt plan, see sheet No. 3.

For general substructure notes, see sheet No. 8.

FINAL QUANTITIES			
		Bent #1	Pier #2
Rench Cut Excavation	Cu.Yds.	3636	
Class 1 Bridge Excavation	Cu.Yds.	1007.3	1706
Class 1 Bridge Excavation (Extra Pay)	Cu.Yds.	9.0	
Class 2 Bridge Excavation	Cu.Yds.		0.7
Class "B" Concrete in Shafts of Piers	Cu.Yds.	539.9	847.9
Reinforcing Steel in Substructure	Lbs.	51255	71262

FINAL PLANS

FINISHED

BRIDGE OVER MISSOURI RIVER

STATE ROAD FROM WENTZVILLE TO ST. LOUIS

ABOUT .25 MILE EAST OF WELDON SPRINGS STATION

PROJECT NO. PWA 76 (U.S.40 TR-S4) STA. 10+48.39

ST. CHARLES - ST. LOUIS COUNTIES

J-1000

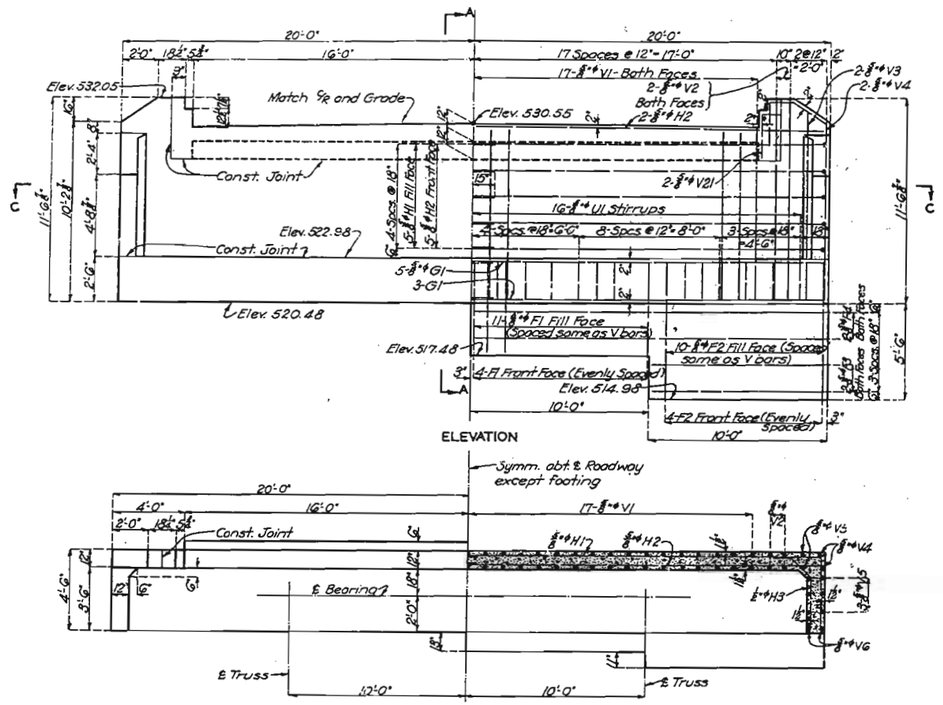
Designed May 1935 by F.W.H.
Drawn June 1935 by H.E.C.
Traced June 1935 by G.W.
Checked Oct. 1935 by Sverdrup & Parcel (B.R.S.)

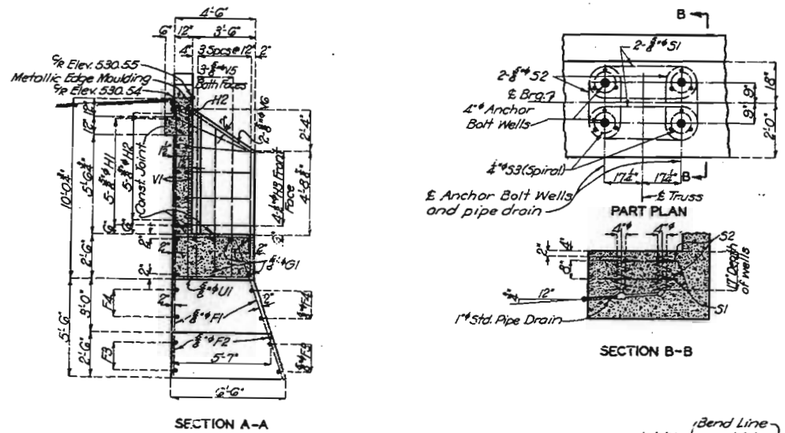
Note: This drawing is not to scale. Follow dimensions.

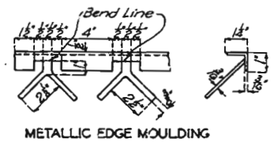
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	PWA 76 (U.S.40TR-S4) Under #258	19		

Note:-No backfill shall be placed against Bent No. 1 until the full dead load of the superstructure is in place.

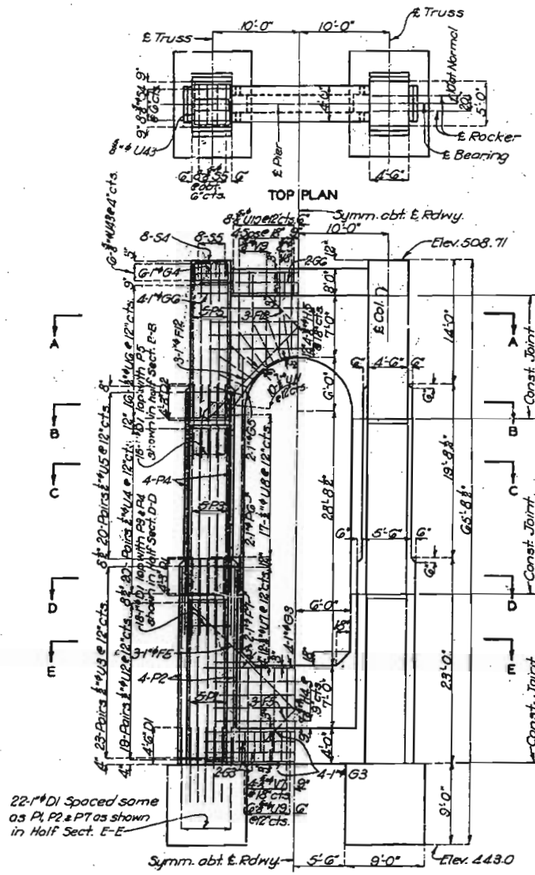


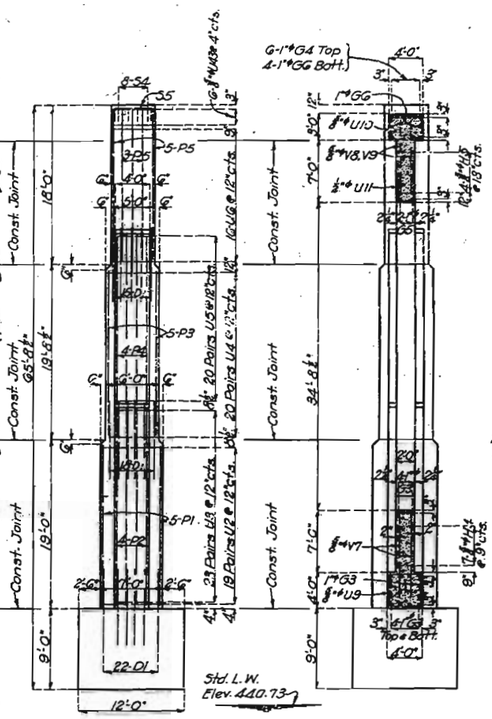


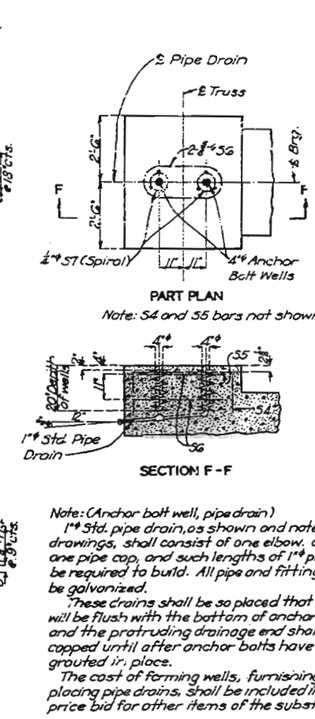


DETAILS OF BENT NO. 1

Note: Cost of metallic edge moulding to be included in unit bid price for concrete.

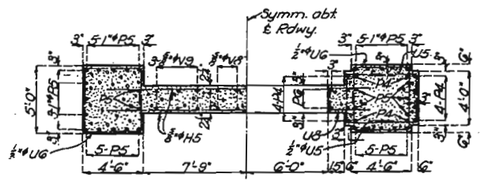


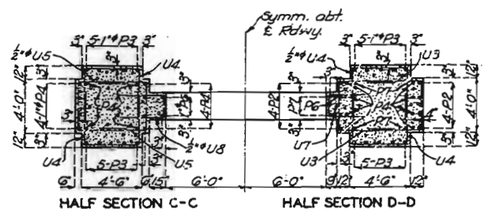




Note: S4 and S5 bars not shown in plan.

Note: (Anchor bolt well, pipe drain)
1"ϕ Std. pipe drain, as shown and noted on these drawings, shall consist of one elbow, one tee, one pipe cap, and such lengths of 1"ϕ pipe as will be required to build. All pipe and fittings shall be galvanized.
These drains shall be so placed that their tops will be flush with the bottom of anchor bolt wells, and the protruding drainage end shall not be capped until after anchor bolts have been grouted in place.
The cost of forming wells, furnishing and placing pipe drains, shall be included in the price bid for other items of the substructure.





DETAILS OF PIER NO. 2

NOTES:
Footing for bent No. 1 shall be carried at least 6' into solid rock. Rock to be capable of carrying a foundation pressure of at least 4 ton per sq. ft.
Footing for pier No. 2 shall be carried at least 12' into solid rock. Rock to be capable of carrying a foundation pressure of at least 12 ton per sq. ft. Footings shall not be founded higher than Elevation 446.0.
Bent No. 1 and Pier No. 2 footings shall be placed in the dry.
All bridge seats under shoes are to be built to elevations given and finished in accordance with instructions on anchor bolt plan, see sheet No. 3.
For general substructure notes, see sheet No. 8.

BRIDGE OVER MISSOURI RIVER

STATE ROAD FROM WENTZVILLE TO ST. LOUIS
ABOUT .25 MILE EAST OF WELDON SPRINGS STATION
PROJECT NO. PWA 76 (U.S. 40 TR-S4) STA. 10+48.39

ST. CHARLES - ST. LOUIS COUNTIES

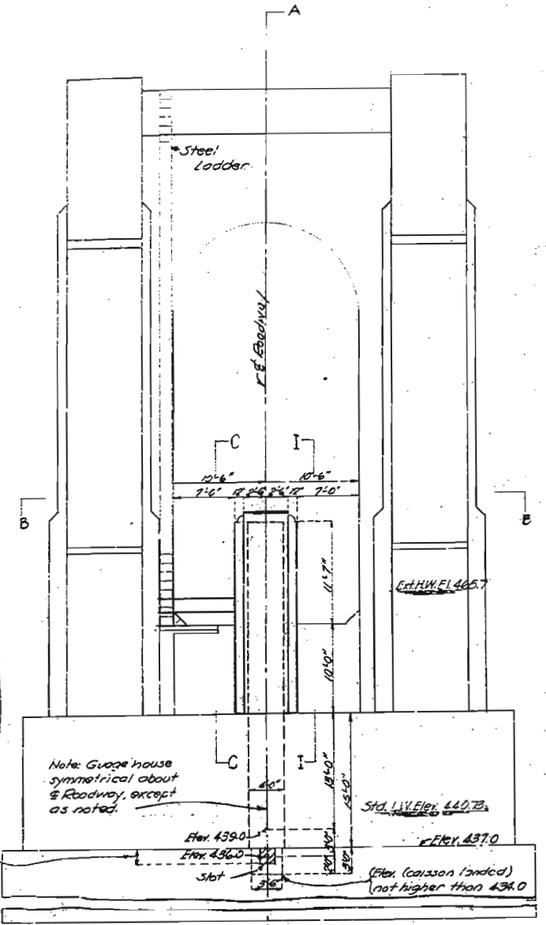
J-1000

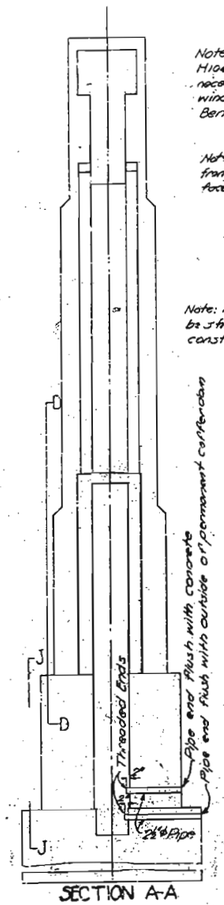
Designed May 1935 by F.W.H.
Drawn June 1935 by H.E.C.
Traced June 1935 by G.W.
Checked Oct. 1935 by Syverdrup & Parcel (B.R.S.)

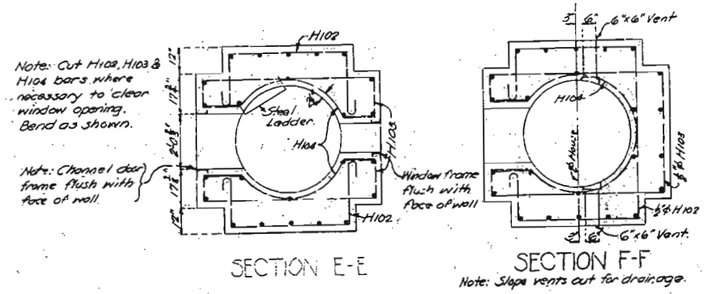
Note: This drawing is not to scale. Follow dimensions.

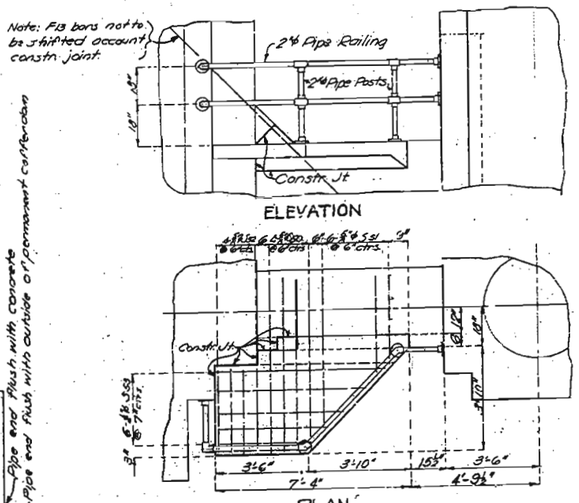
Sheet No. 4 of 22

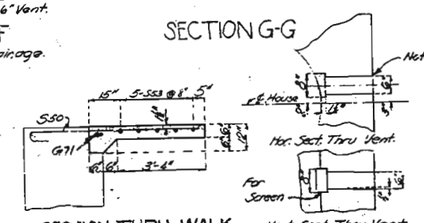
101





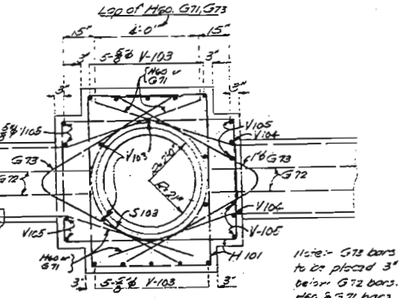


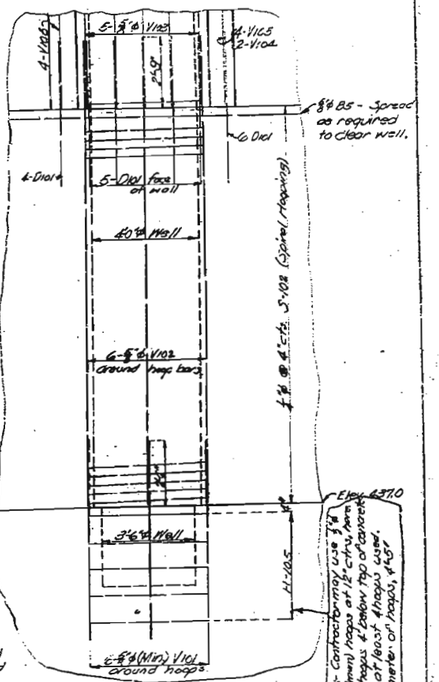


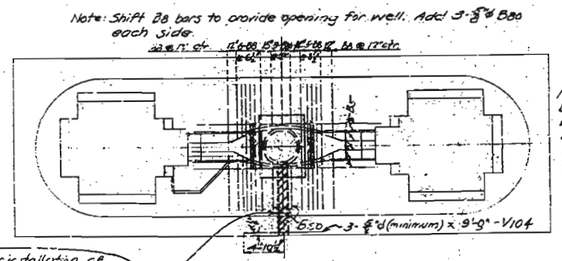


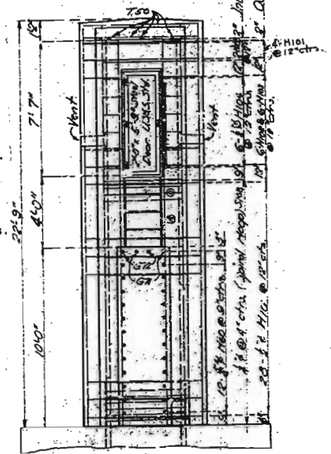
BAR BILL

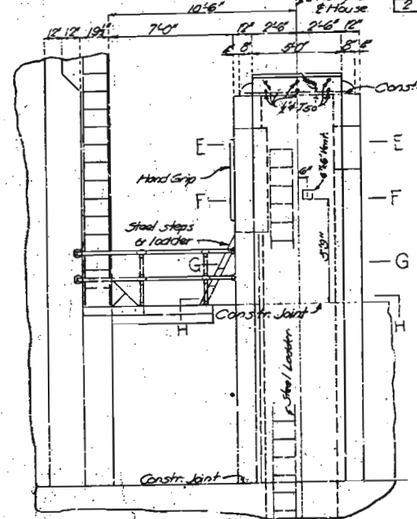
No.	Size	Length	Mark	Location	Bending Sketches & Cutting Diagrams
6	⅝ø	7'-3"	B80	Nosing	
32	⅝ø	24'-0"	H101	Wall	
6	⅝ø	20'-8"	H102	"	
6	⅝ø	22'-0"	H103	"	
6	⅝ø	13'-6"	H104	"	
7	⅝ø	164'-0"	H105	"	
4	⅝ø	7'-3"	S50	Sidewalk	
3	⅝ø	10'-9"	S51	Sidewalk	
4	⅝ø	3'-0"	S52	"	
5	⅝ø	10'-0"	S53	"	
20	⅝ø	5'-6"	Dial	Dowels	
1	⅞ø	666'-9"	S102	Heaping	
1	⅝ø	611'-3"	S103	"	
6	⅝ø	7'-6"	V101	Well	
6	⅝ø	17'-6"	V102	Wall	
16	⅝ø	2'-6"	V103	Walls	
3	⅝ø	3'-9"	V104	Web	
3	⅝ø	87'-6"	V105	Walls	
4	1⅛	19'-0"	G71	Replace G7	
4	1⅛	15'-0"	C72	" G7	
48	⅝ø	18'-0"	H60	" H6	
9	⅜ø	6'-9"	T30	Roof	
2	1⅛	11'-9"	G73	Web	

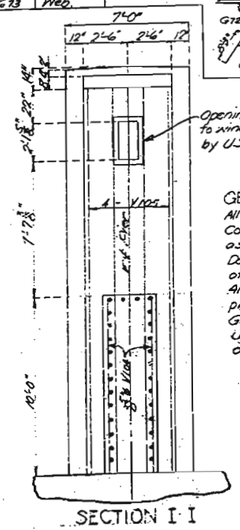












ESTIMATED QUANTITIES	
Extra Concrete	23.3 C.Y.
Concrete omitted from Pier	12.0 C.Y.
Extra Reinforcing Steel	5,460 #.
Steel omitted from original Pier	1165 #.
5" Gas Pipe and Flanges	32'-0"
Steel Ladder	90 lbs/ft.
2½" ø Pipe	15'-0"

GENERAL NOTES:-
All concrete to be same class as that used in Pier.
Concrete and reinforcing steel, over that required in construction of Pier as shown on original plans, to be paid for by U.S.G.S.
Door and window, including fittings, ladders, steps, railing, hand grips, and other appurtenances to be furnished by U.S.G.S.
All inserts required shall be located by U.S.G.S. and placed prior to placing concrete in forms.
G1 and H6 Bars shown on original plans to be omitted.
Unless otherwise noted, General Substructure Notes given on Sheet No. 8 of Plans will control.

BRIDGE OVER MISSOURI RIVER
STATE ROAD FROM WENTZVILLE TO ST. LOUIS
DETAILS OF GUAGE HOUSE ON PIER NO. 4
ST. CHARLES - ST. LOUIS COUNTIES

J-1000 A

Drawn Apr. 1936 by CCO
Checked May 1936 by H.D. + F.W.H.

WORK WITH SHEET NO. 5 OF DESIGN PLANS

410

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	PWA 76 (U.S.40 T & S) Docket #2381	19		

FINAL PLANS

FINAL QUANTITIES

		Pier #3	Pier #4
Class 2 Bridge Excavation	Cu Yds	450.3	
Class "B" Concrete in Base of Pier	Cu Yds		1410.6
Class "B" Concrete in Shafts of Piers	Cu Yds	1202.4	1143.2
Reinforcing Steel in Substructure	Lbs	436(90)	72500

TOP PLAN

PART PLAN

SECTION H-H

ANCHOR BOLT WELLS PIER NO. 3

TOP PLAN

PART PLAN

SECTION K-K

ANCHOR BOLT WELLS PIER NO. 3

PART PLAN

SECTION M-M

ANCHOR BOLT WELLS PIER NO. 4

TRANSVERSE ELEVATION

SIDE ELEVATION

SECTION AT ℄

TRANSVERSE ELEVATION

SIDE ELEVATION

SECTION AT ℄

HALF SECTION A-A

HALF SECTION B-B

HALF SECTION E-E

HALF SECTION C-C

HALF SECTION D-D

HALF SECTION F-F

DETAILS OF PIER NO. 3

HALF SECTION A-A

HALF SECTION B-B

HALF SECTION E-E

HALF SECTION C-C

HALF SECTION D-D

HALF SECTION F-F

DETAILS OF PIER NO. 4

NOTES:

For general substructure notes, see sheet No. 8.

For note on 1" Std. Pipe Drain, see sheet No. 4.

All bridge seats under shoes are to be built to elevations given and finished in accordance with instructions on anchor bolt plan, see sheet No. 3.

Base of Pier No. 3 shall be placed in the dry.

Bases of Piers #3 & 4 shall be carried into solid rock. See Special Provisions. Rock to be capable of carrying a foundation pressure of at least 4 ton per sq. ft. on pier No. 3 and of at least 17 ton per sq. ft. on pier No. 4.

Bars S8 and S12 shall be so placed as to clear anchor bolt wells 1 inch.

In regard to Pier 4, Concrete in Base of Pier should be computed below Elev. 437. Concrete in Pier Shafts should be computed above Elev. 437. Where actual & correct dimensions are shown use the correct dimension for computing quantities.

BRIDGE OVER MISSOURI RIVER

STATE ROAD FROM WENTZVILLE TO ST. LOUIS

ABOUT .25 MILE EAST OF WELDON SPRINGS STATION

PROJECT NO. PWA 76 (U.S. 40 T & S-4) STA. 10+48.39

FINAL PLANS

ST. CHARLES - ST. LOUIS COUNTIES

J-1000

Designed May 1935 by F.W.H.
Drawn June 1935 by H.E.C.
Traced July 1935 by G.W.
Checked Oct. 1935 by Sverdrup & Parcel (B.P.S.)

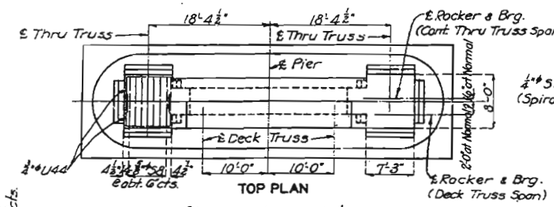
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 5A of 6 F.P.

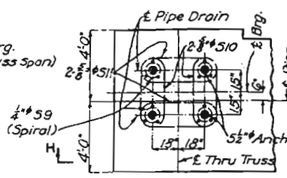
213

MISSOURI STATE HIGHWAY DEPARTMENT

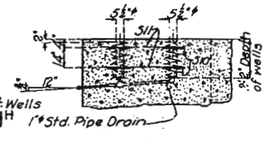
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	PWA 76 (U.S.40TR-S4) Docket #2981	19		



TOP PLAN

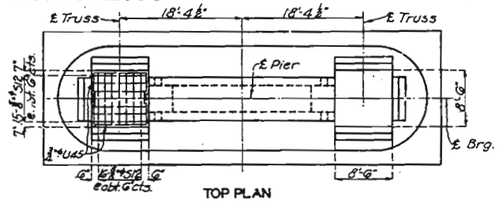


PART PLAN

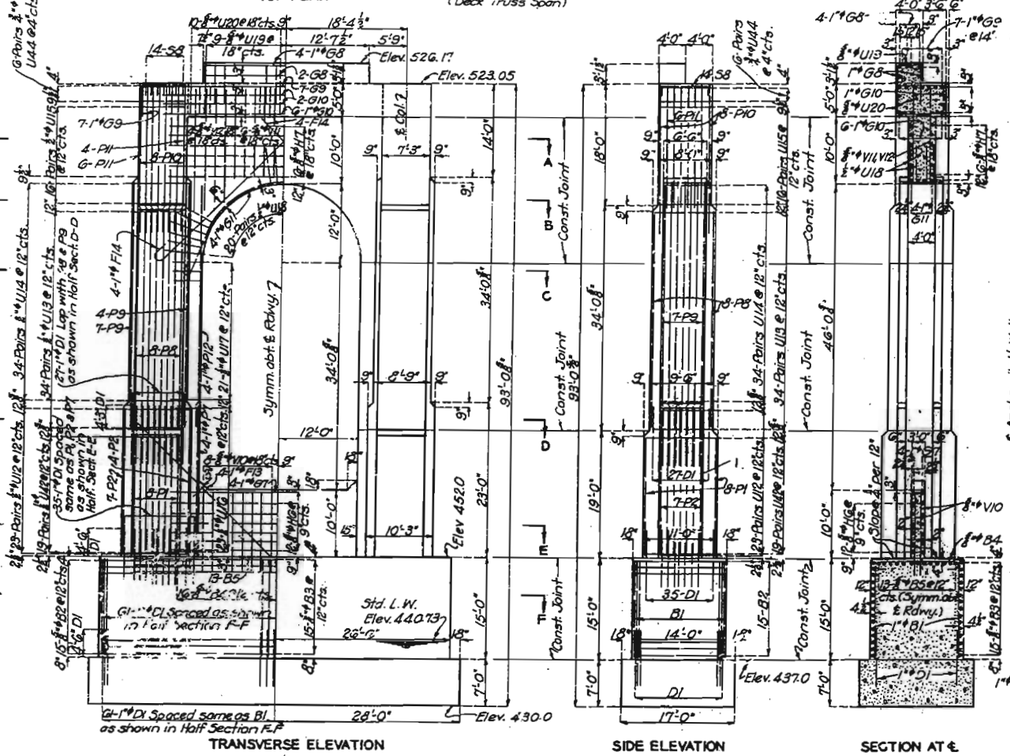


SECTION H-H

ANCHOR BOLT WELLS PIER NO. 3



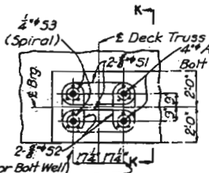
TOP PLAN



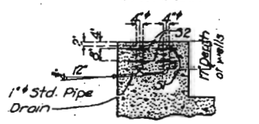
TRANSVERSE ELEVATION

SIDE ELEVATION

SECTION AT ℄

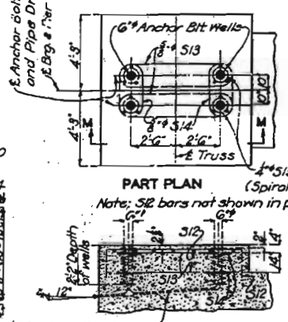


PART PLAN



SECTION K-K

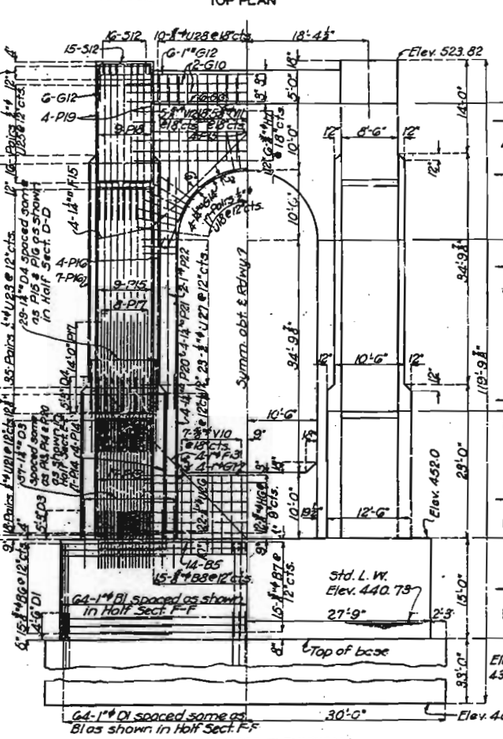
ANCHOR BOLT WELLS PIER NO. 3



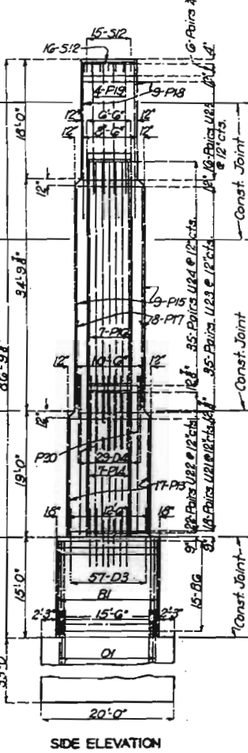
PART PLAN

SECTION M-M

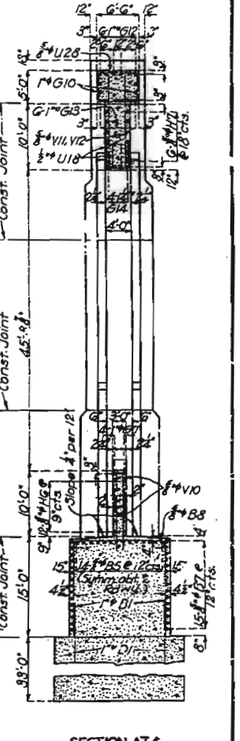
ANCHOR BOLT WELLS PIER NO. 4



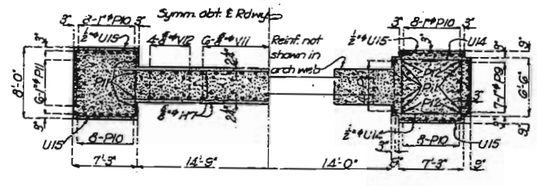
TRANSVERSE ELEVATION



SIDE ELEVATION

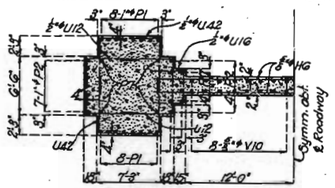


SECTION AT ℄

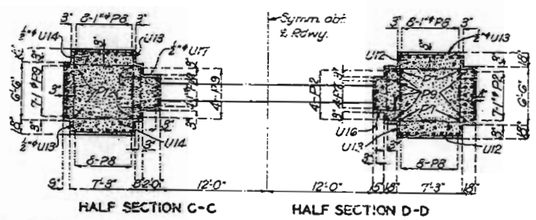


HALF SECTION A-A

HALF SECTION B-B

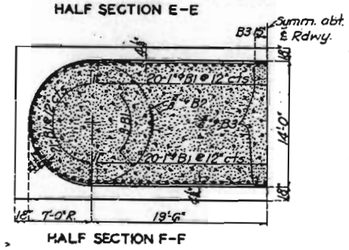


HALF SECTION E-E

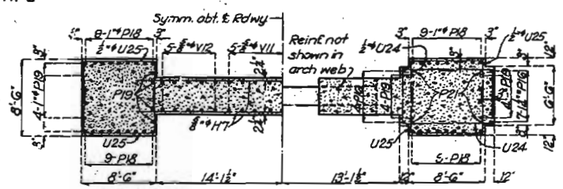


HALF SECTION C-C

HALF SECTION D-D

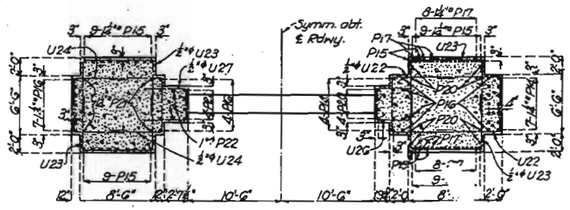


HALF SECTION F-F



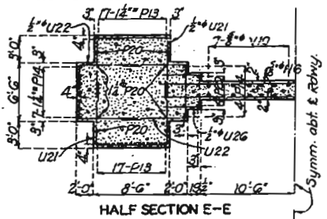
HALF SECTION A-A

HALF SECTION B-B

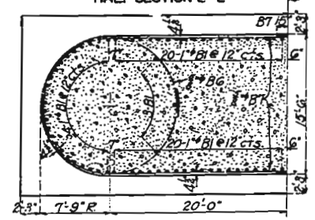


HALF SECTION C-C

HALF SECTION D-D



HALF SECTION E-E



HALF SECTION F-F

NOTES:

For general substructure notes, see sheet No. 6.

For note on 1"ϕ Std. Pipe Drain, see sheet No. 4.

All bridge seats under shoes are to be built to elevations given and finished in accordance with instructions on anchor bolt plan, see sheet No. 3.

Base of Pier No. 3 shall be placed in the dry.

Bases of Piers #3 & 4 shall be carried into solid rock. See Special Provisions. Rock to be capable of carrying a foundation pressure of at least 4 ton per sq. ft. on pier No. 3 and at least 17 ton per sq. ft. on pier No. 4.

Bars 5/8 and 3/2 shall be so placed as to clear anchor bolt wells 1 inch.

BRIDGE OVER MISSOURI RIVER

STATE ROAD FROM WENTZVILLE TO ST. LOUIS

ABOUT .25 MILE EAST OF WELDON SPRINGS STATION

PROJECT NO. PWA 76(U.S.40TR-S4) STA. 10+48.39

ST. CHARLES-ST. LOUIS COUNTIES

J-1000

DETAILS OF PIER NO. 3

DETAILS OF PIER NO. 4

Designed May 1935 by F.W.H.
Drawn June 1935 by H.E.C.
Traced July 1935 by G.W.
Checked Oct. 1935 by Sverdrup & Parcel (B.P.S.)

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

MISSOURI STATE HIGHWAY DEPARTMENT

FINAL PLANS	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	5	MO.	PWA 76 (U.S.40TR-S4) Docket #2811	19		

FINAL QUANTITIES

		Pier #5	Pier #6
Class "B" Concrete in Bases of Piers	C.Yds.	1926.3	1282.1
Class "B" Concrete in Shafts of Piers	C.Yds.	963.3	920.2
Reinforcing Steel in Substructure	Lbs.	46362	43130

TOP PLAN

PART PLAN

SECTION H-H

ANCHOR BOLT WELLS-PIER NO.5

TOP PLAN

PART PLAN

SECTION M-M

ANCHOR BOLT WELLS-PIER NO. 6

TRANSVERSE ELEVATION

SIDE ELEVATION

SECTION AT ℄

TRANSVERSE ELEVATION

SIDE ELEVATION

SECTION AT ℄

HALF SECTION A-A

HALF SECTION B-B

HALF SECTION E-E

HALF SECTION C-C

HALF SECTION D-D

HALF SECTION F-F

HALF SECTION A-A

HALF SECTION B-B

HALF SECTION E-E

HALF SECTION C-C

HALF SECTION D-D

HALF SECTION F-F

All concrete in Pier Bases should be computed from bottom of C.E. to Elev. 432.0 regardless of dimensions given. All concrete in Pier Shafts should be computed above Elev. 432.0 regardless of dimensions given. Where both Correct & actual dimensions are given, use the Correct dimension for Computations.
Final position of Caissons are shown in Top Plan.

NOTES:

For general substructure notes, see sheet No. 8.
For notes on 1" ϕ Std. Pipe Drain, see sheet No. 4.
All bridge seats under shoes are to be built to elevations given and finished in accordance with instructions on anchor bolt plan, see sheet No. 3.
Bases of Piers #5 & 6 shall be carried into rock and keyed. See Special Provisions. Rock to be capable of carrying a foundation pressure of at least 17 ton per sq. ft. on Pier No. 5 and at least 21 ton per sq. ft. on Pier No. 6.
Bars S12 and S16 shall be so placed as to clear anchor bolt wells 1 inch.

FINAL PLANS

BRIDGE OVER MISSOURI RIVER

STATE ROAD FROM WENTZVILLE TO ST. LOUIS

ABOUT 25 MILE EAST OF WELDON SPRINGS STATION

PROJECT NO. PWA 76 (U.S.40TR-S4) STA. 10+48.39

ST. CHARLES - ST. LOUIS COUNTIES

FINISHED

J-1000

Designed May 1935 by F.W.H.
Drawn July 1935 by H.E.C.
Traced July 1935 by G.W.
Checked Oct. 1935 by Sverdrup & Parcel (B.R.S.)

DETAILS OF PIER NO. 5

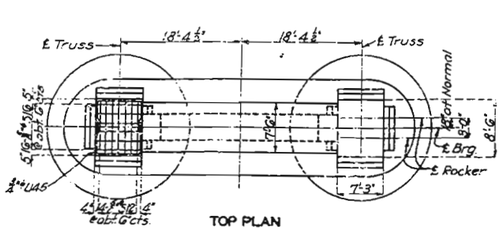
DETAILS OF PIER NO. 6

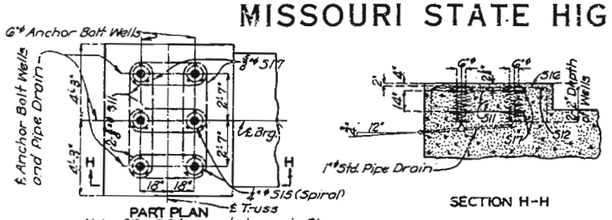
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 6A of 6 F.P.

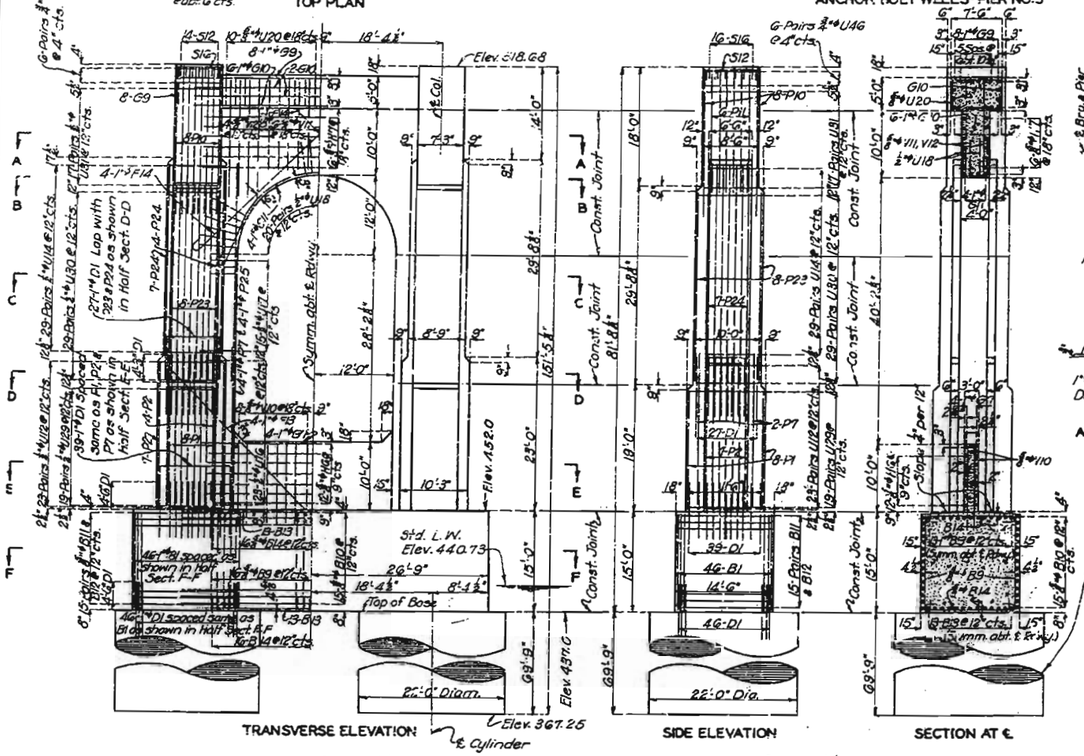
MISSOURI STATE HIGHWAY DEPARTMENT

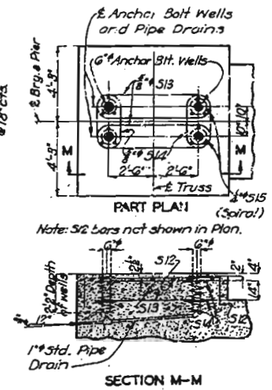
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	PWA 76 U.S. 40TR-S4) Docket 429-D	19		



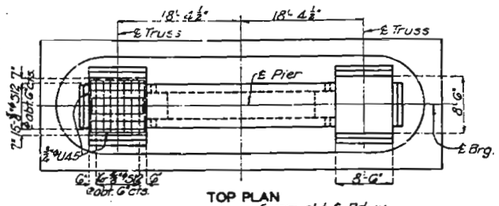


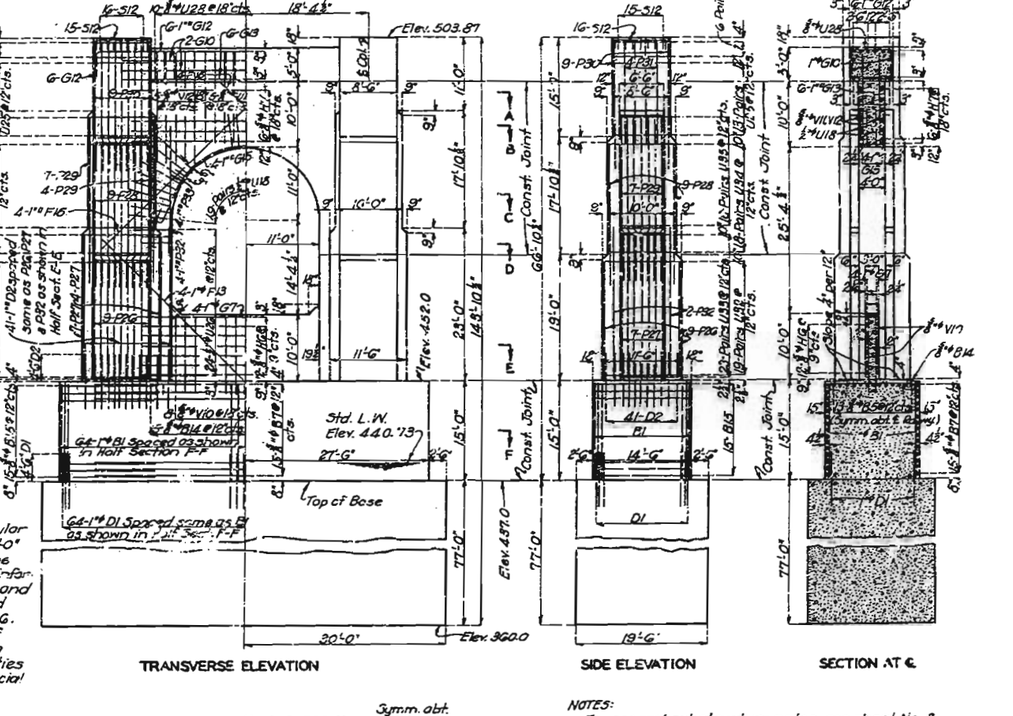
ANCHOR BOLT WELLS - PIER NO. 5



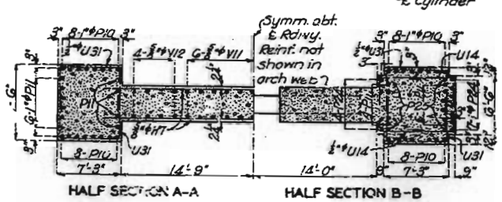


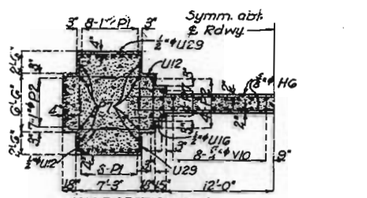
ANCHOR BOLT WELLS - PIER NO. 6

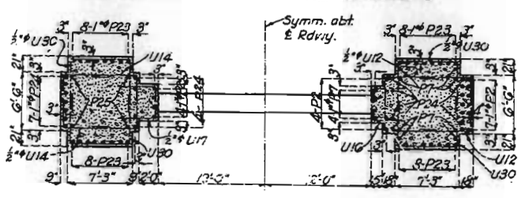


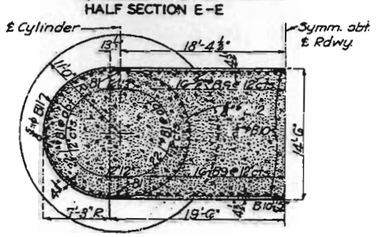


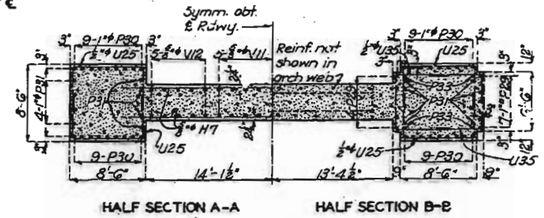
Contractor may substitute a rectangular base (19'-6" x 58'-6" in plan) for the 22'-0" diameter cylinders shown here. The dowels at elevation 437.0 and the reinforcing in the shaft between Elev. 437.0 and Elev. 452.0 must then be redesigned and made similar to that in Pier No. 6. Payment for the rectangular base, if used, and for the revised reinforcing steel shall be on the basis of quantities as computed for the cylinders. See Special Provisions.

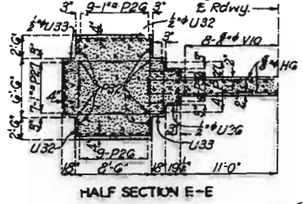


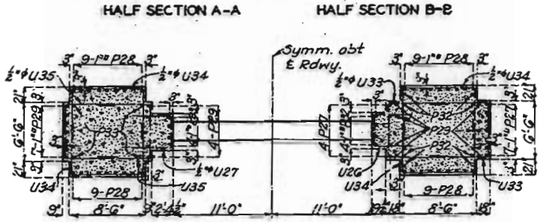


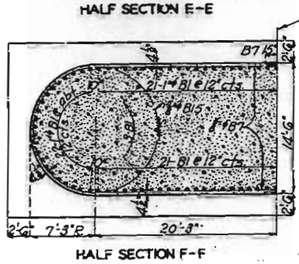












NOTES:

For general substructure notes, see sheet No. 8.

For notes on 1" ϕ Std. Pipe Drain, see sheet No. 4.

All bridge seats under shoes are to be built to elevations given and finished in accordance with instructions on anchor bolt plan, see sheet No. 3.

Bases of Piers #5 & 6 shall be carried into rock and keyed. See Special Provisions. Rock to be capable of carrying a foundation pressure of at least 17 ton per sq. ft. on Pier No. 5 and at least 21 ton per sq. ft. on Pier No. 6.

Bars S12 and S16 shall be so placed as to clear anchor bolt wells 1 inch.

BRIDGE OVER MISSOURI RIVER

STATE ROAD FROM WENTZVILLE TO ST. LOUIS

ABOUT .25 MILE EAST OF WELDON SPRINGS STATION

PROJECT NO. PWA 76(U.S.40TR-S4) STA. 10+48.39

ST. CHARLES - ST. LOUIS COUNTIES

J-1000

Designed May 1935 by F.W.H.
Drawn July 1935 by H.E.C.
Traced July 1935 by G.W.
Checked Oct. 1935 by Sverdrup & Parcel (B.P.S.)

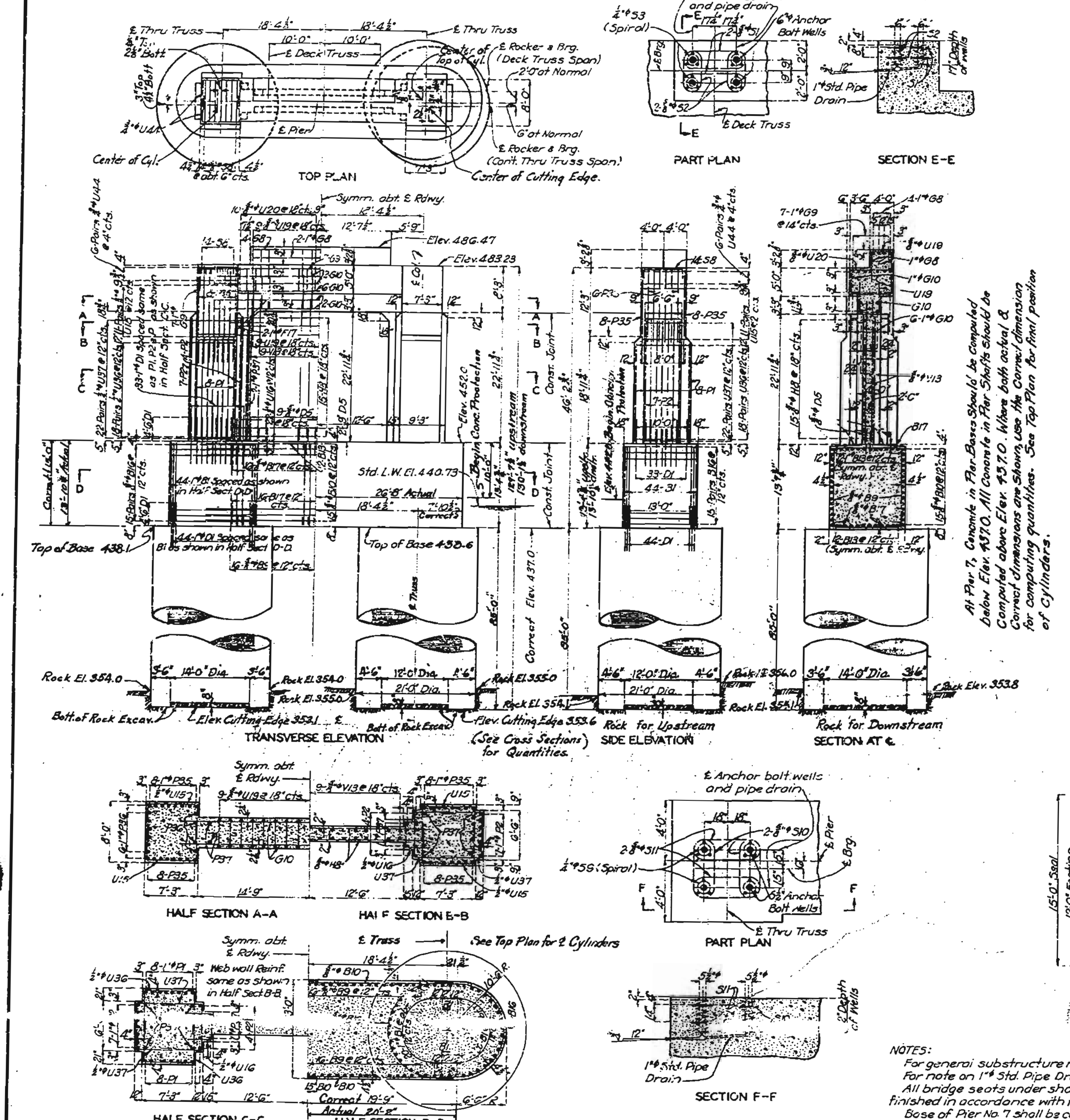
DETAILS OF PIER NO. 5

DETAILS OF PIER NO. 6

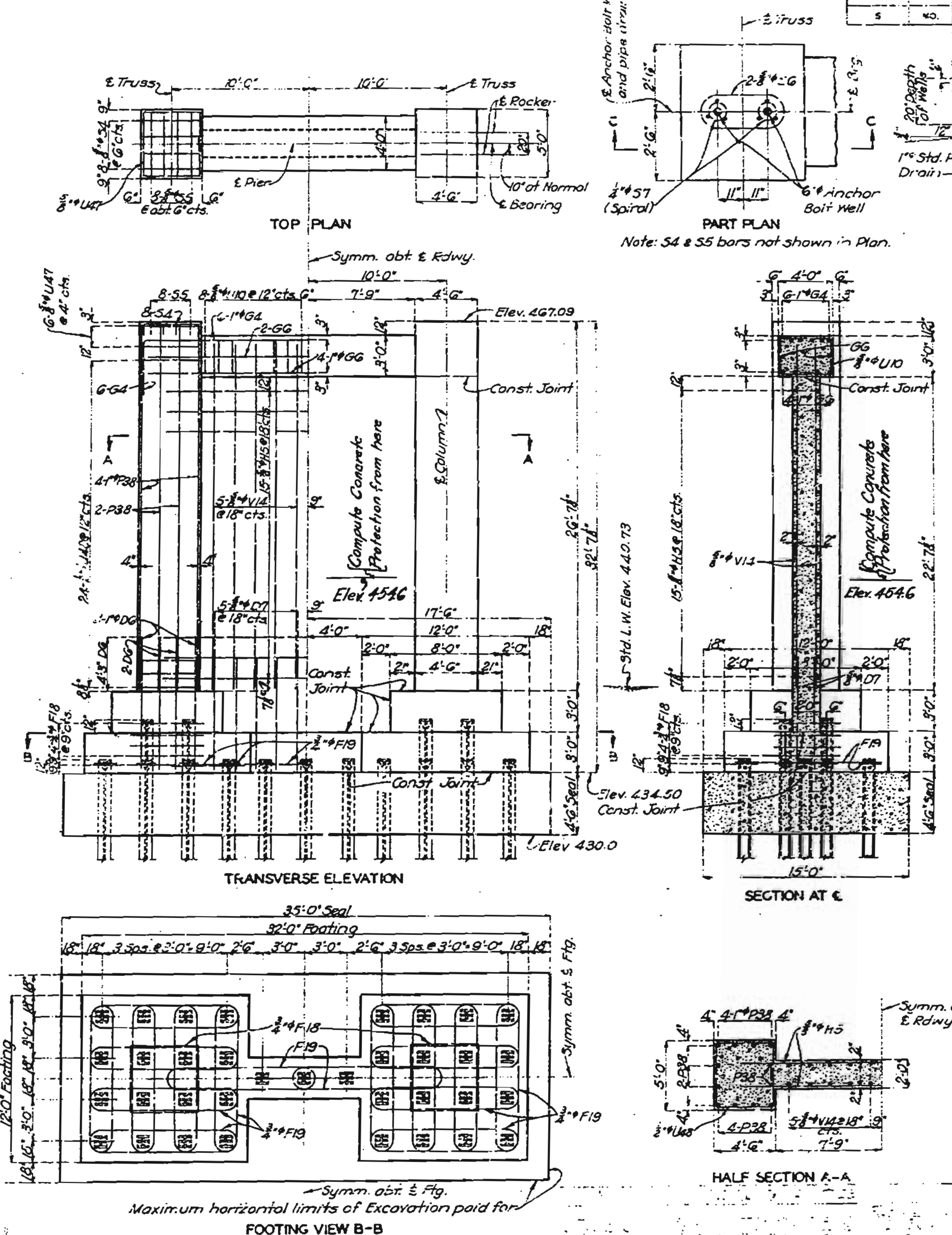
Note: This drawing is not to scale. Follow dimensions.

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	PWA 76 (US40TR-S4) Docket #2918	19		



DETAILS OF PIER NO. 7



DETAILS OF PIER NO. 8

FINAL QUANTITIES

		Pier No. 7	Pier No. 8
Class "B" Concrete in Shafts of Piers	Cu. Yds.	653.5	126.7
Class "A" Concrete in Bases of Piers	Cu. Yds.	2199.6	
Class "B" Concrete in Seal Course	Cu. Yds.		87.5
Class I Bridge Excavation	Cu. Yds.		297.5
Class II Bridge Excavation	Cu. Yds.		238.3
Reinforcing Steel	lbs.	35821	6865
Structural Steel Piles in Place	Lin. Ft.		8928
Structural Steel Pile Cut-offs	Lin. Ft.		110
Special Concrete Protection Group "B"	Cu. Yds.	1333.9	34.5

NOTES:

For general substructure notes, see sheet No. 8.

For note on 1"ϕ Std. Pipe Drain, see sheet No. 4

All bridge seats under shoes are to be built to elevations given and finished in accordance with instructions on anchor bolt plan, see sheet No. 3.

Base of Pier No. 7 shall be carried into solid rock and keyed. See Special Provisions. Rock to be capable of carrying a foundation pressure of at least 17.0 ton per sq. ft.

Piling for Pier No. 8 shall be structural steel 10" W. Bm. @ 49#. The pile shall be driven to rock. No piling shall be ordered until authorized by the Engineer in writing.

Concrete in Pier No. 8 above Elev. 434.50 shall be placed in the dry.

For details of pile cap and pile splice see Sheet No. 8.

Bars 54, 55, and 58 shall be so placed as to clear anchor bolt wells 1 inch.

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

FINAL PLANS

BRIDGE OVER MISSOURI RIVER

STATE ROAD FROM WENTZVILLE TO ST. LOUIS

ABOUT .25 MILE EAST OF WELDON SPRINGS STATION

PROJECT NO. PWA 76 (US40TR-S4) STA. 10+48.39

ST. CHARLES-ST. LOUIS COUNTIES

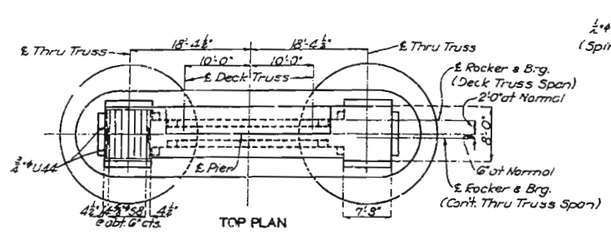
J-1000

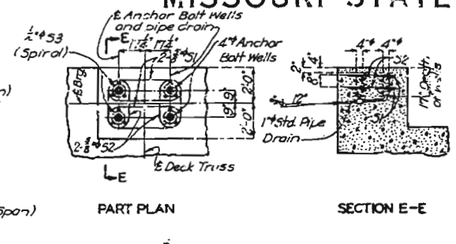
Designed May 1935 by F.W.H.
Drawn July 1935 by H.E.C.
Traced July 1935 by G.K.
Checked Oct. 1935 by Sverdrup & Parcel (W.K.C.)

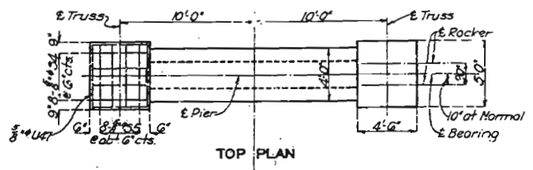
Sheet No. 7A of 6 F.P.

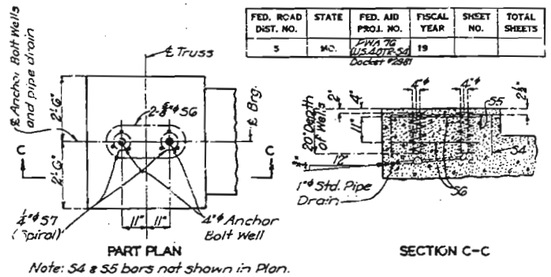
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	PWA 76 US 40TR-S4 Docket 2941	19		

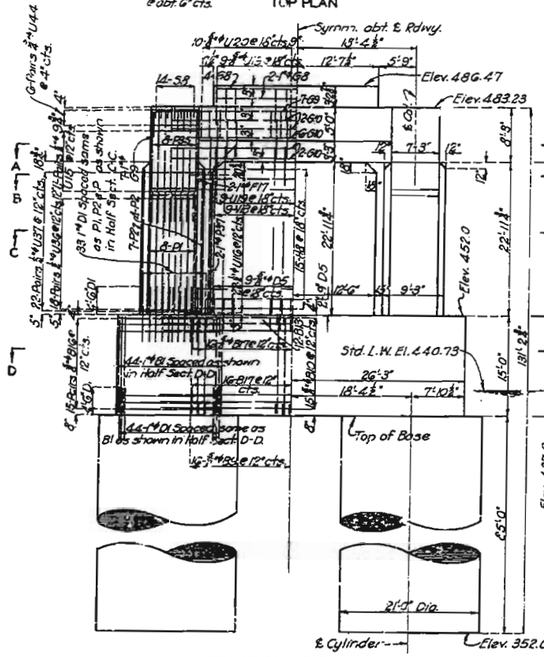


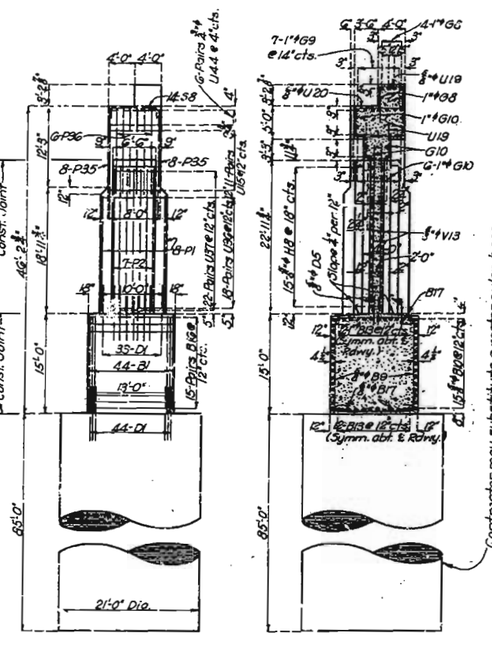


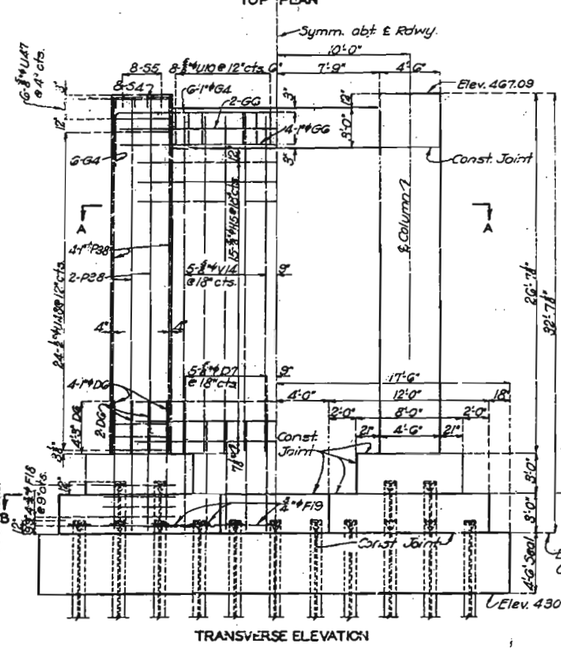


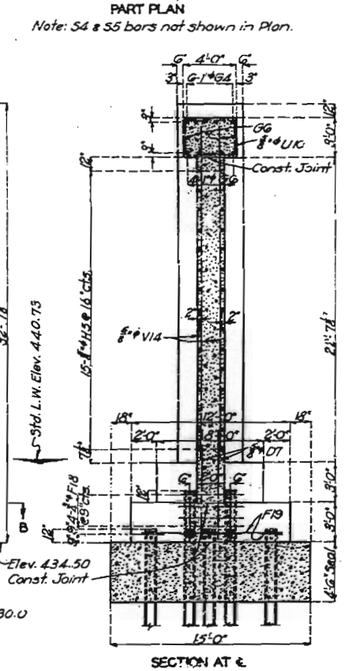


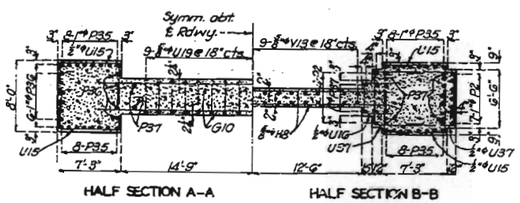
Note: S4 & S5 bars not shown in Plan.

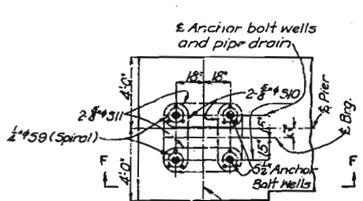


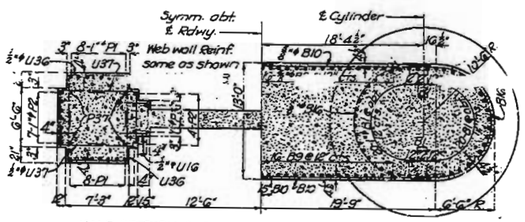


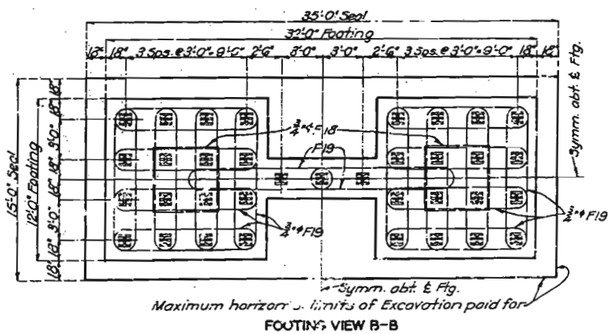


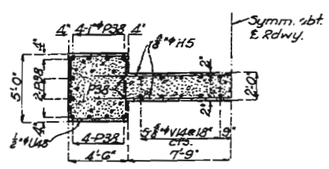












Contractor may substitute a rectangular base (18'-0" x 57'-6" in plan) for the 21'-0" diameter cylinders shown here. The dowels at elevation 437.0 and the reinforcing in the shaft between Elev. 437.0 and Elev. 432.0 must then be redesigned and made similar to that in Pier No. 6. Payment for the rectangular base, if used, and the revised reinforcing steel shall be on the basis of quantities as computed for the cylinders. See Special Provisions.

NOTES:

For general substructure notes, see sheet No. 8.
For note on 1"ϕ Std. Pipe Drain, see sheet No. 4
All bridge seats under shoes are to be built to elevations given and finished in accordance with anchor bolt plan, see sheet No. 3.
Base of Pier No. 7 shall be carried into solid rock and keyed. See Special Provisions. Rock to be capable of carrying a foundation pressure of at least 17.0 ton per sq. ft.
Piling for Pier No. 8 shall be structural steel 10"WF Brn. @ 42#. The pile shall be driven to rock. No piling shall be ordered until authorized by the Engineer in writing.

Concrete in Pier No. 3 above Elev. 434.50 shall be placed in the dry.
For details of pile cap and pile splice see Sheet No. 8.
Bars S4, S5, and S8 shall be so placed as to clear anchor bolt wells 1 inch.

DETAILS OF PIER NO. 7

DETAILS OF PIER NO. 5

Designed May 1935 by F.W.H.
Drawn July 1935 by H.E.C.
Traced July 1935 by G.W.
Checked Oct. 1935 by Sverdrup & Parcel (W.K.C.)

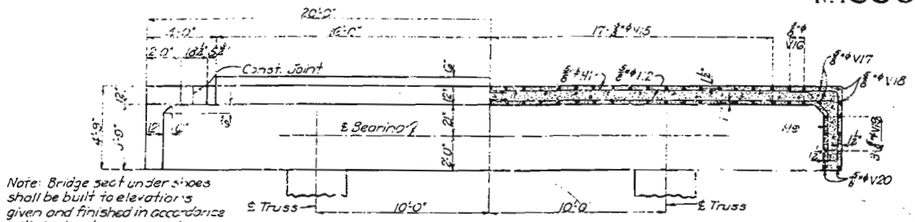
Note: This drawing is not to scale. Follow dimensions.

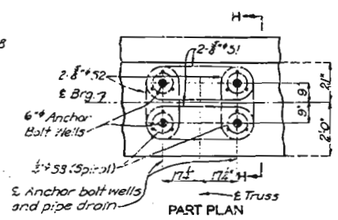
BRIDGE OVER MISSOURI RIVER

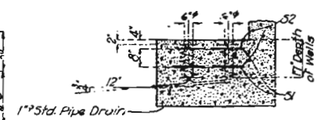
STATE ROAD FROM WENTZVILLE TO ST. LOUIS
ABOUT 25 MILE EAST OF WELDON SPRINGS STATION
PROJECT NO. PWA 76 (US40TR-S4) STA. 16+48.39
ST. CHARLES - ST. LOUIS COUNTIES

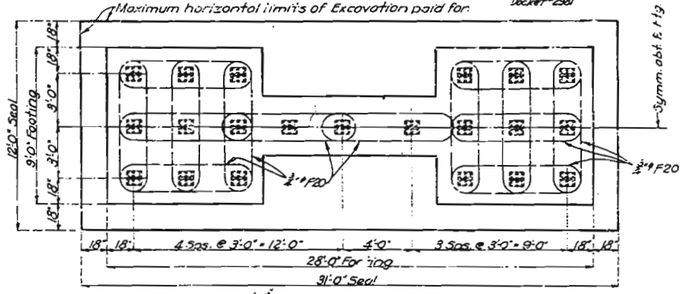
J-1000

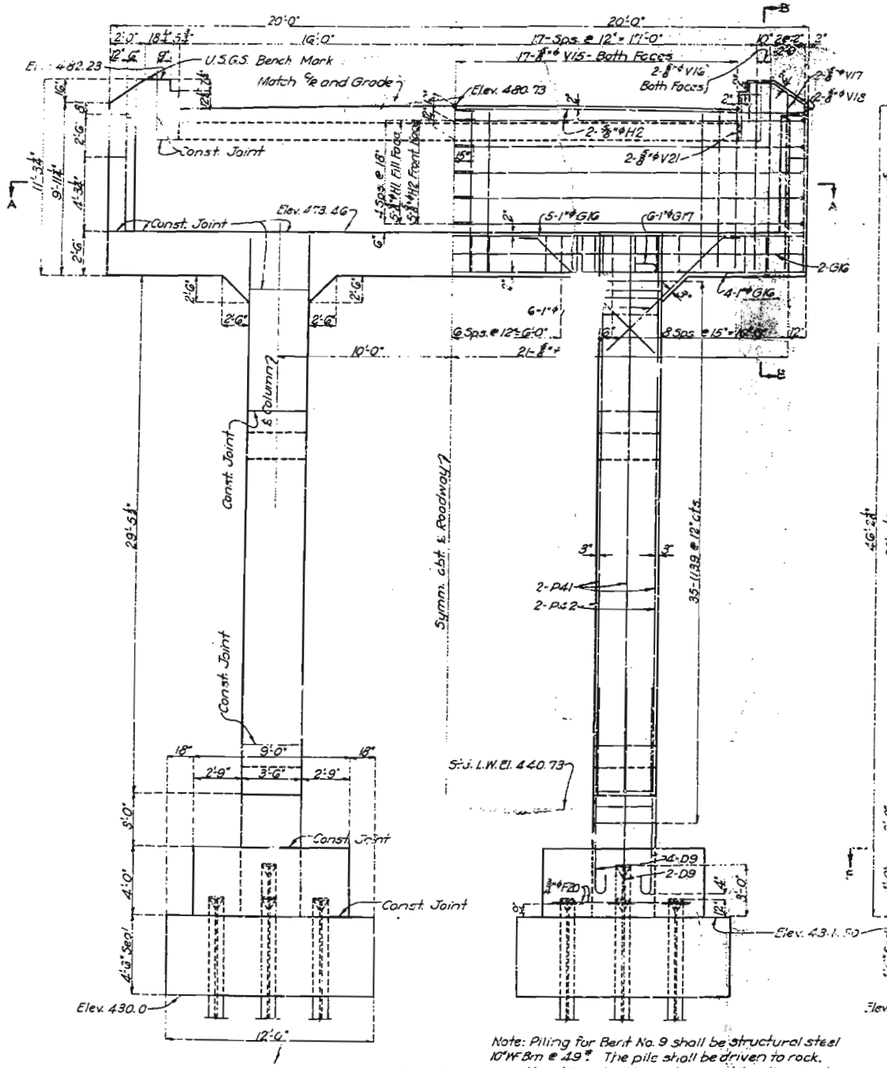
Sheet No. 7 of 22 Sheets











216

MISSOURI STATE HIGHWAY DEPARTMENT

FINAL PLANS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	PWA76 (US40TR-S4) Docket #2981	19		

Note: Bridge seat under shoes shall be built to elevations given and finished in accordance with instructions on anchor bolt plan, see sheet No. 3.

HALF PLAN

HALF HORIZONTAL SECTION A-A

PART PLAN

SECTION H-H

Note: For note on 1"ϕ Std. Pipe Drain, see Sheet No. 4.

FOOTING VIEW F-F

Note: Piling for Bent No. 9 shall be structural steel 10"WF Bm @ 49#. The pile shall be driven to rock.

No piling shall be ordered until authorized by the Engineer in writing.

Concrete in Bent No. 9 above Elev. 434.50 shall be pl[illegible] in the dry.

ELEVATION

SECTION B-B

SECTION C-C

SECTION AT ℄

DETAILS OF BENT NO. 9

GENERAL SUBSTRUCTURE NOTES:

All concrete in substructure shall be Class "B" concrete.

All exposed edges of bents No. 1 and 9 shall be beveled ¾" where no other bevel is noted. All exposed edges and all re-entrant corners of piers No. 2 to 8 inclusive shall be beveled 1½" where no other bevel is noted.

Provide substantial Keys at all construction joints.

Lap splice all reinforcing bars 48 diameters except as otherwise shown.

Pier bases of piers No. 4, 5, 6, and 7 shall be constructed by the pneumatic caisson method, or by open dredging, but if open dredging is used, caissons must be arranged to land and seal under air. (See Special Provisions). For construction methods, materials, and details, see Special Provisions. Before starting construction the contractor shall submit to the Missouri State Highway Department, in triplicate, complete working drawings and a set of their design calculations for all caissons, cofferdams, and details in connection therewith and these drawings shall be returned with comments and suggestions.

All cofferdam bracing which interferes with shafts or webs, is to be removed as the shafts or webs are concreted. No bracing shall be placed against any of the completed portions until they have attained sufficient strength.

All cofferdams shall be removed down to Elev. 437.0 before final acceptance of work.

All concrete above top of base in piers No. 4, 5, 6, and 7 and all concrete (except seal course) in piers No. 2, 3, and 8, and bents No. 1 and 9, shall be paid for at the price bid for concrete in shafts.

Estimated quantities for Class "B" concrete in seal course of pier No. 8 and bent No. 9 are based on dimensions given on plans. In case seal courses are omitted during construction by authority of the Engineer, the bottom of footings are to be built to Elev. 434.50 as shown on these design plans for footings proper.

Bridge excavation for Bents No. 1 and 9, and Piers No. 2, 3, and 8, shall be paid for in accordance with the Special Provisions. Cost of Bridge excavation for Piers No. 4, 5, 6, and 7, shall be included in the price bid for base concrete below Elev. 437.0.

FINAL QUANTITIES		
Class 1 Bridge Excavation	Cu. Yds.	416.1
Class 2 Bridge Excavation	Cu. Yds.	330.7
Structural Steel Piles in Place	Lin. Ft.	3370
Structural Steel Pile Cut-offs	Lin. Ft.	131
Class "B" Concrete in Seal Course	Cu. Yds.	124.0
Class "B" Concrete in Shafts of Piers	Cu. Yds.	168.8
Reinforcing Steel	lbs.	13934

SECTION D-D

SECTION E-E

VERTICAL POSITION

FLAT POSITION

DETAILS OF BUTT SPLICE FOR PILES

Note: Numbers refer to S.W.G. of Electrode to be used.

DETAIL OF PILE CAP

FINAL PLANS

FINISHED

BRIDGE OVER MISSOURI RIVER

STATE ROAD FROM WENTZVILLE TO ST. LOUIS

ABOUT .25 MILE EAST OF WELDON SPRINGS STATION

PROJECT NO. PWA76 (US40TR-S4) STA. 10+43.39

ST. CHARLES-ST. LOUIS COUNTIES

FINISHED

J-1000

Designed May 1935 by F.W.H.
Drawn July 1935 by H.E.C.
Traced July 1935 by G.W.
Checked Oct. 1935 by Sverdrup & Parcel (L.F.)

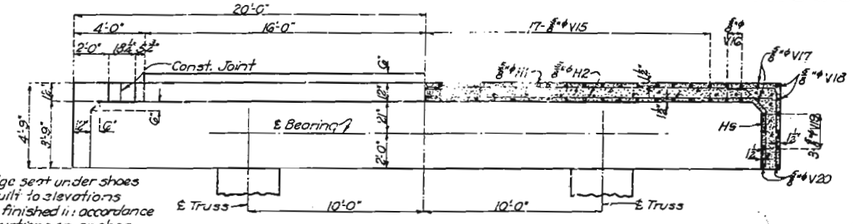
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 8A of 6 F.P.

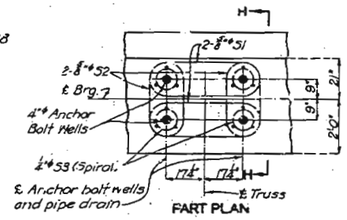
MISSOURI STATE HIGHWAY DEPARTMENT

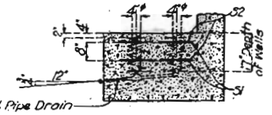
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	PWA76 (US40TR-S4)	19		

Docket #2981

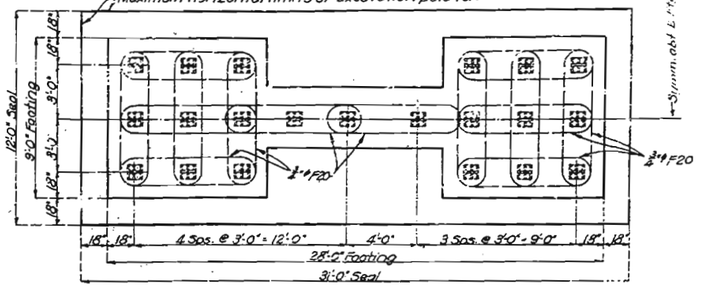


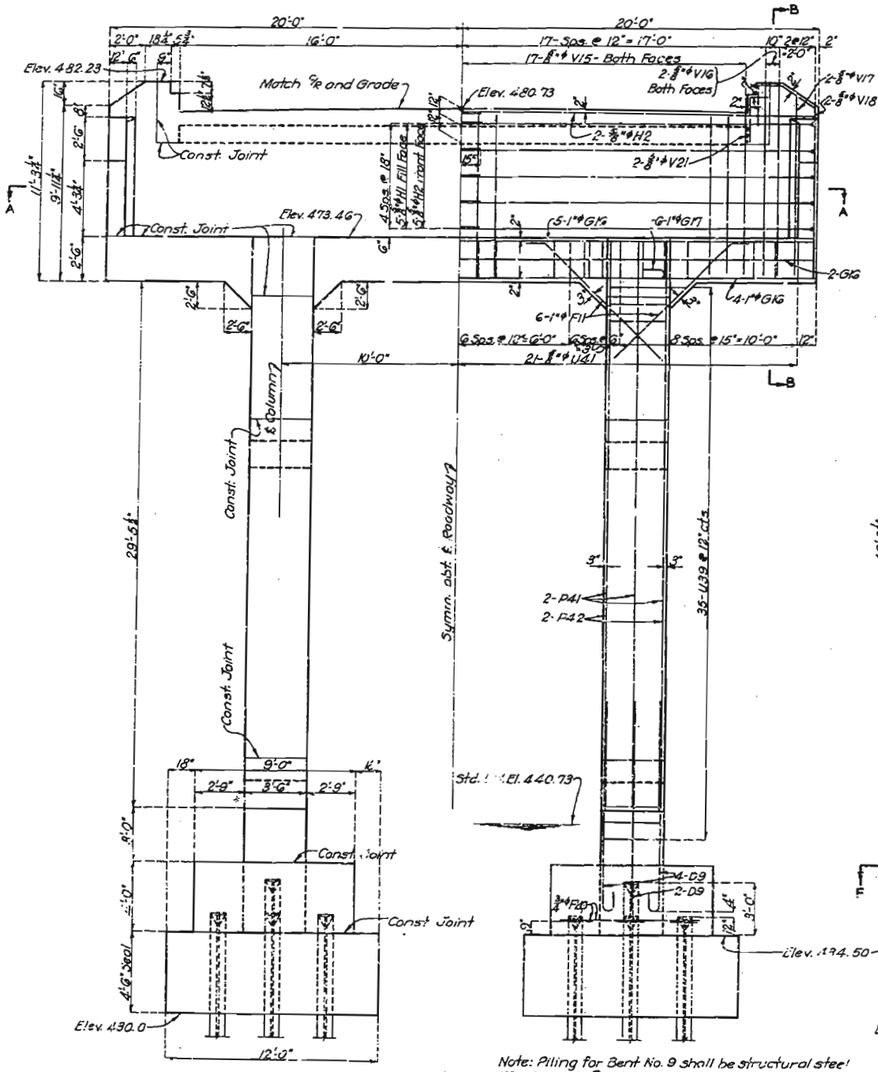
Note: Bridge seat under shoes shall be built to elevations given and finished in accordance with instructions on anchor bolt plan, see sheet No. 3.



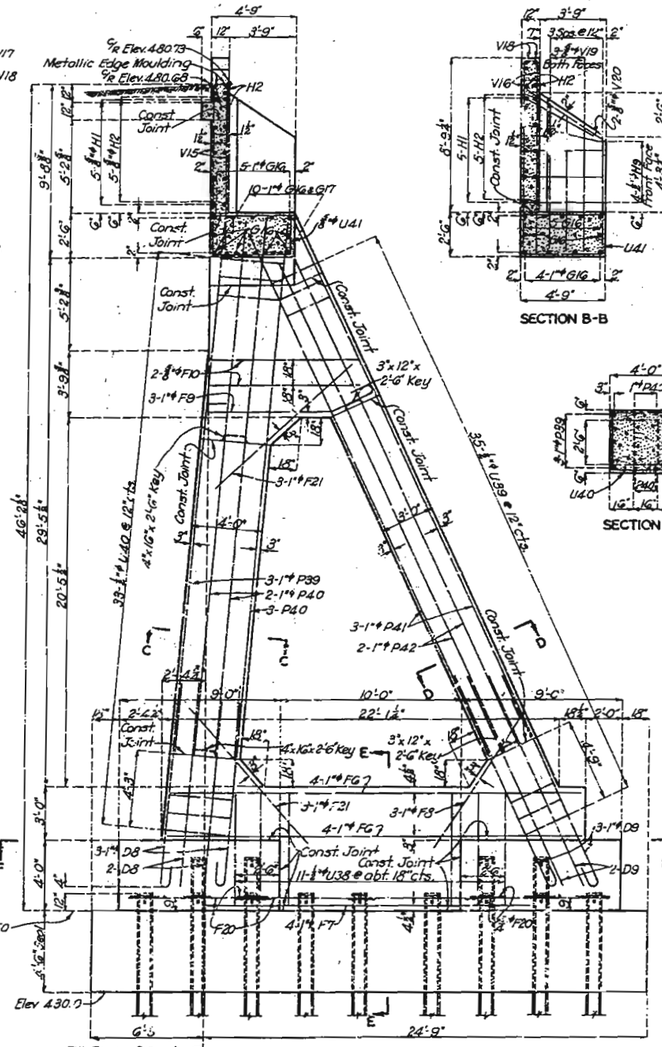


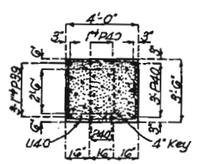
Note: For note on 1"ϕ Std. Pipe Drain, see Sheet No. 4.

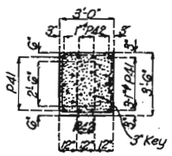


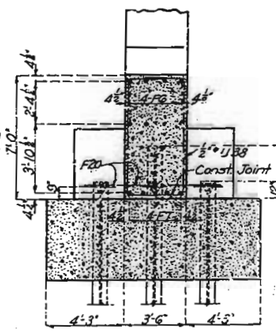


Note: Piling for Bent No. 9 shall be structural steel 10"WBm. @ 49# The pile shall be driven to rock.
No piling shall be ordered until authorized by the Engineer in writing.
Concrete in Bent No. 9 above Elev. 434.50 shall be placed in the dry.









GENERAL SUBSTRUCTURE NOTES:

All concrete in substructure shall be Class "B" concrete.

All exposed edges of bents No. 1 and 9 shall be beveled ¾" where no other bevel is noted. All exposed edges and all re-entrant corners of piers No. 2 to 8 inclusive shall be beveled 1½" where no other bevel is noted.

Provide substantial keys at all construction joints.

Lap splice all reinforcing bars 48 diameters except as otherwise shown.

Pier bases of piers No. 4, 5, 6, and 7 shall be constructed by the pneumatic caisson method, or by open dredging, but if open dredging is used, caissons must be arranged to land and seal under air. (See Special Provisions). For construction methods, materials, and details, see Special Provisions. Before starting construction the contractor shall submit to the Missouri State Highway Department, in triplicate, complete working drawings and a set of their design calculations for all caissons, cofferdams, and details in connection therewith and these drawings shall be returned with comments and suggestions.

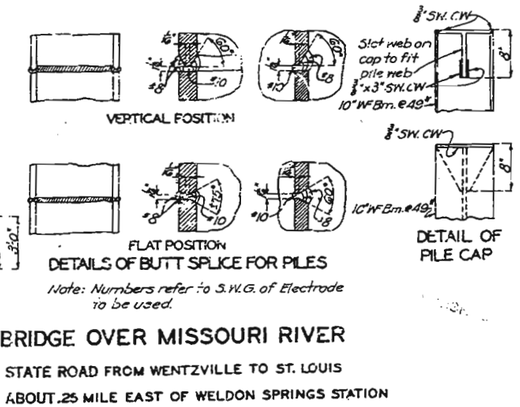
All cofferdam bracing which interferes with shafts or webs, is to be removed as the shafts or webs are concreted. No bracing shall be placed against any of the completed portions until they have attained sufficient strength.

All cofferdams shall be removed down to Elev. 437.0 before final acceptance of work.

All concrete above top of base in piers No. 4, 5, 6, and 7 and all concrete (except seal course) in piers No. 2, 3, and 8, and bents No. 1 and 9, shall be paid for at the price bid for concrete in shafts.

Estimated quantities for Class "B" concrete in seal course of pier No. 8 and bent No. 9 are based on dimensions given on plans. In case seal courses are omitted during construction by authority of the Engineer, the bottom of footings are to be built to Elev. 434.50 as shown on these design plans for footings proper.

Bridge excavation for Bents No. 1 and 9, and Piers No. 2, 3, and 8, shall be paid for in accordance with the Special Provisions. Cost of Bridge excavation for Piers No. 4, 5, 6, and 7, shall be included in the price bid for base concrete below Elev. 437.0.



Note: Numbers refer to S.W.G. of Electrode to be used.

BRIDGE OVER MISSOURI RIVER

STATE ROAD FROM WENTZVILLE TO ST. LOUIS

ABOUT 25 MILE EAST OF WELDON SPRINGS STATION

PROJECT NO. PWA 76 (US40 TR-S4) STA. 10+48.39

ST. CHARLES-ST. LOUIS COUNTIES

J-1000

Designed May 1935 by F.W.H.
Drawn July 1935 by H.E.C.
Traced July 1935 by G.W.
Checked Oct. 1935 by Syverdrup & Parcel (L.F.)

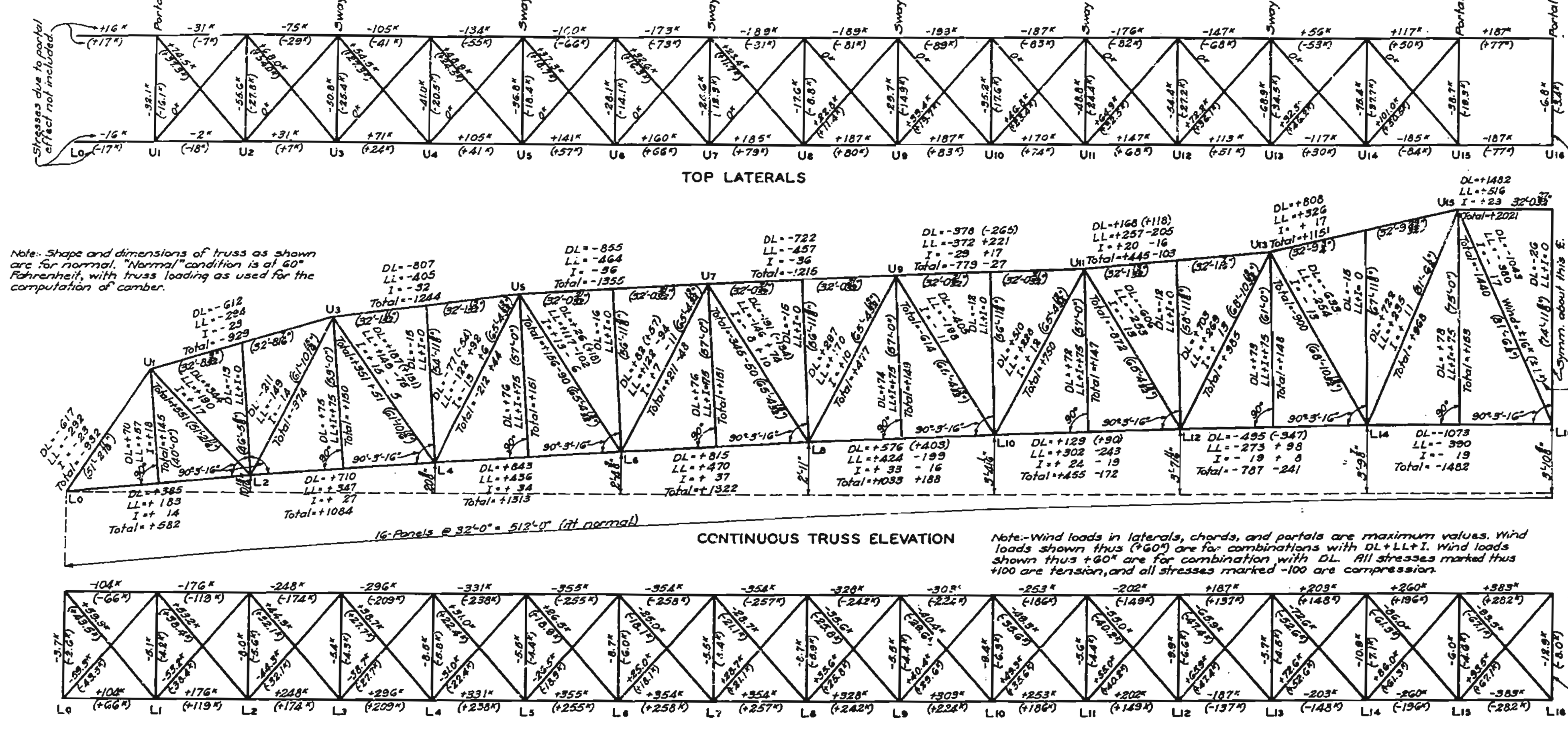
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 8 of 22.

MISSOURI STATE HIGHWAY DEPARTMENT

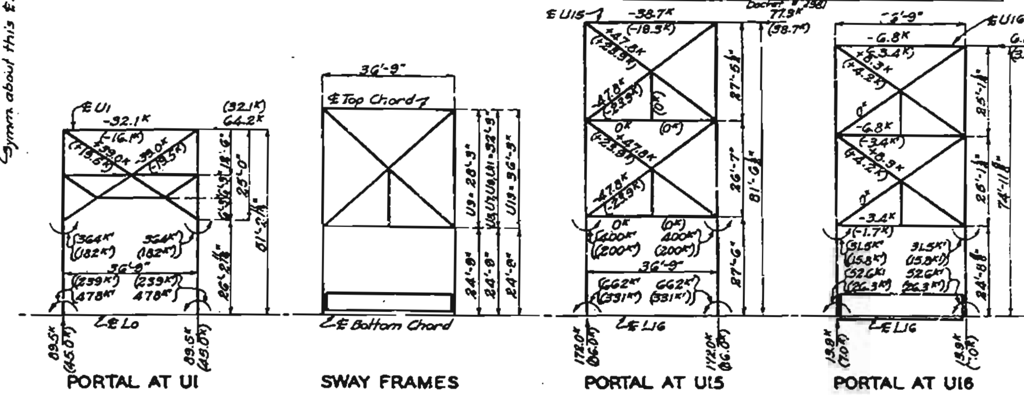
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	PWA 76 (US40TR-54)	15		

Docket # 2980



Note:- Wind loads in laterals, chords, and portals are maximum values. Wind loads shown thus (+60) are for combinations with DL+LL+I. Wind loads shown thus +60 are for combination with DL. All stresses marked thus +100 are tension, and all stresses marked -100 are compression.

STRESS DIAGRAMS

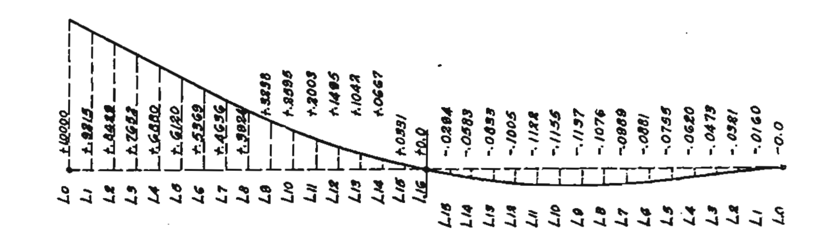


PORTALS AND SWAYS

DEAD LOAD PANEL CONCENTRATIONS IN KIPS PER TRUSS																	
Panel Point	L0	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15	½L16
Top Chord; Truss & Bracing	0	20.3	12.8	17.8	14.8	18.9	15.5	19.1	14.8	19.4	12.4	22.0	12.3	26.5	15.3	44.8	12.8
Bott. Chord; Truss & Bracing	16.1	11.6	16.6	15.9	19.1	17.6	19.6	17.7	18.9	15.7	20.4	13.2	23.7	14.7	29.8	19.4	31.2
Floor System & Misc.	14.2	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	7.3
Total Structural Steel	30.3	45.6	43.1	47.4	47.6	50.2	48.8	50.5	47.4	48.8	46.5	48.9	49.7	54.9	58.5	77.9	51.3
Floor Slab	15.1	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	15.1
H/R & Curb	1.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0
Sub-total	46.5	77.8	75.3	79.6	79.8	82.4	81.0	82.7	79.6	81.0	78.7	81.1	81.9	87.1	90.7	110.1	67.4
Future Wear	6.4	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	6.4
Total DL	52.9	90.6	88.1	92.4	92.6	95.2	93.8	95.5	92.4	93.8	91.5	93.9	94.7	99.9	103.5	122.9	73.8

Uniform Live Load per truss = 992 pounds per lineal foot.
Concentrated Live Load per truss = For moment 27,900 pounds, For shear = 40,300 pounds.

HORIZONTAL WIND LOAD CONCENTRATIONS IN KIPS PER PANEL																		
Panel Point		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	½16
Wind with Dead Load	Top Chord		8.6	5.2	11.4	5.4	12.1	5.5	12.1	5.5	12.5	5.5	13.6	5.6	14.5	6.5	18.1	3.4
	Bott. Chord	7.4	10.1	16.0	10.8	16.9	10.9	17.5	10.9	17.3	10.9	18.7	11.2	19.8	11.4	21.8	11.9	12.8
Wind with Live Load	Top Chord		4.3	2.6	5.7	2.7	6.0	2.7	6.0	2.7	6.3	2.7	6.8	2.8	7.2	3.3	9.0	1.7
	Bott. Chord	5.5	8.4	11.2	8.6	11.6	8.7	12.0	8.7	11.8	8.7	12.6	8.8	13.1	8.9	14.1	9.2	8.2



ELASTIC CURVE FOR END REACTION

SUPERSTRUCTURE DESIGN DATA

SPECIFICATIONS:- Designed in accordance with the A.A.S.H.O. Conference Specifications for Structural Steel Highway Bridges of 1931, with exceptions as noted.

LOADING:- Railings; Use 150 lbs. per lin. ft. horizontal and 100 lbs. per lin. ft. vertical on rail, with 500 lbs. per lin. ft. horizontal at top of curb.

Dead load; as computed from detail drawings plus future wear of 25 lbs. per sq. ft. of roadway.

Live load; H-20, A.A.S.H.O., 1931; - 3 lanes control.

Transverse wind load in combination with Dead Load; Use a moving horizontal load of 30 lbs. per sq. ft. on the vertical projection of 2 trusses, 2 handrails and curbs, and one floor; but not less than 300 lbs. per lin. ft. on the loaded chord, and 150 lbs. per lin. ft. on the unloaded chord.

Transverse wind load in combination with Live Load; Use 50% of the Dead Load wind above, plus 100 lbs. per lin. ft. acting 6 foot above the roadway on the moving live load.

Longitudinal wind load; Use 50% of the specified transverse wind loads.

Longitudinal tractive force; Use 5% of the load on two lanes for the thru trusses and 10% of the load on two lanes for the deck trusses.

Thermal force; Use a rise in temperature of 60° F. and a drop of 80° F. from a normal of 60° F.

LOAD COMBINATIONS:- The following load combinations, at their appropriate unit stresses shall be used to proportion the structure and the proportioned structure shall satisfy any load combination.

At normal unit stress:-
DL + DL Wind.
DL + LL + I.

At 1.25 normal unit stress:-
DL + DL Wind + Temp.
DL + LL + I + LL Wind.
DL + LL + I + LL Wind + Traction.
DL + LL + I + LL Wind + Traction + Temp.

At 1.5 normal unit stress:-
Erection Loads

UNIT STRESSES:- Do not use overload provision of A.A.S.H.O., 1931, Specifications.

"A":- Axial tension.
"B":- Axial compression; on gross section of short lengths, or with lateral deflection prevented.
"C":- Axial compression; on columns.
"D":- Column formula. (L = column length in inches; r = least radius of gyration).
"E":- Bending, on extreme fiber; Tension on net section, or compression where $L/b < 15$.
"F":- Beam compression formula; (L = Unsupported flange length in inches, b = flange width in inches.)
"G":- Diagonal tension in webs of girders and rolled beams.
"H":- Shear; where girder webs have $h/t < 60$.
"I":- Shear formula, $h/t > 60$; (h = Clear distance between flanges or stiffeners. t = Thickness of web.)
"J":- Bearing; steel parts in contact. (d = diameter of rollers in inches.)

CLASSIFICATION	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"I"	"J"
Carbon Steel	18,000	18,000	Max. 15,000	$\frac{18,000}{1+\frac{1}{18000}\left(\frac{L}{r}\right)^2}$	18,000	$\frac{20,000}{1+\frac{1}{2000}\left(\frac{L}{b}\right)^2}$	18,000	12,000	$\frac{18,000}{1+\frac{1}{7200}\left(\frac{h}{t}\right)^2}$	24,000
Silicon Steel	24,000	24,000	Max. 20,000	$\frac{24,000}{1+\frac{1}{18000}\left(\frac{L}{r}\right)^2}$	24,000	$\frac{27,000}{1+\frac{1}{2000}\left(\frac{L}{b}\right)^2}$	24,000	16,000	$\frac{24,000}{1+\frac{1}{7200}\left(\frac{h}{t}\right)^2}$	32,000
Cast Steel		18,000			13,500			10,000		24,000
Forged Carbon Steel					16,000					
Carbon Steel Pins					27,000			13,500		24,000
Power Driven Rivets	6500							12,500		25,000
Turned Bolts	12,000							12,000		24,000
Unfinished Machine Bolts	12,000							10,000		20,000
Rollers (Carbon or Cast Steel)										600d

Notes:- Above unit stresses are in lbs. per sq. inch; except for rollers which are in lbs. per lin. inch. Tension on bolts, on area at root of thread. Tension on rivets only where unavoidable. Turned bolts shall have not more than 1/64 inch driving clearance.

Bearing on masonry; Use 700 lbs. per sq. inch for normal conditions of bearing of shoes on concrete. Increase this to 900 lbs. per sq. inch allowable where excentricity (or moment) enters.

Special High Strength concrete in bridge floor slab; compression in flexure = 1200 lbs. per sq. inch, n = 10.

DETAIL FEATURES:- Distribution of wheel loads to slab; Use Westergaard's formula as modified and used in the Bureau of Public Roads study "Distribution of Wheel Loads and Design of Reinforced Concrete Bridge Floor Slabs," of July 1934.

Lacing; Design lacing for load equal to 2½% of the axial load of the member laced. Directly applied wind shears to be additive to this.

Girder Stiffeners; Space in accordance to the formula for allowable web shear, but not to exceed 6 ft., or the depth of the web.

GENERAL NOTES:- SUPERSTRUCTURE

All concrete shall be proportioned by weight proportioning method. See Special Provisions.

Two name plates, type "B" as shown on Std. S-918R, shall be furnished and placed by the superstructure contractor. Cost of name plates to be included in price bid for other items.

Trusses shall be fabricated to cambered truss dimensions. Laterals shall be fabricated to normal panel lengths, bolted during erection, and riveted up after the span is swung and the full dead load is in place.

No floor slab shall be placed until trusses are riveted and swung. Floor slab shall be placed starting from one end floorbeam and proceeding to the other, or starting from both ends and meeting at the center. Floor sections may be filled with concrete at any time after their attachment to the stringers, but each floor panel shall be completed in one continuous pour.

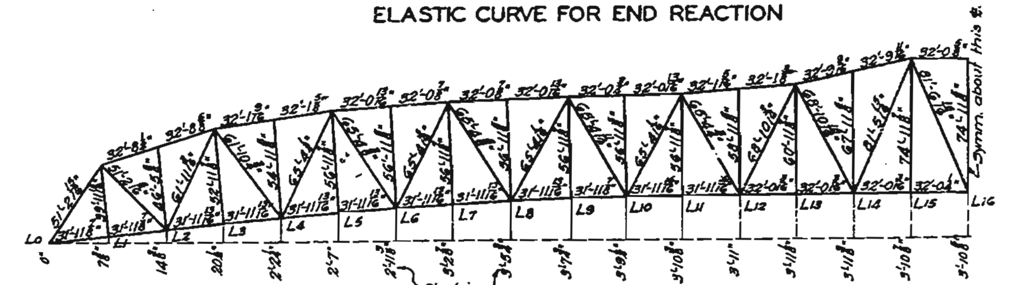
Before preparing shop drawings the contractor shall submit to the Missouri State Highway Department triplicate copies of his complete plans for erection method, erection loads, and erection stresses. These plans shall be subject to the approval of the Department. See Special Provisions.

Detail shop drawings for all structural and cast steel shall be submitted to the Missouri State Highway Department in duplicate, and shall be approved before steel is fabricated. Punching, reaming, drilling, and other shop requirements shall be in accordance with the Special Provisions. These requirements shall be clearly noted on the shop drawings to avoid oversight.

Paint:- Shop; none, except all machined surfaces one coat of white lead and tallow. Field; surfaces inaccessible after erection 3 coats of red lead; all other exposed surfaces three coats after erection and cleaning, first coat red lead, second and third coats aluminum. See Special Provisions.

For instructions on weighing reactions of the continuous span, and preservation of navigation. See Special Provisions.

Falsework for spans over existing railroad track shall be constructed to a minimum vertical clearance of 23'-0" and a minimum lateral clearance of 10'-0" from ℄ of tracks.



Note:- Dimensions given on this diagram include camber allowance. The truss is cambered for total dead load (including future wear) plus ½ (Live Load + Impact). The equivalent uniform live load (with the moment concentration replaced by an equivalent uniform load on the basis of 813' simple span) is used over the entire 1024 foot span. The trusses shall be fabricated to these dimensions and blocking.

CAMBER DIAGRAM

BRIDGE OVER MISSOURI RIVER

STATE ROAD FROM WENTZVILLE TO ST. LOUIS
ABOUT .25 MILE EAST OF WELDON SPRINGS STATION
PROJECT NO. PWA76 (US40TR-54) STA. 10+48.39

ST. CHARLES-ST. LOUIS COUNTIES

Drawn Sept. 1935 by F.W.H.
Checked 1935 by Sverdrup & Parcel (J.A.J.)

J-1000

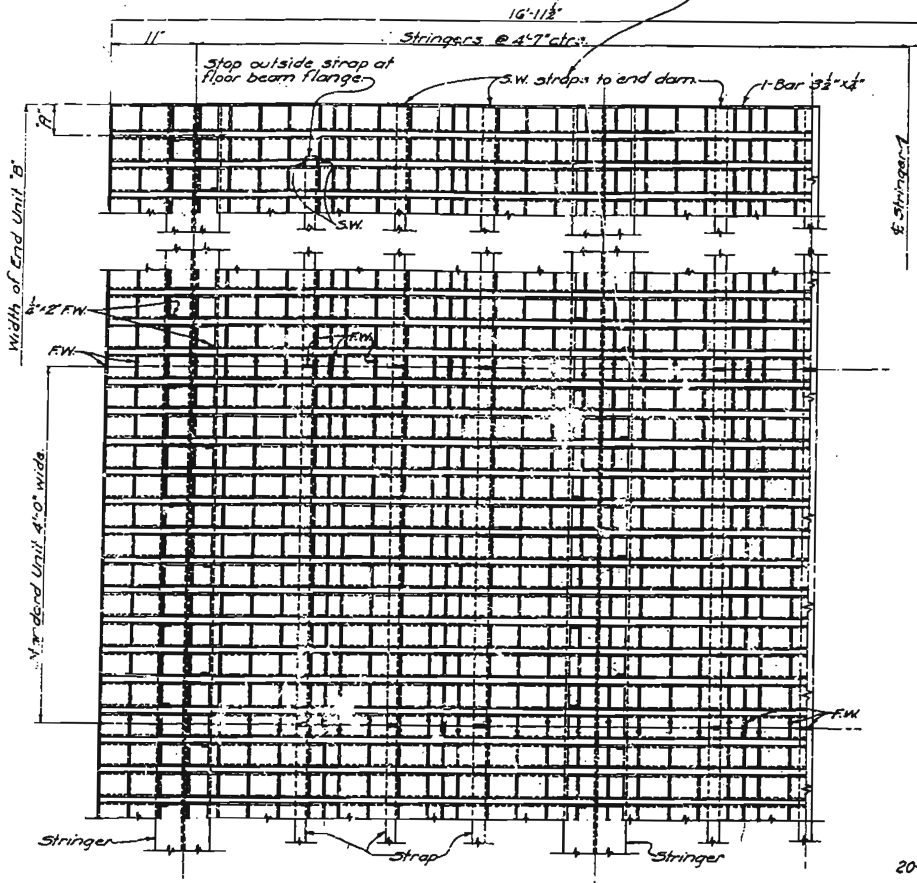
175

Note:- At expansion joints over Piers No. 3, 5, and 7, stop these straps 2 1/4" from face of end dam and field butt weld straps to flange of 12" [@ 25#. These field welds shall be the last made in floor panel.

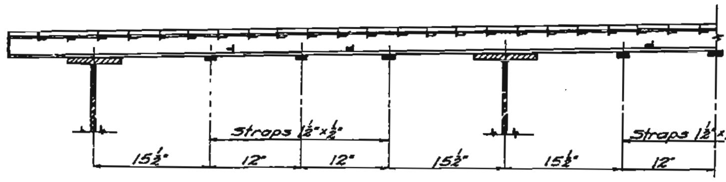
MISSOURI STATE HIGHWAY DEPARTMENT

Note:- At expansion joints over Piers No. 3, 5, and 7, stop these straps 2 1/4" from face of end dam and field butt weld straps to flange of 12" [@ 25#. These field welds shall be the last made in floor panel.

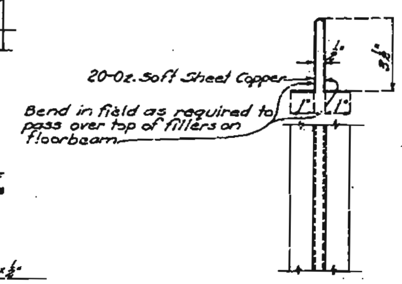
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	PWA76 (US40TR-S4) Docket #2981	19		



TYPICAL PART PLAN



PART CROSS SECTION



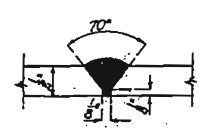
DETAILS OF COPPER FLASHING
(See Special Provisions)

ALTERNATE "B" TABLE OF UNITS AND DIMENSIONS							
Span	End Panel of Truss				Intermediate Panel		
	End	"A"	"B"	No. 4'-4 1/2" Units	"A"	"B"	No. 4'-4 1/2" Units
(1-2)	1	6 3/8"	5'-4 1/2"	4	5 3/8"	2'-0"	4
			4'-8 1/4"				
	2	5 3/8"	2'-10 1/4"	4		4'-7 1/2"	
			4'-7 1/4"				
(2-3)	2	5 3/8"	2'-10 1/4"	4	5 3/8"	2'-0"	4
			4'-7 1/4"				
	3	5"	22 3/8"	4		4'-7 1/2"	
			4'-5 3/8"				
(3-5)	3	6 3/8"	5'-1 1/2"	5	5 3/8"	5'-5 3/4"	5
			4'-8 1/4"				
	5	5 1/4"	2'-10 1/8"	6		4'-7 1/4"	
			2'-10 1/8"				
(5-7)	5	5 1/4"	2'-10 1/8"	6	5 3/8"	5'-5 3/4"	5
			2'-10 1/8"				
	7	6 3/8"	5'-1 1/2"	5		4'-7 1/4"	
			4'-8 1/4"				
(7-8)	7	4 3/4"	4'-1 3/8"	3	6 3/8"	3'-9 3/4"	3
			4'-1 3/8"				
	8	6 1/2"	4'-8"	3		4'-6 1/4"	
			4'-8"				
(8-9)	8	6 1/8"	4'-8"	3	6 3/8"	3'-9 3/4"	3
			4'-8"				
	9	5 1/4"	5'-5 3/8"	3		4'-6 1/4"	
			4'-7 3/8"				

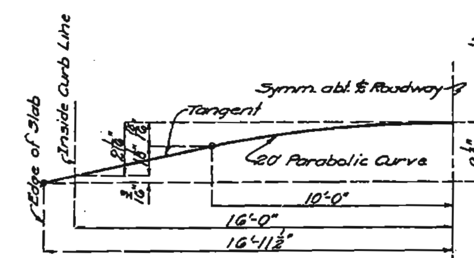
Total Std. 4'-4 1/2" Units = 406.
Total Special Units = 176.

ALTERNATE "A" TABLE OF UNITS AND DIMENSIONS							
Span	End Panel of Truss				Intermediate Panel		
	End	"A"	"B"	No. 4'-0" Units	"A"	"B"	No. 4'-0" Units
(1-2)	1	3 3/8"	17 3/8"	5	4 3/4"	3'-10 3/4"	4
			4'-1 3/8"				
	2	5 3/4"	4'-7 3/4"	4		4'-2 3/4"	
			4'-3 3/4"				
(2-3)	2	5 3/4"	4'-7 3/4"	4	4 3/4"	3'-10 3/4"	4
			4'-3 3/4"				
	3	5 1/8"	3'-11 1/8"	4		4'-2 3/4"	
			3'-11 1/8"				
(3-5)	3	4 1/8"	3'-10 1/8"	6	3 3/4"	3'-9 3/4"	6
			3'-10 1/8"				
	5	3 5/8"	3'-9 5/8"	6		4'-1 3/4"	
			4'-1 5/8"				
(5-7)	5	3 5/8"	3'-9 5/8"	6	3 3/4"	3'-9 3/4"	6
			4'-1 5/8"				
	7	4 1/8"	3'-10 1/8"	6		4'-1 3/4"	
			3'-10 1/8"				
(7-8)	7	4 1/8"	18 1/8"	4	3 3/4"	17 3/4"	4
			3'-10 1/8"				
	8	4 3/4"	2'-2 3/4"	4		4'-1 3/4"	
			4'-2 3/4"				
(8-9)	8	4 3/4"	2'-2 3/4"	4	3 3/4"	17 3/4"	4
			4'-2 3/4"				
	9	3 1/8"	3'-1 1/8"	4		4'-1 3/4"	
			4'-1 1/8"				

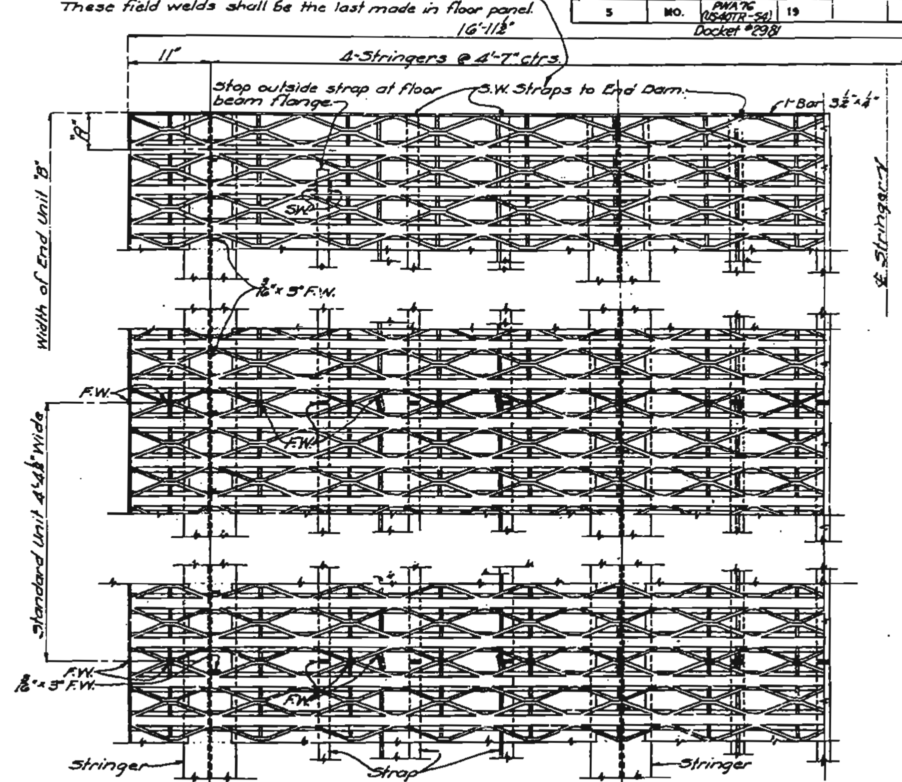
Total Std. 4'-0" Units = 481.
Total Special Units = 176.



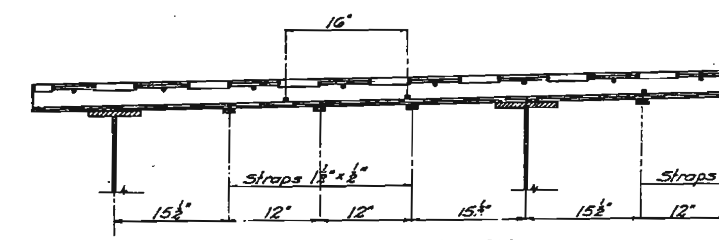
FIELD WELD OF STRAPS



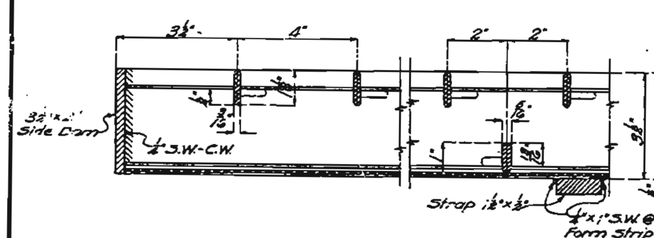
ROADWAY CROWN



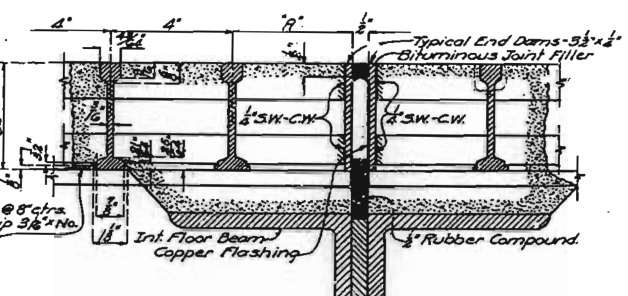
TYPICAL PART PLAN



PART CROSS SECTION

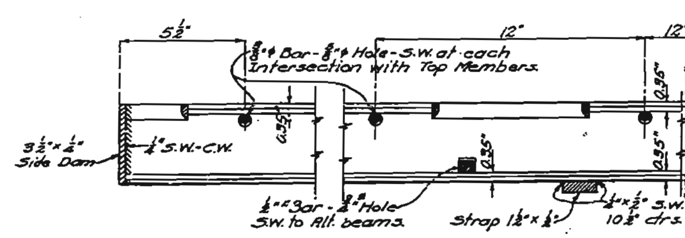


PART SECTION AT RIGHT ANGLES TO ℄ ROADWAY

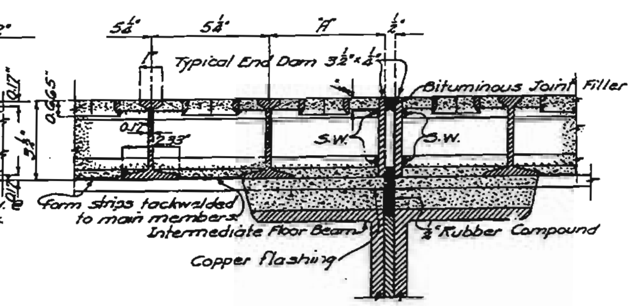


PART SECTION SHOWING JOINT OVER INTERMEDIATE FLOOR BEAM

ALTERNATE "A"



PART SECTION AT RIGHT ANGLES TO ℄ ROADWAY



PART SECTION SHOWING JOINT OVER INTERMEDIATE FLOOR BEAM

ALTERNATE "B"

Notes:-

For general notes on superstructure see Sheet No. 9.

The bridge floor slab shall consist of one of the two alternate armored floor slab units as detailed. The depth of finished floor and the dimensions and weights of elements shall be as shown. All units of the slab shall be formed to the roadway crown in the shop. All form strips between the I-beams shall be placed in short lengths so as to extend only about 1" onto the edge of each support. Form strips shall be omitted over the flanges of floorbeams and end supports as shown on this and other plan sheets. See Special Provisions.

All steel used in the floor units shall be structural grade of A.S.T.M. Standard Specifications for Bridges A7-34 and shall be copper bearing. See Special Provisions.

After the units are erected and are welded to the supporting members they shall be filled with "Special Mix" Concrete, (See Special Provisions), vibrated in place, and finished flush with the tops of I-beams.

For further details of floor and end supports see Sheets No. 12.

BRIDGE OVER MISSOURI RIVER

STATE ROAD FROM WENTZVILLE TO ST LOUIS

ABOUT .25 MILE EAST OF WELDON SPRINGS STATION

PROJECT NO. PWA76 (U.S. 40TR-S4) STA. 10+48.39

ST. CHARLES-ST. LOUIS COUNTIES

J-1000

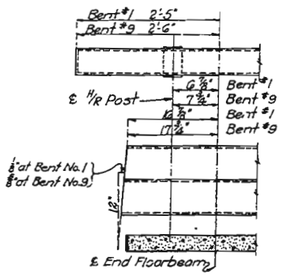
Designed May 1935 by F.W.H.
Drawn July 1935 by H.D.
Traced July 1935 by C.R.F.
Checked Oct. 1935 by Sverdrup & Parcel (L.F.)

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

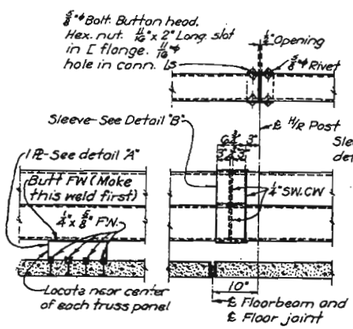
Sheet No. 10 of 22.

MISSOURI STATE HIGHWAY DEPARTMENT

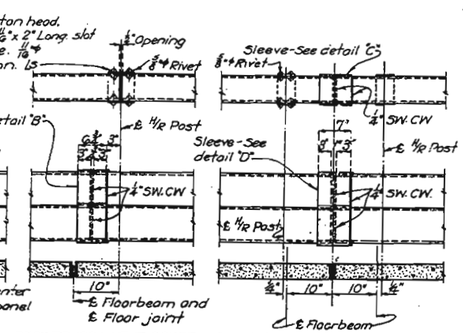
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO	TOTAL SHEETS
5	MO.	PWA 76 (US 40 TR-5A) Docket #2981	11		



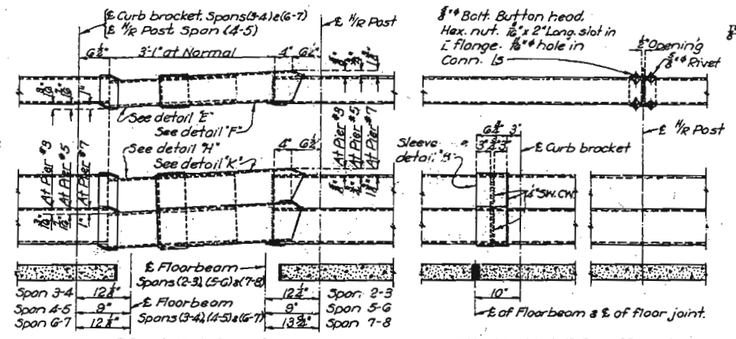
AT END BENTS



THRUST ANCHOR



DECK TRUSS, INT. FLOORBEAMS AT PIERS NO. 2 AND 8

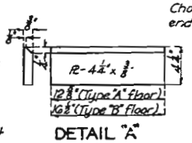


AT PIERS NO. 3, 5 AND 7

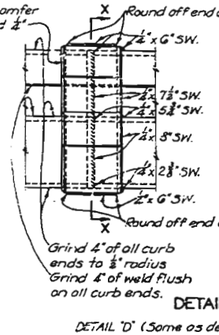
THRU TRUSS, INT. FLOORBEAMS

Note: Handrail post and curb bracket details not shown for sake of clearness.

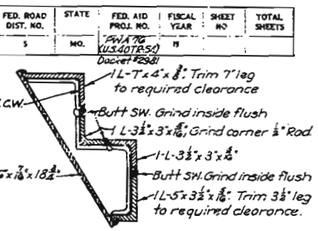
ELEVATIONS OF TYPICAL RAIL AND CURB DETAILS



DETAIL "A"

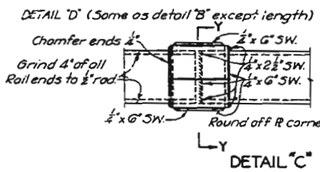


DETAIL "B"

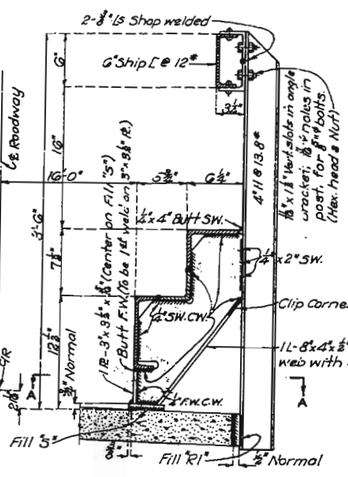


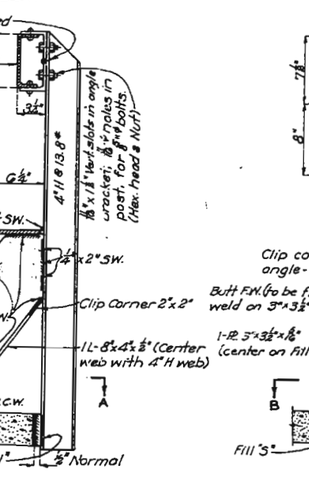
SECTION X-X

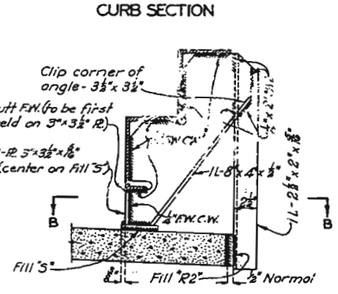
Note: All fabricated sleeves shall have not less than 1/8" or more than 3/8" clearance over rail or curb sections.

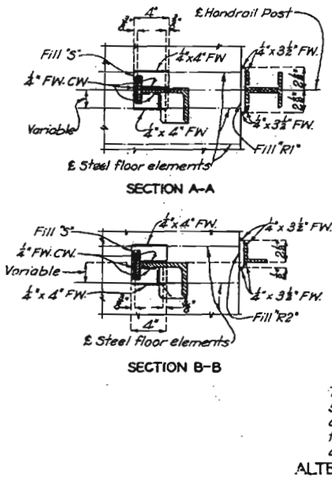


DETAIL "C"



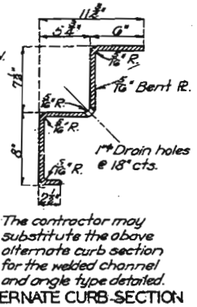




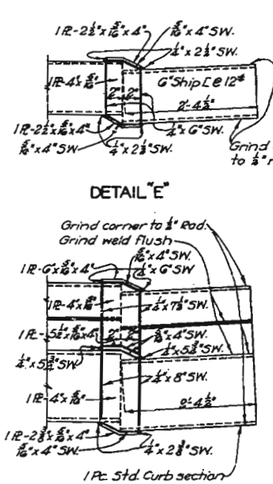


Fill	Size	Thickness Max	Thickness Min.	Type of Floor
R1	5"x 3 1/2"	3/4"	1/2"	"A" or "B"
R2	3"x 3 1/2"	3/4"	1/2"	"A" or "B"
S	4"x 4"	1"	1/2"	"A"
	4"x 5 1/2"	1"	1/2"	"B"

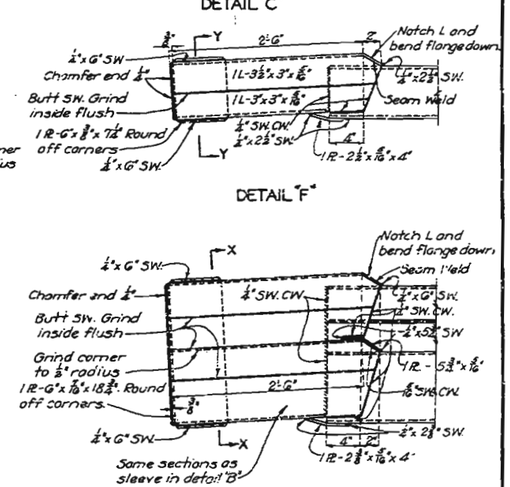
Note: These fills are to provide for alignment of handrail and curb. They shall be supplied in thicknesses varying by 1/8 inch between the limits given, and sufficient quantities of the various thicknesses shall be available at all times to insure proper alignment. Only one fill shall be used at any point. Payment shall be based on the required number at normal thickness.



The contractor may substitute the above alternate curb section for the welded channel and angle type detailed.
ALTERNATE CURB-SECTION



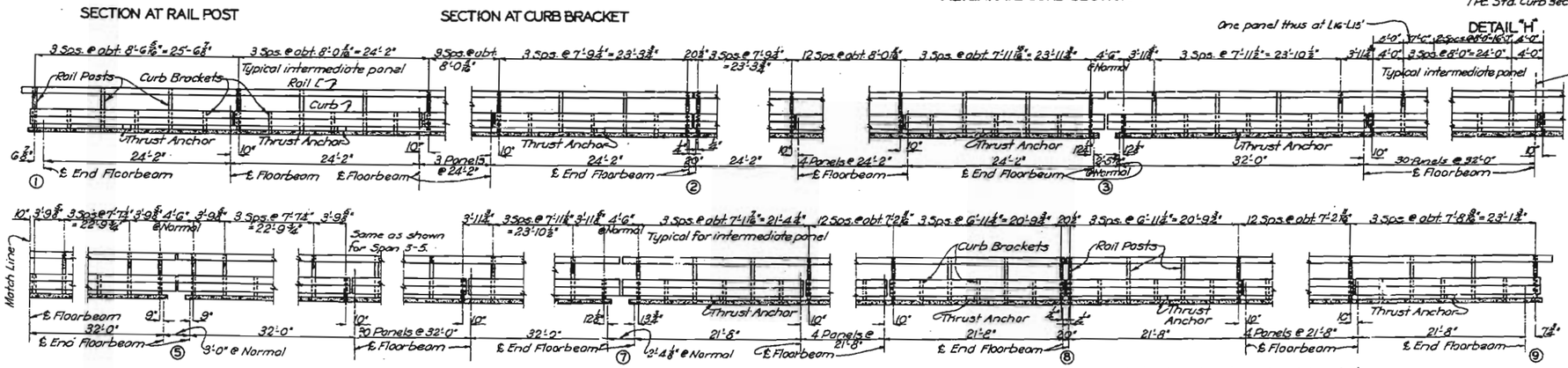
DETAIL "E"



DETAIL "F"

DETAIL "H"

DETAIL "K"



ELEVATION OF CURB AND HANDRAIL

Note: All rail posts and curb brackets normal to crown of roadway.
Curb brackets to be centered between rail posts.

NOTES:

For general notes on superstructure, see Sheet No. 9.

All structural steel shown on this sheet shall be copper bearing. See Special Provisions.

All welds shall be electric arc welds.

Handrail, curb, posts, and brackets shall be shop fabricated in units as shown, and these units shall be true to line and square. Units shall be erected, aligned, and securely clamped in place before making field welds.

Payment for material on this sheet will be based on the type of floor slab used, unless otherwise noted. If the alternate of a bent plate curb section is used, payment shall be based on the type used. Quantities are computed on the welded curb design.

BRIDGE OVER MISSOURI RIVER

STATE ROAD FROM WENTZVILLE TO ST. LOUIS

ABOUT .25 MILE EAST OF WELDON SPRINGS STATION

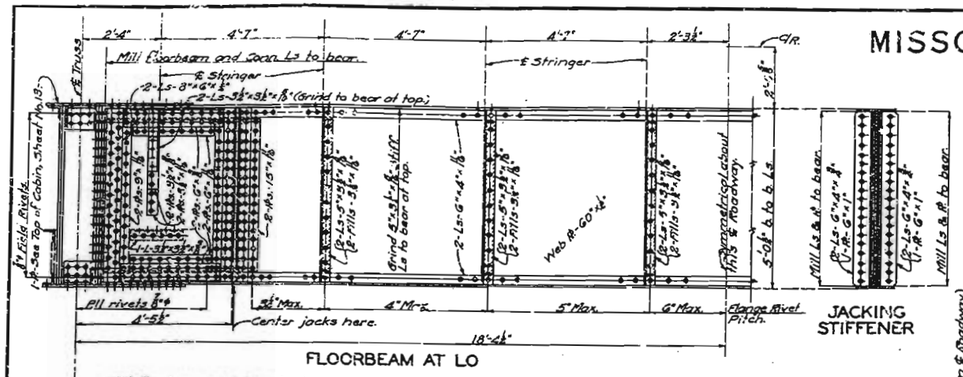
PROJECT NO. PWA 76 (US 40 TR-5A) STA. 10+48.39

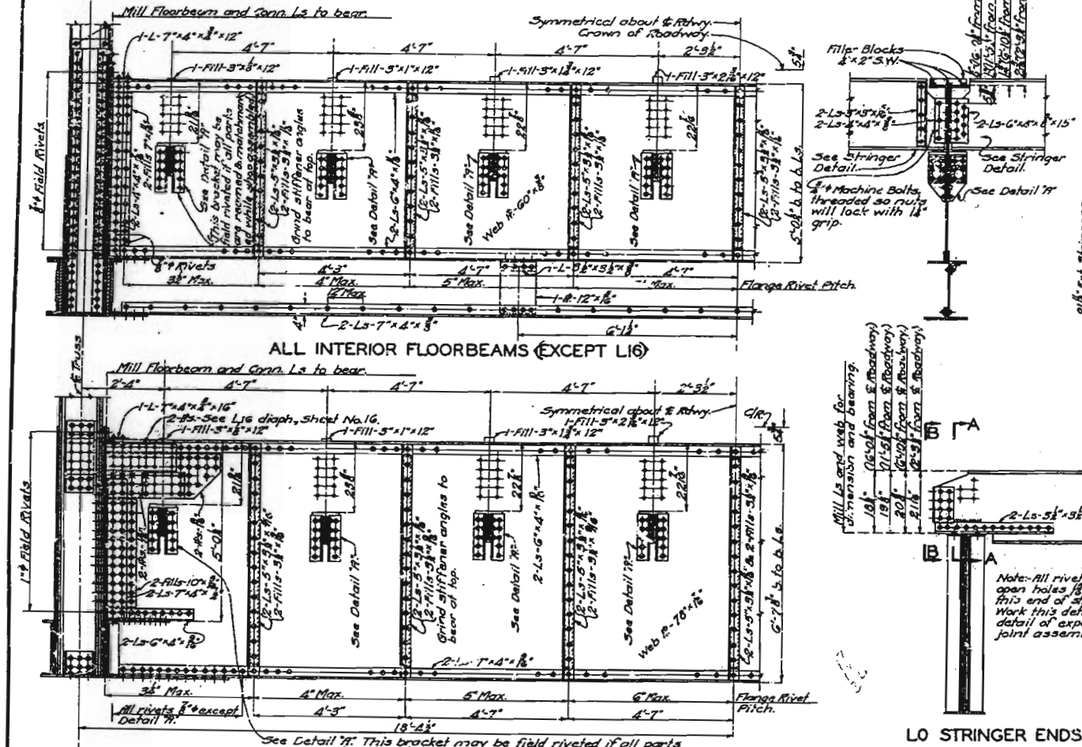
ST. CHARLES-ST. LOUIS COUNTIES

J-1000

Designed Feb. 1935 by F.W.H.
Drawn Sept. 1935 by F.W.H.-H.D.
Traced Sept. 1935 by G.W.
Checked Oct. 1935 by Sverdrup & Parcel (L.F.)

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





MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	PWA76 (US40TR-S4)	19		

Docket #2981

FLOORBEAM AT LO

JACKING STIFFENER

ALL INTERIOR FLOORBEAMS (EXCEPT L16)

Note:- All rivets ⅞"⌀ open holes ¹⁵⁄₁₆"⌀ in this end of stringers. Work this detail with detail of expansion joint assembly.

LO STRINGER ENDS

See Detail "A". This bracket may be field riveted if all parts are reamed and matchmarked while shop assembled.

FLOORBEAM AT L16

For details of handrail and curb see Sheet No. 11.
For details of roadway crown and slab see Sheet No. 10.

HALF SECTION OF THRU TRUSS ROADWAY

HALF SECTION A-A

HALF ELEVATION B-B

ASSEMBLY DIAGRAM OF EXPANSION JOINT UNITS

DETAIL "A"

STRINGERS, FROM L1 TO L16 INC.

SPAN	"D"	"E"
2-3	⅛"	⅛"
3-4	³⁄₁₆"	
4-5	⅛"	¼"
5-6	¼"	
6-7	⁵⁄₁₆"	⅝"
7-8	⅜"	

36-Type "A" castings req'd.
42-Type "B" castings req'd.
6-Type "C" castings req'd.

TURNED BOLT ASSEMBLY
(1513) - Req'd.

DETAILS OF EXPANSION JOINT CASTINGS

Note:- Grade of steel in expansion joint castings and annealing to be in accordance with the specifications.
All fillets on castings to be ¼" unless otherwise shown, and all edges square.
Roadway surface of expansion joint units shall not depart more than ⅛" plus or minus from a true plane.

EXPANSION JOINT ASSEMBLY

Notes:-
For general notes on superstructure see Sheet No. 9.
For truss details see Sheets No. 13, 14, 15, and 16.
All rivets to be ⅞"⌀, open holes ¹⁵⁄₁₆"⌀, unless otherwise noted.
All welds shall be electric arc welds.
All material in floorbeams and stringers shall be carbon steel.
End connection angles of stringers shall be riveted to the webs with the entire stringer assembled in an iron frame so as to give the exact correct length of stringer and the correct position of angles.
All floorbeam and stringer connections to be reamed to a metal template.
All stringers shall be straightened as required so that their top surfaces will be within the limits of a straight line and an upward curve of ⅛ inch mid ordinate.

BRIDGE OVER MISSOURI RIVER

STATE ROAD FROM WENTZVILLE TO ST. LOUIS
ABOUT .25 MILE EAST OF WELDON SPRINGS STATION
PROJECT NO. PWA76 (US40TR-S4) STA. 10+48.39

ST. CHARLES-ST. LOUIS COUNTIES

J-1000

Designed May 1935 by F.W.H.
Drawn Aug. 1935 by F.W.H.
Traced Sept. 1935 by C.A.F.
Checked Oct. 1935 by Sverdrup & Parcel (L.F)

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

Sheet No. 12 of 22.

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	PWA76 (US40TR-S4)	19		

Docket #2981

Notes:-
For general superstructure notes see Sheet No. 9.
For camber diagram and truss dimensions see Sheet No. 9.
For floor system details see Sheet No. 12.
For shoe details see Sheet No. 17.
For U3 sway frame see Sheet No. 14.
The erector shall be required to swing, lift, or shift to temporary position such portal members, laterals, or struts as interfere with the satisfactory driving of field rivets.

Notes:-
All material marked "S.S." shall be silicon steel.
All material marked "C.S." shall be carbon steel.
② Indicates maximum number of holes out of each part to maintain required net section.
All rivets in trusses ⅞"φ, open holes 1⁵⁄₁₆"φ unless otherwise noted. All rivets in bracing and floorbeam flanges ¾"φ, open holes ¹³⁄₁₆"φ, unless otherwise noted.
Shop and field rivets may be interchanged on all truss and bracing details where desired for the convenience of erection.
All welding shall be by electric arc. See Special Provisions.

Designed Mar. 1935 by F.W.H.
Drawn July 1935 by F.W.H.
Traced Aug. 1935 by C.A.F.
Checked Oct. 1935 by Sverdrup & Parcel (...)

BRIDGE OVER MISSOURI RIVER

STATE ROAD FROM WENTZVILLE TO ST. LOUIS
ABOUT .25 MILE EAST OF WELDON SPRINGS STATION
PROJECT NO. PWA 76 (U.S. 40TR-S4) STA. 10+48.39

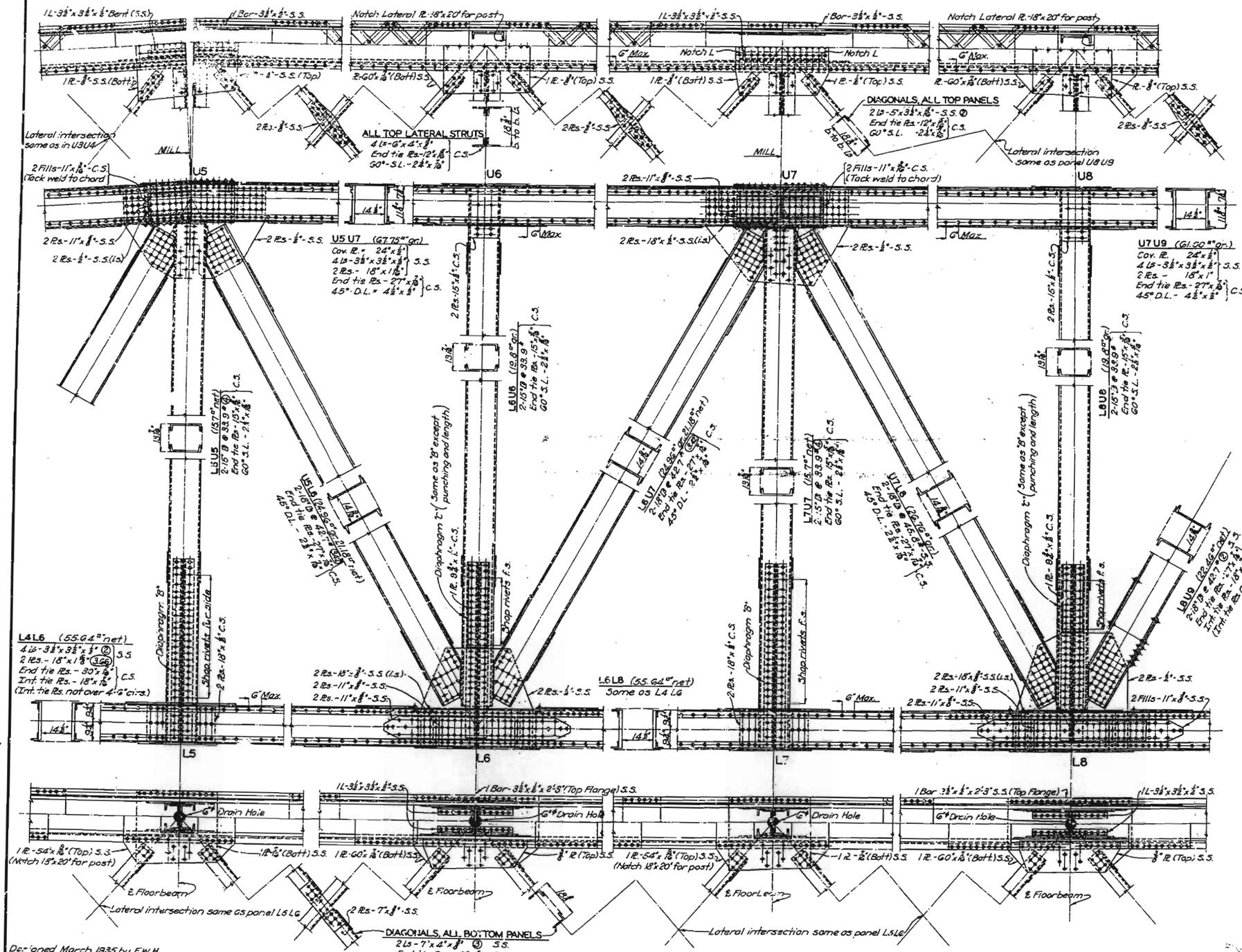
ST. CHARLES – ST. LOUIS COUNTIES

Sheet No. 13 of 22.

J-1000

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	PWA 76 (U.S.40 TR-S4) Docket #2981			



NOTES:

For general superstructure notes, see sheet No. 9
For camber diagram and truss dimensions, see Sheet No. 9
For floor system details, see Sheet No. 12
All material marked 'S.S' shall be silicon steel. All material marked 'C.S' shall be carbon steel.
(2) Indicates maximum number of holes out of each part to maintain required net section.
All rivets in trusses ⅞"ϕ, open holes 15/16"ϕ, unless otherwise noted. All rivets in bracing and floorbeam flanges ¾"ϕ, open holes 13/16"ϕ, unless otherwise noted.
Shop and field rivets may be interchanged on all truss and bracing details where desired for the convenience of erection.
The Erector shall be required to swing, lift, or shift to temporary position such portal members, laterals, or struts as interfere with the satisfactory driving of field rivets.

Designed March 1935 by F.W.H.
Detailed July 1935 by F.W.H.
Traced Aug. 1935 by G.W.
Checked Oct. 1935 by Sverdrup & Parcel (L.F.)

BRIDGE OVER MISSOURI RIVER

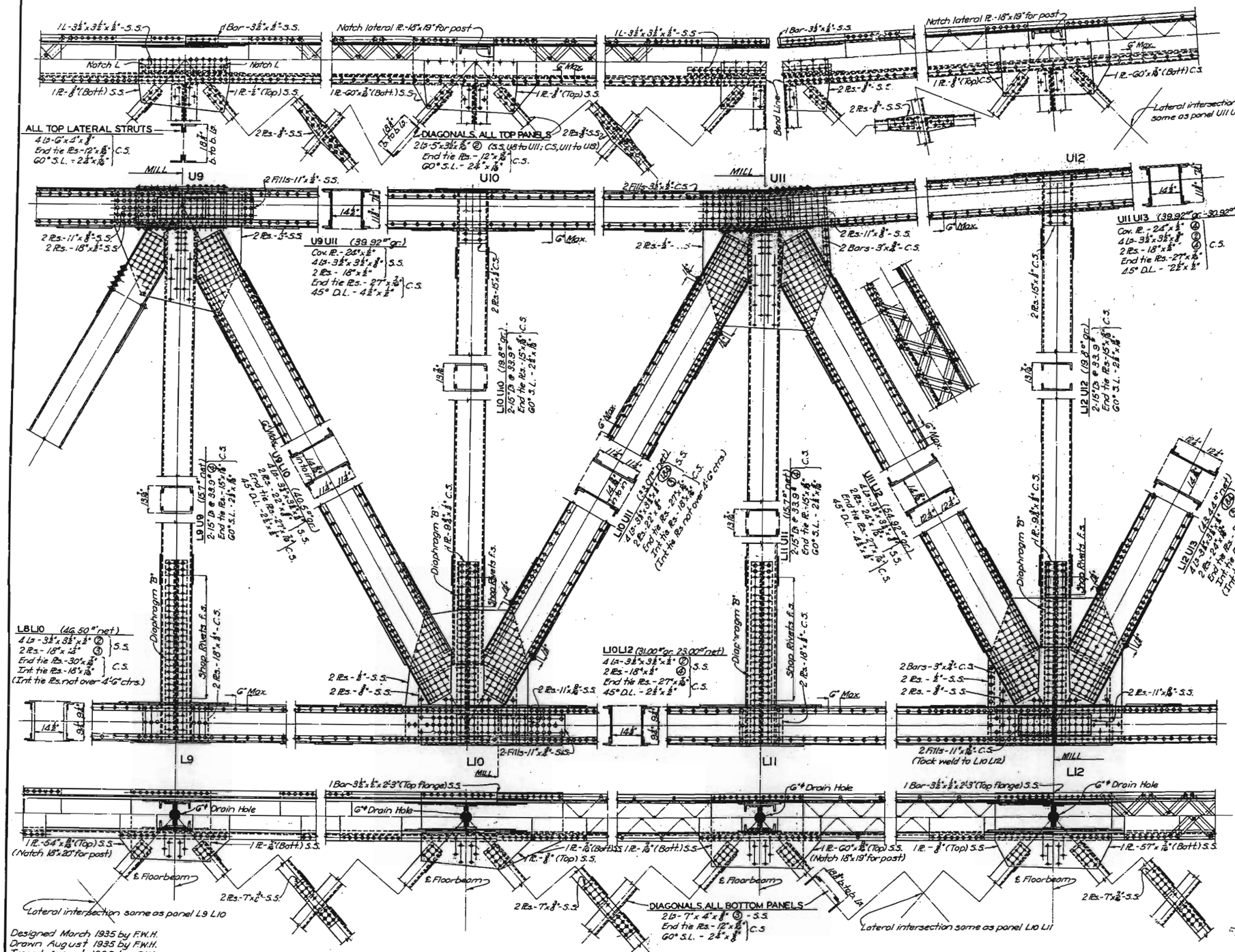
STATE ROAD FROM WENTZVILLE TO ST. LOUIS
ABOUT 25 MILE EAST OF WELDON SPRINGS STATION
PROJECT NO. PWA 76 (U.S.40 TR-S4) STA. 10+48.39

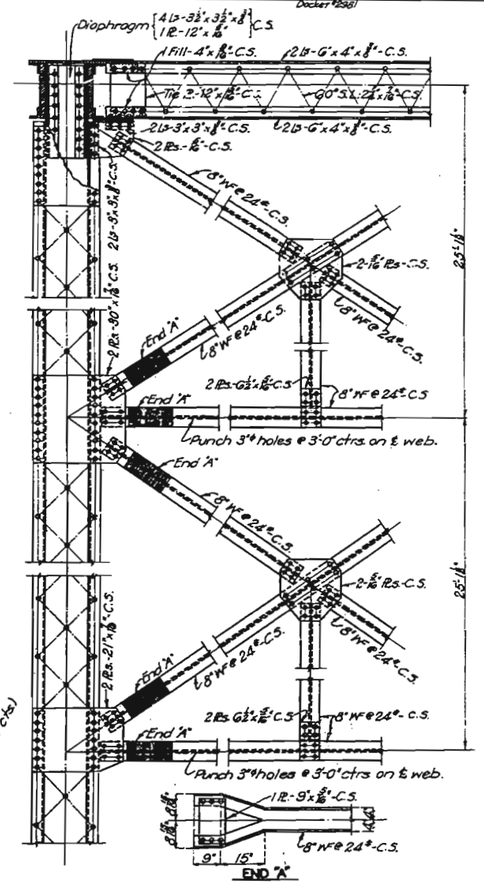
ST. CHARLES-ST. LOUIS COUNTIES

J-1000

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	PWA 76 (US 40 TR-S4) Docket #2981	19		





SWAY FRAME AT U16

Notes:

For general superstructure notes, see Sheet No. 9.
For camber diagram and truss dimensions, see Sheet No. 9.
For floor system details, see Sheet No. 12.
For U9 and U11 sway frames, see Sheet No. 14.
All material marked "S.S." shall be silicon steel. All material marked "C.S." shall be carbon steel.
② Indicates maximum number of holes out of each part to maintain required net section.
All rivets in trusses ⅞" ø, open holes 15/16" ø, unless otherwise noted. All rivets in bracing and floorbeam flanges ⅞" ø unless otherwise noted.
Shop and field rivets may be interchanged on all truss and bracing details where desired for the convenience of erection.
The Erector shall be required to swing, lift, or shift to temporary position such portal members, laterals, or struts as interfere with the satisfactory driving of field rivets.

BRIDGE OVER MISSOURI RIVER

STATE ROAD FROM WENTZVILLE TO ST. LOUIS

ABOUT .25 MILE EAST OF WELDON SPRINGS STATION

PROJECT NO. PWA 76 (US 40 TR-S4) STA. 10+48.39

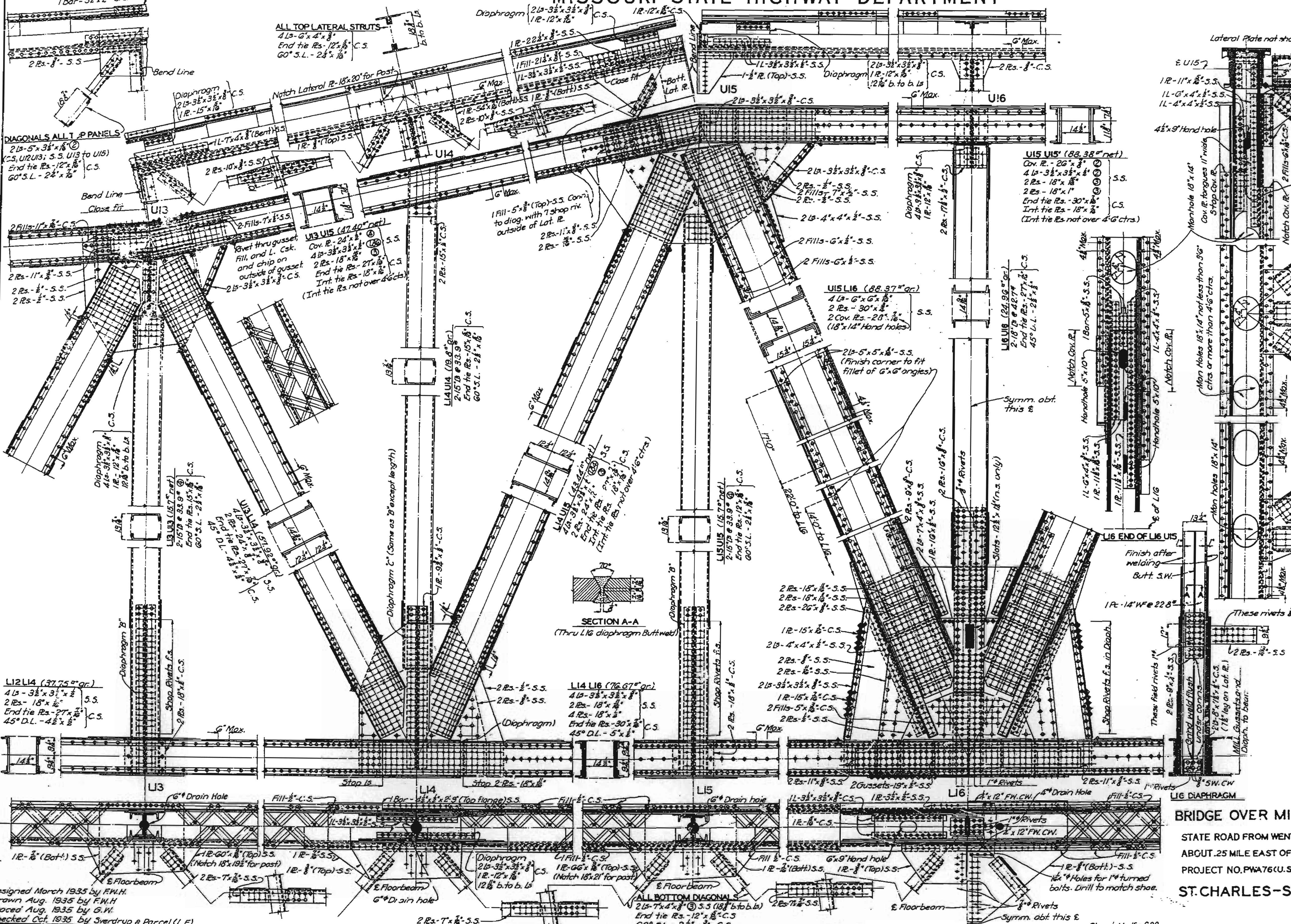
ST. CHARLES - ST. LOUIS COUNTIES

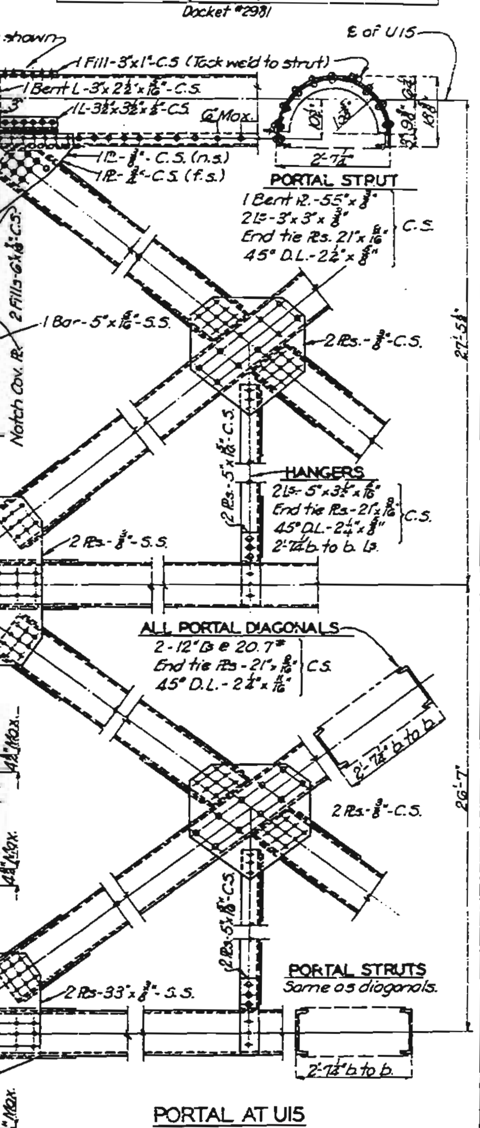
J-100

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	PWA 76 (US40TR-54)	1'		

Docket #2981





PORTAL AT U15

NOTES:

For general superstructure notes, see Sheet No. 9.

For camber diagram and truss dimensions see Sheet No. 9.

For floor system details, see Sheet No. 12.

For U13 sway frame, see Sheet No. 14. For U16 sway frame, see Sheet No. 15.

For shoe details, see Sheet No. 17.

All material marked "SS" shall be silicon steel. All material marked "CS" shall be carbon steel.

② Indicates maximum number of holes out of each part to maintain required net section.

All rivets in truss ⅞"φ, open holes 15/16"φ, unless otherwise noted. All rivets in bracing and floorbeam flanges ¾"φ, open holes 13/16"φ, unless otherwise noted.

Shop and field rivets, may be interchanged on all truss and bracing details where desired for the convenience of erection.

The Erector shall be required to swing, lift or shift, to temporary position such portal members, laterals, or struts as interfere with the satisfactory driving of field rivets.

All welding shall be by electric arc. See Special Provisions.

Designed March 1935 by F.W.H.
Drawn Aug. 1935 by F.W.H
Traced Aug. 1935 by G.W.
Checked Oct. 1935 by Sverdrup & Parcel (L.F)

Sheet No. 16 of 22.

BRIDGE OVER MISSOURI RIVER

STATE ROAD FROM WENTZVILLE TO ST. LOUIS
ABOUT .25 MILE EAST OF WELDON SPRINGS STATION
PROJECT NO. PWA 76 (U.S. 40 TR-54) STA. 10+48.39

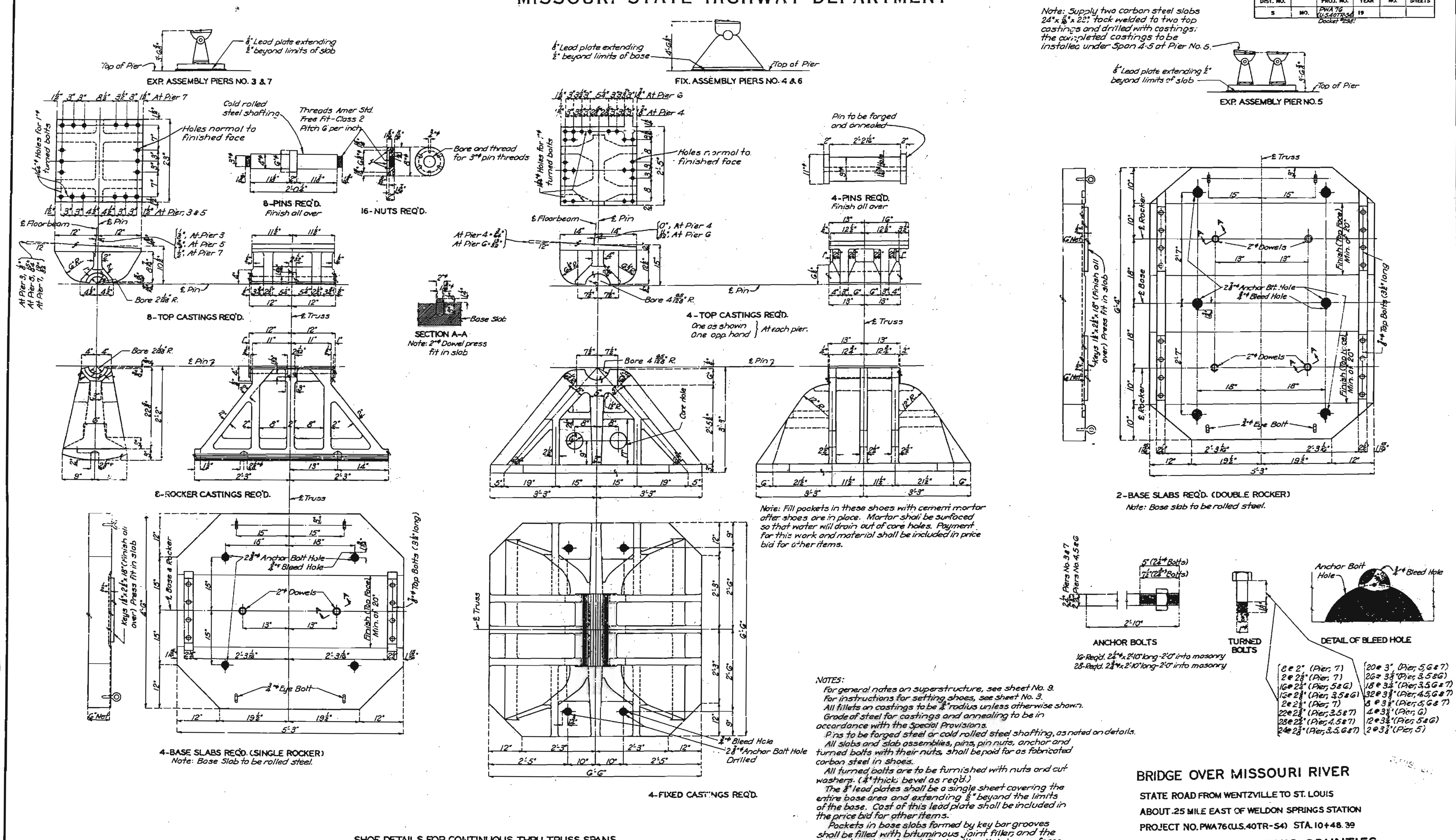
ST. CHARLES-ST. LOUIS COUNTIES

J-1000

102

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	PWA 76 (U.S.40TR-S4) Docket #2381	19		



NOTES:

For general notes on superstructure, see sheet No. 8.
For instructions for setting shoes, see sheet No. 3.
All fillets on castings to be 3/4" radius unless otherwise shown.
Grade of steel for castings and annealing to be in accordance with the Special Provisions.
Pins to be forged steel or cold rolled steel shafting, as noted on details.
All slabs and slab assemblies, pins, pin nuts, anchor and turned bolts with their nuts, shall be paid for as fabricated carbon steel in shoes.
All turned bolts are to be furnished with nuts and cut washers. (1/4" thick; bevel as req'd.)
The 1/8" lead plates shall be a single sheet covering the entire base area and extending 1/2" beyond the limits of the base. Cost of this lead plate shall be included in the price bid for other items.
Pockets in base slabs formed by key bar grooves shall be filled with bituminous joint filler, and the fill material surfaced flush with adjoining surfaces.

SHOE DETAILS FOR CONTINUOUS THRU TRUSS SPANS

BRIDGE OVER MISSOURI RIVER

STATE ROAD FROM WENTZVILLE TO ST. LOUIS
ABOUT .25 MILE EAST OF WELDON SPRINGS STATION
PROJECT NO. PWA76 (U.S. 40TR-S4) STA. 10+48.39
ST. CHARLES-ST. LOUIS COUNTIES

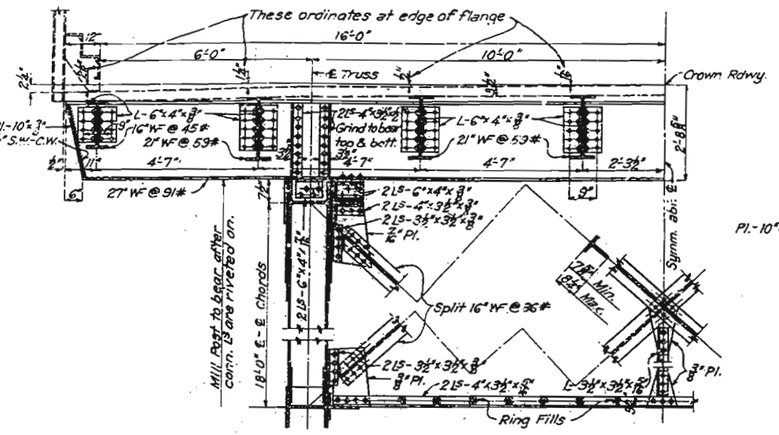
J-1000

Designed April 1935 by F.W.H.
Drawn June 1935 by H.E.C.
Traced June 1935 by G.W.
Checked Oct. 1935 by Sverdrup & Parcel (L.F.)

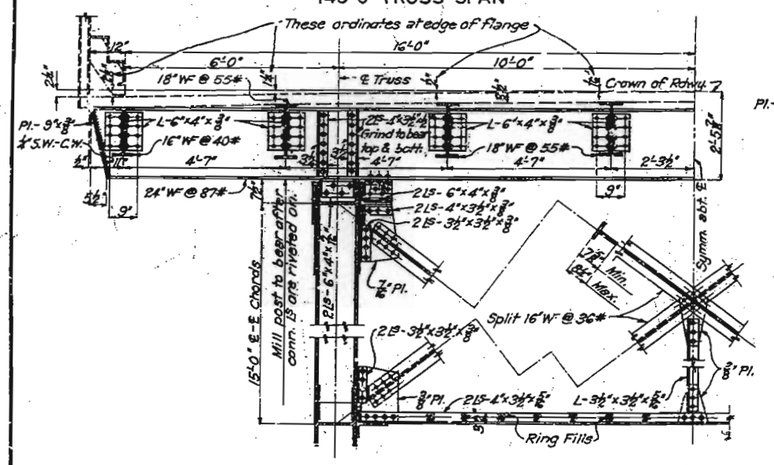
MISSOURI STATE HIGHWAY DEPARTMENT

FE... ROAD DIST. NO.	STATE NO.	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	PWA 76 (U.S. 40 TR-54)	19		

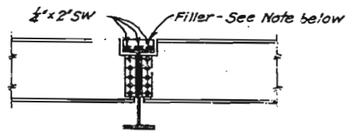
Docket #2981



HALF SECTION AT INTER. FLOOR BEAM
145'-0" TRUSS SPAN

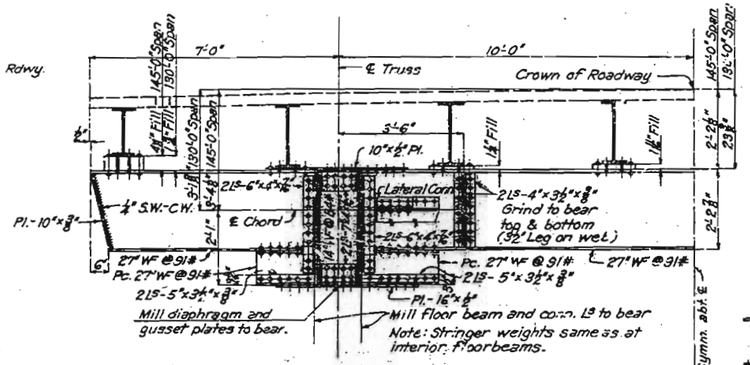


HALF SECTION AT INTER. FLOOR BEAM
130'-0" TRUSS SPAN

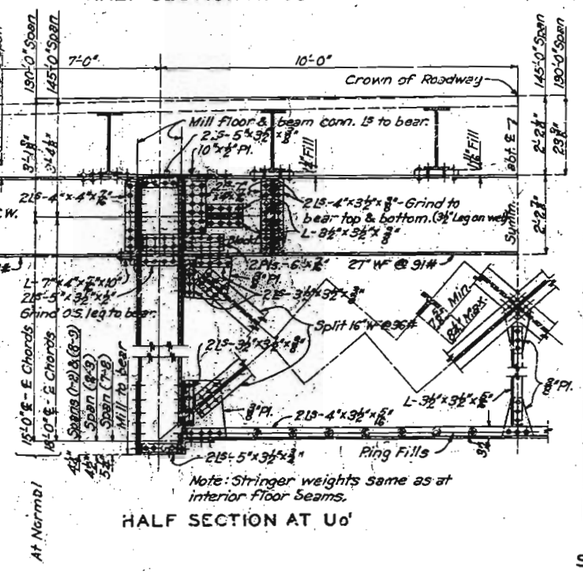


Note: Filler on 145' Span, 3"x10"x thickness as below.
Filler on 130' Span, 3"x9"x thickness as below.
Distance from ℄ Fill to ℄ Rdwy. = 2'-5½", thickness = 2⅜"
" " " " " " = 6'-10½", " = 1⅝"
" " " " " " = 11'-5½", " = 1"
" " " " " " = 16'-0½", " = ⅝"

TYPICAL SEC. THRU FLOORBEAM
(Showing stringer conn. and fills.)

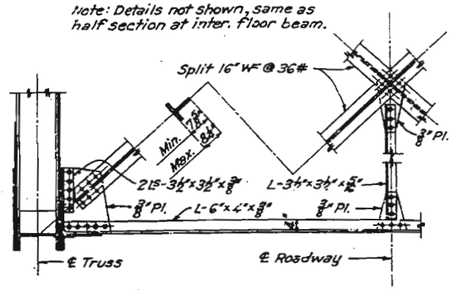


HALF SECTION AT Uo

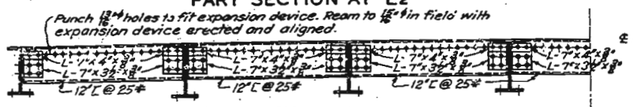


HALF SECTION AT Uo'

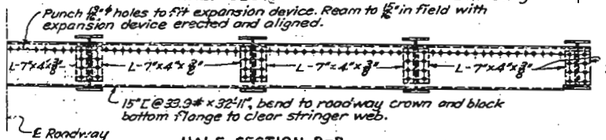
Note: Details not shown, same as half section at inter. floor beam.



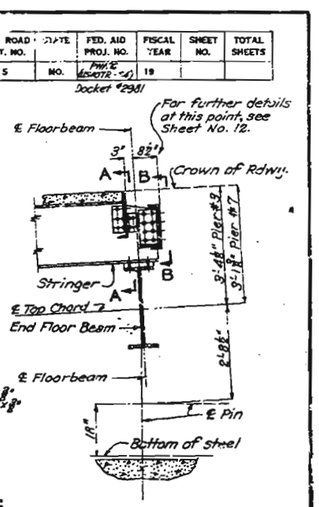
PART SECTION AT L2



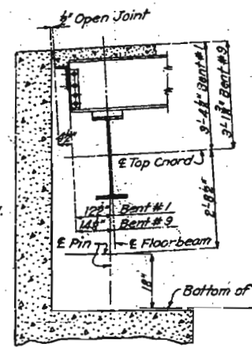
HALF SECTION A-A



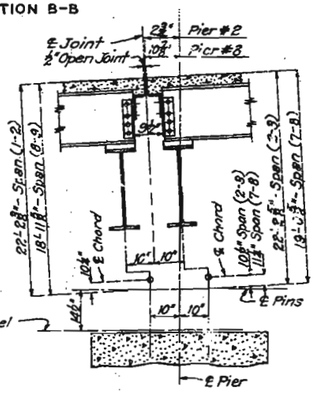
HALF SECTION B-B



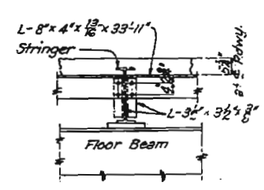
SECTION AT PIERS NO. 3 & 7



SECTION AT END BENTS
ON ℄ ROADWAY



SECTION AT PIERS NO. 2 & 8
ON ℄ ROADWAY



TYPICAL END VIEW
(Showing support angle conn.)

NOTES:
All material on this sheet, carbon steel.
For general notes on superstructure, see Sheet No. 9.
For truss details, see Sheets No. 20 & 21.
For roadway slab, see Sheet No. 10.
All rivets to be ⅞" ϕ, open holes ⅞" ϕ, unless otherwise noted.
All stringers are to be set with webs vertical. Stringers shall be fabricated for cambered panel lengths as shown on truss sheets, less floorbeam web, less ⅛ inch. End connection angles of stringers shall be riveted to the webs with the whole stringer assembled in an iron frame so as to give the exact correct length of stringers and correct position of angles.
Outside stringer on West side of bridge requires 2-⅝" ϕ holes in web for light conduit hanger. See Sheet No. 22.
All stringers shall be straightened as required so that their top surfaces will be within the limits of a straight line and an upward curve of ½" inch mid ordinate.

BRIDGE OVER MISSOURI RIVER

STATE ROAD FROM WENTZVILLE TO ST. LOUIS
ABOUT 25 MILE EAST OF WELDON SPRINGS STATION
PROJECT NO. PWA 76 (U.S. 40 TR-54) STA. 10+48.39
ST. CHARLES-ST. LOUIS COUNTIES

J-1000

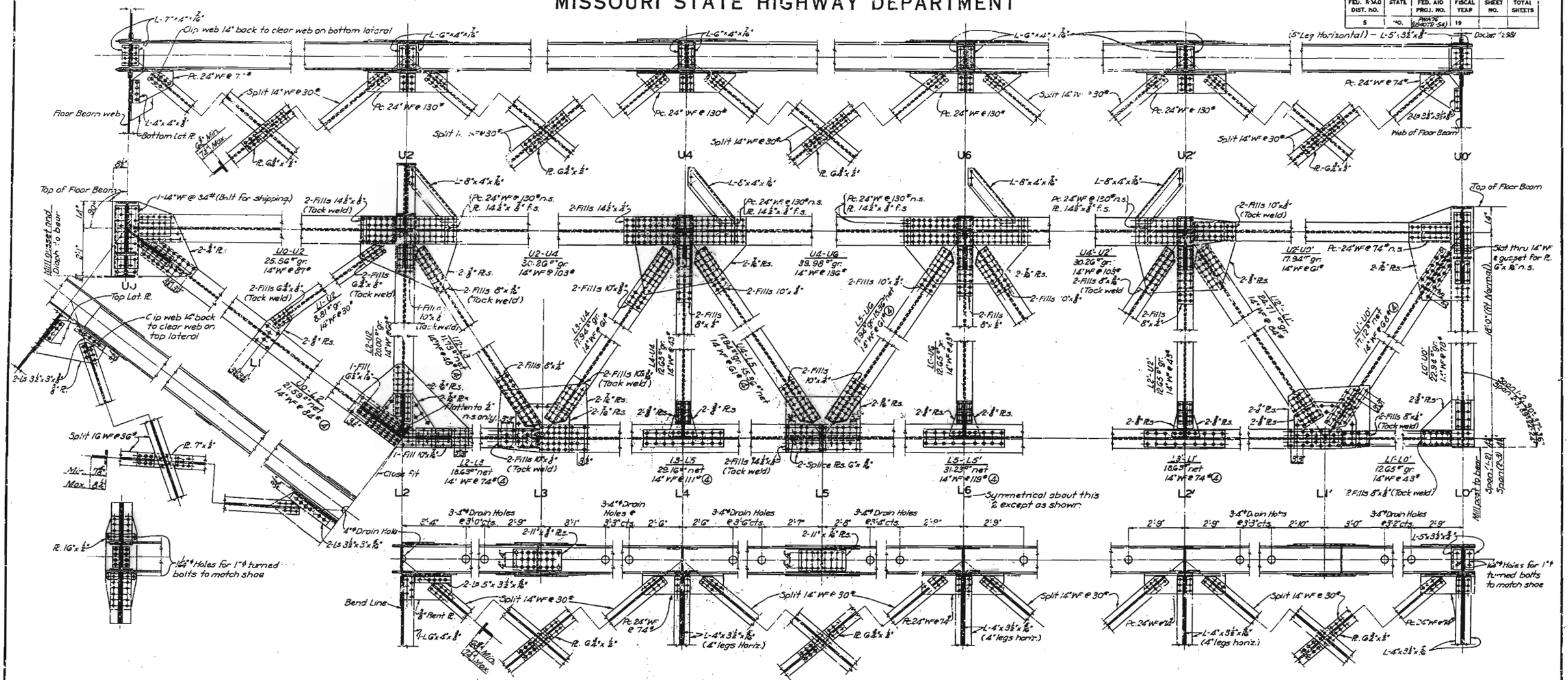
Designed May 1935 By F.W.H.
Drawn July 1935 By H.D.
Traced July 1935 By R.J.G.
Checked Oct. 1935 By Sverdrup & Parcel (L.F.)

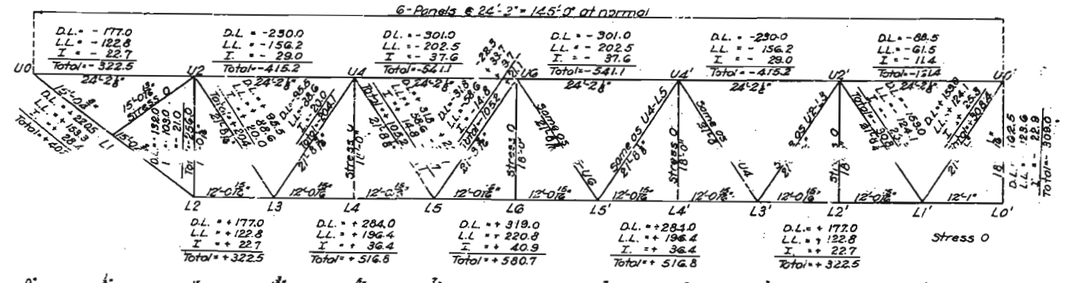
Note: This drawing is not to scale. Follow dimensions.

203

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	PWA 76 (U.S.40 TR-S4)	19		





Note: Dimensions given on this diagram include camber allowance. Top chord will then be a straight line from U0 to U0', and the verticals will be perpendicular to the top chord, under Dead Load + ½(Live Load + Impact). Equivalent uniform live load (with the moment concentration replaced by an equivalent uniform load) is used over entire length of span.

Notes:-
All material on this sheet shall be carbon steel.
All rivets to be ⅞" ϕ, open holes 15/16" ϕ, unless otherwise noted.
Shop and field rivets may be interchanged on these details where desired for the convenience of erection.
@ indicates maximum number of holes out to maintain required net section.
Flanges of 'W' beams within the limits of the connections shall be trued for square and parallel in the shop before assembly.
Truss shall be fabricated to cambered dimensions.
Laterals shall be fabricated for normal panel length of 24'-2½" and riveted after span is swung.
For general notes on superstructure, see Sheet No. 9.
For details of floor steel and sway frames, see Sheet No. 18.
For details of shoes, see Sheet No. 21.

Designed May 1935 by F.W.H.
Detailed June 1935 by H.D.
Traced June 1935 by G.W.
Checked Oct. 1935 by Sverdrup & Parcel (L.F.)

ELEVATION OF TRUSS SHOWING STRESSES, CAMBERED LENGTHS AND BLOCKING

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

Sheet No. 1 of 22

FINISHED

BRIDGE OVER MISSOURI RIVER

STATE ROAD FROM WENTZVILLE TO ST. LOUIS

ABOUT .25 MILE EAST OF WELDON SPRINGS STATION

PROJECT NO. PWA 76 (U.S. 40 TR-S4) STA. 10+48.39

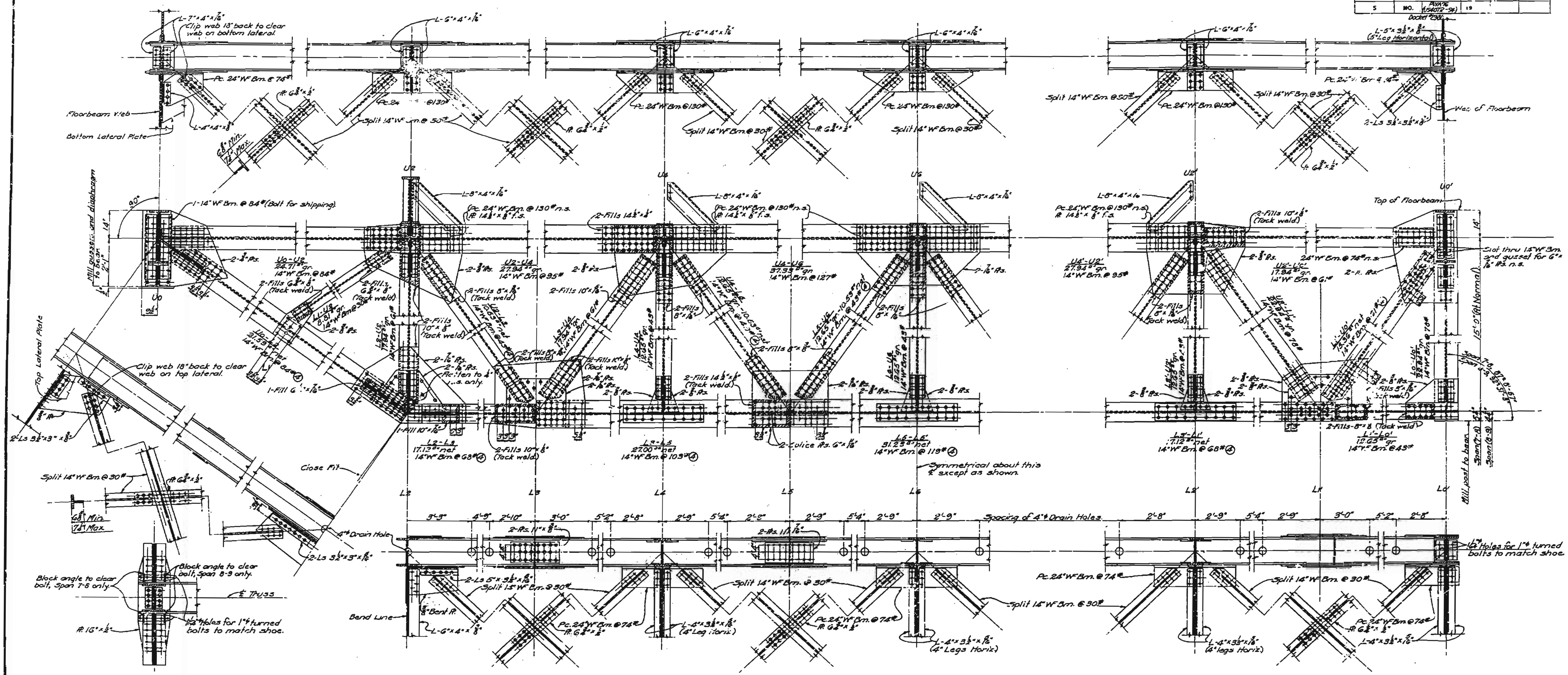
ST. CHARLES - ST. LOUIS COUNTIES

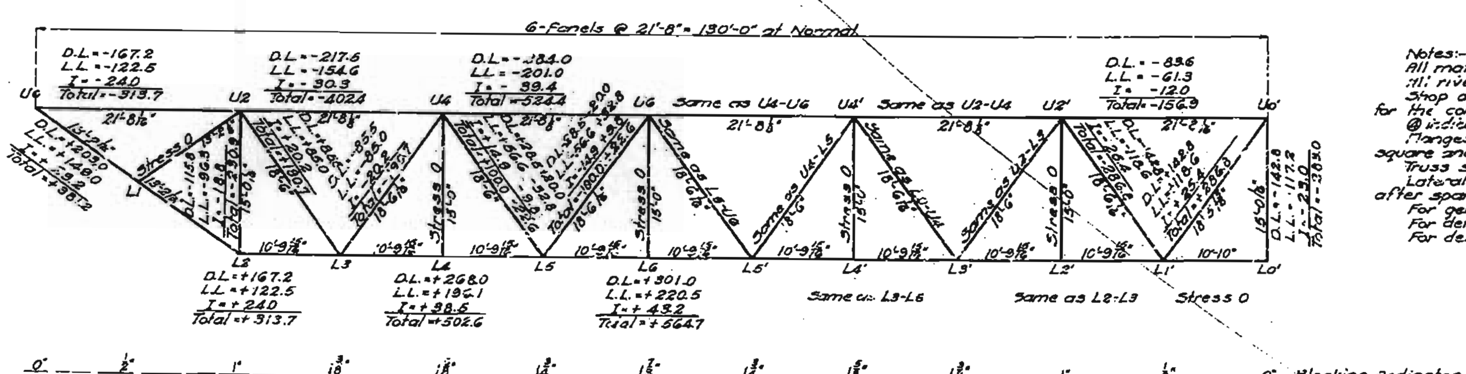
J-1000

2.704

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	PWA 76 (540TR-S4)	19		





ELEVATION OF TRUSS SHOWING STRESSES, CAMBERED LENGTHS AND BLOCKING

Note:- Dimensions given on this diagram include camber allowance. Top chord will then be a straight line from U0 to U0', and the verticals perpendicular to the chord, under Dead Load + ½ (Live Load + Impact). Equivalent uniform Live Load (with the moment concentration replaced by an equivalent uniform load) is used over the entire length of span.

Notes:-

All material on this sheet shall be carbon steel.

All rivets to be ⅞" ϕ, open holes 15/16" ϕ, unless otherwise noted.

Shop and field rivets may be interchanged on these details where desired for the convenience of erection.

④ indicates maximum number of holes out to maintain required net section.

Flanges of WF beams within the limits of the connections shall be trued for square and parallel in the shop before assembly.

Truss shall be fabricated to cambered dimensions.

Laterals shall be fabricated for normal panel length of 21'-8" and riveted after span is swung.

For general notes on superstructure, see Sheet No. 9.

For details of floor steel and sway frames, see Sheet No. 18.

For details of shoes see Sheet No. 21.

BRIDGE OVER MISSOURI RIVER

STATE ROAD FROM WENTZVILLE TO ST. LOUIS

ABOUT .25 MILE EAST OF WELDON SPRINGS STATION

PROJECT NO. PWA 76 (U.S. 40 TR-S4) STA. 10+48.39

ST. CHARLES-ST. LOUIS COUNTIES

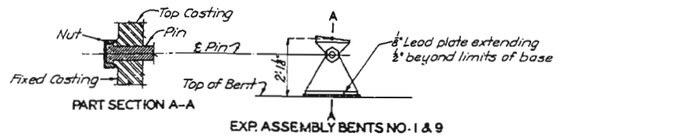
Designed May 1935 by F.W.H.
Detailed June 1935 by H.D.
Traced July 1935 by C.A.F.
Checked Oct. 1935 by Sverdrup & Parcel (L.F.)

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

J-1000

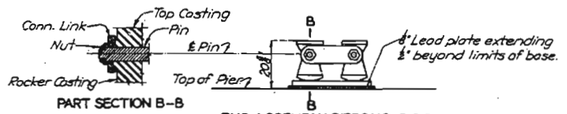
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	PWA 76 U.S.40TR.S4) Docket-2941	19		



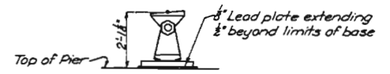
PART SECTION A–A

EXP. ASSEMBLY BENTS NO. 1 & 9

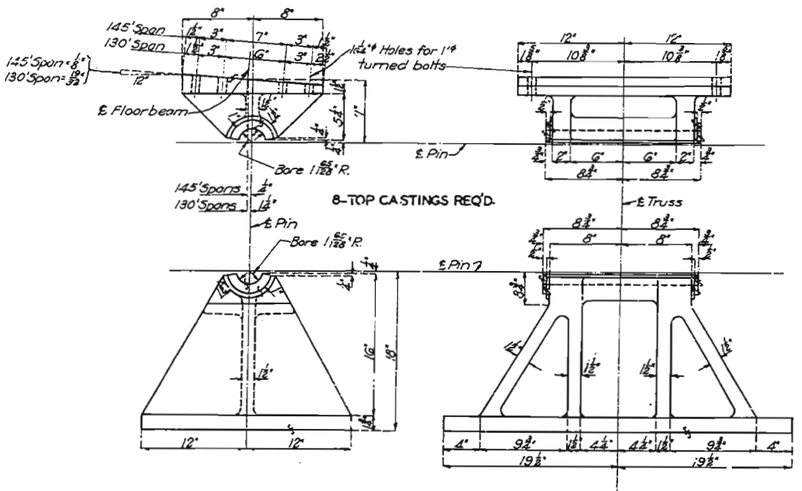


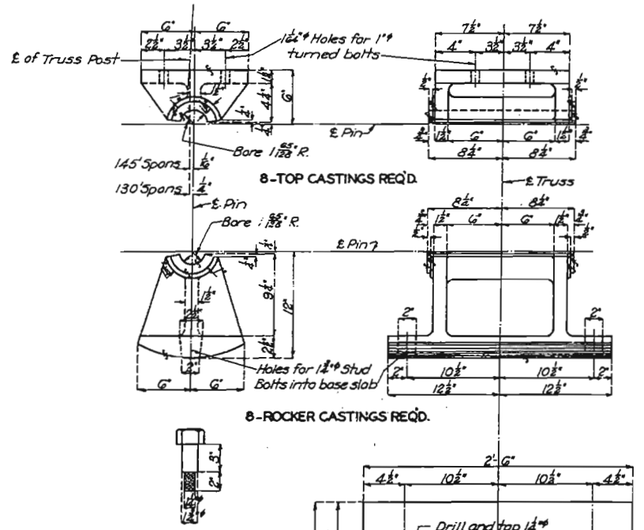
PART SECTION B–B

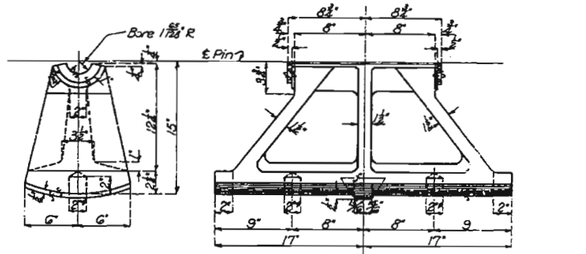
EXP. ASSEMBLY PIERS NO. 2 & 8

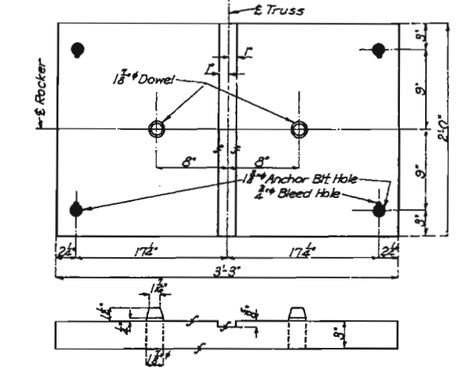


EXP. ASSEMBLY PIERS NO. 3 & 7

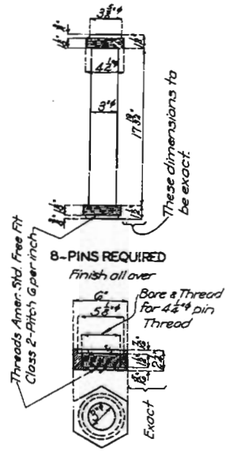


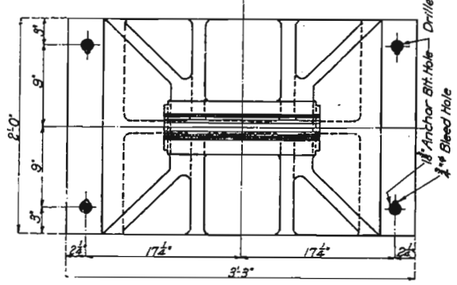






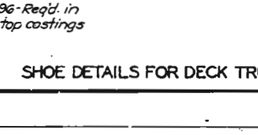
4–BASE SLABS REQ'D. (SINGLE ROCKER)





4–FIXED CASTINGS REQ'D.

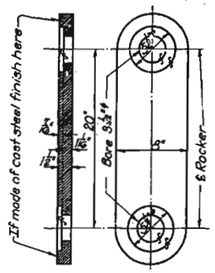
DETAIL OF BLEED HOLE



TURNED BOLTS (HEX.) NUTS

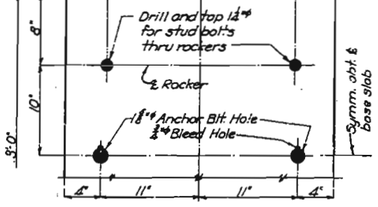
96–Req'd. in top castings

16–Req'd. in base slab.



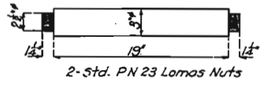
8–CONNECTING LINKS REQUIRED

Rolled or Cast Steel



4–BASE SLABS REQ'D. (DOUBLE ROCKER)

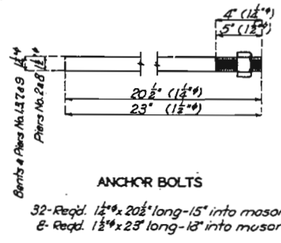
Slab 2'-6" x 3'-0" finish'd top and bottom to 22½" thickness.



2–Std. P.N 23 Lomas Nuts

8–PINS REQ'D.

Finish all over



ANCHOR BOLTS

32–Req'd. 1¼"ϕ x 20½" long–15" into masonry.
8–Req'd. 1⅛"ϕ x 23" long–18" into masonry.

NOTES:

For general notes on superstructure, see sheet No. 9.
For instructions for setting shoes, see sheet No. 3.
All fillets on castings to be ⅜" radius unless otherwise shown.
Grade of steel for castings and annealing to be in accordance with the Special Provisions.
Pins to be forged steel or cold rolled steel shafting.
All slabs and slab assemblies, pins, pin nuts, anchor and turned bolts with their nuts, shall be paid for as fabricated carbon steel in shoes.
All turned bolts are to be furnished with nuts and cut washers (¼" thick, bevel as req'd.)
The ⅛" lead plates shall be a single sheet covering the entire base area and extending ½" beyond the limits of the base. Cost of this lead plate shall be included in the price bid for other items.

BRIDGE OVER MISSOURI RIVER

STATE ROAD FROM WENTZVILLE TO ST. LOUIS

ABOUT .25 MILE EAST OF WELDON SPRINGS STATION

PROJECT NO. PWA 76 (US 40 TR-S4) STA. 10+48.39

ST. CHARLES–ST. LOUIS COUNTIES

J-1000

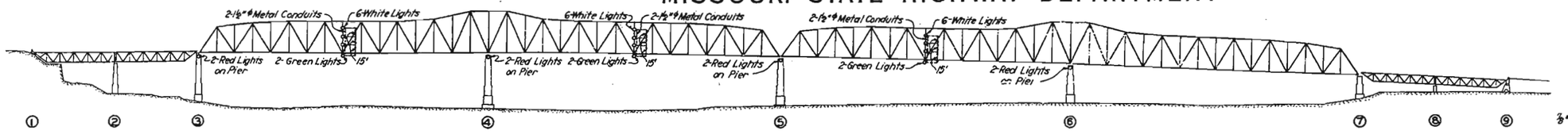
Designed April 1935 by F.W.H.
Drawn June 1935 by H.E.C.
Traced June 1935 by G.W.
Checked Oct. 1935 by Sverdrup & Parcel (L.F.)

SHOE DETAILS FOR DECK TRUSS SPANS

Sheet No. 21 of 22.

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	PWA 76 (U.S.40TR-S4) Docket #2518	19		



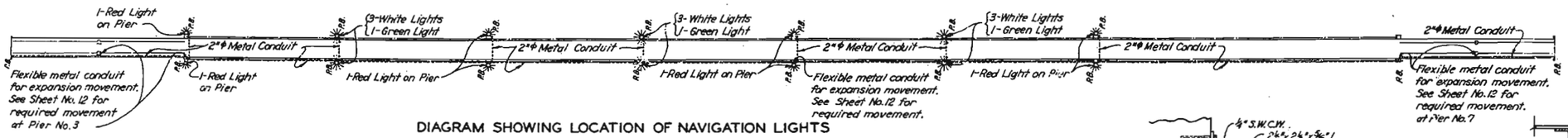
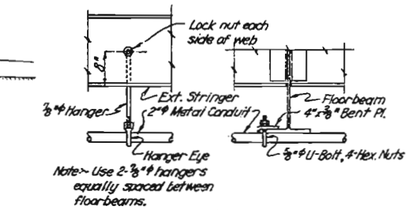
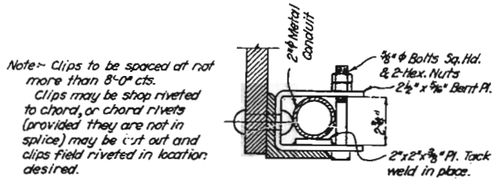


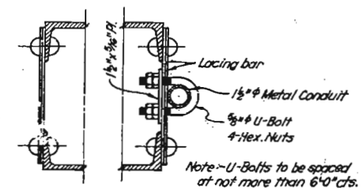
DIAGRAM SHOWING LOCATION OF NAVIGATION LIGHTS



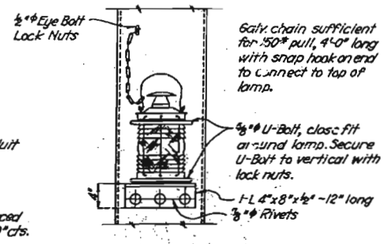
CONDUIT CONN. TO DECK TRUSSES



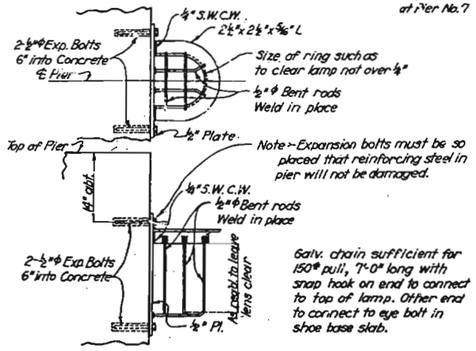
CONDUIT CONN. TO OUTSIDE OF BOTT. CHORD



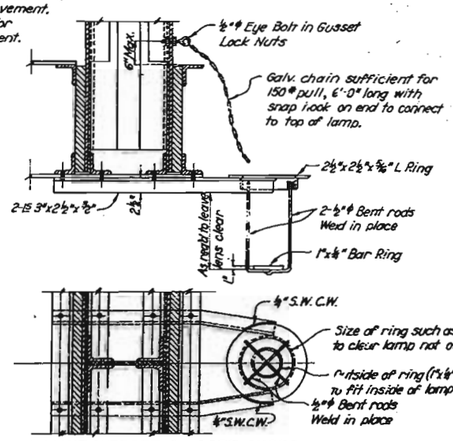
CONDUIT CONN. TO VERT. POSTS



WHITE LIGHT SUPPORT ON VERT. POSTS

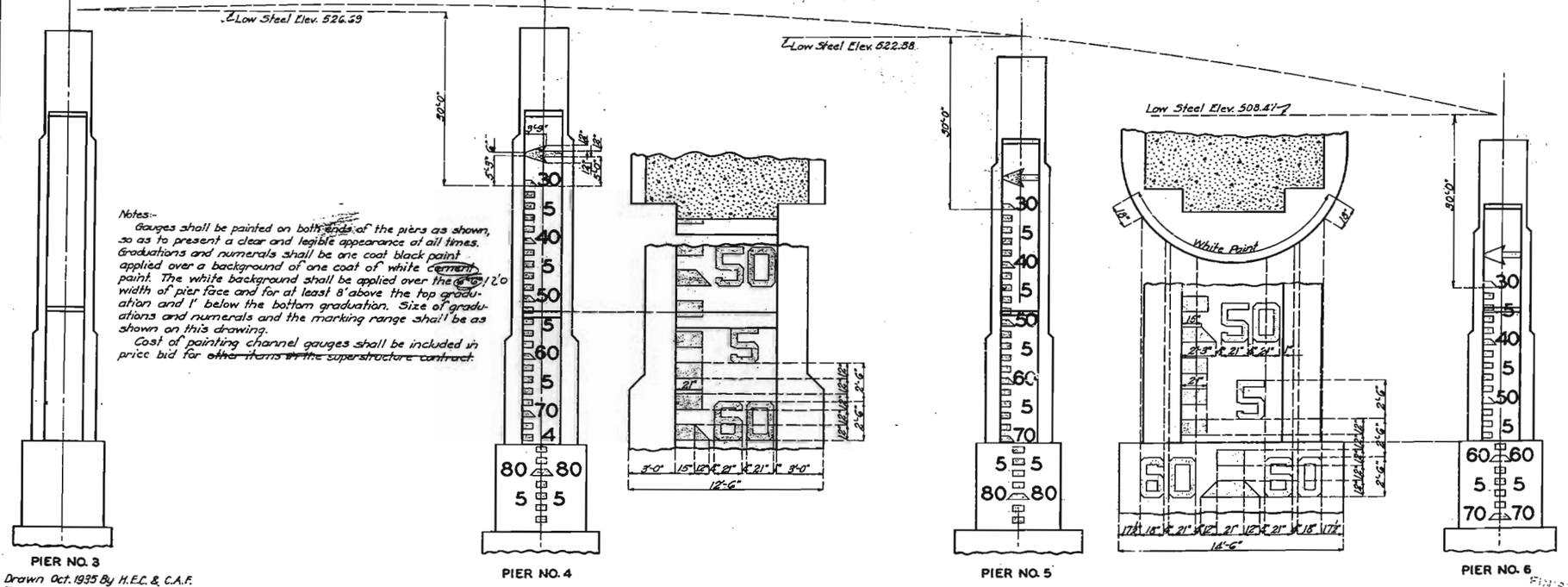


RED LIGHT SUPPORT ON PIERS



GREEN LIGHT SUPPORT ON BOTT. CHORD

DETAILS OF CONDUIT AND LIGHT SUPPORTS ON PIERS AND TRUSS MEMBERS



Notes:-
Gauges shall be painted on both ~~ends~~ of the piers as shown, so as to present a clear and legible appearance at all times. Graduations and numerals shall be one coat black paint applied over a background of one coat of white cement paint. The white background shall be applied over the entire 2'0 width of pier face and for at least 8' above the top graduation and 1' below the bottom graduation. Size of graduations and numerals and the marking range shall be as shown on this drawing.
Cost of painting channel gauges shall be included in price bid for ~~other items of the superstructure contract~~.

DETAILS OF CLEARANCE GAUGES

Notes:-
See Special Provisions regarding navigation lights, galvanized metal conduit, flexible galvanized metal conduit, pull boxes and junction boxes.

BRIDGE OVER MISSOURI RIVER

STATE ROAD FROM WENTZVILLE TO ST. LOUIS
ABOUT .25 MILE EAST OF WELDON SPRINGS STATION
PROJECT NO. PWA76 (US40TR-S4) STA. 10+48.39

ST. CHARLES-ST. LOUIS COUNTIES

J-1000

Drawn Oct. 1935 By H.E.C. & C.A.F.
Traced Oct. 1935 By H.E.C. & C.A.F.
Checked Oct. 1935 By Sverdrup & Parcel (L.F.)

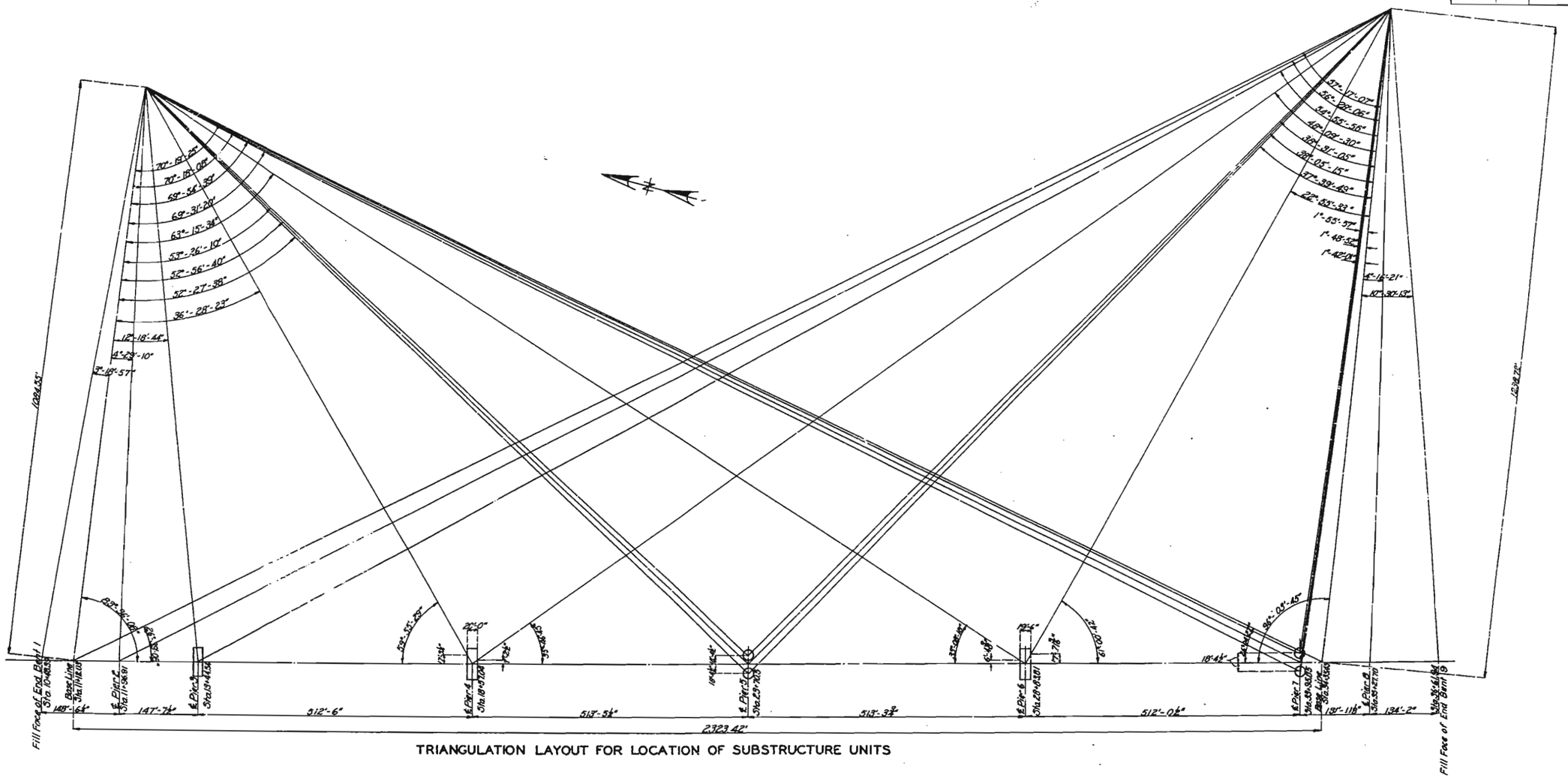
Note:- This drawing is not to scale. Follow dimensions.

Sheet No. 22 of 22.

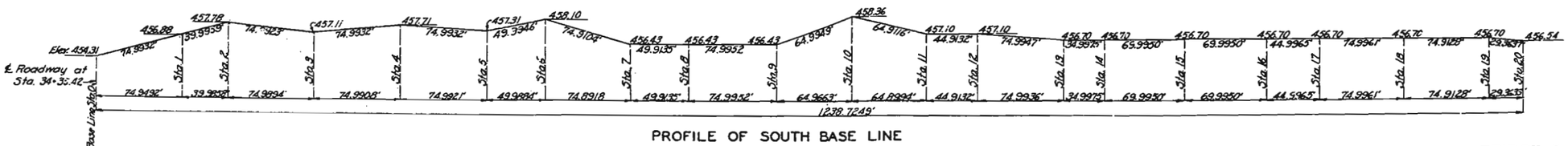
FINISHED

MISSOURI STATE HIGHWAY DEPARTMENT

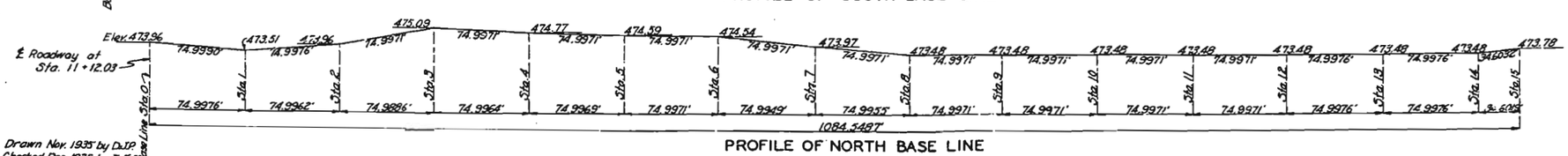
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		43		



TRIANGULATION LAYOUT FOR LOCATION OF SUBSTRUCTURE UNITS



PROFILE OF SOUTH BASE LINE



PROFILE OF NORTH BASE LINE

Note: Measurements Standard at 68°F. Coef. of expansion 0.00000645. Tape supported at 10' intervals, 10# tension. Tape standardized by National Bureau of Standards.

BRIDGE OVER MISSOURI RIVER

STATE ROAD FROM WENTZVILLE TO ST. LOUIS

ABOUT .25 MILE EAST OF WELDON SPRINGS STATION

PROJECT NO. PWA (U.S. 40 TR-S4) STA. 10+48.39

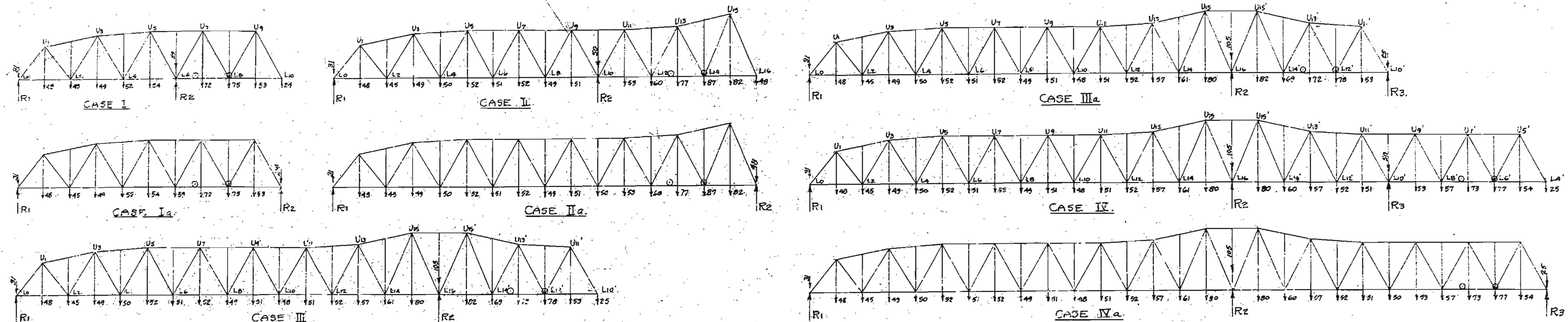
ST. CHARLES - ST. LOUIS COUNTIES

Drawn Nov. 1935 by D.J.P.
Checked Dec. 1935 by J.E.A.

Sheet 23

J-1000

2000



Member	Case I DL	Case I Wind	Case I Max	Case Ia DL	Case Ia W	Case Ia Max	Case II DL	Case II W	Case II Max	Case IIa DL	Case IIa W	Case IIa Max
L0U1	-53	±8	-61	-304	±23	-327	-97	±75	-172 / +[illegible]	-495	±38	-533
U1U3	-24	±8	-32	-300	±21	-325	-72	±129	-201 / +79	-509	+37 / -55	-564
U3U5	+69	±11	+80	-388	±37	-425	-11	±210	-221 / +200	-735	+72 / -86	-821
U5U7	+268	±28	+296	-392	±40	-432	+150	±269	[illegible]	-895	+91 / -98	-993
U7U9	+57	±7	+64	-273	±28	-301	+425	±330	[illegible]	-968	[illegible] / -93	-1061
U9U11							+815	±376	+1191	-929	+80 / -86	-1015
U11U13							+374	±245	+619	-750	+53 / -68	-818
U13U15							+86	±103	+189 / -43	-412	+19 / -42	-454
U15U15'												
U15'U13'												
U13'U11'												
U11'U9'												
U9'U7'												
U7'U5'												
L0L2	+33	±31	+64 / -[illegible]	+190	±71	+261	+50	±27	+87	+309	±91	+400
L2L4	-10	±49	-59 / +[illegible]	+345	±142	+487	+51	±122	+173 / -86	+614	±156	+770
L4L6	-152	±79	-231	+398	±166	+564	-55	±234	-289 / +195	+817	±205	+1022
L6L8	-142	±76	-218	+353	±155	+508	-273	±373	-646 / +102	+945	±233	+1178
L8L10	-13	±10	-23	+151	±83	+234	-605	±536	-1141 / +112	+965	±232	+1197
L10L12							-586	±502	-1088 / +[illegible]	+867	±234	+1101
L12L14							-207	±260	-467 / +115	+607	±193	+800
L14L16							-20	±58	-78 / +44	+200	±109	+309
L16L14'												
L14'L12'												
L12'L10'												
L10'L8'												
L8'L6'												
L6'L4'												
U1L2	-2	±6	-8 / +5	+166	±16	+182	+17	±54	-[illegible] / +71	+304	±5	+309
L2U3	+55	±5	+60	-99	±15	-114	+37	±49	+86 / -23	-225	±5	-230
U3L4	-112	±11	-123	+83	±9	+92	-79	±51	-130	+232	±2	+234
L4U5	+170	±11	+181	-9	±9	-18 / +3	+134	±50	+184	-170	±2	-172
U5L6	-257	±27	-264	-12	±3	-15	-193	±54	-247	+163	±7	+170
L6U7	-257	±31	-288	+80	±4	+84	+251	±54	+305	-104	±7	-111
U7L8	+174	±15	+189	-162	±20	-182	-311	±54	-365	+45	±7	+52
L8U9	-88	±14	-102	+248	±22	+270	+368	±54	+422	+11	±7	+18
U9L10	+27	0	+27	-309	±35	-344	-425	±54	-479	-70	±7	-77
L10U11							-467	±108	-575	+127	±7	+134
U11L12							+432	±115	+547	-230	±2	-232
L12U13							-358	±113	-471	+306	±2	+308
U13L14							+260	±109	+369	-440	±6	-446
L14U15							-158	±104	-262	+518	±7	+525
U15L16							+52	±87	+139 / -51	-511	±96	-607
L16U15'												
U15'L14'												
L14'U13'												
U13'L12'												
L12'U11'												
U11'L10'												
L10'U9'												
U9'L8'												
L8'U7'												
U7'L6'												
L6'U5'												
U5'L4'												
R1	72.3	±12.1	84.4	268.2	±23.9	292.1	166.4	±23.2	172.6	417.1	±29.6	442.7
R2	489.7	±51.1	540.8	293.8	±30.6	324.4	828.6	±140.9	969.5	517.9	±88.1	606.0
R3												
Jack, R2				293.8	±30.6	324.4				517.9	±88.1	606.0
Jack, R3												
Horiz. R1		26.9			54.3			26.9			88.9	
Horiz. R2		97.8			58.7			165.3			103.3	
Horiz. R3												

Member	Case III DL	Case III W	Case III Max	Case IIIa DL	Case IIIa W	Case IIIa Max	Case IV DL	Case IV W	Case IV Max	Case IVa DL	Case IVa W	Case IVa Max
L0U1	-358	±25	-413	-481	±36	-517	-499	±38	-537	-485	±41	-526
U1U3	-392	+46 / -69	-461	-493	+35 / -57	-550	-514	+35 / -55	-569	-498	+40 / -62	-560
U3U5	-541	+95 / -110	-651	-709	+76 / -91	-800	-742	+72 / -86	-828	-715	+83 / -99	-814
U5U7	-616	+125 / -132	-748	-859	+87 / -104	-963	-917	[illegible]	-1005	-869	+110 / -117	-986
U7U9	-597	+98 / -138	-735	-918	+101 / -101	-1019	-984	+92 / -92	-1076	-935	+117 / -119	-1054
U9U11	-464	+136 / -142	-606	-866	+90 / -96	-962	-946	+80 / -86	-1032	-885	+110 / -116	-1001
U11U13	-212	+119 / -133	-345	-682	+61 / -79	-761	-773	+49 / -68	-841	-702	+85 / -109	-850
U13U15	+124	+85 / -109	+209 / -22	-362	+30 / -53	-415	-458	+18 / -41	-499	-382	+54 / -78	-460
U15U15'	+497	±66	+563	+4	±10	+14 / -7	-93	±3	-96	-16	±34	+25 / -50
U15'U13'	+234	±39	+273	-136	±4	-140	-8	±12	[illegible] / +6	-296	±4	-300
U13'U11'	+56	±12	+68	-153	±12	-165	+240	±37	+277	-510	±35	-545
U11'U9'							+626	±81	+707	-586	±51	-636
U9'U7'							+274	±37	+311	-535	±51	-586
U7'U5'							+58	±10	+68	-346	±34	-380
L0L2	+242	±61	+303	+300	±67	+367	+311	±73	+384	+302	±74	+376
L2L4	+464	±87	+551	+594	±101	+695	+620	±113	+733	+600	±115	+718
L4L6	+583	±96	+679	+785	±119	+904	+827	±138	+965	+795	±144	+939
L6L8	+621	±92	+713	+904	±123	+1027	+960	±146	+1106	+917	±154	+1171
L8L10	+544	±68	+612	+906	±109	+1015	+981	±139	+1120	+924	±148	+1072
L10L12	+355	±19	+374	+800	±69	+869	+888	±106	+994	+818	±128	+946
L12L14	+50	±103	+153 / -68	+542	±45	+587	+639	±43	+682	+562	±125	+687
L14L16	-286	±219	+13 / -505	+175	±165	+340 / -42	+175	±114	+287	+195	±235	[illegible]
L16L14'	-334	±239	-573	+73	±190	+263 / -136	+68	±171	[illegible]	+157	±228	[illegible]
L14'L12'	-136	±98	-234	+166	±65	+231	-96	±163	[illegible]	+422	±131	+553
L12'L10'	-14	±14	-28 / +4	+94	±1	+95	-423	±215	-638	+570	±188	+758
L10'L8'							-435	±227	-662	+575	±204	+779
L8'L6'							-146	±88	-234	+460	±181	+641
L6'L4'							-14	±13	[illegible] / +3	+188	±97	+285
U1L2	+355	±12	+367	+294	±7	+301	+297	±5	+302	+241	±10	+251
L2U3	-154	±11	-165	-215	±6	-221	-227	±5	-232	-167	±9	-176
U3L4	+143	±8	+151	+220	0	+220	+230	±5	+235	+216	±4	+220
L4U5	-83	±8	-91	-159	0	-159	-168	±2	-170	-151	±4	-155
U5L6	+67	±5	+72	+150	±5	+155	+167	±2	+169	+154	±6	+160
L6U7	-9	±5	-14	-92	±5	-97	-108	±7	-115	-95	±6	-101
U7L8	-51	±5	-56	+32	±5	+37	+49	±7	+56	+36	±6	+42
L8U9	+107	±5	+112	+24	±5	+29	+7	±7	+14 / [illegible]	+21	±6	+27
U9L10	-165	±5	-170	-82	±5	-87	-66	±7	-73	-79	±6	-85
L10U11	+220	±5	+225	+138	±5	+143	+121	±7	+128	+134	±6	+140
U11L12	-294	±6	-300	-245	±1	-246	-235	0	-235	-239	±3	-242
L12U13	+248	±6	+254	+300	±1	+301	+290	0	+230	+297	±3	+300
U13L14	-367	±4	-371	-402	±9	-411	-416	±10	-426	-390	±9	-399
L14U15	+420	±4	+424	+455	±8	+463	+463	±9	+472	+456	±9	+465
U15L16	-537	±104	-641	-459	±95	-554	-443	±93	-536	-455	±99	-554
L16U15'	-412	±65	-477	-204	±42	-246	+66	±39	+105	-58	±66	-424
U15'L14'	+269	±33	+302	+83	±19	+102	-152	±12	-164	+340	±43	+383
L14'U13'	-201	±34	-235	-3	±19	-22 / +13	+225	±13	+238	+275	±44	+319
U13'L12'	+172	±22	+194	-52	±1	-53	-308	±32	-340	+185	±27	+212
L12'U11'	-85	±21	-106	+142	±2	+144	+373	±33	+406	-126	±28	-154
U11'L10'	+29	0	+29	-191	±25	-216	-414	±52	-466	+33	±8	[illegible]
L10'U9'							-388	±52	-440	+24	±8	[illegible]
U9'L8'							+328	±36	+364	-85	±9	-94
L8'U7'							-262	±36	-298	+150	±9	+159
U7'L6'							+179	±19	+198	-234	±26	-260
L6'U5'							-90	±18	-108	+322	±27	+249
U5'L4'							+29	0	+29	-384	±45	-428
R1	333.9	±19.6	353.5	406.0	±27.8	[illegible]	420.2	±26.6	449.8	409.0	±28.7	452.7
R2	977.1	±156.1	1133.1	713.0	±125.9	838.9	450.9	±94.1	515.0	852.0	±152.4	1004.4
R3				192.0	±22.0	214.0	749.9	±91.3	841.2	360.0	±39.2	399.2
Jack, R2												
Jack, R3				192.0	±22.0	214.0				360.0	±39.2	399.2
Horiz. R1		72.1			59.2			77.1			78.3	
Horiz. R2		229.0			201.3			149.4			222.1	
Horiz. R3					5.6			124.8			66.4	

Member	Maximum	Member Area	Erection Unit Stress	Normal Unit Stress	Percent of Normal	Remarks
L0U1	-537	57.05	9.41	18.5	51	OK
U1U3	-569	45.25	12.55	20.0	63	OK
U3U5	[illegible]	[illegible]	[illegible]	[illegible]	68 / 18	OK
U5U7	[illegible]	[illegible]	[illegible]	[illegible]	75 / 35	OK
U7U9	[illegible]	[illegible]	[illegible]	[illegible]	88 / 69	OK
U9U11	[illegible]	[illegible]	[illegible]	[illegible]	129 / 161	150 normal, 12# Wind. Say OK
U11U13	[illegible]	[illegible]	[illegible]	[illegible]	142 / 111	OK
U13U15	[illegible]	[illegible]	[illegible]	[illegible]	42 / 18	* OK
U15U15'	[illegible]	[illegible]	[illegible]	[illegible]	5 / 27	* OK
U15'U13'	[illegible]	[illegible]	[illegible]	[illegible]	26 / 24	* OK
U13'U11'	[illegible]	[illegible]	[illegible]	[illegible]	91 / 50	OK
U11'U9'	[illegible]	[illegible]	[illegible]	[illegible]	80 / 95	OK
U9'U7'	[illegible]	[illegible]	[illegible]	[illegible]	48 / 28	OK
U7'U5'	[illegible]	[illegible]	[illegible]	[illegible]	22 / 6	OK
L0L2	+400	26.87	14.88	24.0	62	OK — OK providing every precaution is observed to prevent any transverse load on member parallel to tie plates.
L2L4	[illegible]	[illegible]	[illegible]	[illegible]	65 / 8	* OK
L4L6	[illegible]	[illegible]	[illegible]	[illegible]	77 / 21	* OK
L6L8	[illegible]	[illegible]	[illegible]	[illegible]	89 / 47	*
L8L10	[illegible]	[illegible]	[illegible]	[illegible]	107 / 101	*
L10L12	[illegible]	[illegible]	[illegible]	[illegible]	200 / 175	Tension load 157 normal with 0# Wind. Comp. load 150 normal with 10# Wind.
L12L14	[illegible]	[illegible]	[illegible]	[illegible]	124 / 65	OK — See recomended erection proceedure, to correct this over-stress.
L14L16	[illegible]	[illegible]	[illegible]	[illegible]	33 / 36	OK
L16L14'	[illegible]	[illegible]	[illegible]	[illegible]	29 / 38	OK
L14'L12'	[illegible]	[illegible]	[illegible]	[illegible]	16 / 35	OK
L12'L10'	[illegible]	[illegible]	[illegible]	[illegible]	137 / 97	OK
L10'L8'	[illegible]	[illegible]	[illegible]	[illegible]	70 / 58	* OK, see note on L6L10.
L8'L6'	[illegible]	[illegible]	[illegible]	[illegible]	40 / 17	* OK
L6'L4'	[illegible]	[illegible]	[illegible]	[illegible]	21 / 2	* OK
U1L2	[illegible]	[illegible]	[illegible]	[illegible]	66 / 10	* OK
L2U3	[illegible]	[illegible]	[illegible]	[illegible]	23 / 48	OK
U3L4	[illegible]	[illegible]	[illegible]	[illegible]	62 / 49	* OK, see note on L6L10.
L4U5	[illegible]	[illegible]	[illegible]	[illegible]	68 / 48	OK
U5L6	[illegible]	[illegible]	[illegible]	[illegible]	45 / 105	OK
L6U7	[illegible]	[illegible]	[illegible]	[illegible]	114 / 80	OK
U7L8	[illegible]	[illegible]	[illegible]	[illegible]	4 / 101	OK
L8U9	[illegible]	[illegible]	[illegible]	[illegible]	30 / 78	* OK, see note on L6L10.
U9L10	[illegible]	[illegible]	[illegible]	[illegible]	5 / 77	OK
L10U11	[illegible]	[illegible]	[illegible]	[illegible]	72 / 78	* OK, see note on L6L10.
U11L12	[illegible]	[illegible]	[illegible]	[illegible]	48 / 35	OK
L12U13	[illegible]	[illegible]	[illegible]	[illegible]	63 / 30	* OK, see note on L6L10.
U13L14	[illegible]	[illegible]	[illegible]	[illegible]	31 / 50	OK
L14U15	[illegible]	[illegible]	[illegible]	[illegible]	38 / 50	* OK, see note on L6L10.
U15L16	[illegible]	[illegible]	[illegible]	[illegible]	5 / 42	OK
L16U15'	-477	88.37	5.4	17.4	31	OK
U15'L14'	[illegible]	[illegible]	[illegible]	[illegible]	37 / 24	OK
L14'U13'	[illegible]	[illegible]	[illegible]	[illegible]	36 / 20	OK
U13'L12'	[illegible]	[illegible]	[illegible]	[illegible]	20 / 43	* OK, see note on L6L10.
L12'U11'	[illegible]	[illegible]	[illegible]	[illegible]	18 / 95	OK
U11'L10'	[illegible]	[illegible]	[illegible]	[illegible]	5 / 75	* OK, see note on L6L10.
L10'U9'	[illegible]	[illegible]	[illegible]	[illegible]	71 / 4	OK
U9'L8'	[illegible]	[illegible]	[illegible]	[illegible]	68 / 28	* OK, see note on L6L10
L8'U7'	[illegible]	[illegible]	[illegible]	[illegible]	84 / 35	OK
U7'L6'	[illegible]	[illegible]	[illegible]	[illegible]	52 / 103	OK
L6'U5'	[illegible]	[illegible]	[illegible]	[illegible]	43 / 92	OK
U5'L4'	[illegible]	[illegible]	[illegible]	[illegible]	8 / 70	153 normal, 0# Wind.

← See recomended erection proceedure to correct this overstress.

Members marked thus, * are tie plated tension members under erection compression.

NOTES ON STRESS ANALYSIS:

All loads and stresses are in kips. Stages of erection are as proposed by Kansas City Bridge Co.

Loads shown on trusses are for dead load of erected structure, plus 2 kips per panel for tram track (except 4 kips adjacent to traveler) plus traveler loads of 14 kips per axle.

Wind stresses are based on the specified 15 lb. per sq. foot wind and include horizontal truss action and overturn action.

Wind assumptions are as follows:-

Wind over entire structure, except Case I and Case IVa, in which cases partial or full loadings are used for maximum values.

Wind on traveler assumed at 3 kips per axle, acting 13.9 foot above ℄ bottom chord.

Top chord wind for Case I and Ia assumed transfered to bottom laterals by sways and portal.

Top chord wind from U1 to U15 assumed transfered to L0 and L16 by top laterals and portals for Cases II to IVa inclusive.

Top chord wind from U15' to U5' assumed transfered to bottom laterals by sways and portal.

When wind load reverses DL, 70% of DL is used to counteract wind.

CONCLUSIONS ON SUBMITTED ERECTION PROCEEDURE.

For DL + 15# Wind, L10L12 is stressed beyond the specified maximum compression under Case II. This member will meet the specified max. under 10# Wind, so we say OK. It is suggested that L16 be braced laterally to the pier as soon as possible in order to minumize wind stresses.

For DL + 15# Wind, L10L12 is stressed beyond the specified maximum tension under Cases IIa, IIIa, IV, and IVa. For DL only, L10L12 is stressed beyond the specified max. tension under Cases IIa and IV. A change in erection proceedure is necessary.

For DL + 15# Wind or for DL only, U5'L4' is stressed beyond the specified max. compression under Case IVa. A change in erection proceedure is required.

SUGGESTED ERECTION PROCEEDURE.

The overstress conditions can be corrected and a better stress condition obtained thruout truss for all Cases following Case II, by the following proceedure:-

Jacking loads at L16, case IIa, shall be limited to 225 tons, and at L10, case IIb, to 56 tons, these loads to be simultaineous. In other words, with L16 resting on shoe, there must remain a jacking reaction of 56 tons at the erection bent at L10. Care shall be taken to insure the above results. Erection bent shall remain in position at L10 until freed by the progress of erection from case IIb to case III.

Jacking load at L10' shall be limited to 50 tons. It is suggested that the erection bent at L10' be equiped with wedges so that it may be released from load without further jacking. No jacking will be permitted at this bent after the span is seated on the erection bent.

Jacking load at L4' shall not be less than 110 ton nor more than 155 ton. It is suggested that the lower limit be used if possible so as to reduce the erection load on the floorbeam connections.

Sheet 2 of 2 of these drawings give the erection stresses for DL + 15# wind for this suggested proceed[ure].

FINISHEL

ERECTION STRESSES FOR
BRIDGE OVER MISSOURI RIVER

STATE ROAD FROM WENTZVILLE TO ST. LOUIS
ABOUT .25 MILE EAST OF WELDON SPRINGS STATION
PROJECT NO. PWA 76 (US 40 TR-34) STA. 10+48.39

FINISHED

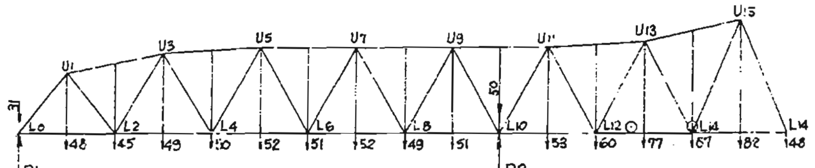
ST. CHARLES - ST. LOUIS COUNTIES

J-1000

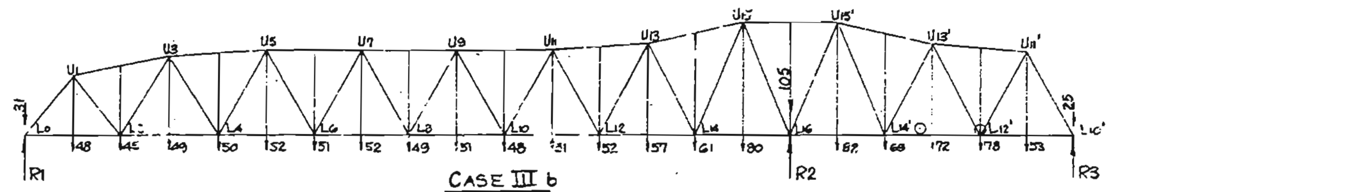
Drawn Mar. 1936 By F.H.H.

24

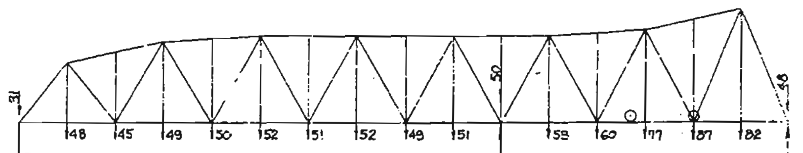
Sheet No. 1 of 2



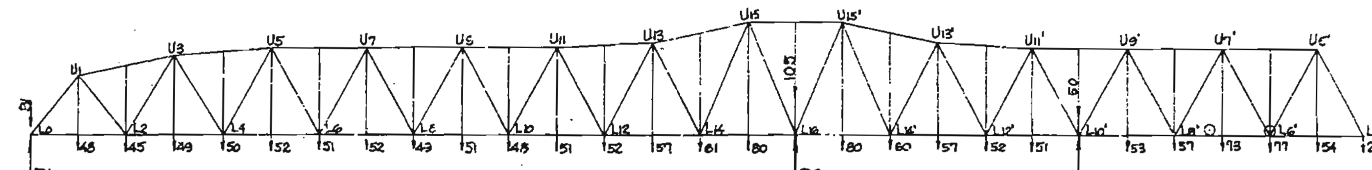
CASE II



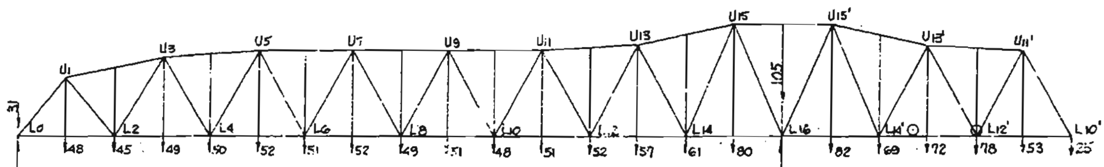
CASE III b



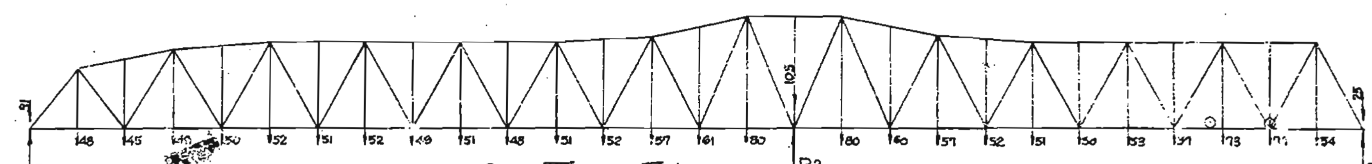
CASE II b



CASE IV b



CASE III



CASE IV c OR IV d

Member	CASE I + I a	CASE II DL	CASE II W	CASE II Max.	CASE II b DL	CASE II b W	CASE II b Max.	CASE III DL	CASE III W	CASE III Max.	CASE III b DL	CASE III b W	CASE III b Max.	CASE IV b DL	CASE IV b W	CASE IV b Max.	CASE IV c DL	CASE IV c W	CASE IV c Max	CASE IV a DL	CASE IV a W	CASE IV a Max	Maximum	Member Area	Erection Unit Stress	Normal Unit Stress	Percent of Normal	Remarks
LoU1					-445	±45	-490				-437	±36	-473	-455	±38	-493	-349	±41	-390	-436	±41	-477	-493	57.05	8.64	18.5	47	OK
U1U3					-452	+35/-57	-509				-445	+35/-57	-502	-465	+32/-55	-520	-349	+40/-62	-411	-445	+40/-62	-507	-520	45.25	11.50	20.0	58	OK
U3U5					-639	+16/-90	-729				-628	[illegible]/-91	-719	-661	+72/-86	-747	-470	+85/-99	-569	-628	+85/-99	-727	-747 / +202	60.75 / 35.75	12.30 / [illegible]	20.0 / 24.0	62 / 18	OK
U5U7					-757	+97/-104	-861				-743	+87/-104	-847	-791	+91/-98	-889	-515	+110/-117	-632	-744	+110/-117	-861	-889 / +419	67.31 / 50.45	13.21 / 8.31	20.0 / 24.0	66 / 35	OK
U7U9					-784	+100/-100	-884				-765	+101/-101	-866	-830	+93/-92	-922	-460	+117/-119	-579	-765	+117/-119	-884	-922 / +155	60.75 / 45.75	15.18 / [illegible]	20.0 / 24.0	76 / [illegible]	OK
U9U11					-698	+89/-95	-793				-674	+90/-96	-770	-753	+80/-86	-839	-292	+110/-116	-408	-675	+110/-116	-791	-839 / +31	39.92 / 30.92	21.01 / [illegible]	20.0 / 24.0	105 / [illegible]	150 normal, 12# wind. Say OK.
U11U13					-605	+59/-74	-679				-456	+61/-79	-535	-550	+49/-69	-619	-13	+84/-103	[illegible]	-457	+83/-103	-560	-679 / +619	39.92 / 30.92	[illegible]	15.0 / 18.0	114 / 111	OK
U13U15					-348	+21/-44	-392				-129	+50/-53	-182	-225	+18/-41	-266	+329	+54/-15	+383	-130	[illegible]	-208	-392 / +383	[illegible]	[illegible]	20.0 / 24.0	33 / 34	* OK
U15U15'											+240	±10	+250	+143	±3	+146	+705	±34	+739	+240	±34	+274	+739	88.15	8.39	24.0	35	* OK
U15'U13'											+41	±4	+45	+170	±12	+182	+382	±4	+386	-56	±4	-60	-60 / +386	58.75 / 47.40	1.02 / 8.15	20.0 / 24.0	5 / 34	* OK
U13'U11'											-53	±12	-65	+340	±37	+377	+103	±35	+138	-292	±35	-327	-327 / +377	38.92 / 30.92	[illegible] / 12.18	15.0 / 18.0	55 / 68	OK
U11'U9'														+626	±81	+707	-103	±51	-154	-419	±51	-470	-470 / +626	39.92 / 30.92	11.46 / [illegible]	20.0 / 24.0	59 / 84	OK
U9'U7'														+274	±37	+311	-218	±51	-269	-421	±51	-472	-472 / +274	60.75 / 45.75	7.76 / 5.99	20.0 / 24.0	39 / 25	OK
U7'U5'														+58	±10	+68	-188	±34	-222	-290	±34	-324	-324 / +152	[illegible] / 50.43	[illegible] / 1.15	20.0 / 24.0	24 / 5	OK
LoL2					+276	±48	+324				+272	±67	+339	+284	±73	+357	+218	±74	+292	+272	±74	+346	+357	26.87	13.30	24.0	55	OK
L2L4					+539	±55	+594				+531	±101	+632	+558	±113	+671	+409	±118	+527	+531	±118	+649	+648 / -86	[illegible] / 38.00	13.96 / 1.46	[illegible] / 19.6	58 / 8	* OK
L4L6					+700	±53	+753				+687	±119	+806	+730	±138	+868	+498	±144	+642	+689	±144	+833	+868 / -259	55.61 / 71.5	15.61 / 4.04	[illegible] / 19.4	65 / 21	* OK
L6L8					+785	±37	+822				+768	±123	+891	+825	±146	+971	+501	±154	+655	+769	±154	+923	+971 / -646	55.61 / 71.5	[illegible] / 9.04	[illegible] / 19.4	73 / 47	* OK, see note on L6L10, sheet 1.
L8L10					+755	±37	+792				+732	±109	+841	+806	±139	+945	+390	±148	+538	+734	±148	+852	+945 / -1141	46.50 / 58.0	20.31 / [illegible]	[illegible] / 19.6	85 / 101	* " " " " " "
L10L12					+675	±30	+705				+587	±69	+656	+676	±106	+781	+767	±128	+295/-11	+587	±128	+715	+981 / -1088	23.00 / 31.00	33.95 / 35.05	24.0 / 26.0	142 / 135	150 normal with 10# wind, say OK.
L12L14					+500	±43	+543				+306	±45	+351	+403	±45	+446	-158	±125	[illegible]	+306	±125	+431	+543 / -469	[illegible] / 39.75	20.21 / [illegible]	[illegible] / 19.1	84 / 63	OK
L14L16					+176	±42	+218				-46	±165	-211/+133	-47	±114	[illegible]/+81	-481	±235	-716	-45	±235	+203/-280	+218 / -716	54.80 / 56.68	3.98 / 9.34	24.0 / 19.5	17 / 43	OK
L16L14'											-121	±130	[illegible]/+105	-129	±171	[illegible]/+81	-505	±223	-728	-78	±223	[illegible]/-301	+468 / -728	54.80 / 56.68	[illegible] / 9.50	[illegible] / 19.5	13 / 49	OK
L14'L12'											+22	±65	+87/-50	-241	±163	-404	-242	±131	-373	+186	±131	+317	+317 / -404	26.87 / 29.75	11.80 / 10.71	24.0 / 19.9	49 / 54	OK
L12'L10'											+43	±1	+44	-475	±215	-690	+18	±188	[illegible]/+206	+375	±188	+563	+563 / -690	23.00 / 31.00	24.49 / 22.28	[illegible] / 20.0	102 / 111	OK
L10'L8'														-435	±227	-662	+180	±204	[illegible]/+384	+435	±204	+639	+639 / -662	46.50 / 58.00	[illegible] / 11.41	[illegible] / 19.6	57 / 58	* OK, see note on L6L10, sheet 1.
L8'L6'														-149	±83	-234	+223	±181	[illegible]/+404	+376	±181	+557	+557 / -234	55.61 / 71.5	10.01 / [illegible]	[illegible] / 19.4	42 / 17	* OK
L6'L4'														-14	±13	-27	+109	±97	[illegible]/+206	+160	±97	+257	+257 / -27	55.61 / 71.5	4.65 / 0.38	[illegible] / 19.4	19 / 2	* OK
U1L2	SAME AS SHEET NO. 1 OF 2	SAME AS SHEET NO. 1 OF 2			+265	+6	+271	SAME AS SHEET NO. 1 OF 2			+261	±7	+268	+265	±5	+270	+198	±10	+208	+261	±10	+271	+367 / -42	[illegible] / 24.96	15.78 / [illegible]	[illegible] / 16.1	66 / 10	* OK
L2U3					-189	-6	-195				-186	±6	-192	-198	±5	-203	-128	±9	-137	-185	±9	-194	-203 / +86	26.96 / 20.03	9.59 / [illegible]	[illegible] / 24.0	54 / 18	OK
U3L4					+190	+0	+190				+186	0	+186	+195	±5	+200	+118	±4	+122	+186	±4	+190	+200 / -130	21.18 / 24.96	9.45 / [illegible]	[illegible] / 10.6	53 / 49	* OK, see note on L6L10, sheet 1.
L4U5					-129	-0	-129				-125	0	-125	-134	±2	-136	-58	±4	-62	-125	±4	-129	-136 / +134	24.96 / 21.18	5.45 / [illegible]	[illegible] / 16.0	54 / 48	OK
U5L6					+115	+5	+120				+110	±5	+115	+127	±2	+129	+33	±6	+39	+111	±6	+117	+129 / -264	21.18 / 24.96	6.10 / [illegible]	[illegible] / 10.1	34 / 105	OK
L6U7					-57	-5	-62				-52	±5	-57	-68	±7	-75	+26	±6	+32	-52	±6	-58	-288 / +305	24.96 / 21.18	11.54 / 14.40	[illegible] / 16.0	114 / 60	OK
U7L8					-3	±5	+3/-8				-7	±5	-12	+9	±7	+16/-1	-85	±6	-91	-7	±6	-13/+1	+189 / -305	19.16 / 26.46	[illegible] / 13.64	[illegible] / 13.35	41 / 102	OK
L8U9					+59	+5	+64				+64	±5	+69	+47	±7	+54	+142	±6	+148	+64	±6	+70	[illegible] / +422	24.96 / [illegible]	[illegible] / 18.65	[illegible]	31 / 78	* OK, see note on L6L10, sheet 1.
U9L10					-117	-5	-122				-122	±5	-127	-106	±7	-113	-200	±6	-206	-122	±6	-128	+27 / -479	39.10 / 40.5	0.82 / 11.83	[illegible] / 15.4	3 / 77	OK
L10U11					+46	+10	+56				+177	±5	+182	+161	±7	+168	+255	±6	+261	+177	±6	+183	-575 / +261	40.5 / 33.10	14.21 / 7.88	[illegible] / 24.0	92 / 33	* OK, see note on L6L10, sheet 1.
U11L12					-150	-4	-154				-268	±1	-269	-189	±0	-189	-315	±3	-318	-268	±3	-271	+540 / -318	[illegible]	11.46 / 5.44	[illegible] / 15.8	48 / 35	OK
L12U13					+218	+4	+222				+323	±1	+324	+313	±0	+313	+368	±3	+371	+323	±3	+326	-471 / +371	52.00 / 43.44	9.06 / 8.54	[illegible] / 24.0	60 / 36	* OK, see note on L6L10, sheet 1.
U13L14					-347	-7	-354				-386	±9	-395	-398	±10	-408	-353	±9	-362	-386	±9	-395	+369 / -408	50.40 / 37.92	7.32 / 11.05	[illegible] / 15.3	31 / 46	OK
L14U15					+430	+8	+438				+438	±8	+446	+445	±9	+454	+406	±9	+415	+438	±9	+447	-262 / +454	52.00 / 43.44	5.04 / [illegible]	[illegible] / 24.0	33 / 44	* OK, see note on L6L10, sheet 1.
U15L16					-437	-93	-530				-495	±95	-590	-480	±93	-573	-569	±99	-668	-495	±99	-594	+139 / -668	71.50 / 88.34	1.95 / [illegible]	[illegible]	8 / 43	OK
L16U15'											-303	±42	-345	-54	±82	[illegible]/+15	-510	±66	-576	-411	±66	-477	-576 / +15	88.34 / 71.50	6.52 / [illegible]	[illegible] / 24.0	37 / 1	OK
U15'L14'											+205	±19	+224	-93	±12	-105	+335	±43	+378	+338	±43	+381	+381 / -105	43.44 / 52.00	[illegible]	[illegible] / 15.2	37 / 15	OK
L14'U13'											-135	±19	-154	+164	±13	+177	-280	±44	-324	-283	±44	-327	-327 / +177	[illegible]	[illegible]	[illegible] / 24.0	37 / 15	OK
U13'L12'											+66	±1	+67	-212	±32	-244	+301	±27	+328	+226	±27	+253	+328 / -244	[illegible]	[illegible]	[illegible] / 15.2	31 / 31	* OK, see note on L6L10, sheet 1.
L12'U11'											+21	±2	+23	+274	±33	+307	-246	±28	-274	-170	±28	-198	-274 / +307	[illegible]	[illegible]	[illegible] / 24.0	32 / 27	OK
U11'L10'											-86	±25	-111	-308	±52	-360	+195	±8	+203	+91	±8	+99	+203 / -360	33.10 / 40.50	[illegible]	[illegible] / 15.4	26 / 58	* OK, see note on L6L10, sheet 1.
L10'U9'														-388	±52	-440	-137	±8	-145	-33	±8	-41	-440	40.5	[illegible]	15.4	71	OK
U9'L8'														+328	±36	+364	+77	±9	+86	-28	±9	-37	+364 / -37	22.46 / 24.46	[illegible]	[illegible] / 15.5	68 / 11	* OK, see note on L6L10, sheet 1.
[illegible]														-262	±36	-298	-11	±9	-20/[illegible]	+93	±9	+102	-295 / +102	26.96 / 19.16	[illegible]	[illegible] / 24.0	84 / 22	OK
U7'L6'														+179	±19	+198	-72	±26	[illegible]	+176	±26	+202	+202 / -98	21.18 / 24.96	[illegible]	[illegible] / 10.1	53 / 38	OK
L6'U5'														-90	±18	-108	+161	±27	+188	+265	±27	+292	-138 / +292	24.96 / 21.18	4.39 / [illegible]	[illegible] / 18.0	43 / 71	OK
U5'L4'														+29	0	+29	-223	±45	-268	-327	±45	-372	+29 / -372	21.18 / 24.96	[illegible] / 14.91	[illegible] / 10.1	8 / 148	OK
R1					375.8	±28.1	403.9				371.5	±27.8	399.3	385.7	±29.6	415.3	303.4	±28.7	332.1	371.5	±28.7	400.2						
R2					112.2	±4.1	116.3				839.5	±125.9	965.4	541.4	±94.1	635.5	1098.4	±152.4	1250.8	939.5	±152.4	1091.9						
R3					450.0	±85.5	535.5				100.0	±22.0	122.0	657.9	±91.3	749.2	219.2	±39.2	258.4	310.0	±39.2	349.2						
Jack, R2					112.2	±4.1	116.3																					
Jack, R3					450.0	±85.5	535.5				100.0	±22.0	122.0				219.2	±39.2	258.4	310.0	±39.2	349.2						
Horiz. R1						61.5						74.2			77.1			78.3			78.3							
Horiz. R2						73.0						201.5			149.4			227.1			227.1							
Horiz. R3						57.7						5.6			124.8			66.4			66.4							

ERECTION STRESSES FOR

BRIDGE OVER MISSOURI RIVER

STATE ROAD FROM WENTZVILLE TO ST. LOUIS

ABOUT .25 MILE EAST OF WELDON SPRINGS STATION

PROJECT NO. PWA 76 (US40TR-54) STA. 10+48.39

ST. CHARLES - ST LOUIS COUNTIES

FINISHED

FINISHED

012

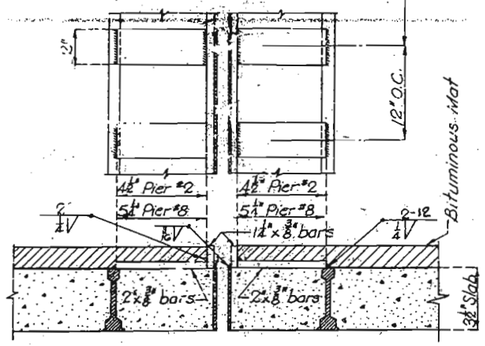
Drawn Mar. 1936 By F.W.H. & H.E.C.

25

Sheet No 2 of 2

J-1000

5 MO.



ROADWAY EXP. DEVICE AT PIERS NO. 2&8

Note: Length of 2"x⅜" bars to be determined by field measurements.

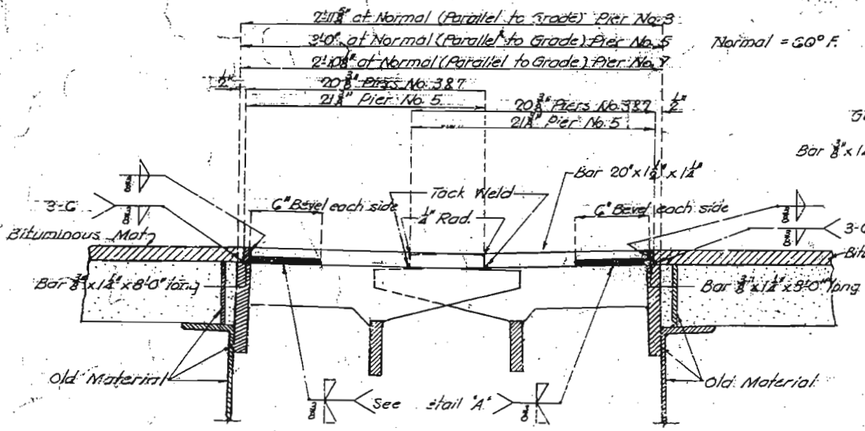
Material Required:
4 - 14" x ⅜" bars 32'0" long
66 - 2" x ⅜" bars 4½" long
66 - 2" x ⅜" bars 5½" long

Total Weight 341#

ALTERATIONS TO BRIDGE OVER MISSOURI R.
PROJECT NO. RT.40-Sec.M-102(1) STA. 10+48.39
ST. CHARLES - ST. LOUIS COUNTIES

Date 3/19/56 by M.E.L.

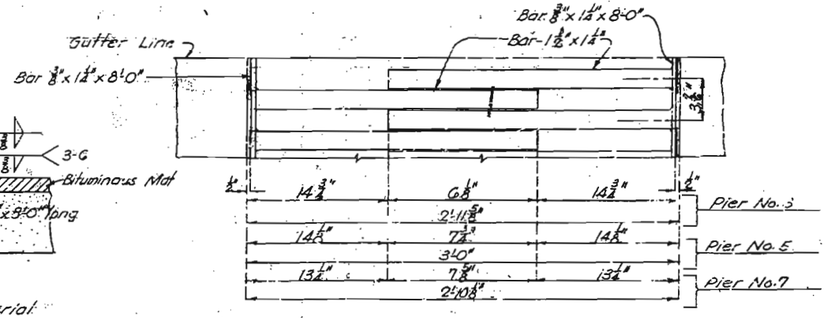
J-1000 A1



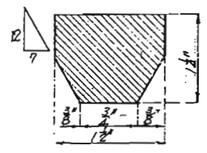
ROADWAY EXP. DEVICE AT PIERS NO. 3-5 &7

Pier No. 3 - Required 224-Bars ½"x12"x20", 8 Bars ⅜"x12"x8'0"
Pier No. 5 - Required 224-Bars ½"x12"x21", 8 Bars ⅜"x12"x8'0"
Pier No. 7 - Required 224-Bars ½"x12"x20", 8 Bars ⅜"x12"x8'0"

Total Weight = 7570#



PLAN



DETAIL "A"

GENERAL NOTES:

Material for steel bars shall comply with A.S.T.M. A 373 Specifications.

The steel bars shall be installed in sections to permit at least one way traffic at all times. Before traffic is permitted to cross over sections in place, sufficient bituminous surfacing shall be placed on roadway slab adjacent to both sides of expansion device to prevent any damage to either steel bars or tires of vehicles. All work and cost for his maintenance of traffic shall be at the expense of the contractor.

The contractor shall perform the welding in the following recommended procedure: Existing steel castings to be preheated to 300°F. All weld tacks to cast steel to be performed with a minimum of two passes. All welding shall be performed by qualified welders. The classification number of welding electrodes to be used shall be E-6015.

The number of 2"x⅜" bars listed for expansion device at each pier (3, 5 & 7) includes five additional bars and the weight of these bars is shown in the following table:

ALTERATIONS TO BRIDGE OVER MISSOURI RIVER

STATE ROAD FROM WENTZVILLE TO ST. LOUIS
ABOUT .25 MILE E. OF WELDON SPRING STATION
PROJECT NO. RT.40-SEC.M-102(1) STA. 10+48.39

ST. CHARLES - ST. LOUIS COUNTIES

Submitted by J. A. Williams State Bridge Engineer Date 6-21-1956
Approved by Ray M. Whittom State Highway Engineer 6-21-1956

J-1000 A

220

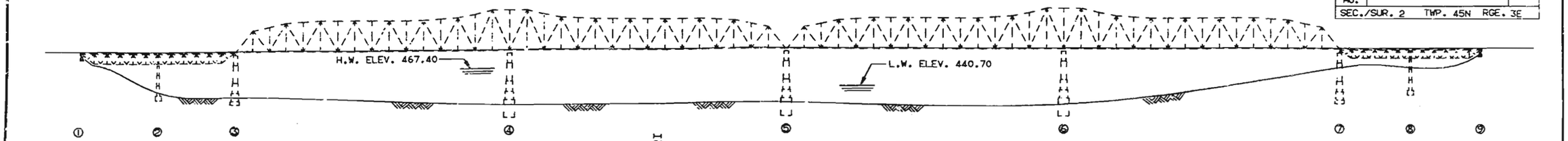
Drawn Mar. 1956 by M.E.L.
Checked Mar. 1956 by H.R.B.

Note: This drawing is not to scale. Follow dimensions

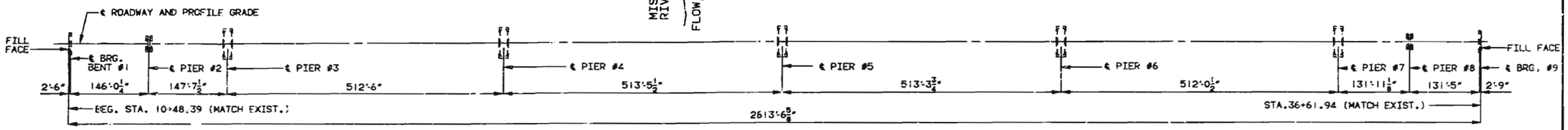
Sheet No. 1 of 1

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.		
SEC./SUR. 2	TWP. 45N RGE. 3E	



GENERAL ELEVATION



PLAN

ESTIMATED QUANTITIES

ITEM		SUBSTRUCTURE	SUPERSTRUCTURE	TOTAL
CLASS I EXCAVATION	CU.YD.	85		85
PARTIAL REMOVAL OF SUBSTRUCTURE CONC.	LUMP SUM	1		1
REMOVAL OF EXISTING BRIDGE DECK	SQ. FT.		88,493	88,493
POLYMER CONCRETE OVERLAY (SEE SPECIAL PROVISIONS)	SQ. YD.		9256	9256
CLASS B1 CONCRETE	CU.YD.	27.0	3.0	30.0
SUBSTRUCTURE REPAIR (FORMED) SEE SPECIAL PROVISIONS	SQ. FT.	613		613
SUBSTRUCTURE REPAIR (UNFORMED) SEE SPECIAL PROVISIONS	SQ. FT.	83		83
PROTECTIVE COATING- CONCRETE BENTS (DELETERIOUS AGENTS)	LUMP SUM		1	1
PREFORMED COMPRESSION EXPANSION JOINT SEAL (1.0 IN.)	LIN. FT.		2048	2048
REINFORCING STEEL (BRIDGES)	LBS.		(2720) 2960	(2720) 2960
NAVIGATION LIGHTING SYSTEM	LUMP SUM		1	1
REINFORCING STEEL (EPOXY COATED)	LBS.		1050	1050
EXPANSION DEVICE (FINGER PLATE)	LIN. FT.		96	96
FABRICATED STRUCTURAL CARBON STEEL (MISC.)	LBS.		57620	57620
FABRICATED STRUCTURAL LOW ALLOY STEEL (A-572) (MISC.)	LBS.		1050	1050
STEEL GRID FLOOR (CONCRETE FILLED) (4¼") (SEE SPECIAL PROVISION)	SQ. FT.		87209	87209
BRIDGE RAIL (TWO TUBE STRUCTURAL STEEL)	LIN. FT.		5224	5224
VERTICAL DRAIN AT END BENTS	EACH	2		2
PAINTING (SYSTEM C) GREEN **	LUMP SUM		1	1
OPEN CURBING	LIN. FT.		3900	3900
CLOSED CURBING	LIN. FT.		1327	1327
PRESSURE GROUTING (EPOXY)	LIN. FT.	24		24
FLOORBEAM TOP FLANGE ANGLE REPLACEMENT (THRU TRUSS) *	EACH		14	14
SPECIAL WORK (BRIDGES)	LUMP SUM			1
BRIDGE ANCHOR SECTION	EACH			4

NOTE: ALL REINFORCEMENT IS INCLUDED IN SUPERSTRUCTURE QUANTITIES.

NOTE: ROCK REVETMENT AT BT. #1 AND #9 SHALL BE RESTORED AS SHOWN ON SHEET NO. 2 OF 22 OF ORIGINAL PLANS FOR BR. NO. J-1000. THE RESTORATION SHALL BE PAID FOR AS A ROADWAY ITEM.

GENERAL NOTES:

DESIGN SPECIFICATIONS: A.A.S.H.T.O.-1983 AND INTERIMS THRU 1988. LOAD FACTOR DESIGN

DESIGN LOADING: HS20-44 FLOOR SYSTEM, NO FUTURE WEARING SURFACE, EARTH 120#/CU.FT. EQUIVALENT FLUID PRESSURE 45#/CU.FT.

DESIGN UNIT STRESSES: CLASS B1 CONCRETE f'c= 4,000 psi
CLASS B1 SPECIAL CONC. SPEC. MIX (SUPERSTR. GRID FILL) f'c=4,000 psi
REINFORCING STEEL (GRADE 60) fy=60,000 psi
STRUCTURAL CARBON STEEL fy=36,000 psi
STRUCTURAL STEEL (A.S.T.M. A-572) GRADE 50 fy=50,000 psi
STRUCTURAL STEEL TUBING (TS) fy=46,000 psi

REINFORCING STEEL: MINIMUM CLEARANCE TO REINFORCING STEEL SHALL BE 1½", UNLESS OTHERWISE SHOWN.

FLOOR SYSTEM: STEEL GRID FLOOR (CONC. FILLED) (SEE SPECIAL PROVISIONS)

PAINTING: SYSTEM C(GREEN) BY CONTRACTOR IN ACCORDANCE WITH STD. SPEC. 712.12 AND SPECIAL PROVISIONS.

STRUCTURAL STEEL: STRUCTURAL STEEL TUBING (TS) FOR RAIL SHALL BE A-500-50 (GRADE B) ALL OTHER STRUCTURAL STEEL SHALL BE A-36 EXCEPT AS NOTED.

NAVIGATION AND CLEARANCE LIGHTS: ALL NAVIGATION AND CLEARANCE LIGHTING SHALL BE KEPT IN OPERATION DURING ALL CONSTRUCTION.

FIELD CONNECTION: FIELD CONNECTIONS, HIGH STRENGTH BOLTS ¾"Ø, HOLES 13/16"Ø, EXCEPT AS NOTED.

ALL MISSING OR DETERIORATED RIVETS SHALL BE REMOVED AND REPLACED WITH HIGH STRENGTH BOLTS.

BARS BONDED [illegible] CONCRETE NO. [illegible] ST[illegible] AND EMBEDDED INTO NEW CONCRETE WHERE POSSIBLE. IF LENGTH IS AVAILABLE, OLD BARS SHALL EXTEND INTO NEW CONCRETE AT LEAST 40 DIAMETERS FOR SMOOTH BARS AND 30 DIAMETERS FOR DEFORMED BARS.

LIGHT DOTTED LINES INDICATE OLD WORK. HEAVY LINES INDICATE NEW WORK. CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN FIELD BEFORE ORDERING NEW STEEL.

PROFILE GRADE ELEVATIONS SHALL BE 1⅛" ABOVE EXISTING PROFILE GRADE.

PAYMENT FOR FURNISHING AND INSTALLING RESIN ANCHOR SYSTEMS SHALL BE FULLY COVERED BY THE CONTRACT UNIT PRICE FOR CONCRETE.

BRIDGE OVER MISSOURI RIVER

STATE ROAD FROM WENTZVILLE TO ST.LOUIS

NEAR WELDON SPRINGS

PROJECT NO. **STA.** 10+48.39

JOB NO. 6-P-40-298C **RTE.** 40

ST.CHARLES-ST.LOUIS COUNTY

STD.
STD. 706.35
J-1000R

DESIGNED MAY 1989
DETAILED SEPT 1989
CHECKED SEPT 1989

*SEE SPECIAL PROVISIONS
** ESTIMATED AT 4,200 TONS

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

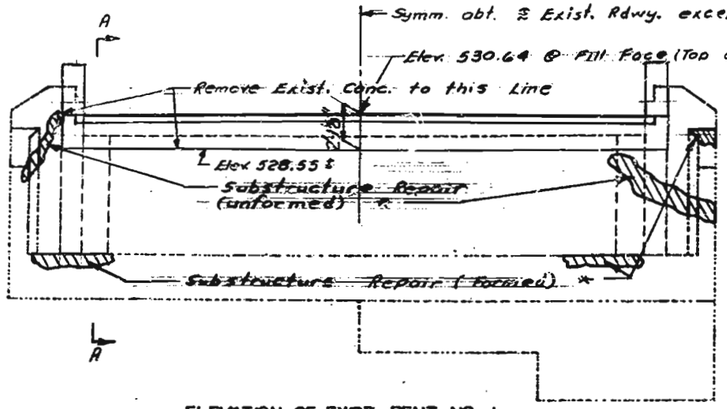
⚠ REVISED 1/19/90

SEE FINAL PLANS

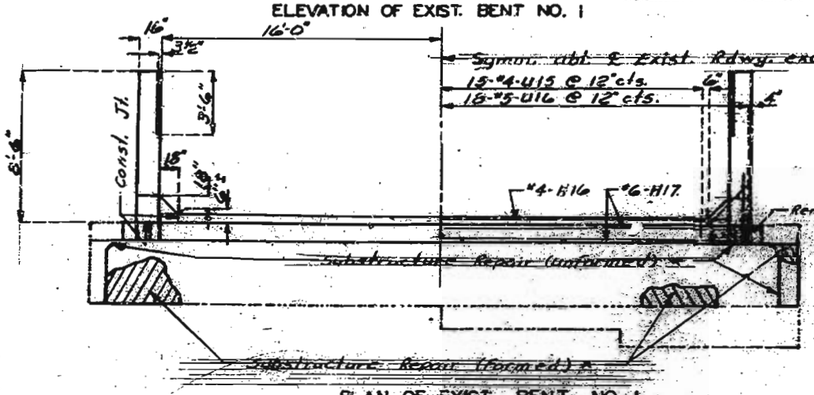
SHEET NO. [illegible] OF 27

443

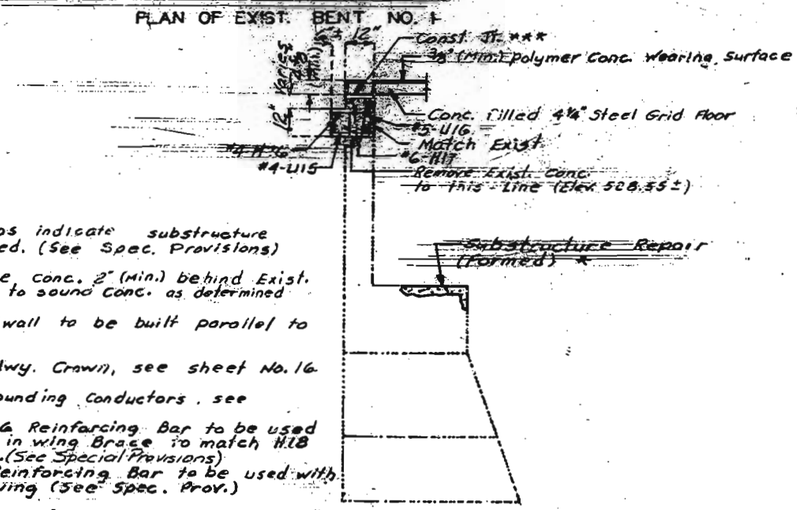
STATE	PROJ. NO.	SHEET NO.
MO.		12



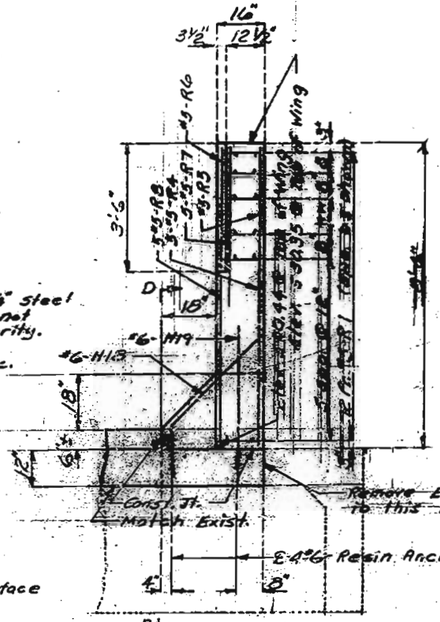
ELEVATION OF EXIST. BENT NO. 1



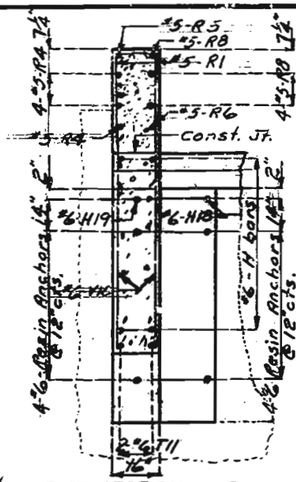
PLAN OF EXIST. BENT NO. 1



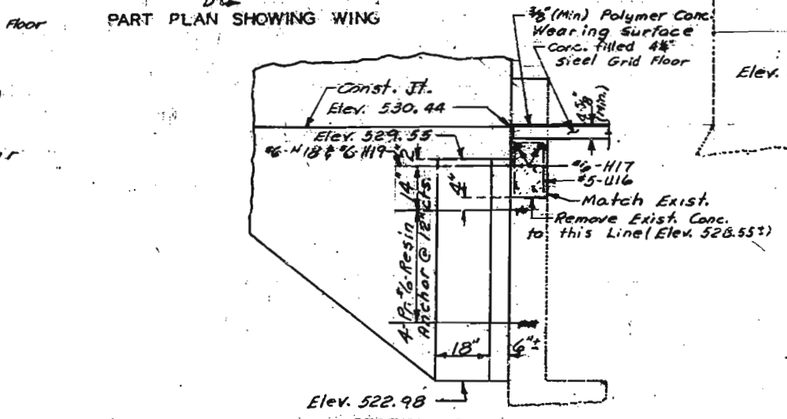
SECTION A-A



PART PLAN SHOWING WING



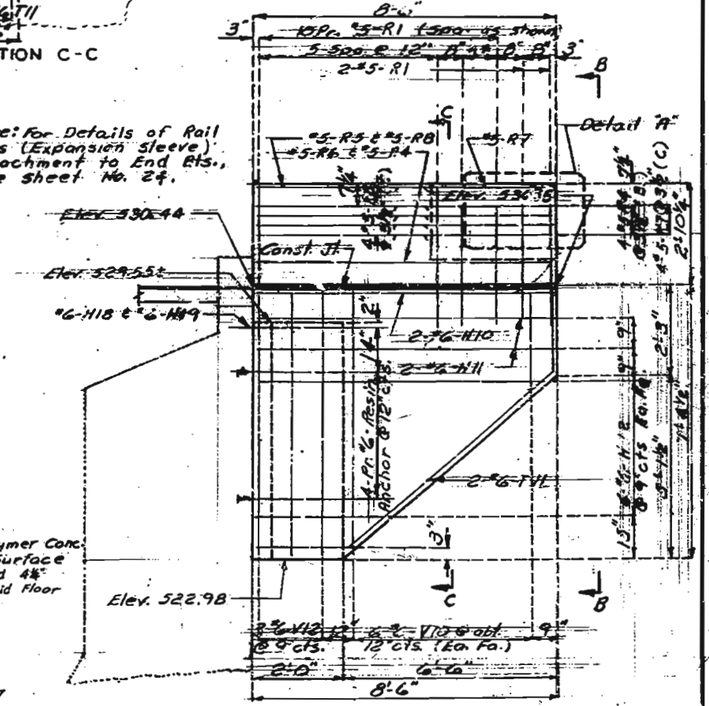
PART SECTION C-C



SECTION D-D

(B) Outside Face
(C) Inside Face

Note: For Details of Rail Ends (Expansion Sleeve) attachment to End Bts., see sheet No. 24.



ELEVATION OF WING

** 3 Spa. @ 4"

Note: For Detail "A" and Part Section B-B, see sheet No. 10.

Note:
Cross Hatched areas indicate substructure areas to be repaired. (See Spec. Provisions)

* Remove & replace conc. 2" (Min.) behind Exist. Reinforcing steel or to sound conc. as determined by Engineer.

** Top of backwall to be built parallel to crown of Rdwy.

For Detail of Rdwy. Crown, see sheet No. 16.

For Detail of Grounding Conductors, see sheet No. 25.

Field bend 5'-0" #6 Reinforcing Bar to be used with Anchor system in wing Brace to match H18 as shown in Bar Bill. (See Special Provisions)

Use a 3'-0" #6 Reinforcing Bar to be used with Anchor System in wing (See Spec. Prov.)

DETAIL SHOWING SUBSTRUCTURE REPAIR AREAS AT BENT NO. 1

DETAILED Sept. 1989
CHECKED Sept. 1989

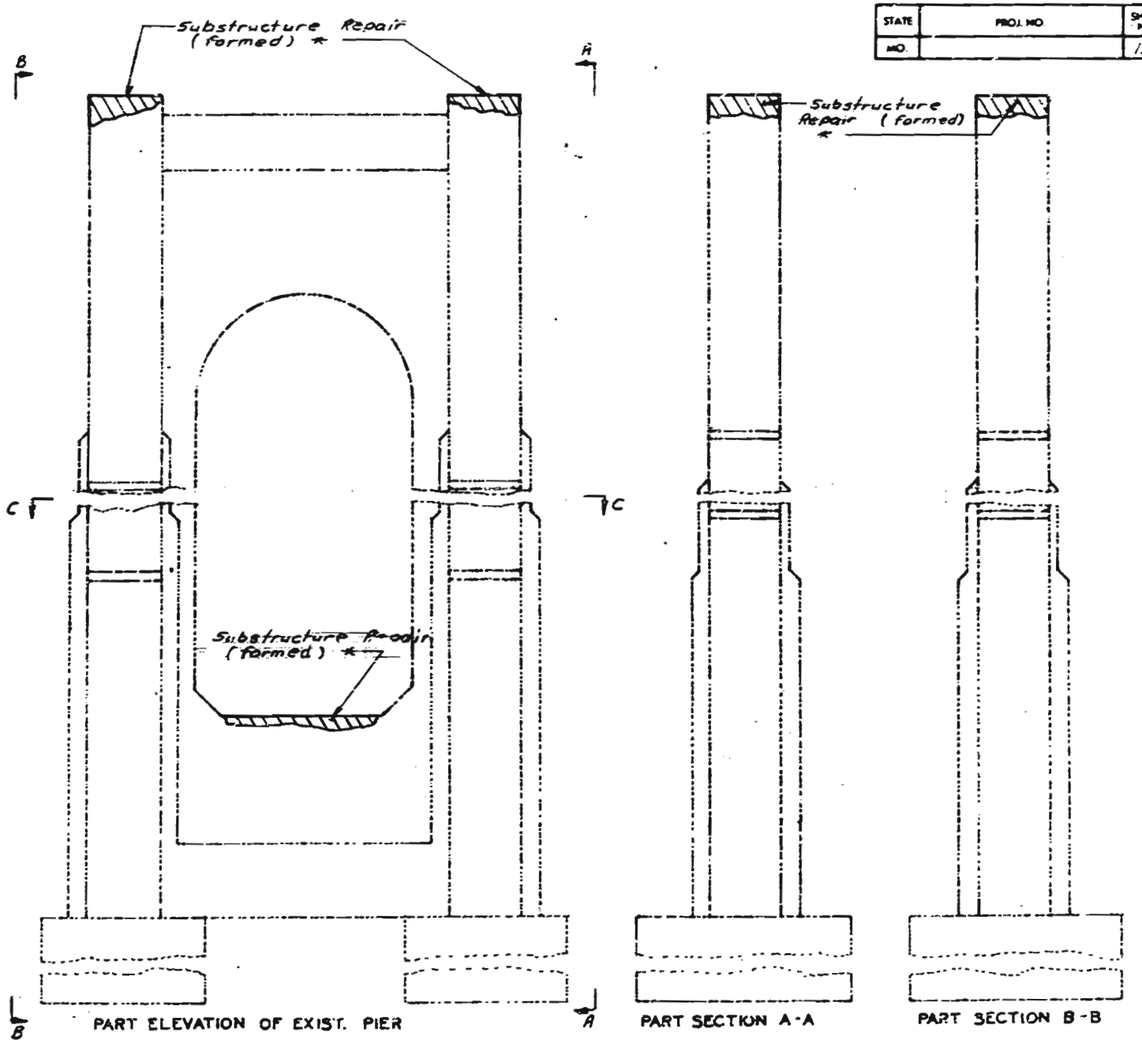
Note: This drawing is not to scale. Follow dimensions.

ST. CHARLES - ST. LOUIS COUNTY

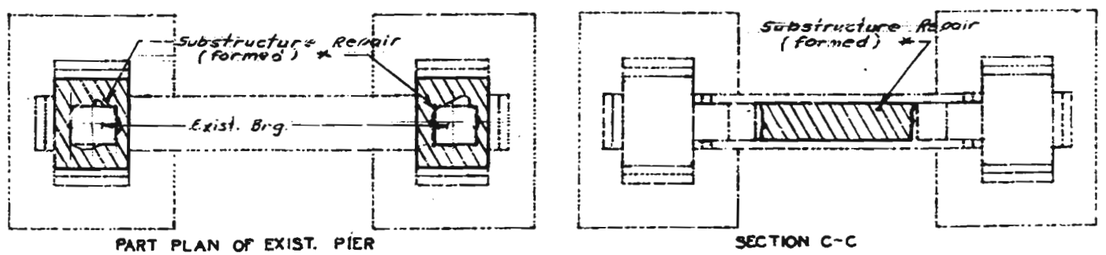
J-1000R

STATE	PROJ. NO.	SHEET NO.
MO.		13

Note: Cap and Tie Beam is to be Sealed after repairs are made (See Spec. Prov.)



Note:
Cross hatched areas indicate substructure areas to be repaired. (See Spec. Provisions)
* Remove and replace Conc. 2" (Min.) behind Exist. Reinforcing Steel or to Sound Conc. as determined by The Engineer.



PART PLAN OF EXIST. PIER

SECTION C-C

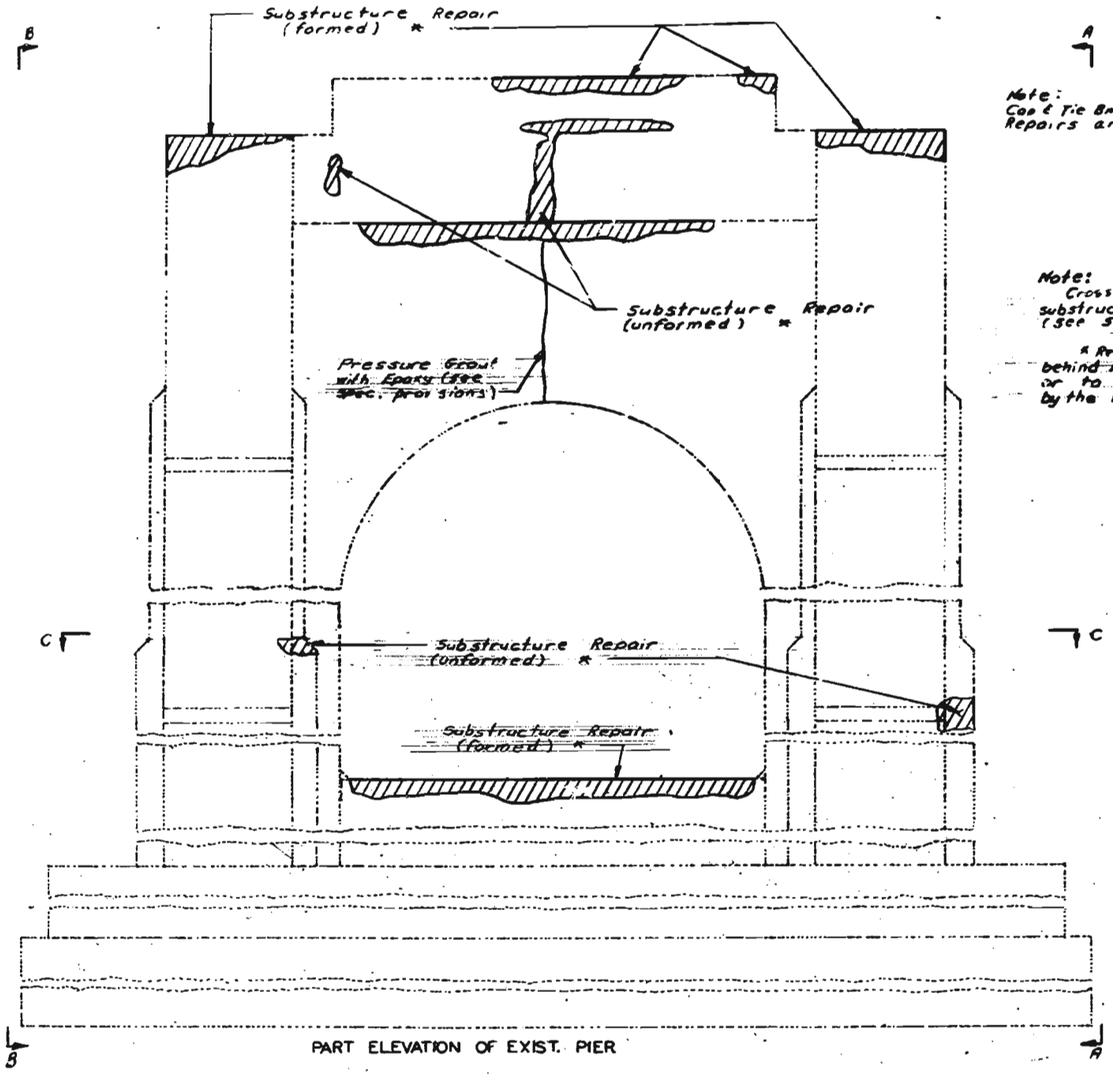
DETAIL SHOWING SUBSTRUCTURE REPAIR AREAS AT PIER NO. 2

454 945

DETAILED MAY 1989
CHECKED JUNE 1989

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

STATE	PROJ. NO	SHEET NO
MO		14

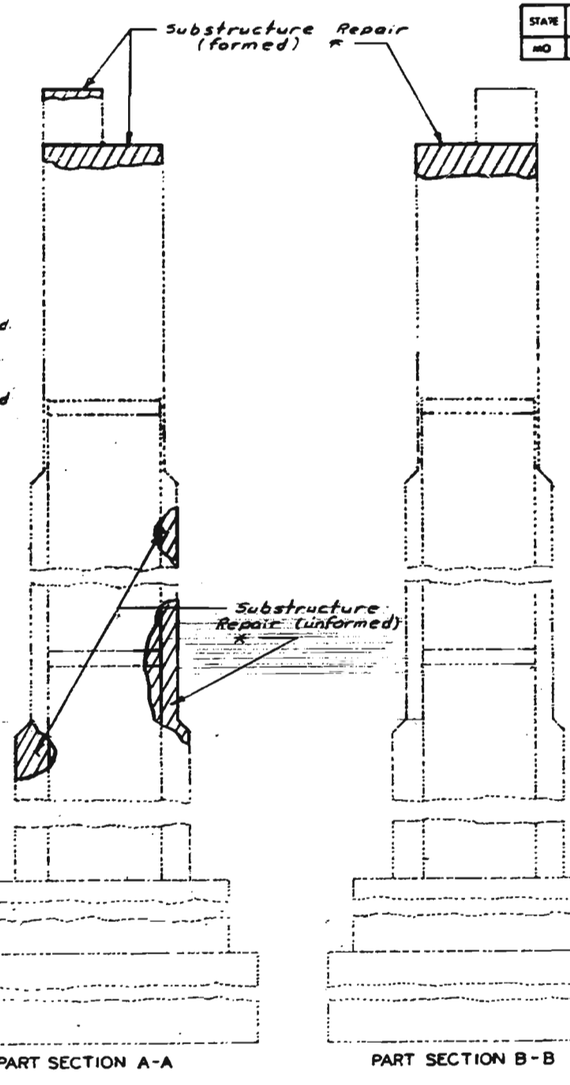


PART ELEVATION OF EXIST. PIER

Note:
Cap & Tie Bm. is to be Sealed after Repairs are made (See Spec. Prov.)

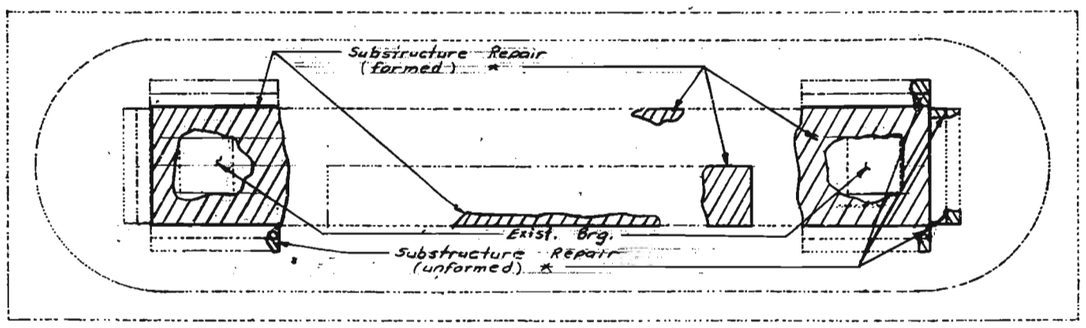
Note:
Cross hatched areas indicate substructure areas to be repaired. (See Spec. Provisions.)

* Remove & replace Conc. 2" (min) behind Exist. Reinforcing Steel or to Sound Conc. as determined by the Engineer.

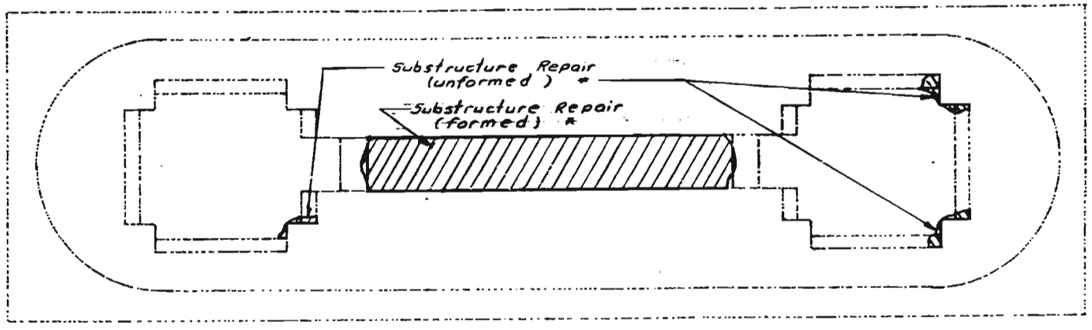


PART SECTION A-A

PART SECTION B-B



PLAN OF EXIST. PIER



SECTION C-C

DETAIL SHOWING SUBSTRUCTURE REPAIR AREAS AT EXIST. PIER NO. 3

DETAILED MAY 1989
CHECKED JUNE 1989

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

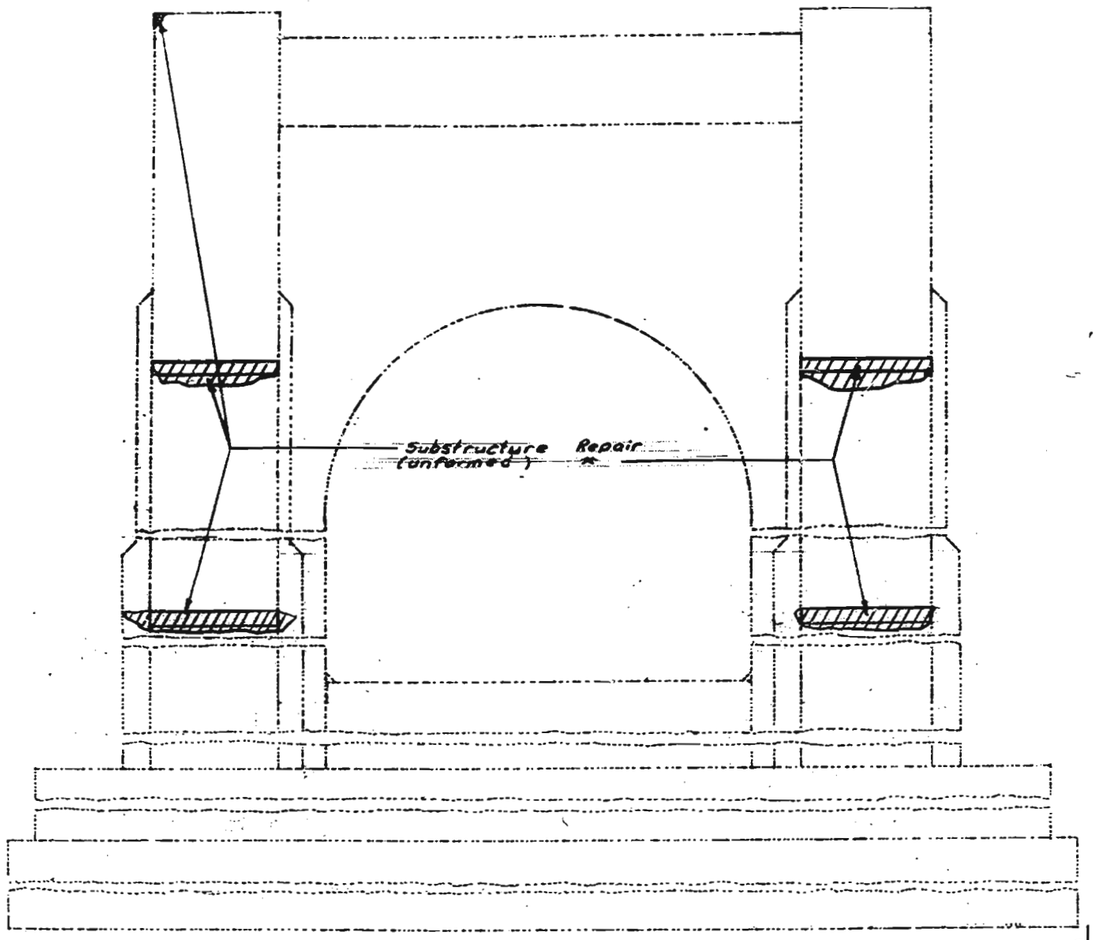
ST. CHARLES - ST. LOUIS COUNTY

J-1000R

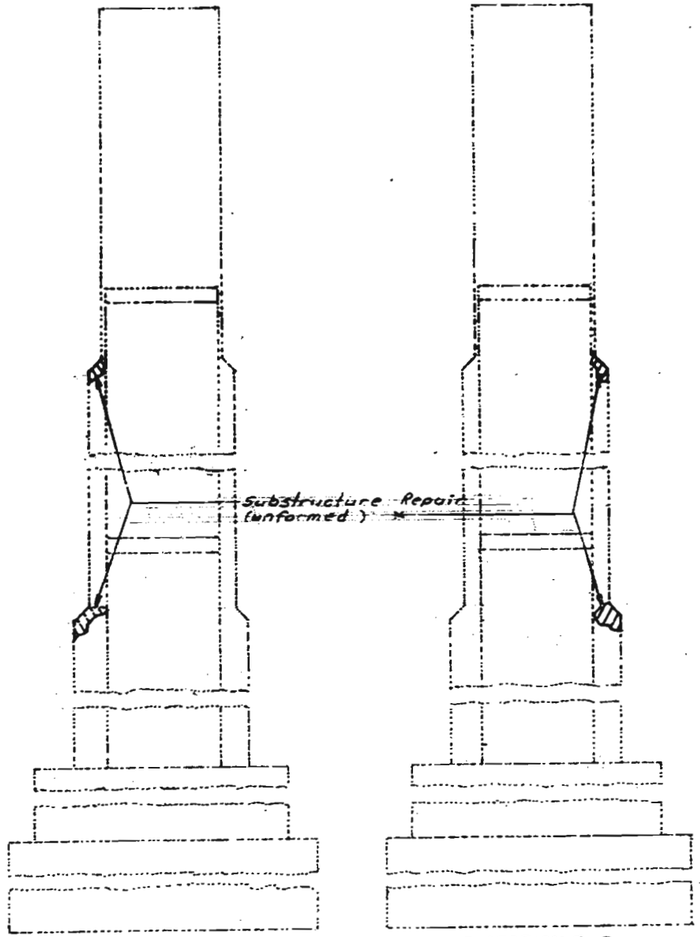
STATE	PROJ. NO.	SHEET NO.
MO.		15

B

A

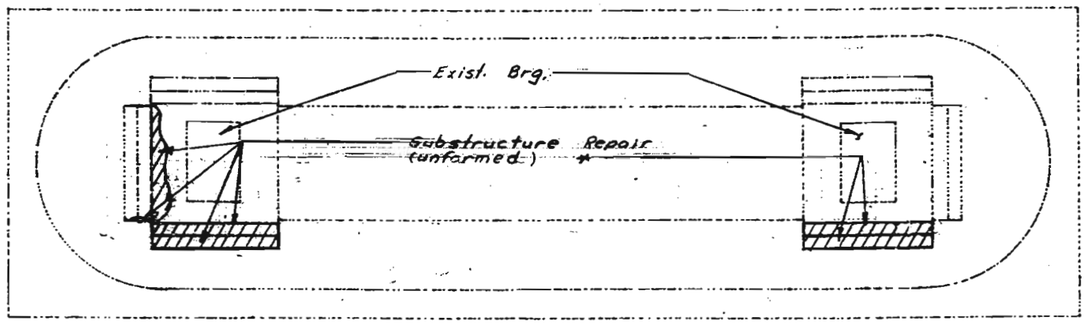


PART ELEVATION OF EXIST. PIER



PART SECTION A-A

PART SECTION B-B



PLAN OF EXIST. PIER

Note:
- Cross hatched areas indicate substructure areas to be repaired. (See Spec. Provisions)
- * Remove and replace Conc. 2" (min.) behind Exist. Reinforcing steel or to sound Conc. as determined by the engineer.
- Cap is to be sealed after repairs are made (see spec. Prov.)

DETAIL SHOWING SUBSTRUCTURE REPAIR AREAS AT EXIST. PIER NO. 4

DETAILED MAY 1989
CHECKED JUNE 1989

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

Sheet No. 5 of 27.

ST. CHARLES - ST. LOUIS COUNTY

J-1000R

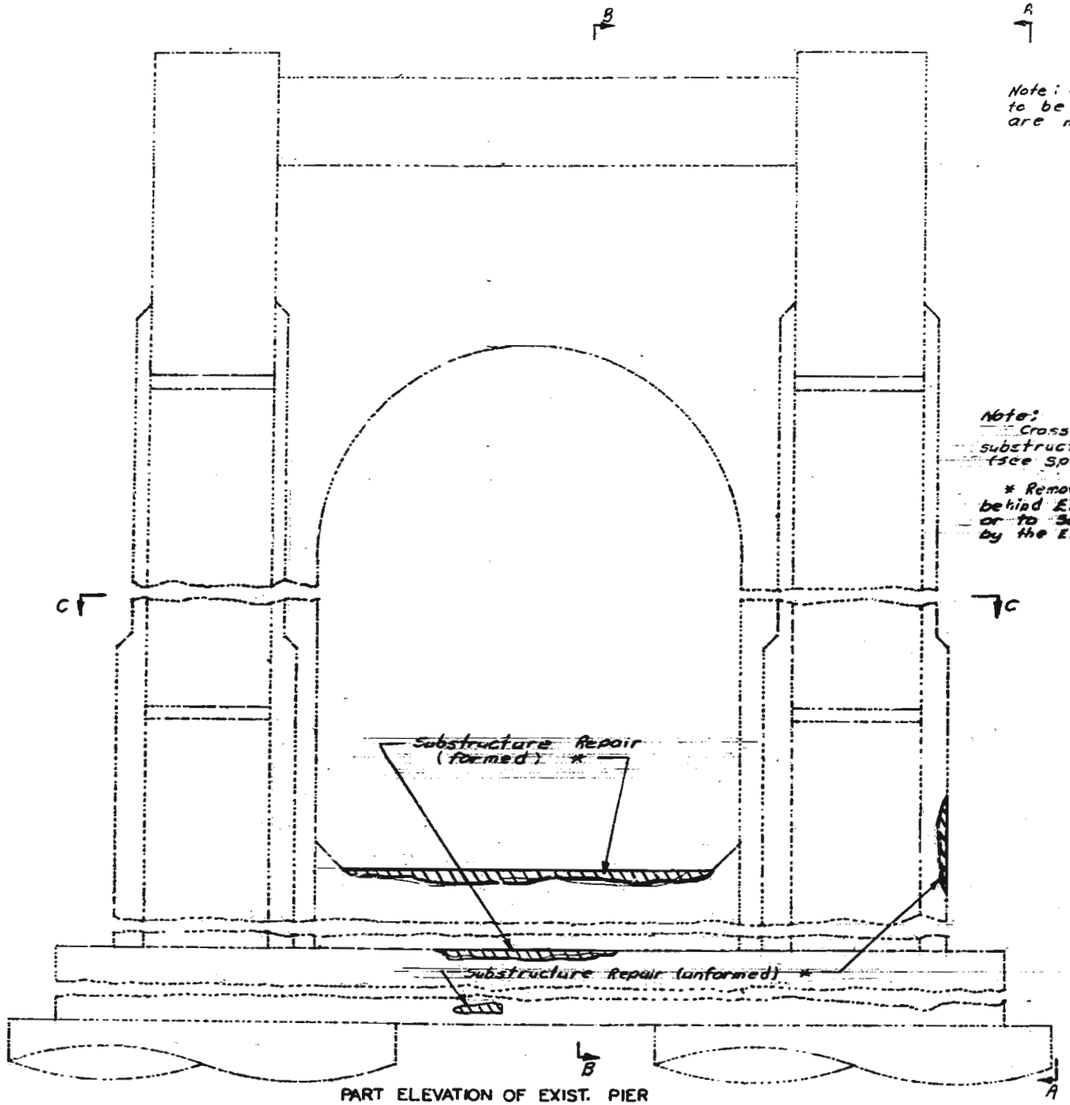
447
433

STATE	PROJ. NO.	SHEET NO.
MO.		16

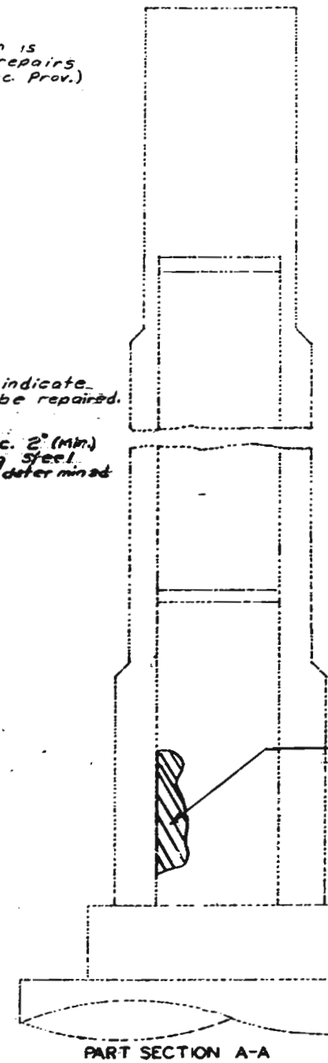
Note: Cap and Tie Beam is to be sealed after repairs are made (See spec. Prov.)

Note:
Cross hatched areas indicate substructure areas to be repaired. (See Spec. Provisions)

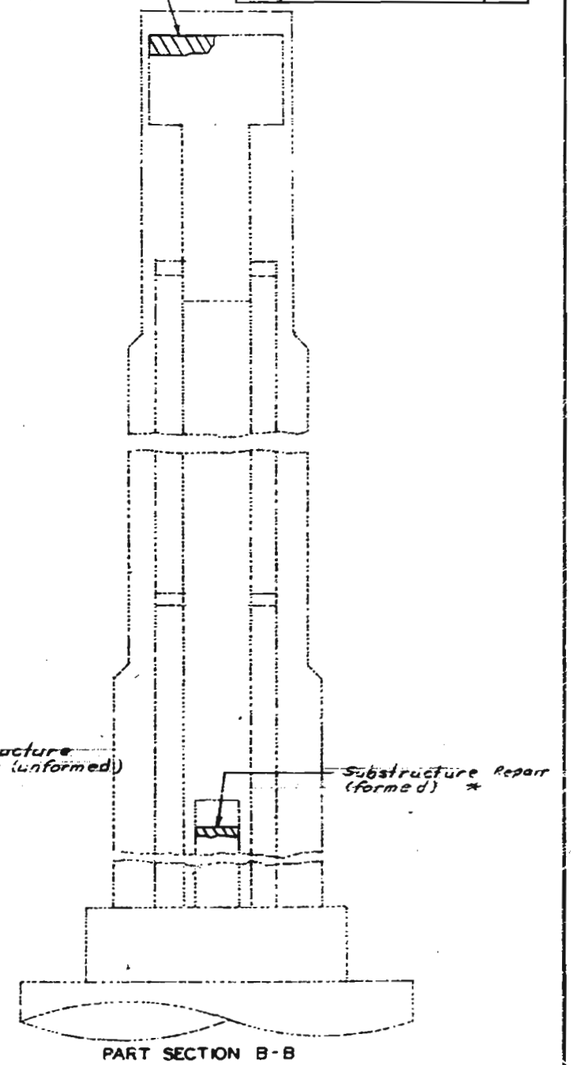
* Remove & replace conc. 2" (Min.) behind Exist. Reinforcing Steel or to Sound Conc. as determined by the Engineer.



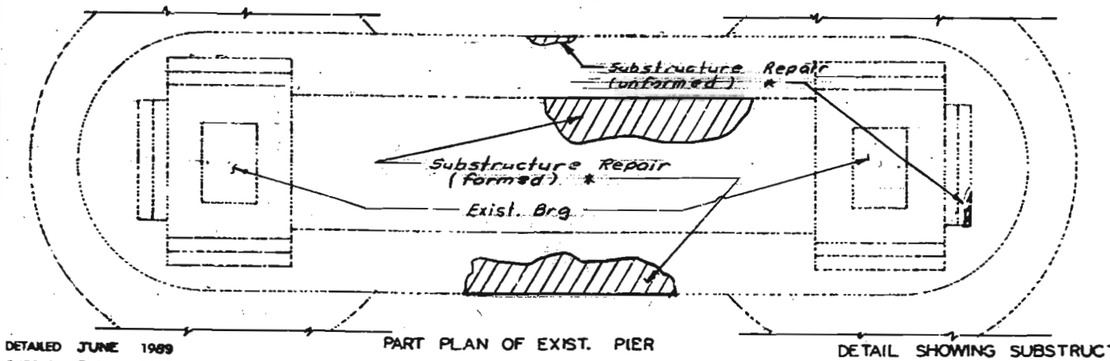
PART ELEVATION OF EXIST. PIER



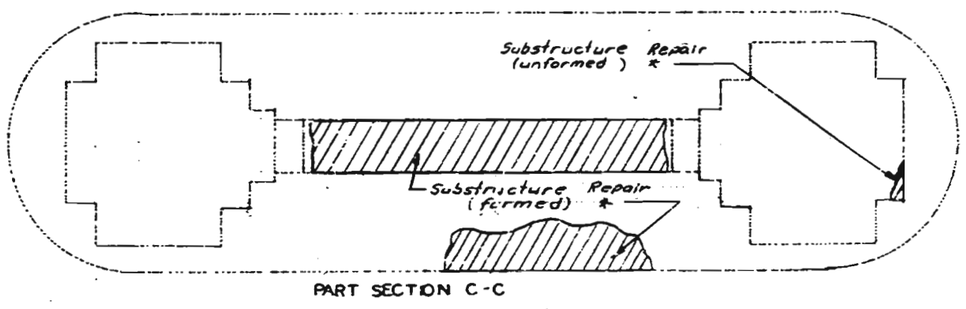
PART SECTION A-A



PART SECTION B-B



PART PLAN OF EXIST. PIER



PART SECTION C-C

DETAIL SHOWING SUBSTRUCTURE REPAIR AREAS AT EXIST. PIER NO. 5

DETAILED JUNE 1989
CHECKED JUNE 1989

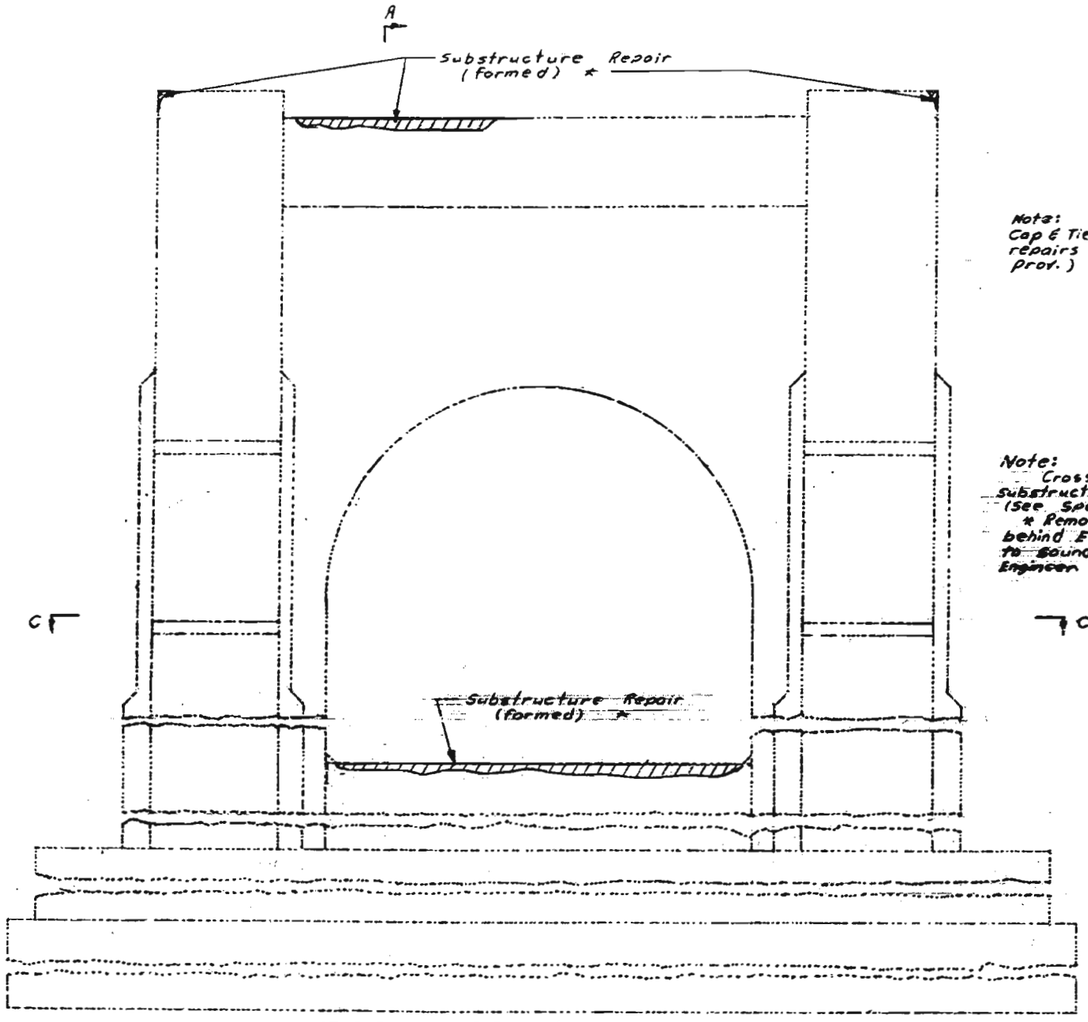
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 6 of 27. ST. CHARLES - ST. LOUIS COUNTY

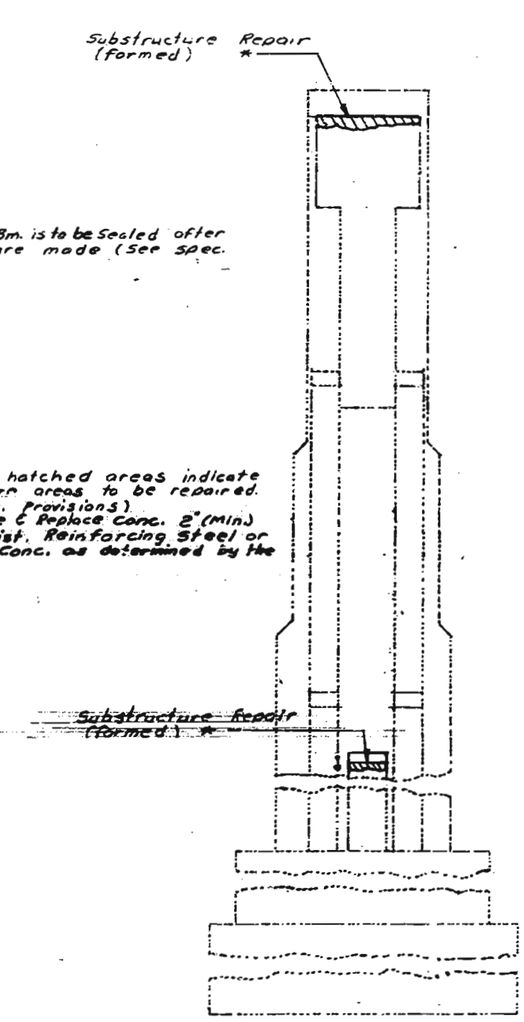
J-1000R

454 448

STATE	PROJ. NO.	SHEET NO.
MO.		17



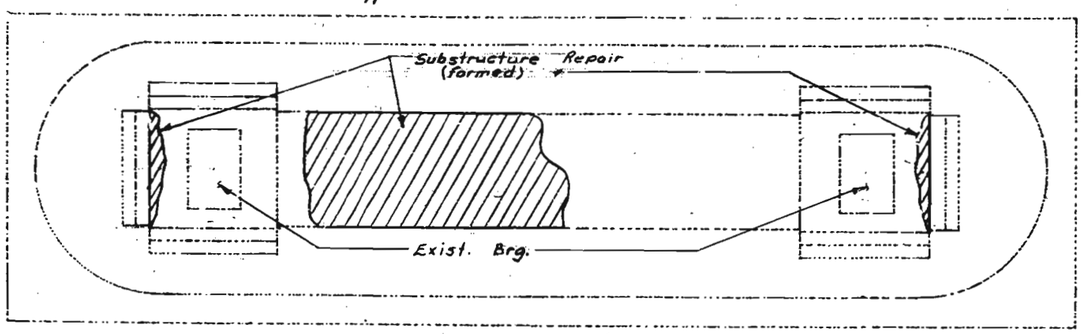
PART ELEVATION OF EXIST. PIER



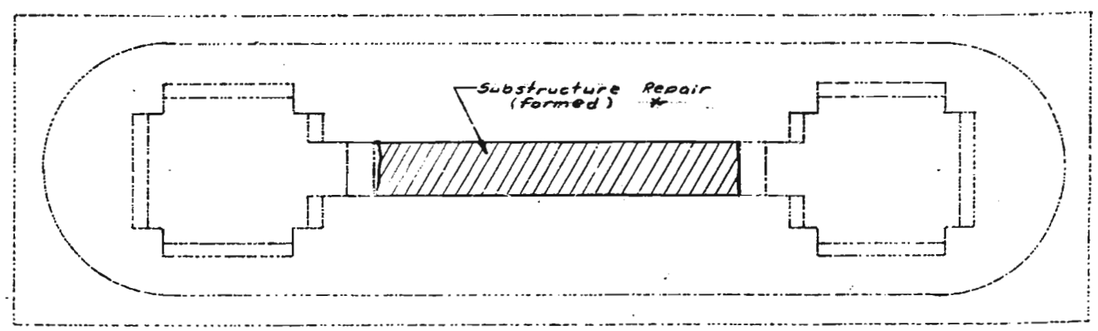
PART SECTION A-A

Note:
Cap & Tie Bm. is to be Sealed after repairs are made (See spec. prov.)

Note:
Cross hatched areas indicate substructure areas to be repaired. (See Spec. Provisions)
* Remove & Replace Conc. 2" (Min) behind Exist. Reinforcing Steel or to Sound Conc. as determined by the Engineer.



PLAN OF EXIST. PIER



SECTION C-C

DETAIL SHOWING SUBSTRUCTURE REPAIR AREAS AT PIER NO. 6

DETAILED MAY 1989
CHECKED JUNE 1989

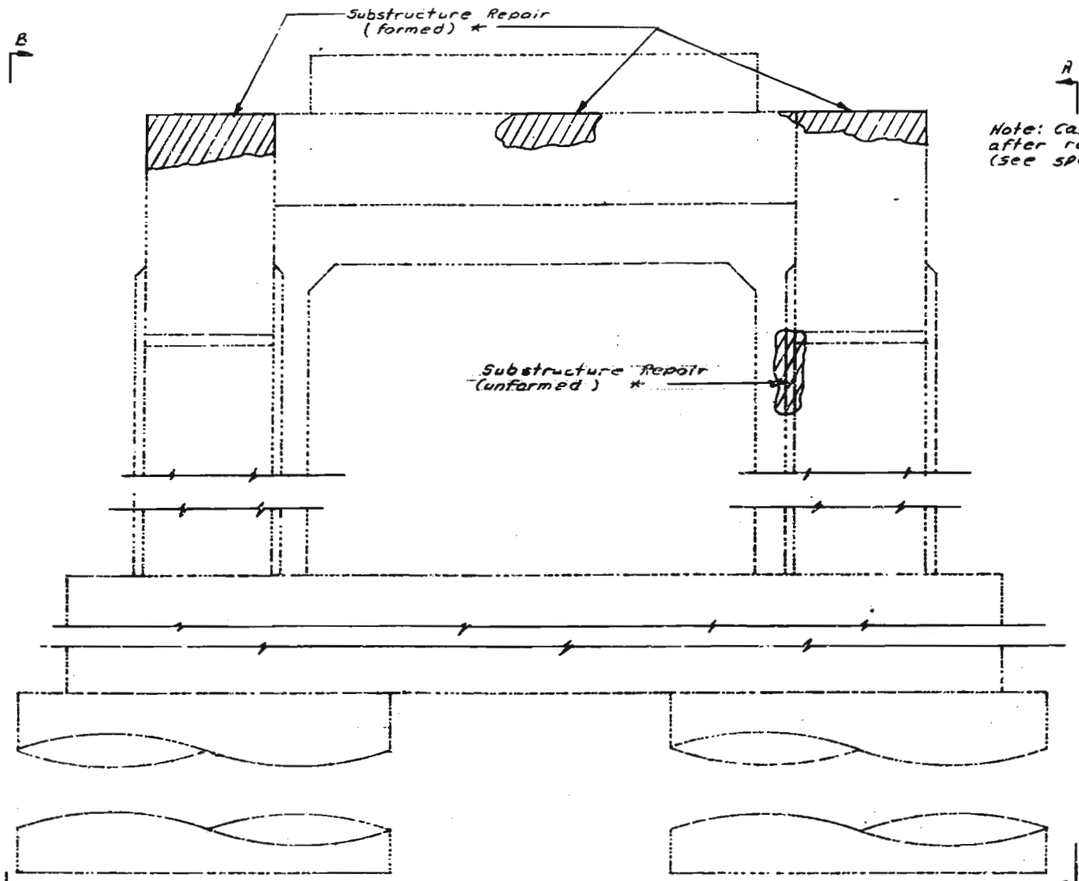
Note: This drawing is not to scale. Follow dimensions.

ST. CHARLES - ST. LOUIS COUNTY

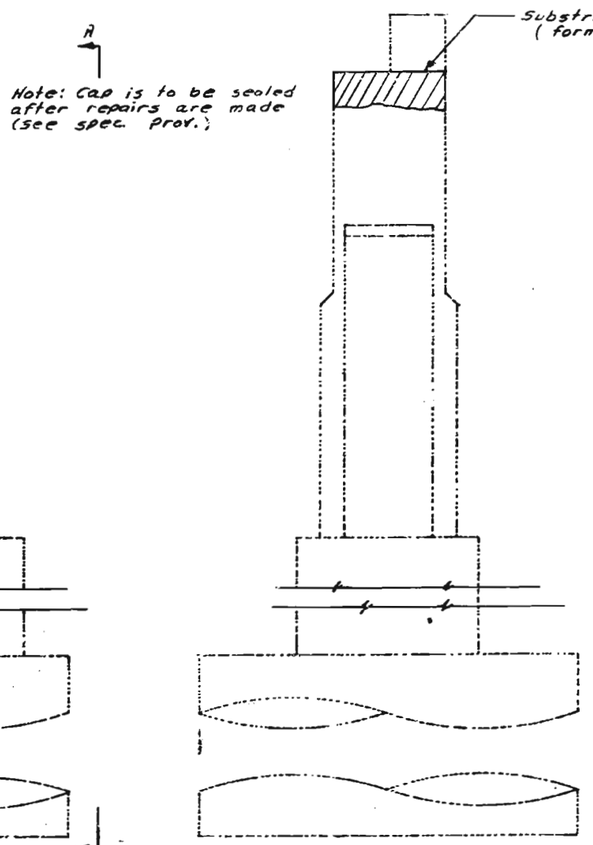
J-1000R

455 449

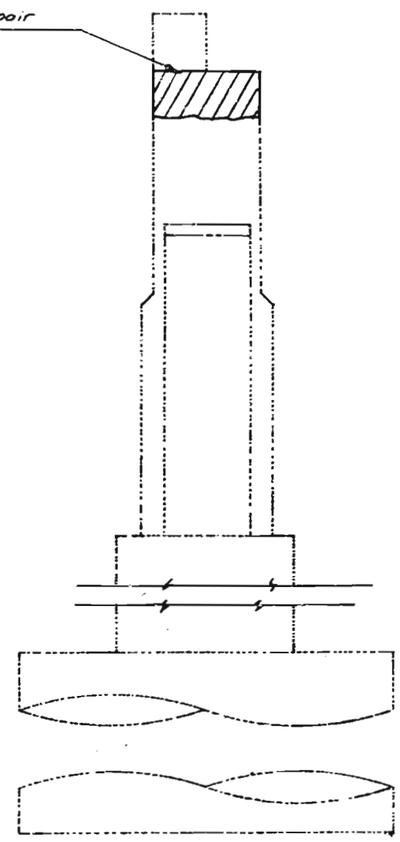
STATE	PROJ. NO.	SHEET NO.
MO.		18



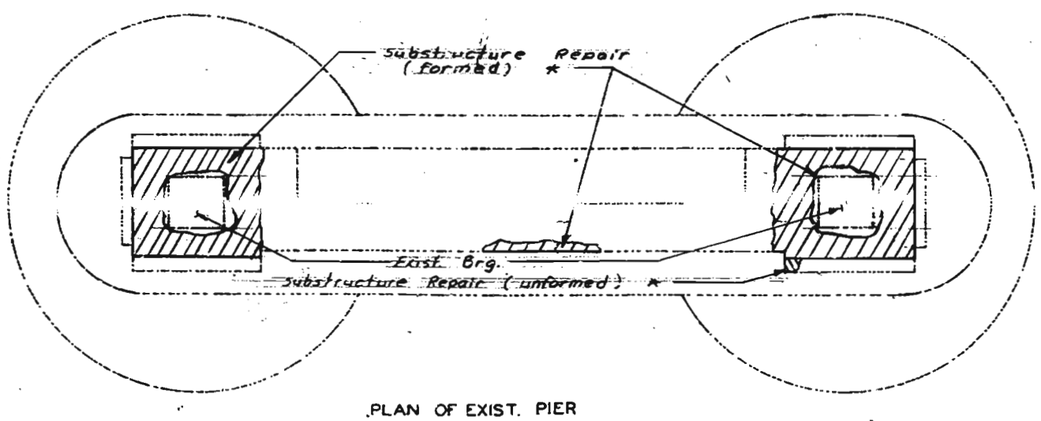
PART ELEVATION OF EXIST. PIER



PART SECTION A-A



PART SECTION B-B



PLAN OF EXIST. PIER

Note:
Cross hatched areas indicate substructure areas to be repaired. (see spec. Provisions)
* Remove & Replace conc. 2" (Min.) behind Exist. Reinforcing Steel or to sound conc. as determined by the Engineer.

DETAIL SHOWING SUBSTRUCTURE REPAIR AREAS AT EXIST. PIER NO. 7

456 450

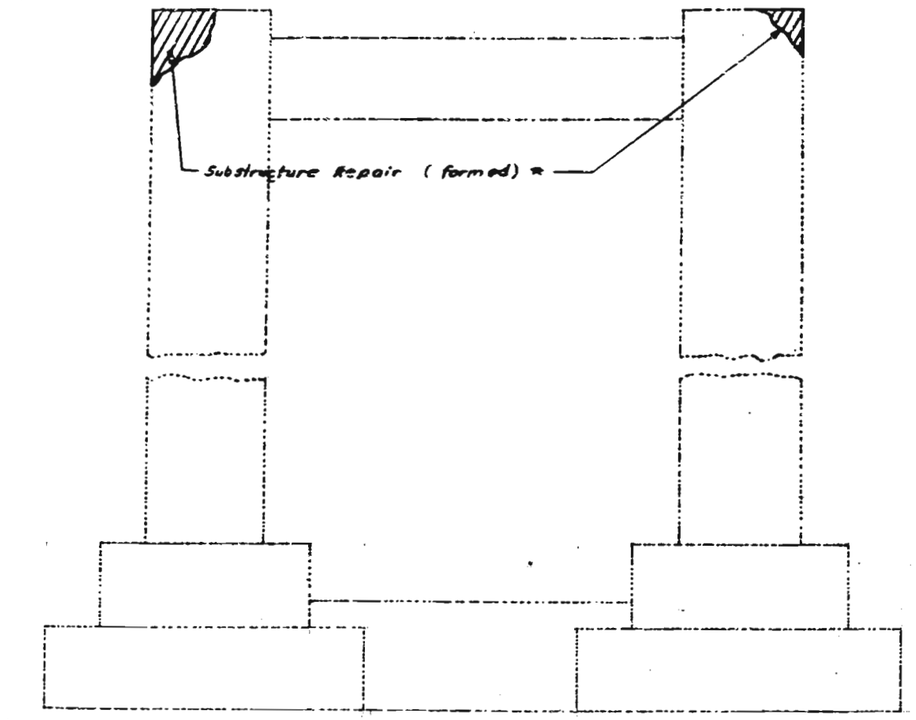
DETAILED MAY 1989
CHECKED JUNE 1989

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

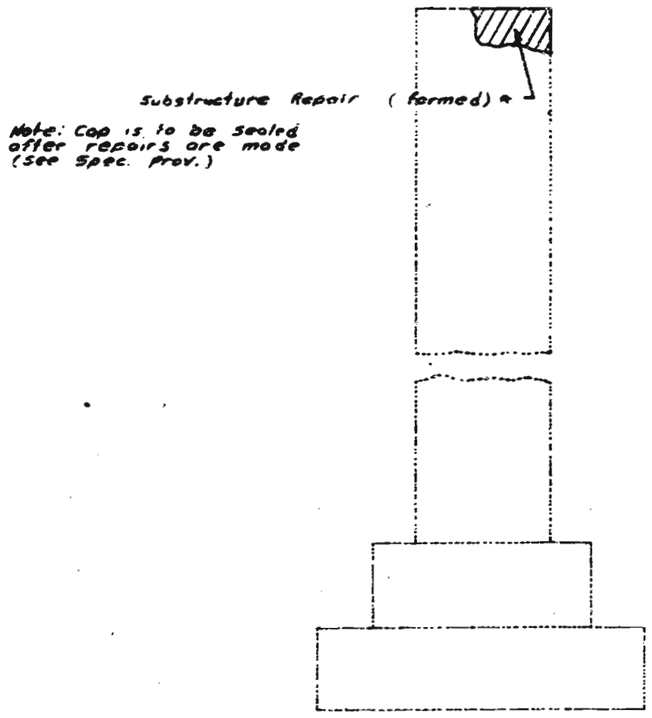
ST. CHARLES - ST. LOUIS COUNTY

J-1000R

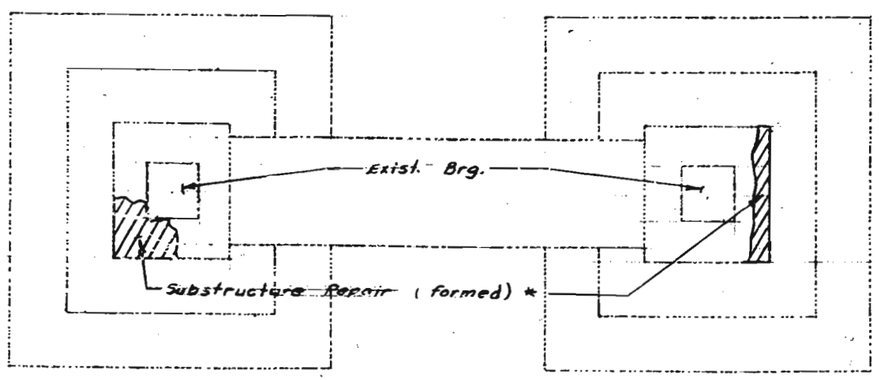
STATE	PROJ. NO.	SHEET NO.
MO.		10



PART ELEVATION OF EXIST. PIER



PART SECTION A-A



PART PLAN OF EXIST. PIER

Note:
Cross hatched areas indicate substructure areas to be Repaired. (See Spec. Provisions)
* Remove & Replace Conc. 2" (Min.) behind Exist. Reinforcing steel or to sound conc. as determined by the Engineer.

DETAIL SHOWING SUBSTRUCTURE REPAIR AREAS AT PIER NO. 8

4572 451

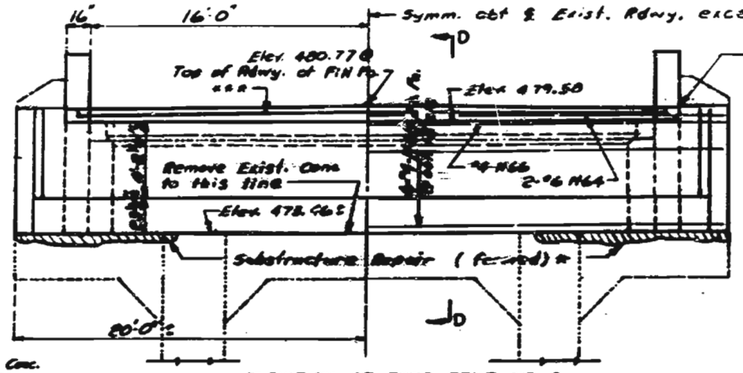
DETAILED JUNE 1989
CHECKED JUNE 1989

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

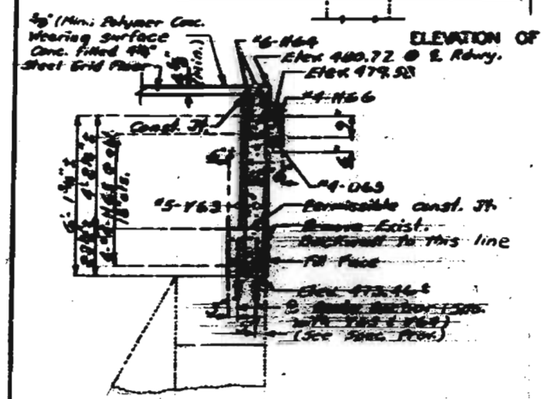
ST. CHARLES - ST. LOUIS COUNTY

J-1000R

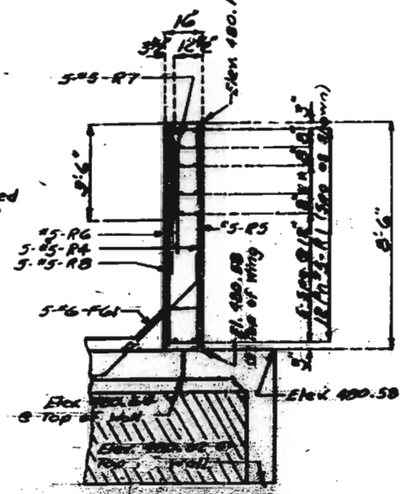
STATE	PROJ. NO	SHEET NO.
MO.		20



ELEVATION OF EXIST. BENT NO. 9

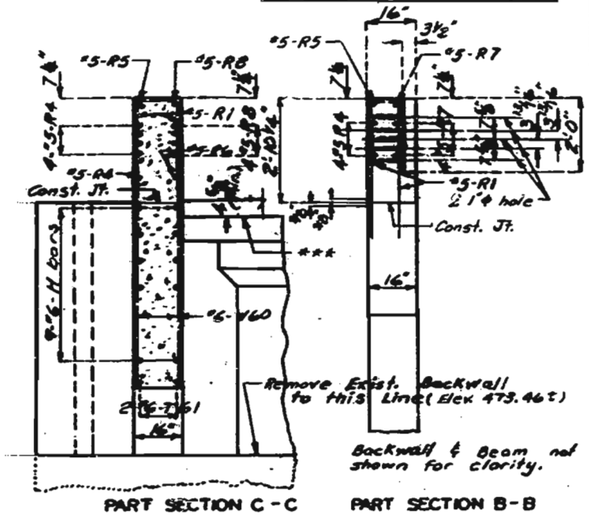


SECTION D-D



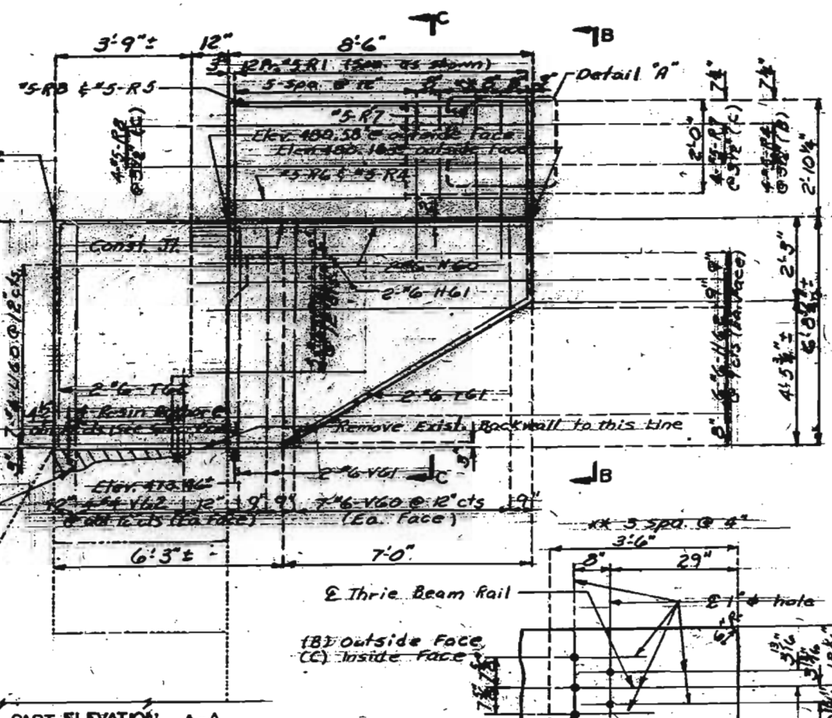
PART PLAN SHOWING WING

Note: Cap is to be sealed after repairs are made (See Spec. Prov.)

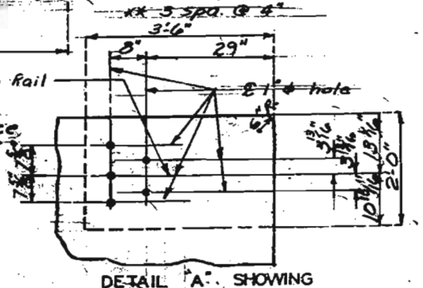


PART SECTION C-C

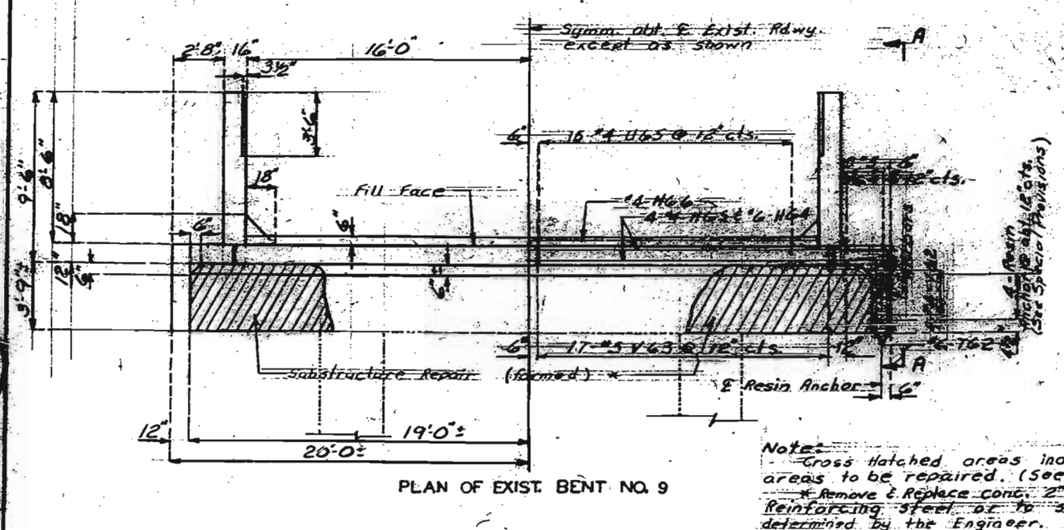
PART SECTION B-B



PART ELEVATION A-A



DETAIL "A" SHOWING GUARD RAIL ATTACHMENT



PLAN OF EXIST. BENT NO. 9

Note:-
Cross Hatched areas indicates substructure areas to be repaired. (See spec. Provisions)
* Remove & Replace conc. 2" (Min.) behind Exist. Reinforcing steel or to solid conc. as determined by the Engineer.
*** Top of backwall to be built parallel to crown of Rdwy.
For Detail of Rdwy. Crown, see sheet No. 16.
For Detail of Grounding Conductors, see sheet No. 25.

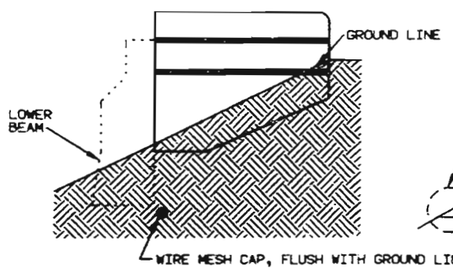
DETAILS OF BENT NO. 9

459 452

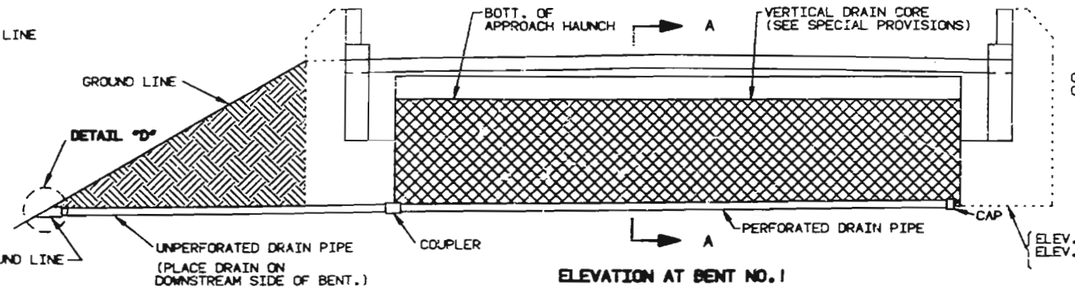
DETAILED Sept. 1989
CHECKED Sept. 1989

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

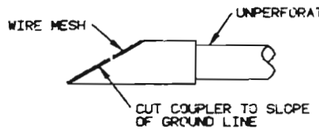
STATE	PROJ. NO.	SHEET NO.
MO.		21



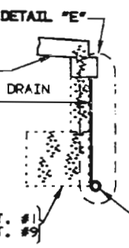
ELEVATION OF WING



ELEVATION AT BENT NO.1
(NON-INTEGRAL BENT)
BENT NO.9 IS SIMILAR



DETAIL 'D"



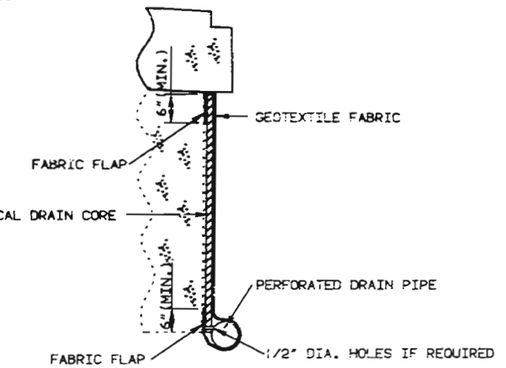
SECTION A-A

GENERAL NOTES:

DRAIN PIPE MAY BE EITHER 6" DIAMETER CORRUGATED METALLIC-COATED STEEL PIPE UNDERDRAIN, 4" DIAMETER CORRUGATED POLY VINYL CHLORIDE (PVC) DRAIN PIPE, OR 4" DIAMETER CORRUGATED POLYETHYLENE (PE) DRAIN PIPE.

PLACE DRAIN PIPE AT FILL FACE OF END BENT AND SLOPE TO GROUND LINE ON DOWNSTREAM SIDE OF BENT (SEE ELEVATION AT BENT).

PERFORATED PIPE SHALL BE PLACED AT FILL FACE SIDE AT THE BOTTOM OF BENT AND PLAIN PIPE SHALL BE USED WHERE THE VERTICAL DRAIN ENDS TO THE EXIT AT GROUND LINE.



DETAIL "E"

VERTICAL DRAIN AT BENTS NO.1 AND 9

459 453

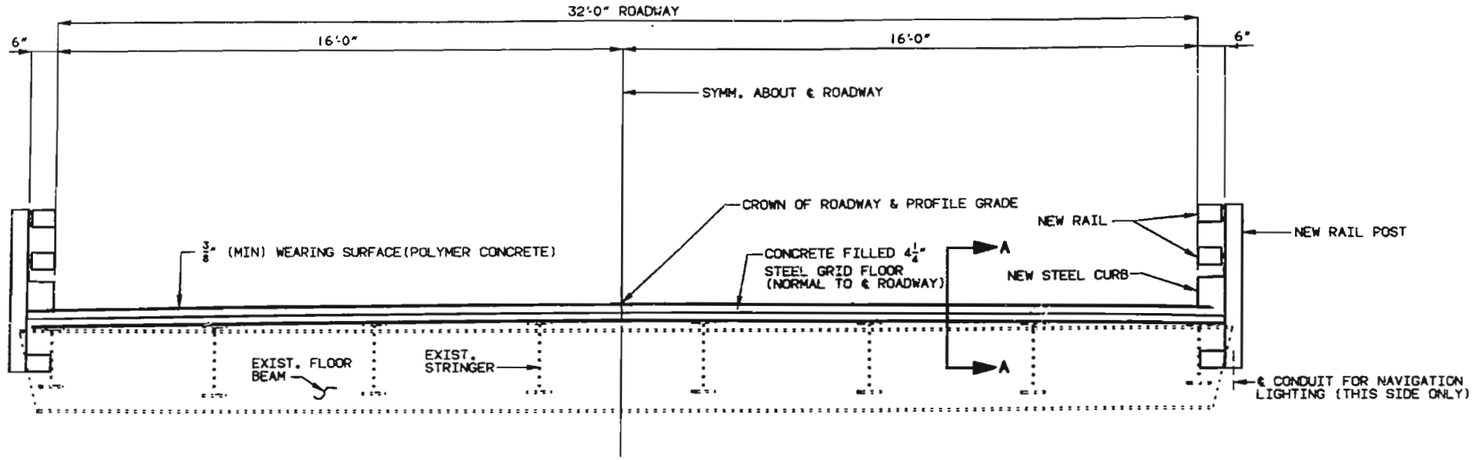
DETAILED JUNE 1989
CHECKED JUNE 1989

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

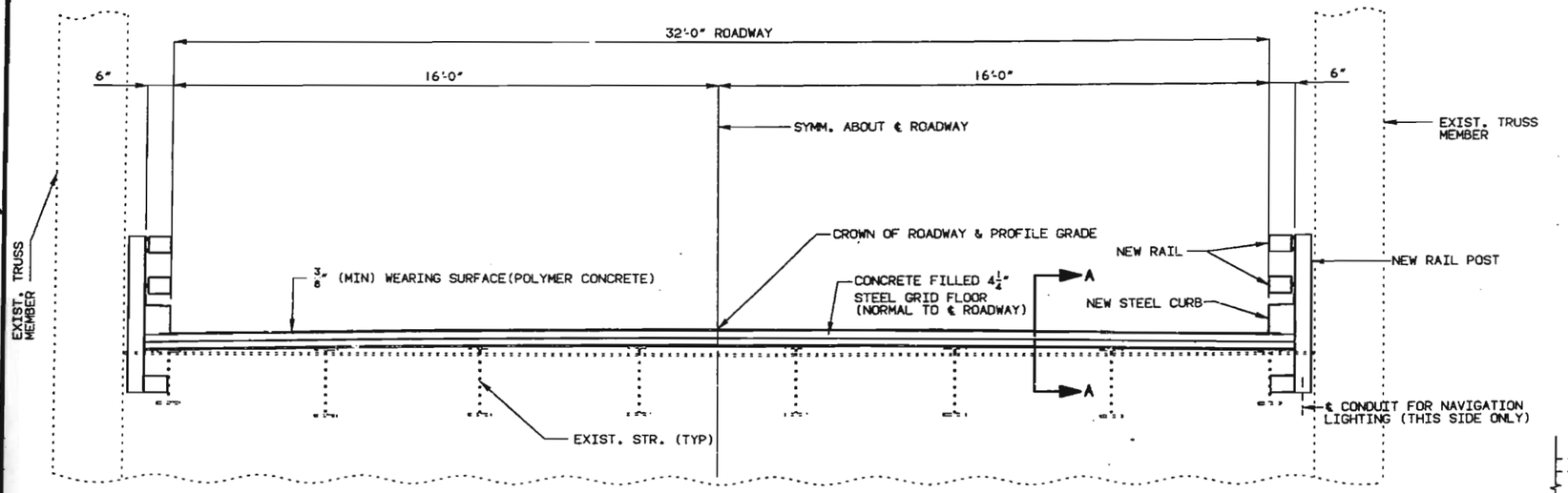
ST.CHARLES-ST. LOUIS COUNTY

J-1000R

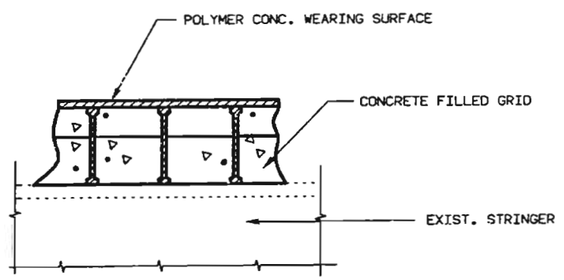
STATE	PROJ. NO.	SHEET NO.
MO.		22



TYPICAL SECTION THRU DECK TRUSS
SPAN (1-2),(2-3),(7-8) &(8-9)



TYPICAL SECTION THRU TRUSS
SPAN (3-4),(4-5),(5-6) & (6-7)



SECTION A-A

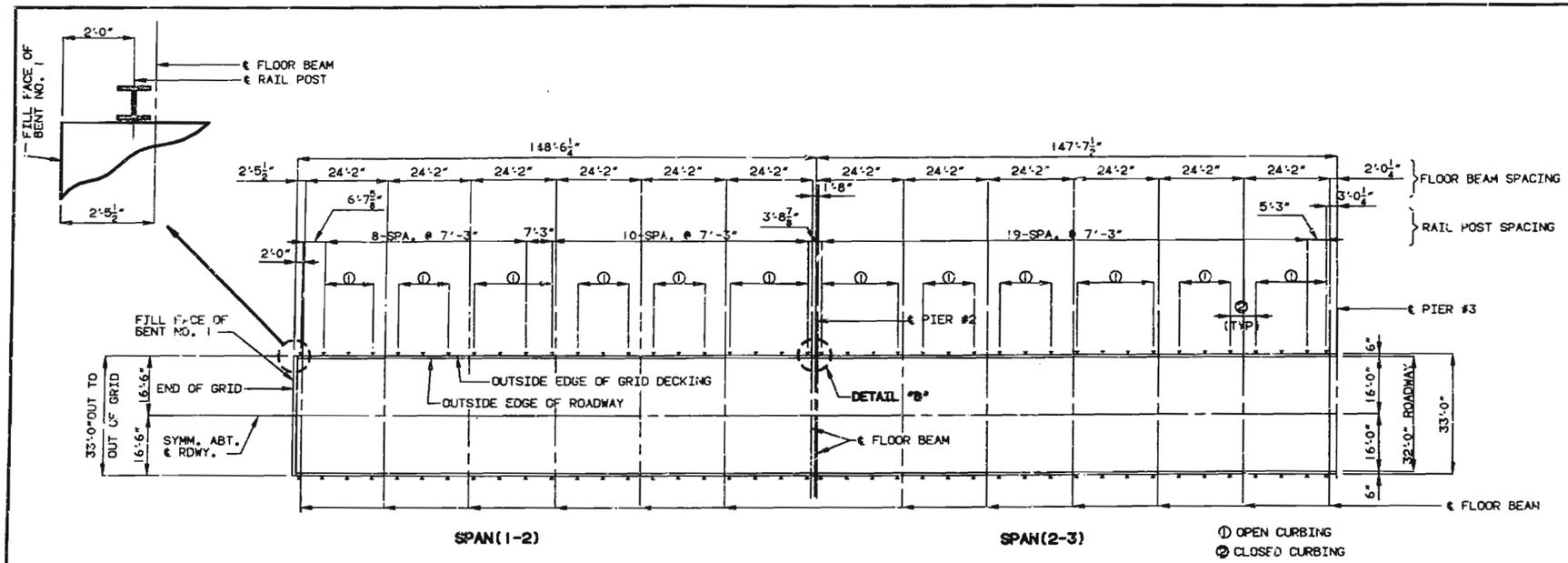
NOTE: SEE SHEET NO.16 FOR ATTACHMENT OF GRID TO STRINGER.

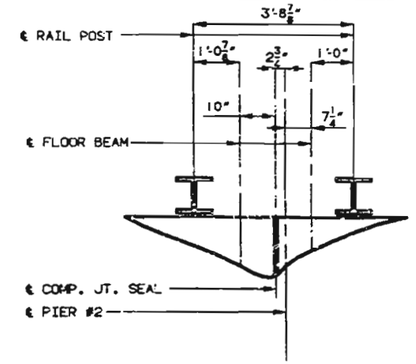
NOTE: SEE SPECIAL PROVISIONS FOR GRID SECTION MODULUS REQUIREMENTS.

DETAILED SEPT 1989
CHECKED SEPT 1989

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

STATE	PROJ. NO.	SHEET NO.
MO.		23



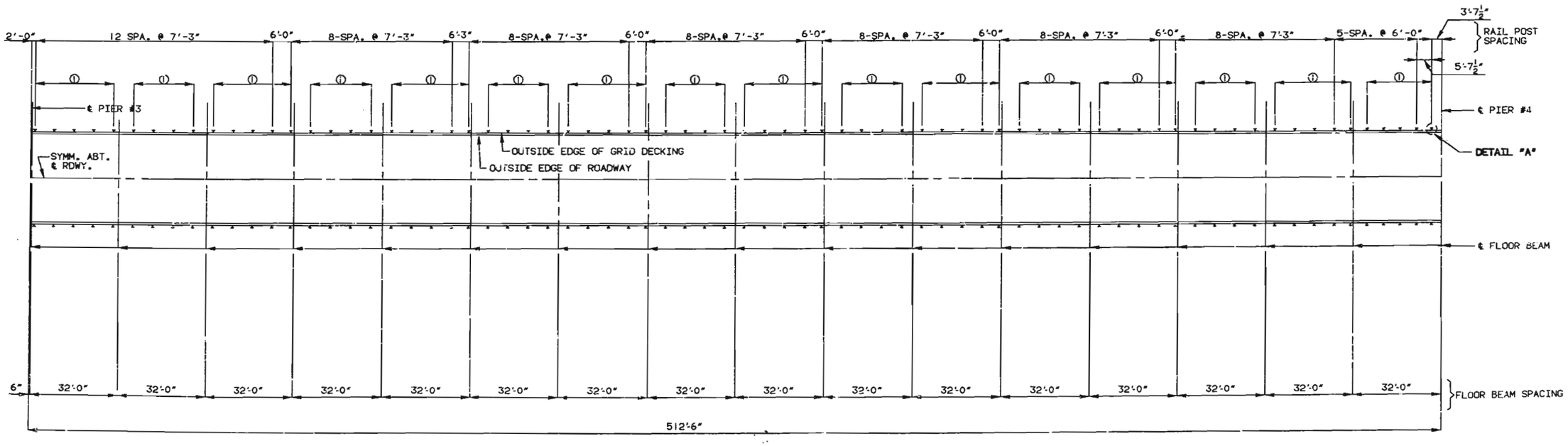


DETAIL "B"

NOTE: FOR DETAIL "A" SEE SHEET NO.24.
FOR DETAILS OF OPEN CURB SEE SHEET NO. 24.
FOR DETAILS OF CLOSED CURB SEE SHEET NO. 23.
FOR DETAILS OF GRID SPLICE SEE SHEET NO. 16.

NOTE: DIMENSIONS SHOWN ARE HORIZ. AND TAKEN FROM ORIGINAL PLANS.

NOTE: FOR GRID DETAILS AT EXP. DEVICE AT PIER NO. 2 SEE SHEET NO.19.



SPAN(3-4)

PART PLAN OF GRID DECK

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

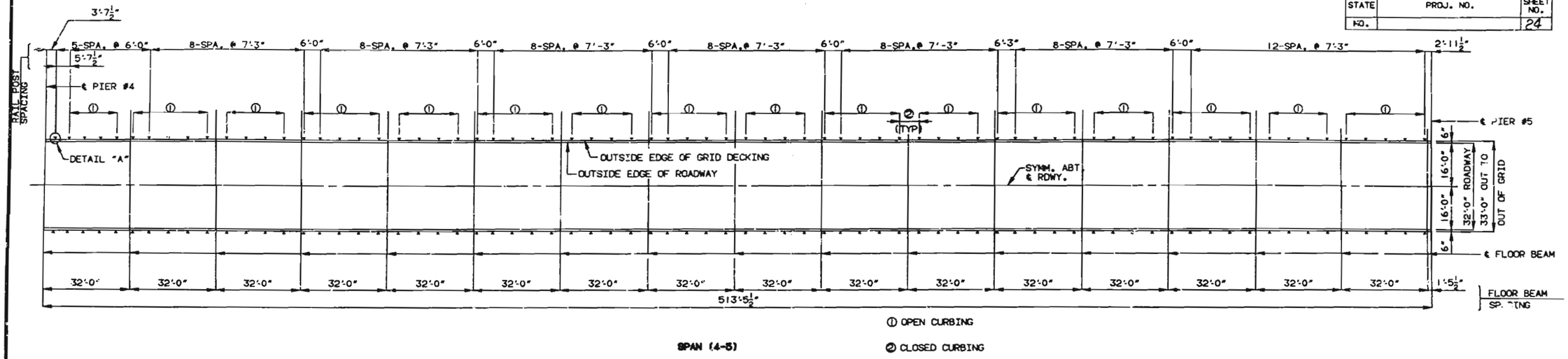
SEE FINAL PLANS

SHEET NO. 13 OF 27. ST.CHARLES-ST. LOUIS COUNTY J-1000R

DETAILED SEPT 1989
CHECKED SEPT 1989

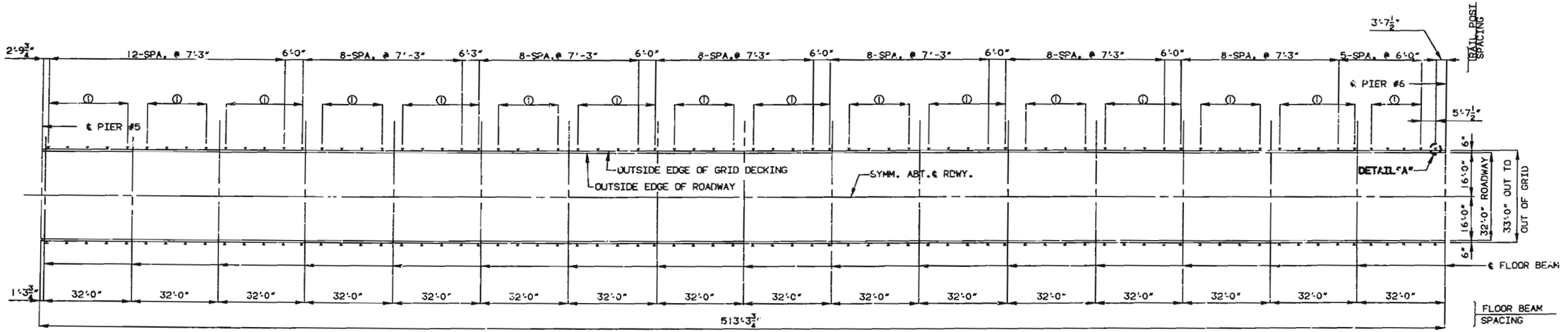
455

STATE	PROJ. NO.	SHEET NO.
MO.		24



SPAN (4-5)

NOTE: DIMENSIONS SHOWN ARE HORIZ. AND TAKEN FROM ORIGINAL PLANS.



SPAN (5-6)

NOTE: FOR DETAIL "A" SEE SHEET NO.24.
FOR DETAILS OF GRID DECK SEE SHEET NO. 16.
FOR DETAILS OF CLOSED CURB SEE SHEET NO. 23.
FOR DETAILS OF OPEN CURB SEE SHEET NO. 24.

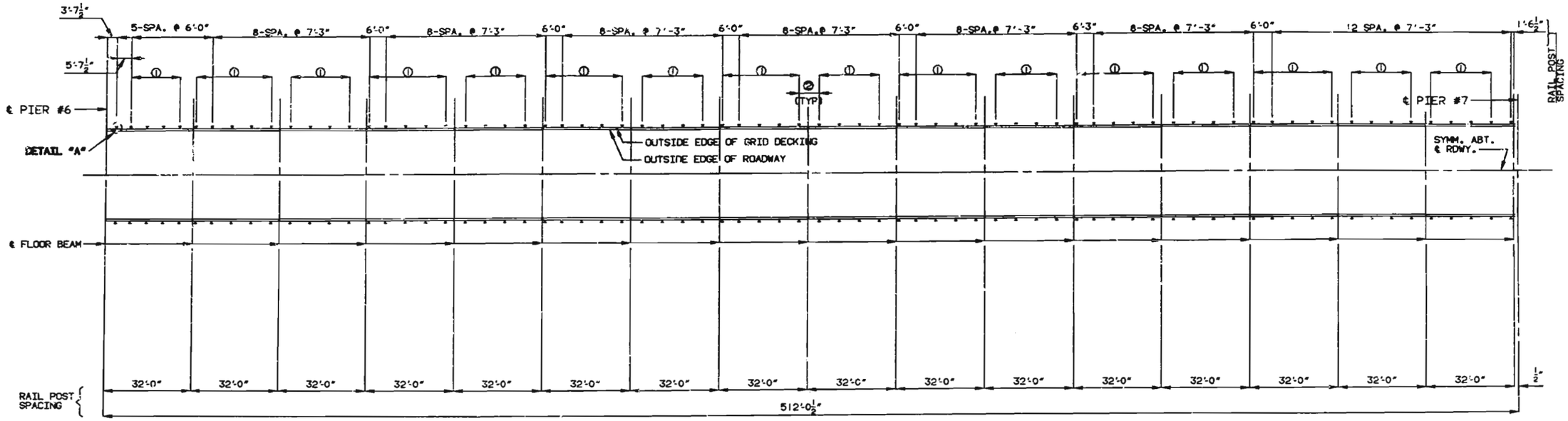
PART PLAN OF GRID DECK

DETAILED SEPT 1989
CHECKED SEPT 1989

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

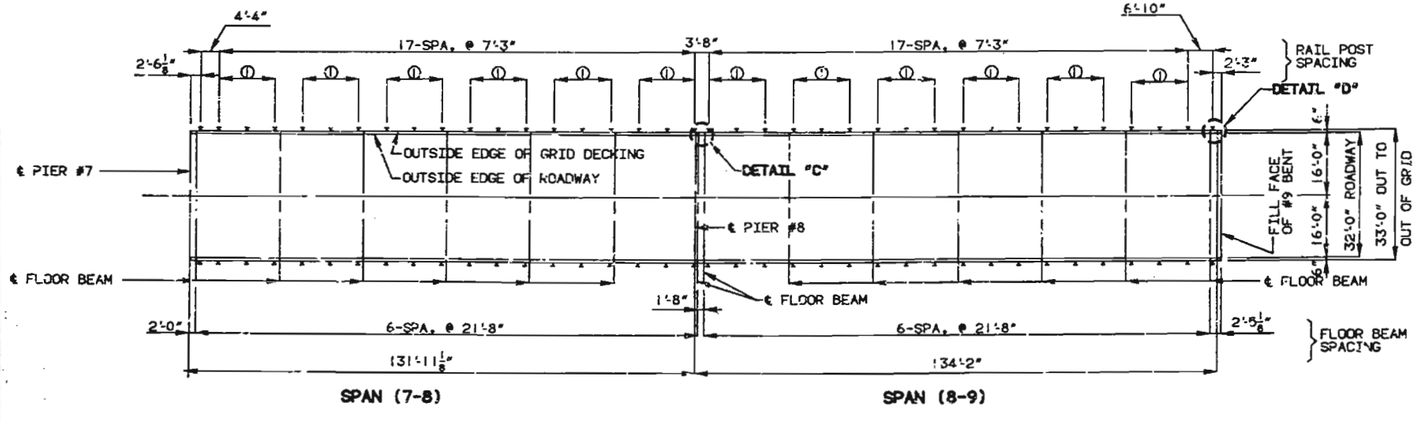
462-456

STATE	PROJ. NO.	SHEET NO.
MO.		25

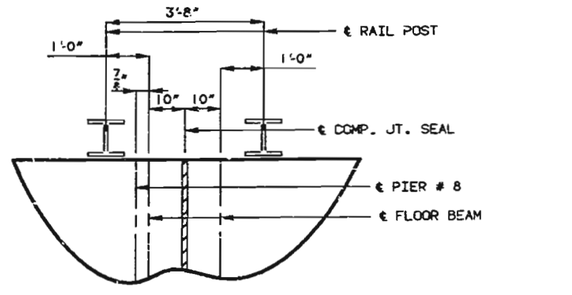


SPAN (6-7)

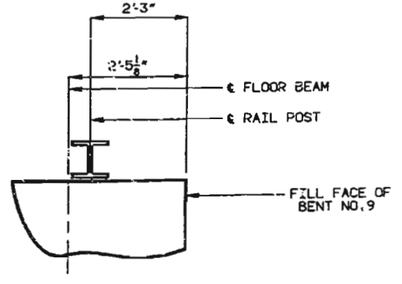
NOTE: DIMENSIONS SHOWN ARE HORIZ. AND TAKEN FROM ORIGINAL PLANS.



SPAN (7-8) SPAN (8-9)



DETAIL "C"



DETAIL "D"

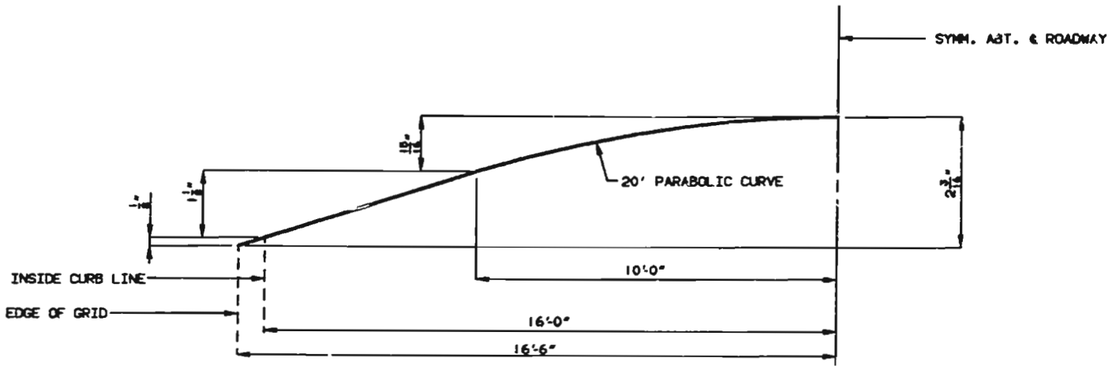
NOTE: FOR DETAIL "A" SEE SHEET NO.24.
FOR DETAILS OF OPEN CURB SEE SHEET NO. 24.
FOR DETAILS OF GRID SPLICE SEE SHEET NO. 16.
FOR DETAILS OF CLOSED CURB SEE SHEET NO. 23.

PART PLAN OF GRID DECK

DETAILED SEPT 1989
CHECKED SEPT 1989

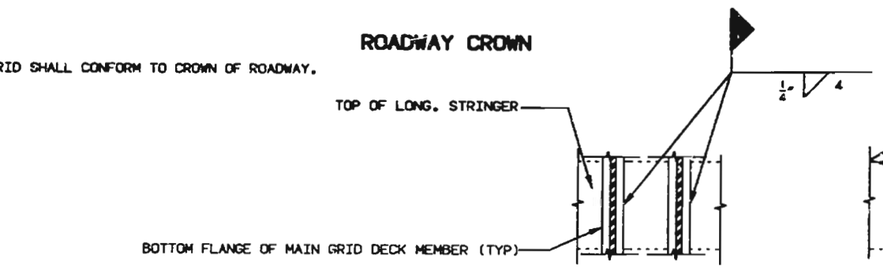
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

STATE	PROJ. NO.	SHEET NO.
MO.		26

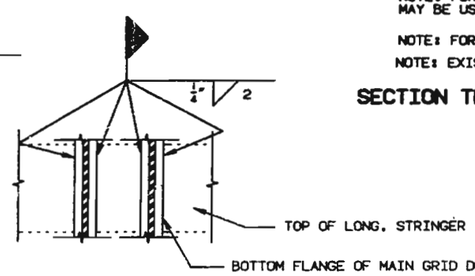


ROADWAY CROWN

NOTE: GRID SHALL CONFORM TO CROWN OF ROADWAY.

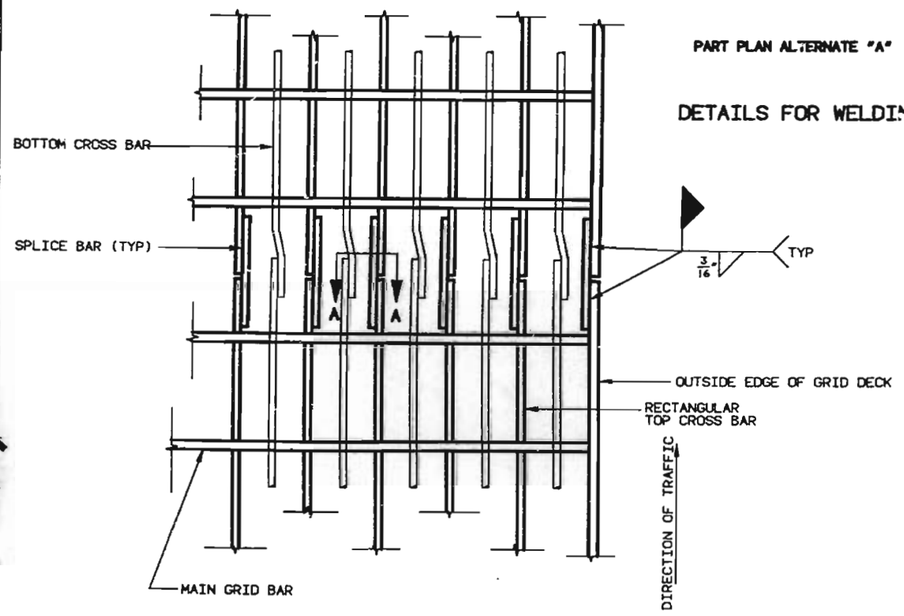


PART PLAN ALTERNATE "A"

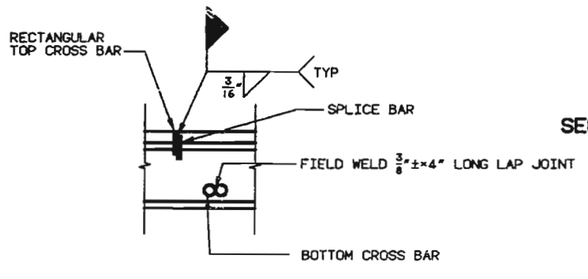


PART PLAN ALTERNATE "B"

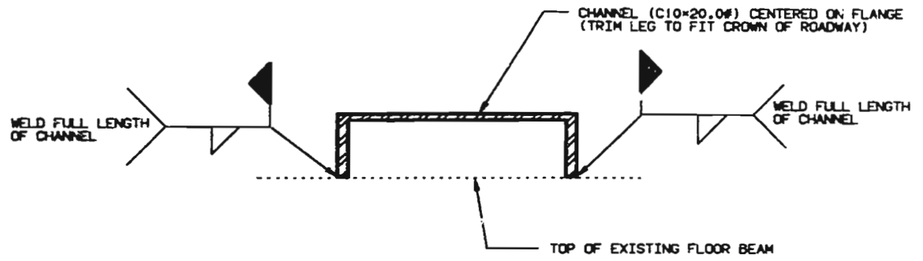
DETAILS FOR WELDING GRID DECK TO SUPPORT MEMBERS



TYPICAL PART PLAN OF GRID SHOWING FIELD SPLICE



SECTION A-A



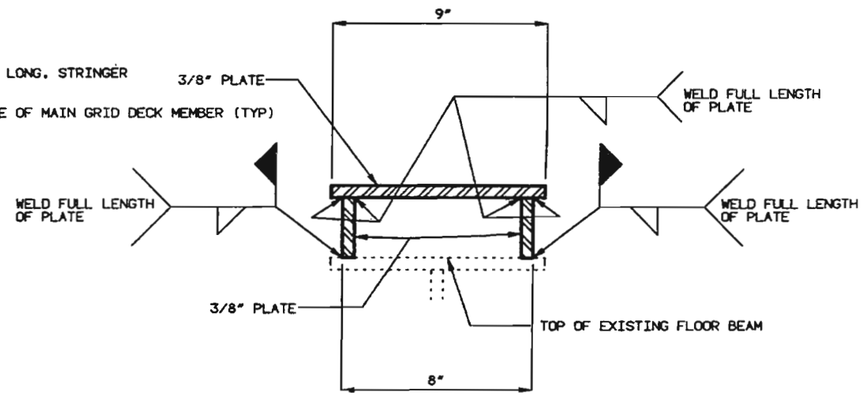
NOTE: LEGS OF CHANNELS TO BE USED AS SHIM SHALL BE TRIMMED TO CONFORM TO CROWN OF ROADWAY.

NOTE: FOR SHIMS UP TO 3/8"THICK A 10" WIDE PLATE(LENGTH AND THICKNESS AS REQUIRED) MAY BE USED IN LIEU OF C10×20.0#. SHIMS SHALL BE CENTERED ON FLANGES.

NOTE: FOR DETAILS OF SHIMS NOT SHOWN SEE SHEET NO.20.

NOTE: EXISTING SHIMS SHALL BE REMOVED WHEN EXISTING GRID IS REMOVED.

SECTION THRU SHIMS SPANS (3-4),(4-5),(5-6)&(6-7)



NOTE: 3/8" LEGS OF SHIM SHALL BE TRIMMED TO CONFORM TO CROWN OF ROADWAY.

NOTE: FOR SHIMS UP TO 3/8"THICK A 9" WIDE PLATE(LENGTH AND THICKNESS AS REQUIRED) MAY BE USED IN LIEU OF SHIM TYPE SHOWN. SHIMS SHALL PE CENTERED ON FLANGES.

NOTE: EXISTING SHIMS SHALL BE REMOVED WHEN EXISTING GRID IS REMOVED.

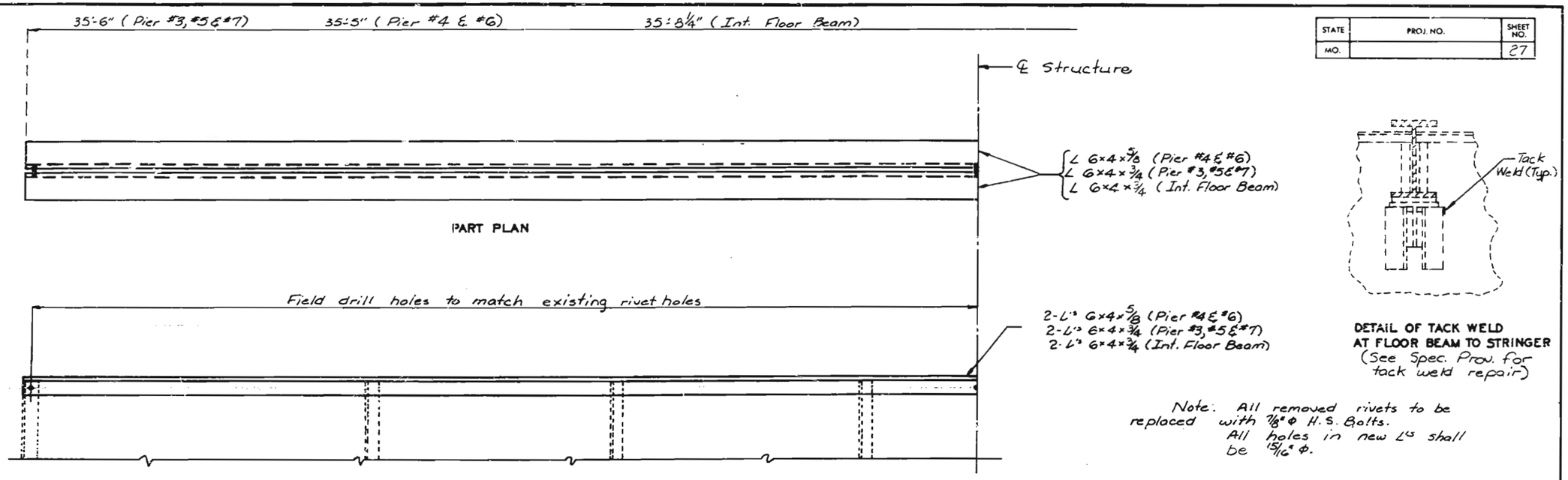
SECTION THRU SHIMS SPANS (1-2),(2-3),(7-8)&(8-9)

464 458

DETAILED SEPT 1989
CHECKED SEPT 1989

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

STATE	PROJ. NO.	SHEET NO.
MO.		27

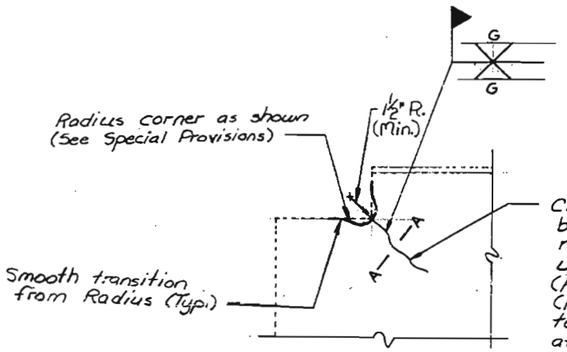


PART ELEV. OF FLOOR BEAM SHOWING TOP ANGLE REPLACEMENT IN SPANS (3-4), (4-5), (5-6) & (6-7) (SEE SPECIAL PROVISIONS)

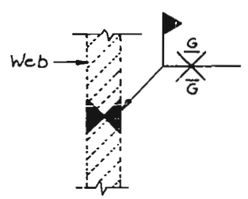
Note: See Special Provisions for Top Flange of Floor Beam Removal requirements.

DETAIL OF TACK WELD AT FLOOR BEAM TO STRINGER (See Spec. Prov. for tack weld repair)

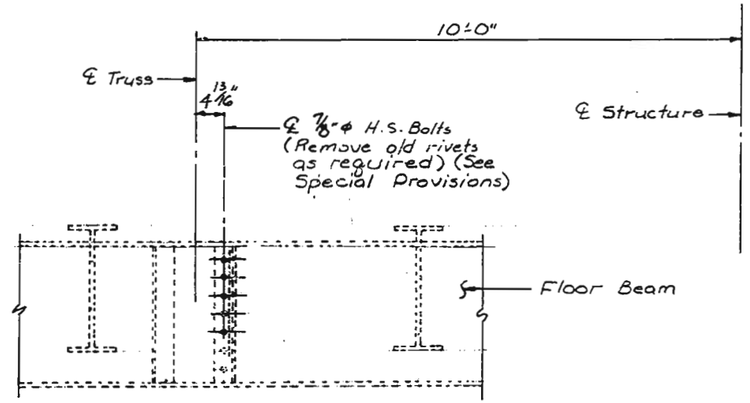
Note: All removed rivets to be replaced with 7/8" ϕ H.S. Bolts. All holes in new L's shall be 15/16" ϕ.



TYP. DETAIL AT END OF STRINGER IN SPANS (1-2), (2-3), (7-8) & (8-9)



SECTION A-A



PART ELEV. OF FLOOR BEAM AT SECOND PANEL SOUTH OF PIER NO. 8 WEST SIDE (LOOKING FROM BT. # 9)

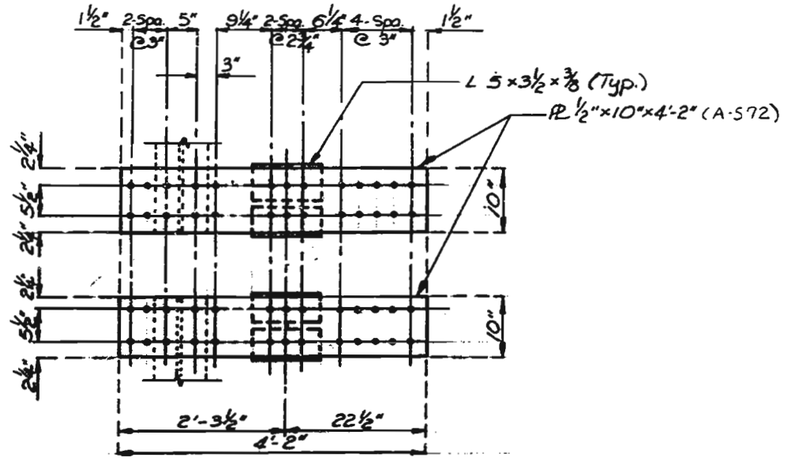
DETAILS OF REPAIRS

465-459

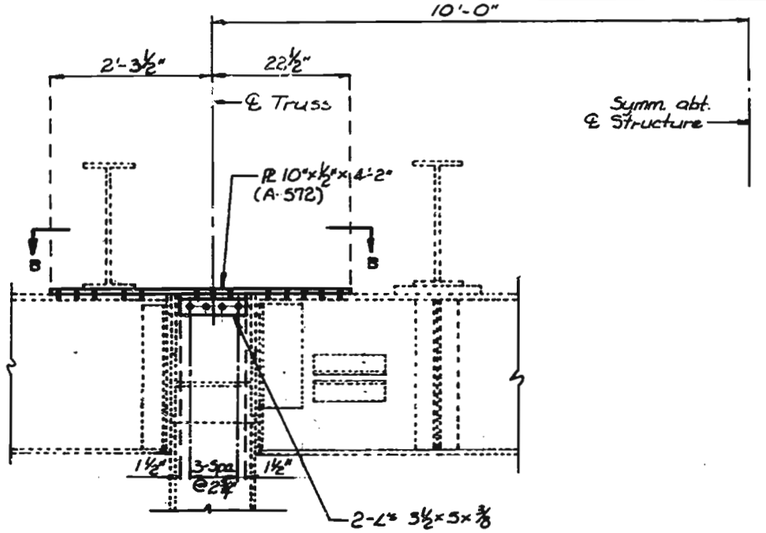
DETAILED May 1989
CHECKED July 1989

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

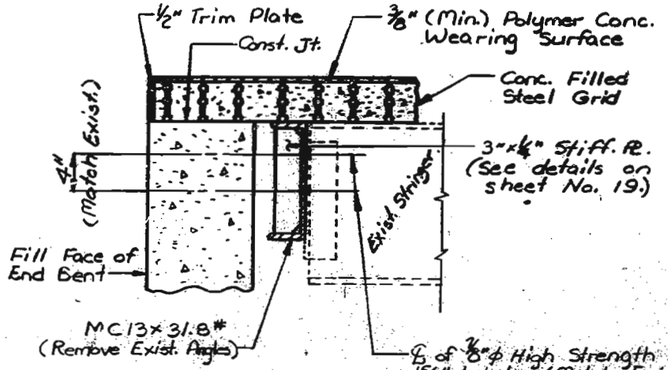
STATE	PROJ. NO.	SHEET NO.
MO.		28



PART SECTION B-B

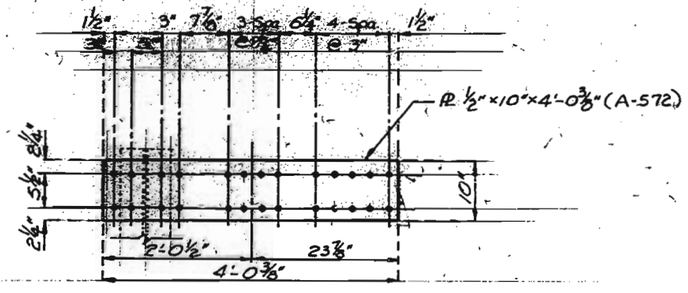


TYP. PART ELEV. OF FLOOR BEAMS AT PIER NO. 2 & 8 SHOWING PL. AND ANGLE REPLACEMENT (SEE SPECIAL PROVISION)

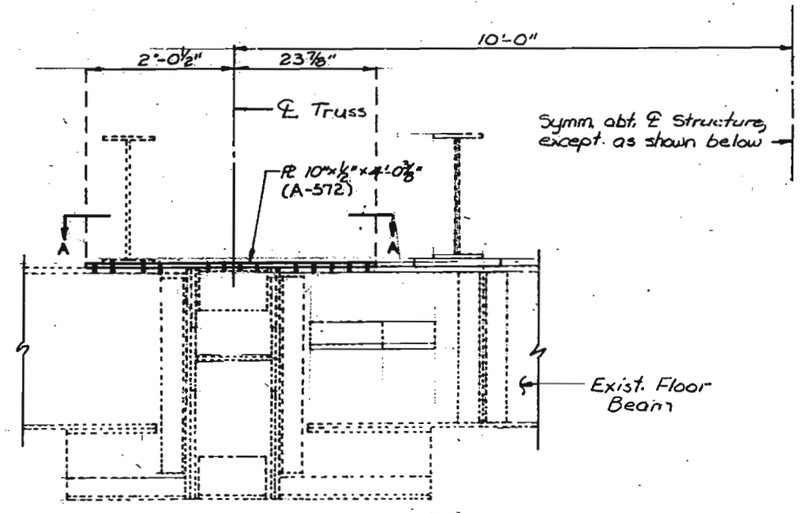


PART SECTION AT END BENT NO. 1 & 9

Note: All removed rivets to be replaced with ⅞" ϕ H. S. Bolts.
All holes in new plates and angles shall be 15/16" ϕ.



PART SECTION A-A



TYP. PART ELEV. OF FLOOR BEAM AT END BENT NO. 1, PIER NO. 3 SPAN (2-3), PIER NO. 7 SPAN (7-8) & END BENT NO. 9 (EAST SIDE ONLY) SHOWING PL. REPLACEMENT (SEE SPECIAL PROVISIONS)

DETAILS OF FLOOR BEAM REPAIR

DETAILED May 1989
CHECKED June 1989

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

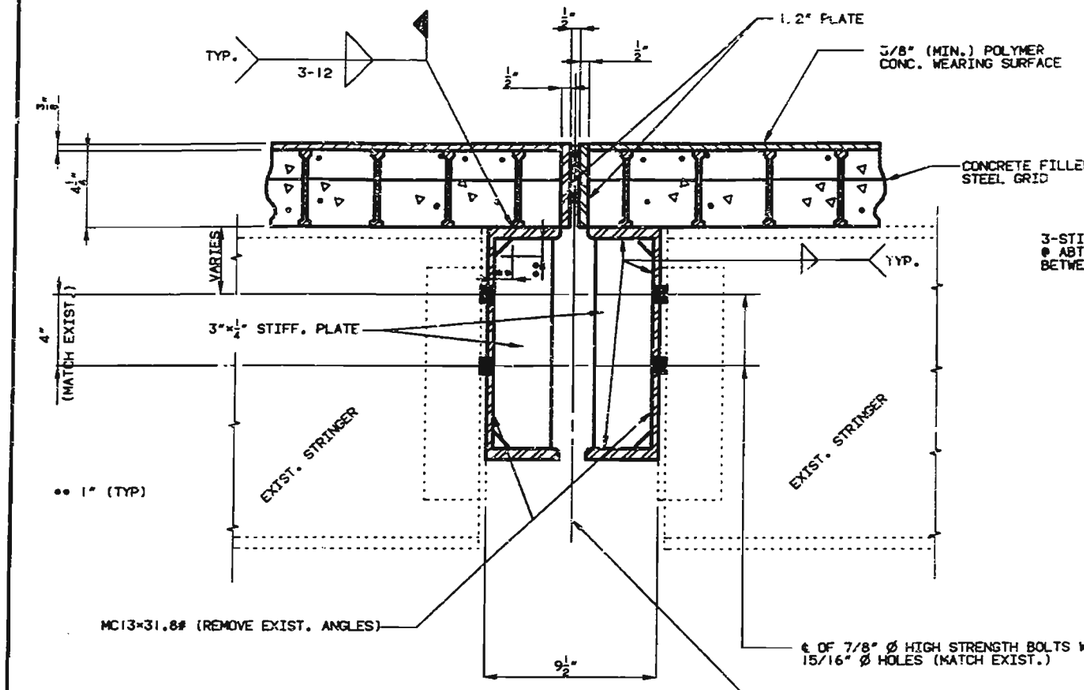
SEE FINAL PLANS
Sheet No. 18 of 27

ST. CHARLES – ST. LOUIS COUNTY

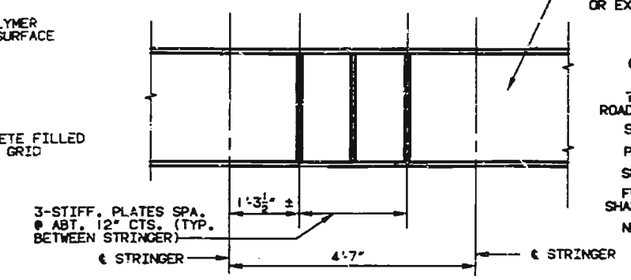
J-1000R

46 460

STATE	PROJ. NO.	SHEET NO.
MO.		25



PART SECTION B-B



DETAIL OF STIFF. PLATE SPACING

GENERAL NOTES

THE EXPANSION DEVICE SHALL BE BENT TO CONFORM TO CROWN OF ROADWAY.

STRUCTURAL STEEL FOR THE ARMORED JOINT SHALL BE GRADE A36.

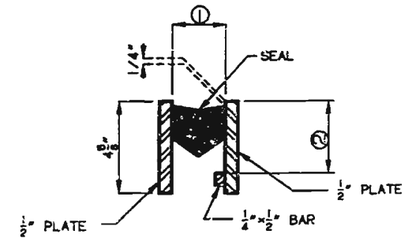
PLAN DIMENSIONS ARE BASED ON INSTALLATION AT 60°F.

SEE SPECIAL PROVISIONS FOR THE REQUIREMENTS OF COMPRESSION JOINT SEAL.

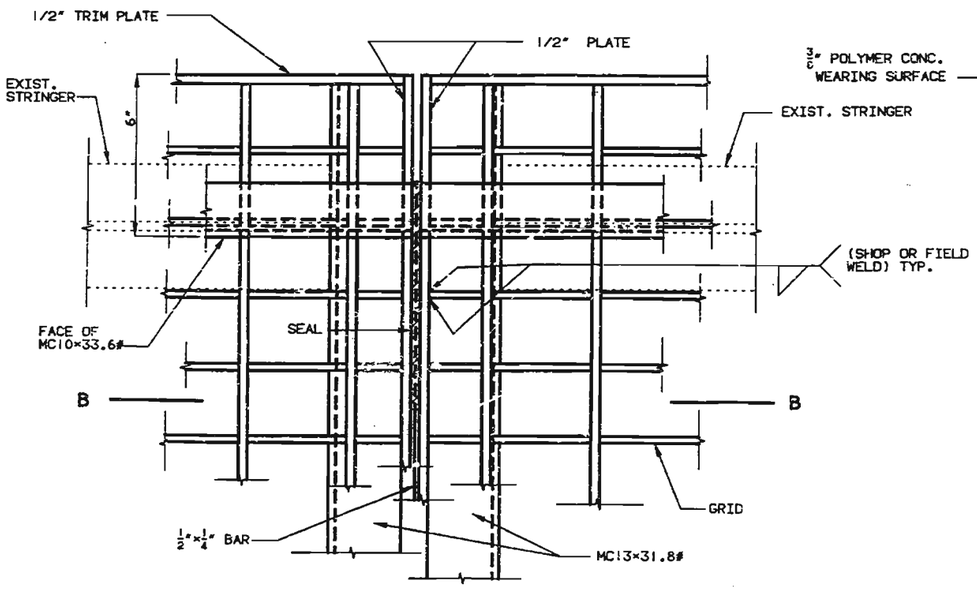
FURNISHING, PAINTING AND INSTALLING THE STRUCTURAL STEEL FOR ARMORED JOINT SHALL BE INCLUDED IN CONTRACT UNIT PRICE FOR STEEL GRID.

NEOPRENE EXTRUSIONS SHALL MEET A.S.T.M. D3542-83.

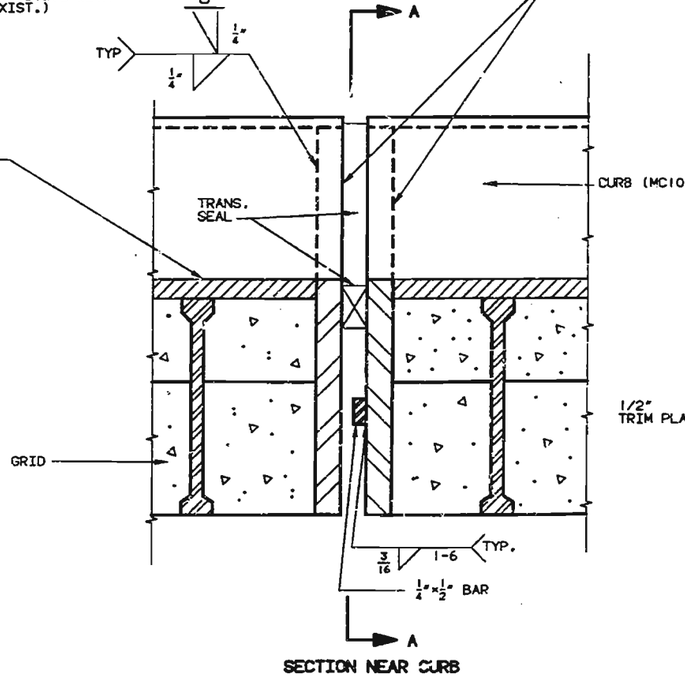
TABLE OF TRANSVERSE BRIDGE SEAL DIMENSIONS			
SEAL WIDTH	①	②	REQUIRED MOVEMENT RANGE
1.0"	1/2"	SEAL DEPTH+3/4"	0.375"



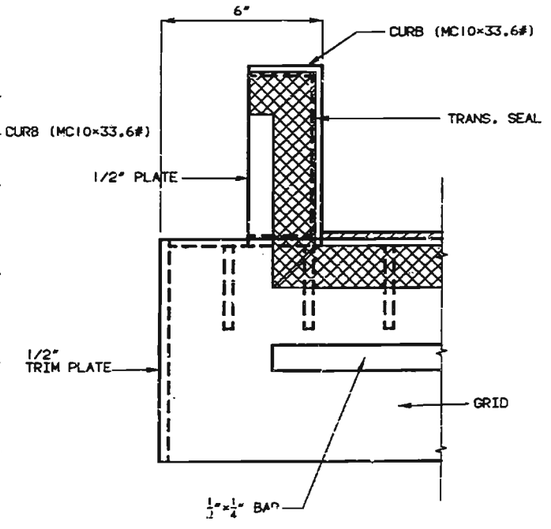
PART CROSS SECTION THRU EXPANSION JOINT



PART PLAN



SECTION NEAR CURB



SECTION A-A

DETAILS OF PREFORMED COMPRESSION JOINT SEAL AT BENT NO. 2 & 8

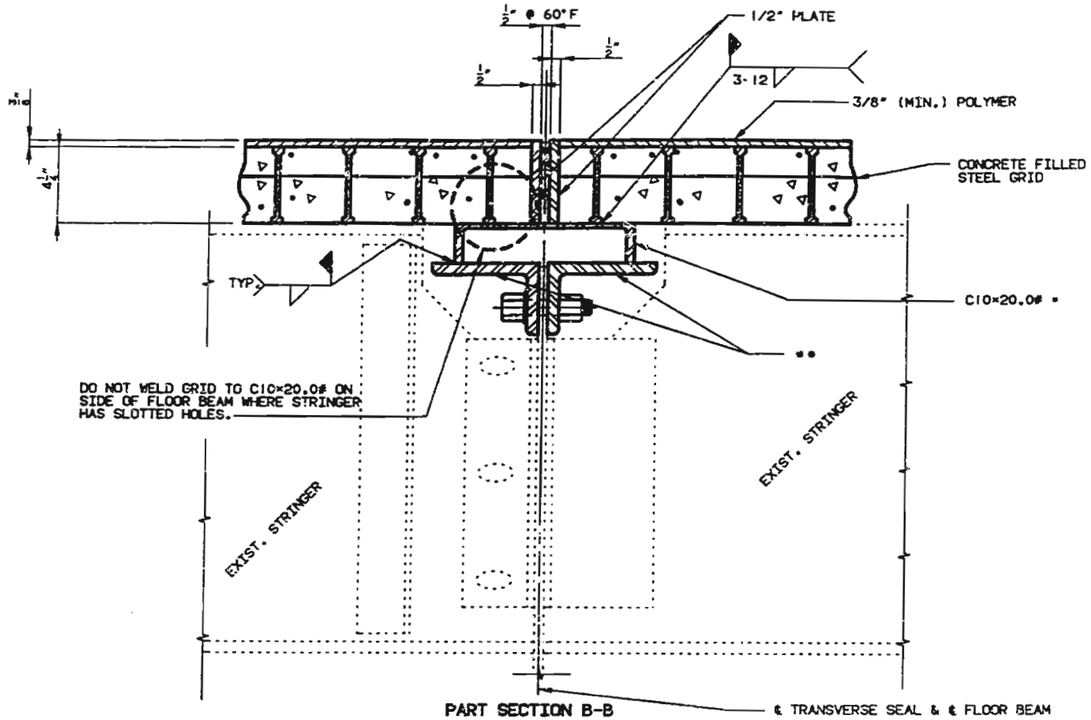
DETAILED SEPT 1989
CHECKED SEPT 1989

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

ST. CHARLES-ST. LOUIS COUNTY J-1000R

461

STATE	PROJ. NO.	SHEET NO.
MO.		30



PART SECTION B-B

* NOTE: TRIM C10×20.0# TO CONFORM GRID TO CROWN OF ROADWAY.

** FOR SIZE OF ANGLES & BOLT SPACING SEE SHEET NO. 17, SEE SPECIAL PROVISIONS FOR REMOVAL OF EXISTING TOP FLANGE.

GENERAL NOTES

THE EXPANSION DEVICE SHALL BE BENT TO CONFORM TO CROWN OF ROADWAY.

STRUCTURAL STEEL FOR THE ARMORED JOINT SHALL BE GRADE A36.

PLAN DIMENSIONS ARE BASED ON INSTALLATION AT 60°F.

DIMENSION ① SHALL BE INCREASED 1/32" FOR EACH 10° FALL IN TEMPERATURE AND DECEASED 1/32" FOR EACH 10° RISE IN TEMPERATURE AT INSTALLATION.

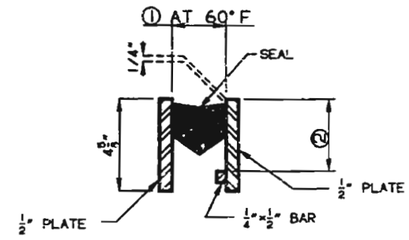
SEE SPECIAL PROVISIONS FOR THE REQUIREMENTS OF COMPRESSION JOINT SEAL.

FURNISHING, PAINTING AND INSTALLING THE STRUCTURAL STEEL FOR ARMORED JOINT SHALL BE INCLUDED IN CONTRACT UNIT PRICE FOR STEEL GRID.

NEOPRENE EXTRUSIONS SHALL MEET A.S.T.M. D3542-83.

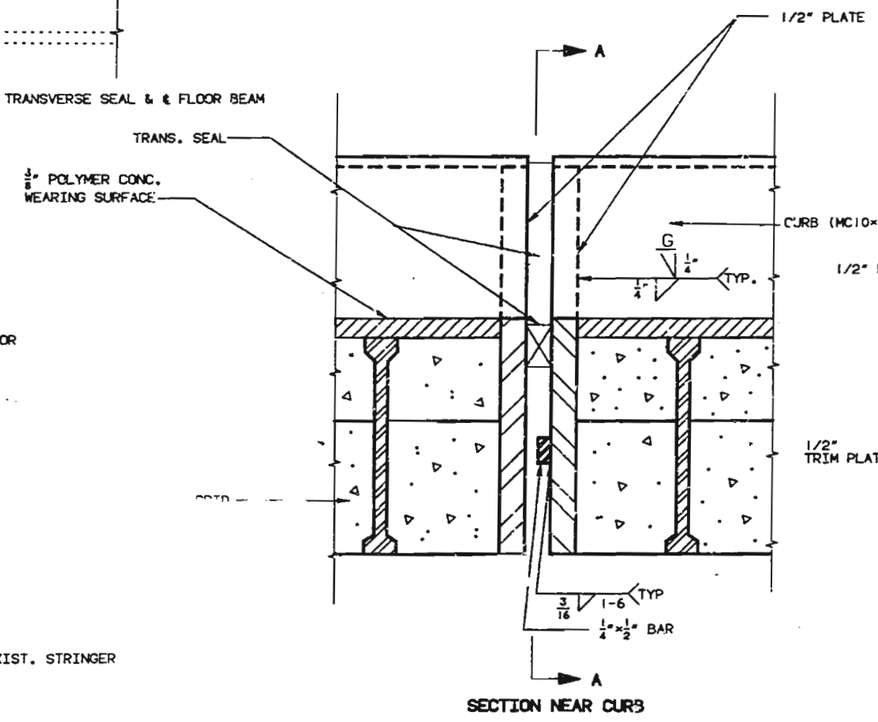
TABLE OF TRANSVERSE BRIDGE SEAL DIMENSIONS

SEAL WIDTH	①	②	REQUIRED MOVEMENT RANGE
1.0"	1/2"	SEAL DEPTH+3/4"	0.375"

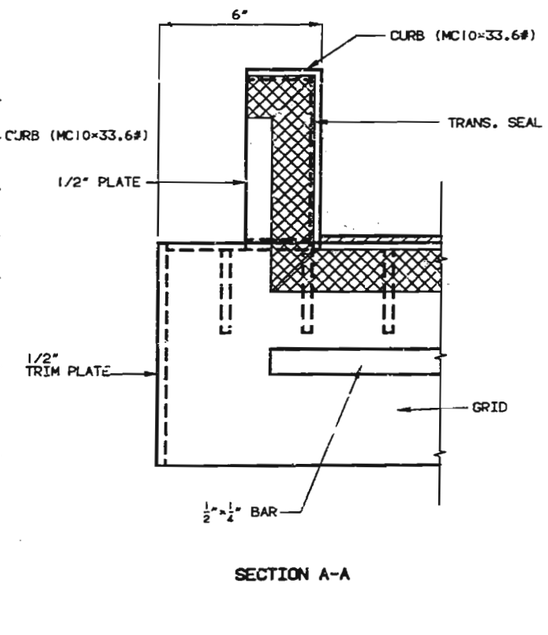


PART CROSS SECTION THRU EXPANSION JOINT

PART PLAN



SECTION NEAR CURB



SECTION A-A

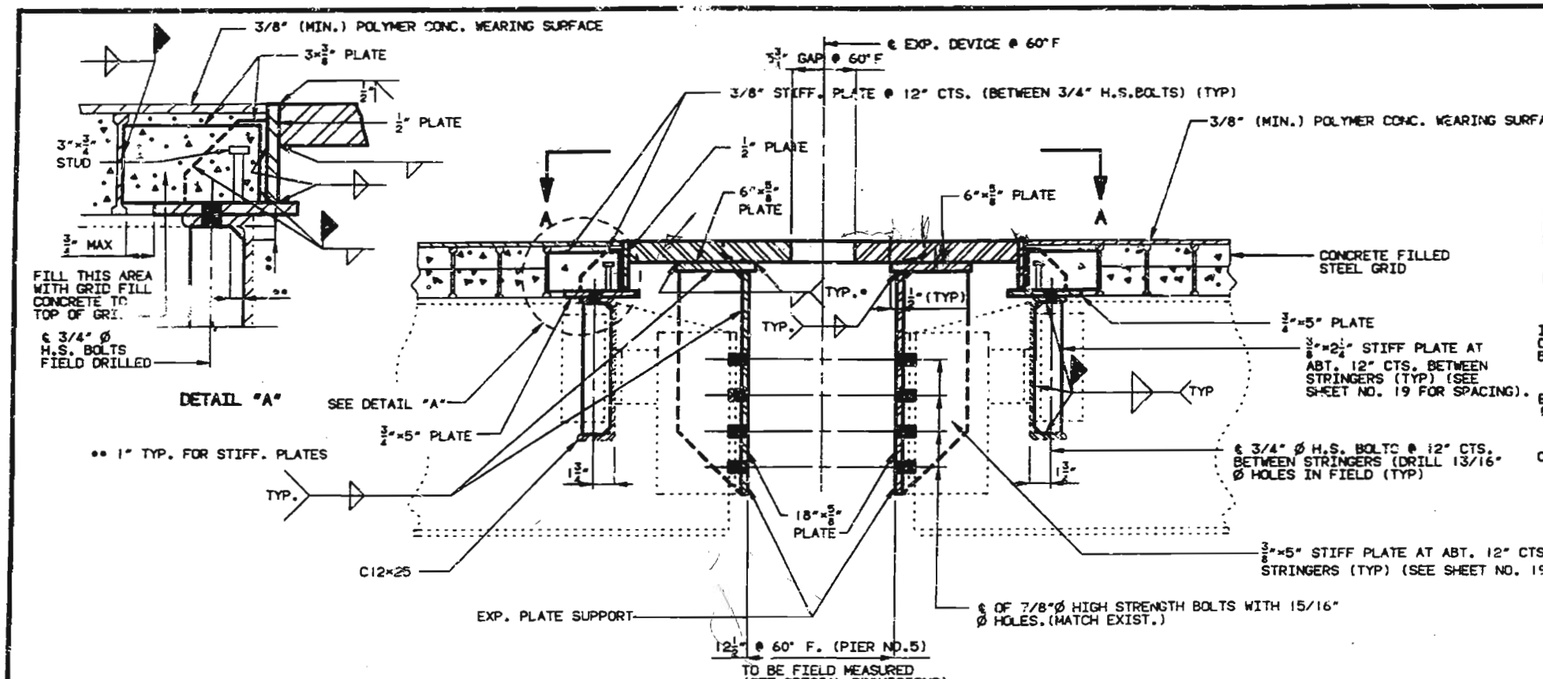
DETAILS OF PREFORMED COMPRESSION JOINT SEAL AT FLOOR BEAM OF THRU TRUSS

DETAILED SEPT 1989
CHECKED SEPT 1989

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

4462

STATE	PROJ. NO.	SHEET NO.
MO.		31



SECTION THRU EXP. AT PIER NO.5

NOTE: FINGER PLATE SHALL BE CUT WITH A MACHINE GUIDED GAS TORCH FROM ONE PLATE 27-5/8"×1-3/4". THE SURFACE OF CUT SHALL BE PERPENDICULAR TO THE SURFACE OF PLATE. THE CUT SHALL NOT EXCEED 1/8" IN WIDTH. THE CENTERLINE OF CUT SHALL NOT DEVIATE MORE THAN 1/16" FROM THE POSTION OF CENTERLINE OF CUT SHOWN. SPLICES ARE PERMITTED FOR SECTIONS OVER 50 FEET IN LENGTH.

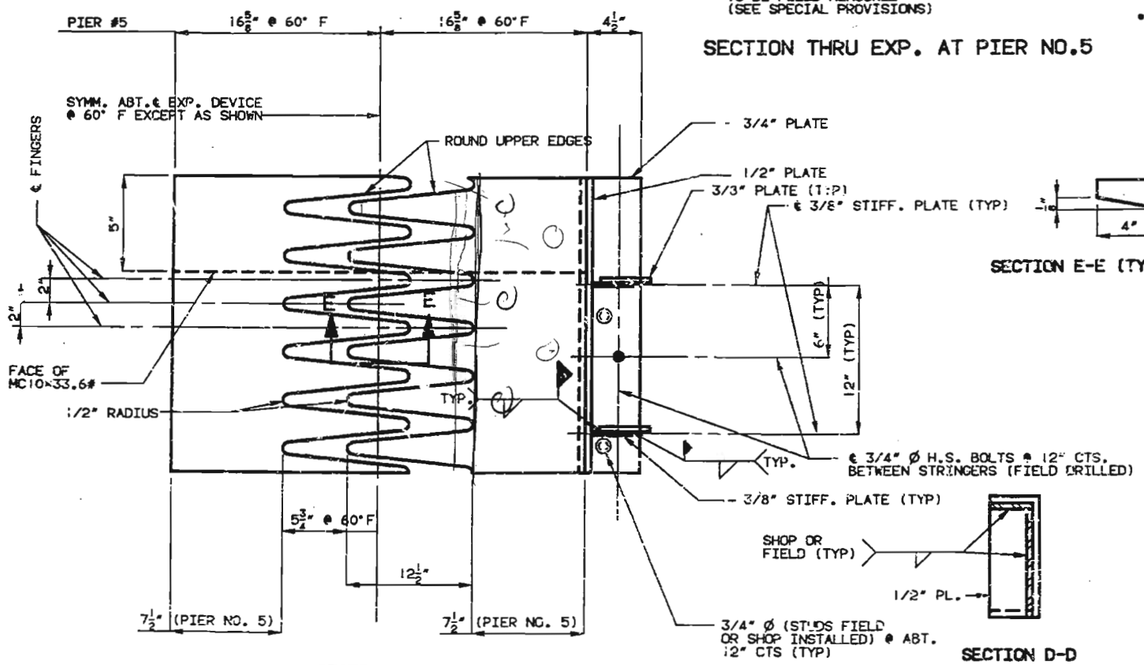
THE EXPANSION GAP AND OTHER DIMENSIONS SHALL BE INCREASED 5/8 " FOR EACH 10° FALL IN TEMPERATURE AND DECREASED 5/8" FOR EACH 10° RISE IN TEMPERATURE.

THE FINGER PLATE, EXP. PLATE SUPPORT & 1/2" & 3/4" PLATES SHALL BE PAINTED IN THE SHOP WITH TWO COATS OF AN INORGANIC ZINC PRIMER AS SPECIFIED FOR SYSTEM C TO PRODUCE A DRY FILM THICKNESS OF NOT LESS THAN 3.0 MILS. NO FINISH COAT SHALL BE APPLIED TO THE ROADWAY PLATE.

PAYMENT FOR FURNISHING, PAINTING, AND INSTALLING STUCTURAL STEEL FOR THE EXPANSION DEVICE WILL BE MADE AT THE CONTRACT UNIT PRICE FOR EXPANSION DEVICE (FINGER PLATE) PER LIN. FT.

THE 1/2"&5/8" VERTICAL PLATES SHALL BE TRIMMED, AS NECESSARY, TO CONFORM TO CROWN OF ROADWAY.

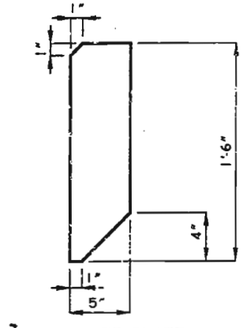
1-3/4" FINGER PLATE SHALL BE BENT TO CONFORM TO CROWN OF ROADWAY.



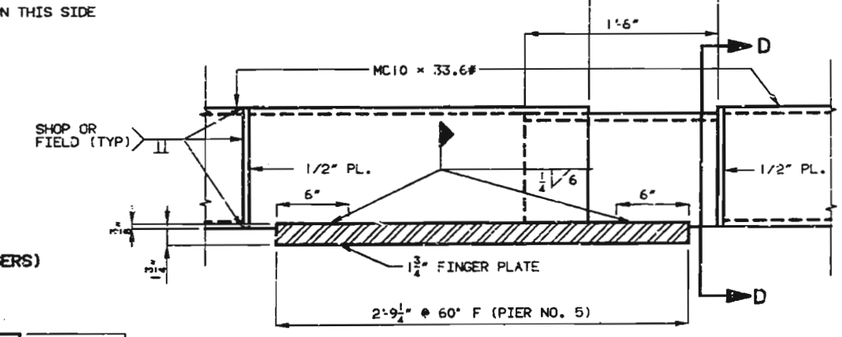
SECTION A-A

SECTION E-E (TYP. FOR ALL FINGERS)

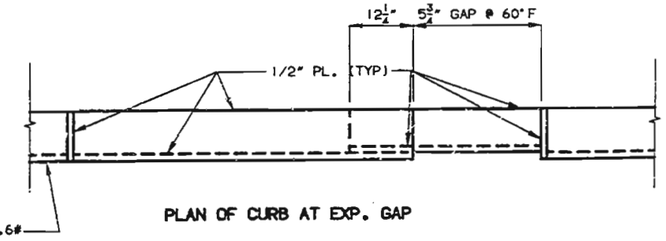
SECTION D-D



3/8"×5" STIFF PLATE



ELEV. OF CURB AT EXP. GAP



FACE OF MC10 × 33.6#

PLAN OF CURB AT EXP. GAP

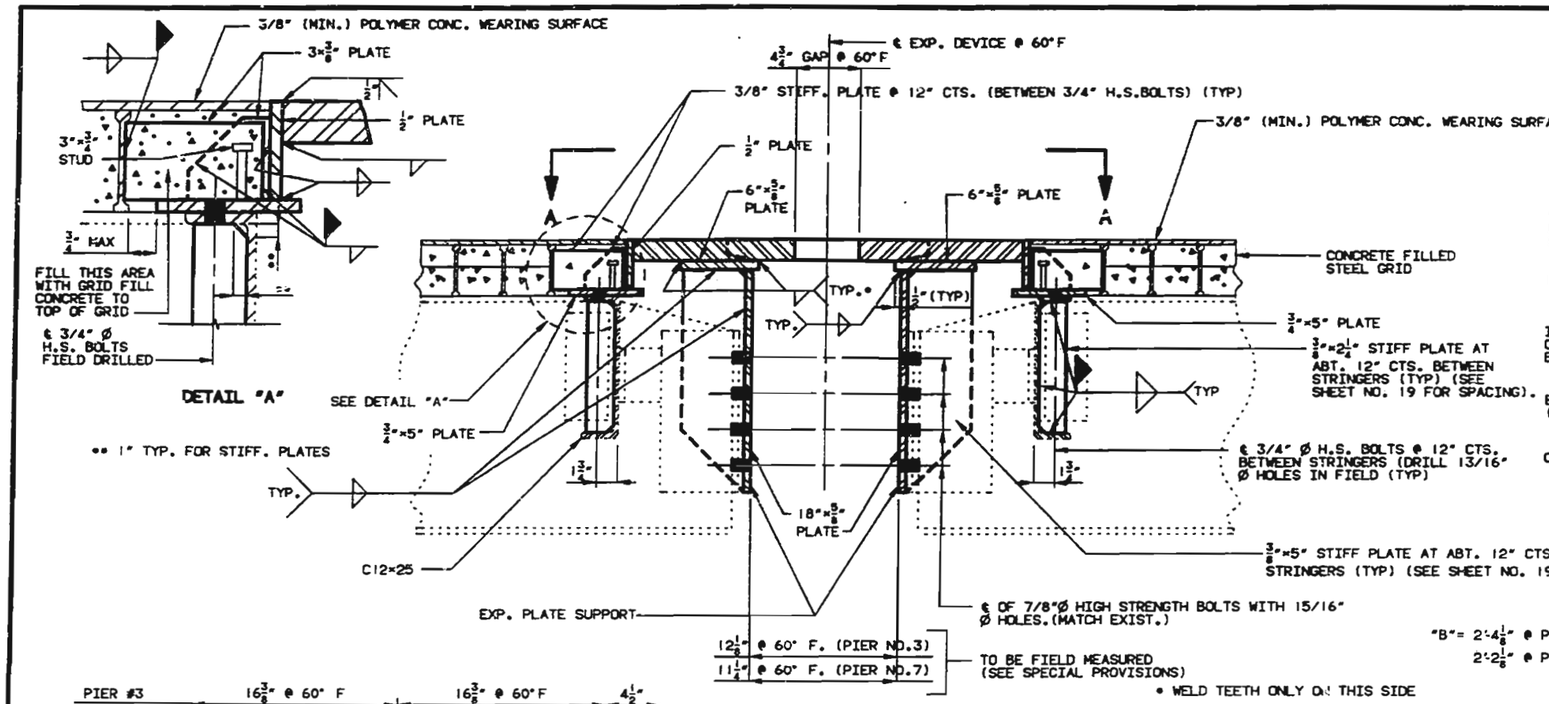
EXPANSION DEVICE DETAILS AT PIER NO. 5

463
462

DETAILED SEPT 1989
CHECKED SEPT 1989

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

STATE	PROJ. NO.	SHEET NO.
MO.		32



SECTION THRU EXP. AT PIER NO.3 & 7

"B"= 2'-4 1/8" @ PIER NO. 3
2'-2 1/8" @ PIER NO. 7

NOTE: FINGER PLATE SHALL BE CUT WITH A MACHINE GUIDED GAS TORCH FROM ONE PLATE "B" =1-3/4". THE SURFACE OF CUT SHALL BE PERPENDICULAR TO THE SURFACE OF PLATE. THE CUT SHALL NOT EXCEED 1/8" IN WIDTH. THE CENTERLINE OF CUT SHALL NOT DEVIATE MORE THAN 1/16" FROM THE POSTION OF CENTERLINE OF CUT SHOWN. SPLICES ARE PERMITTED FOR SECTIONS OVER 50 FEET IN LENGTH.

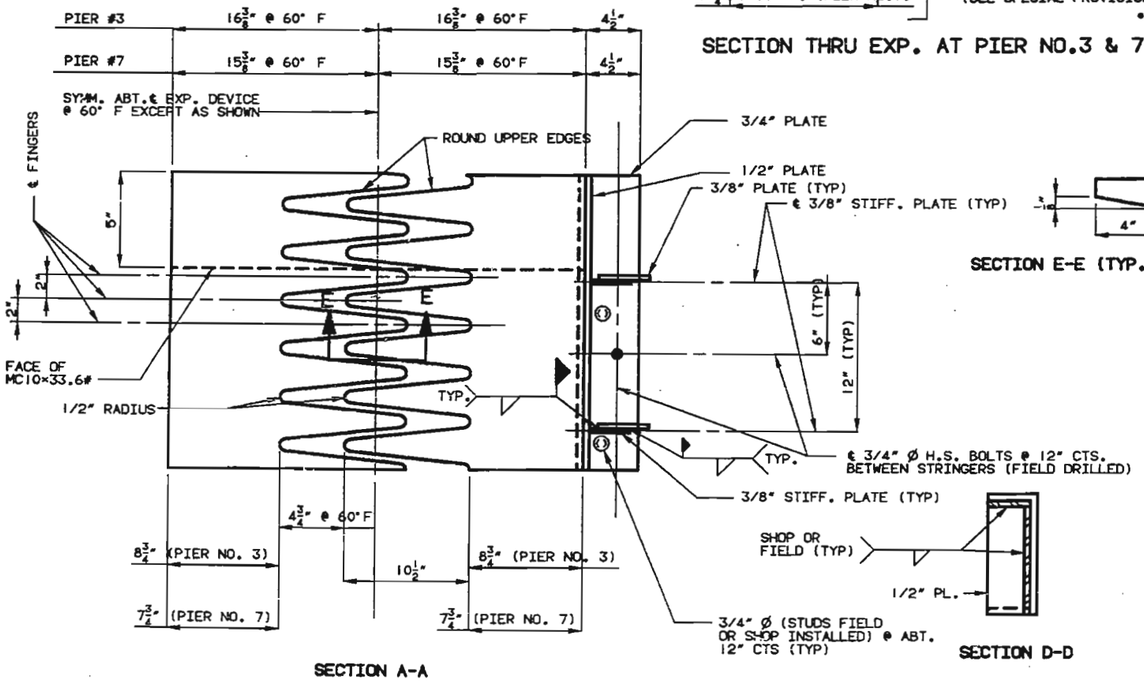
THE EXPANSION GAP AND OTHER DIMENSIONS SHALL BE INCREASED 5/8 " FOR EACH 10° FALL IN TEMPERATURE AND DECREASED 5/8" FOR EACH 10° RISE IN TEMPERATURE.

THE FINGER PLATE, EXP. PLATE SUPPORT & 1/2" & 3/4" PLATES SHALL BE PAINTED IN THE SHOP WITH TWO COATS OF AN INORGANIC ZINC PRIMER AS SPECIFIED FOR SYSTEM C TO PRODUCE A DRY FILM THICKNESS OF NOT LESS THAN 5.0 MILS. NO FINISH COAT SHALL BE APPLIED TO THE ROADWAY PLATE.

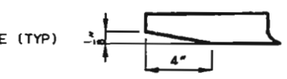
PAYMENT FOR FURNISHING, PAINTING, AND INSTALLING STUCTURAL STEEL FOR THE EXPANSION DEVICE WILL BE MADE AT THE CONTRACT UNIT PRICE FOR EXPANSION DEVICE (FINGER PLATE) PER LIN. FT.

THE 1/2"&5/8" VERTICAL PLATES SHALL BE TRIMMED, AS NECESSARY, TO CONFORM TO CROWN OF ROADWAY.

1-3/4" FINGER PLATE SHALL BE BENT TO CONFORM TO CROWN OF ROADWAY.

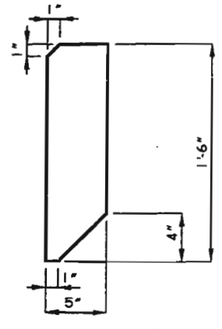


SECTION A-A

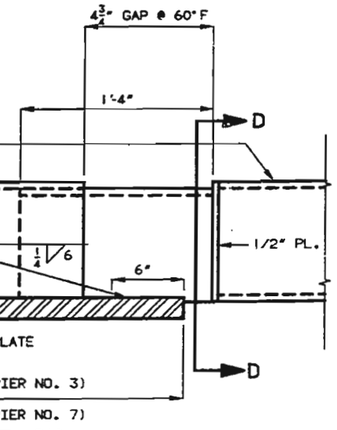


SECTION E-E (TYP. FOR ALL FINGERS)

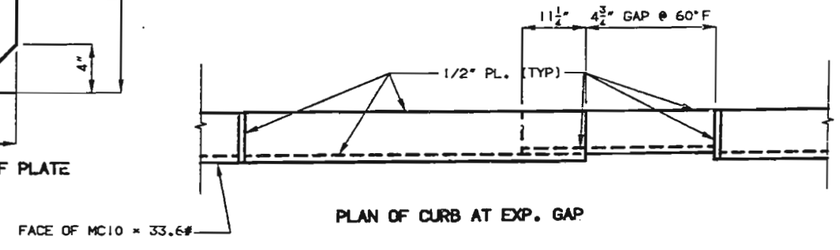
SECTION D-D



3/8"×5" STIFF PLATE



ELEV. OF CURB AT EXP. GAP



PLAN OF CURB AT EXP. GAP

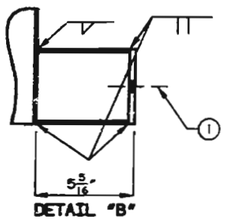
EXPANSION DEVICE DETAILS AT PIER NO. 3 & 7

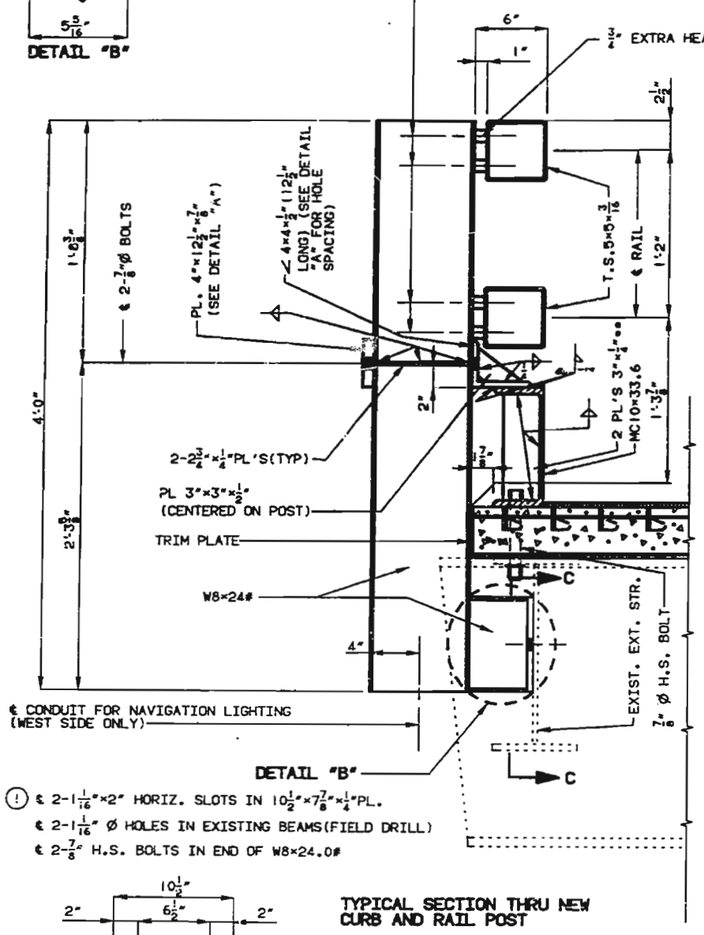
DETAILED SEPT 1989
CHECKED SEPT 1989

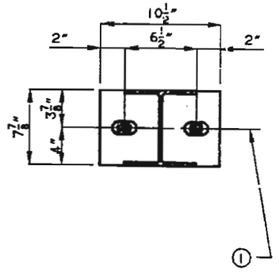
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

478 464

STATE	PROJ. NO.	SHEET NO.
MO.		33

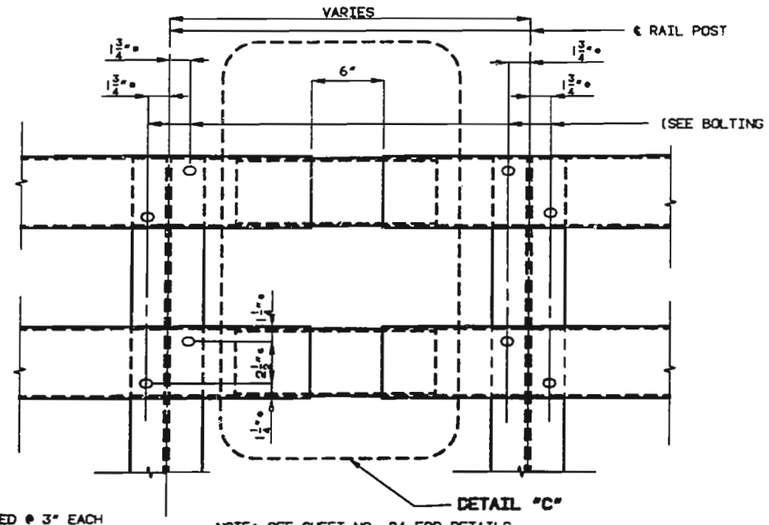






TYPICAL SECTION THRU NEW CURB AND RAIL POST

NOTE: FOR CURB ATTACHMENT TO GRID SEE SHEET NO.24.

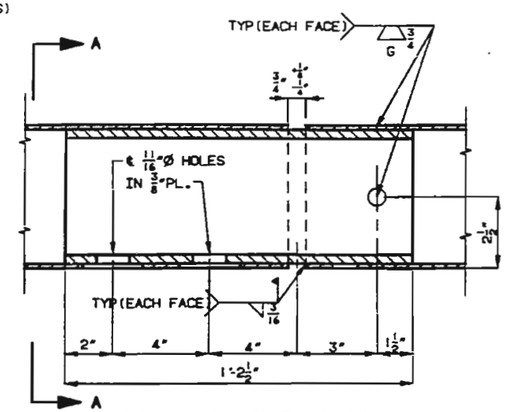


•• SPACED @ 3" EACH SIDE OF ℄ POST

NOTE: SEE SHEET NO. 24 FOR DETAILS OF DETAIL "C".

• TYPICAL ALL RAIL POSTS

RAIL DETAILS AT EXP. JOINTS



DETAIL OF RAIL EXPANSION OR SPLICE JOINT

NOTE: FOR RAIL POST DETAILS NOT SHOWN SEE SHEET NO.24.

RAILING NOTES:

RAILING SHALL BE FABRICATED IN TWO OR THREE PANEL LENGTHS UNLESS OTHERWISE APPROVED.

CURBING SHALL BE PAINTED SYSTEM C (GREEN).

STRUCTURAL STEEL TUBE RAILING AND RAIL POST INCLUDING CONNECTING PLATES, BOLTS, NUTS, WASHERS AND ANGLES, SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123 OR A153.

STRUCTURAL STEEL TUBE RAILING SHALL CONFORM TO REQUIREMENTS OF ASTM DESIGNATION A500 OR A501.

SPLICE IN RAILS SHALL BE PROVIDED AT ABOUT ¼ POINT BETWEEN POST. RAIL EXPANSION SPLICE SHOULD BE PROVIDED AT TRANSVERSE SEAL JOINTS.

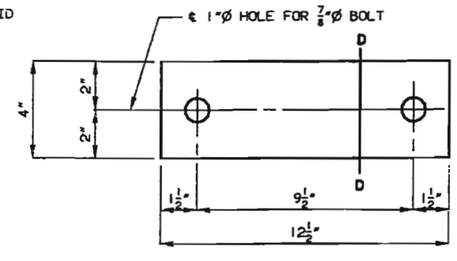
FABRICATION OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH SECTION 712 OF STANDARD SPECIFICATIONS.

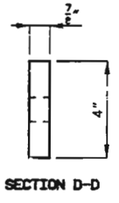
IF RAIL IS SHOP DRILLED USE 11/16"×1" HORIZONTAL SLOT IN TS 5"×5"×3/16" WITH 11/16"Ø HOLE IN RAIL POST FLANGE. USE 5/8"Ø BUTTON HEAD BOLTS (OVAL SHOULDER) WITH ONE FLAT WASHER AND HEX. NUT.

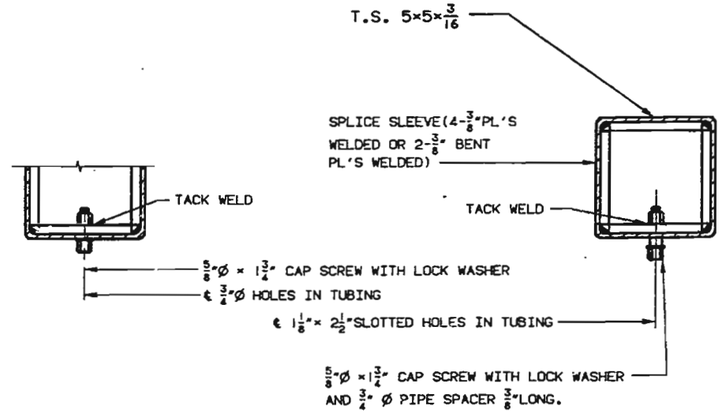
IF RAIL IS FIELD DRILLED USE 11/16"Ø HOLE IN TS 5"×5"×3/16" WITH 11/16"Ø HOLE IN RAIL POST FLANGE. USE 5/8"Ø BUTTON HEAD BOLT WITH ONE FLAT WASHER AND HEX. NUT.

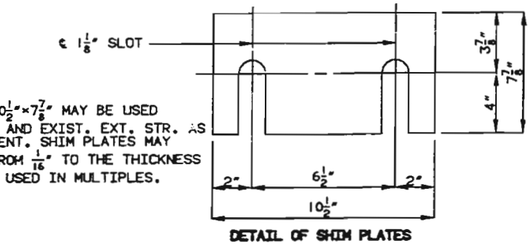
LOCATION OF SLOTS OR HOLES IS TO BE AT DIMENSIONS SHOWN REGARDLESS OF METHOD USED TO INSTALL PROPOSED RAILS.

5/8"Ø STUDS TO BE FASTENED TO TS 5"×5"×3/16" (SHOP OR FIELD APPLIED) MAY BE USED IN LIEU OF 5/8" BUTTON HEAD BOLTS. A 1" EXTRA HEAVY SPACER SHALL BE USED IN PLACE OF THE 3/4" EXTRA HEAVY SPACER IF 5/8"Ø STUDS ARE USED.









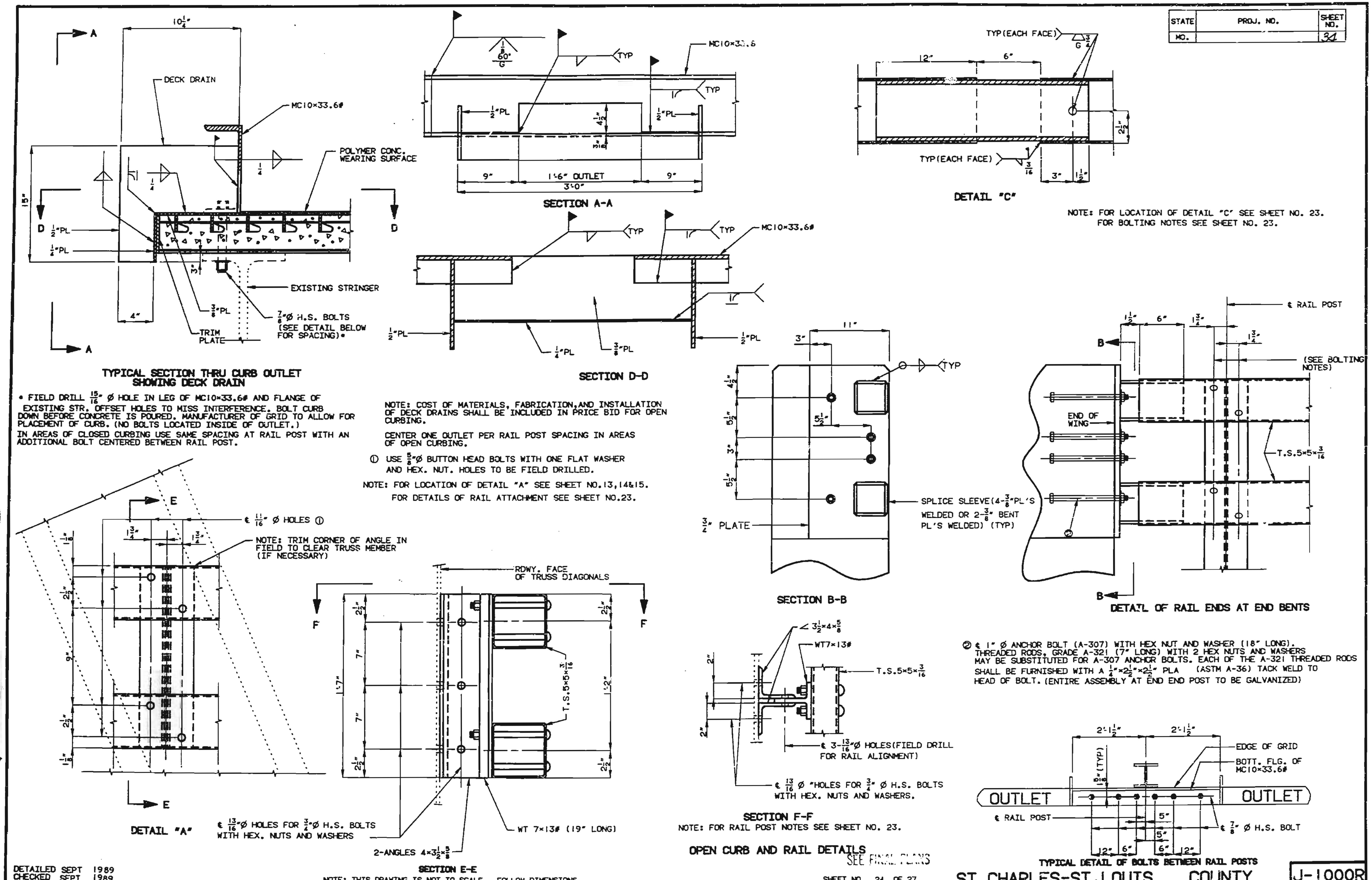
NOTE: SHIM PLATES 10½"×7⅞" MAY BE USED BETWEEN POST W8×24# AND EXIST. EXT. STR. AS REQUIRED FOR ALIGNMENT. SHIM PLATES MAY VARY IN THICKNESS FROM 1/16" TO THE THICKNESS REQUIRED AND MAY BE USED IN MULTIPLES.

DETAILED SEPT 1989
CHECKED SEPT 1989

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

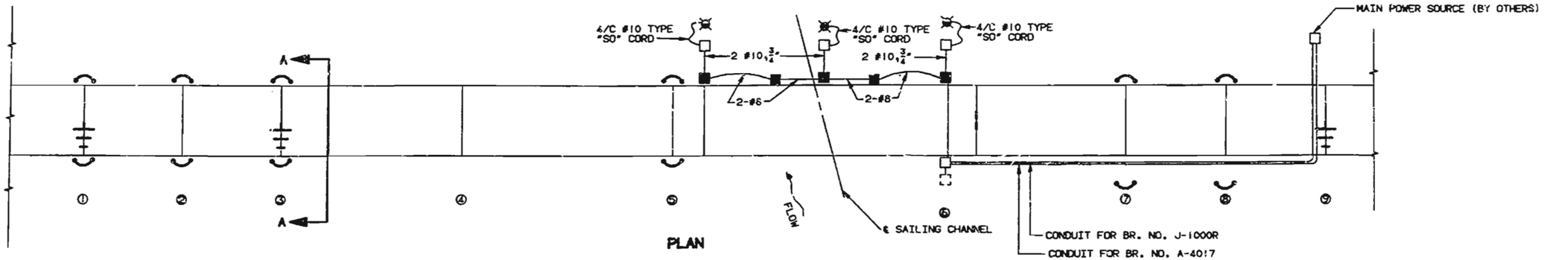
CLOSED CURB AND RAIL DETAILS

SHEET NO. 23 OF 27. ST.CHARLES-ST.LOUIS COUNTY J-1000R

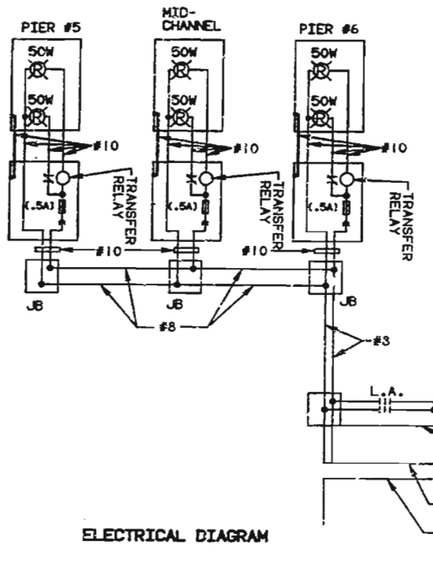


STATE NO. | PROJ. NO. | SHEET NO. 34
TYPICAL SECTION THRU CURB OUTLET SHOWING DECK DRAIN
DECK DRAIN
MC10×33.6#
POLYMER CONC. WEARING SURFACE
EXISTING STRINGER
TRIM PLATE
7/8"Ø H.S. BOLTS (SEE DETAIL BELOW FOR SPACING)•
• FIELD DRILL 15/16" Ø HOLE IN LEG OF MC10×33.6# AND FLANGE OF EXISTING STR. OFFSET HOLES TO MISS INTERFERENCE. BOLT CURB DOWN BEFORE CONCRETE IS POURED. MANUFACTURER OF GRID TO ALLOW FOR PLACEMENT OF CURB. (NO BOLTS LOCATED INSIDE OF OUTLET.)
IN AREAS OF CLOSED CURBING USE SAME SPACING AT RAIL POST WITH AN ADDITIONAL BOLT CENTERED BETWEEN RAIL POST.
SECTION A-A
1'-6" OUTLET
3'-0"
SECTION D-D
NOTE: COST OF MATERIALS, FABRICATION, AND INSTALLATION OF DECK DRAINS SHALL BE INCLUDED IN PRICE BID FOR OPEN CURBING.
CENTER ONE OUTLET PER RAIL POST SPACING IN AREAS OF OPEN CURBING.
① USE 5/8"Ø BUTTON HEAD BOLTS WITH ONE FLAT WASHER AND HEX. NUT. HOLES TO BE FIELD DRILLED.
NOTE: FOR LOCATION OF DETAIL "A" SEE SHEET NO. 13, 14 & 15. FOR DETAILS OF RAIL ATTACHMENT SEE SHEET NO. 23.
DETAIL "C"
TYP (EACH FACE)
NOTE: FOR LOCATION OF DETAIL "C" SEE SHEET NO. 23. FOR BOLTING NOTES SEE SHEET NO. 23.
SECTION B-B
SPLICE SLEEVE (4-3/8"PL'S WELDED OR 2-3/8" BENT PL'S WELDED) (TYP)
3/4" PLATE
DETAIL OF RAIL ENDS AT END BENTS
℄ RAIL POST
(SEE BOLTING NOTES)
END OF WING
T.S.5×5×3/16
② ℄ 1" Ø ANCHOR BOLT (A-307) WITH HEX NUT AND WASHER (18" LONG). THREADED RODS, GRADE A-321 (7" LONG) WITH 2 HEX NUTS AND WASHERS MAY BE SUBSTITUTED FOR A-307 ANCHOR BOLTS. EACH OF THE A-321 THREADED RODS SHALL BE FURNISHED WITH A 1/4"×2 1/2"×2 1/2" PLA (ASTM A-36) TACK WELD TO HEAD OF BOLT. (ENTIRE ASSEMBLY AT END END POST TO BE GALVANIZED)
DETAIL "A"
℄ 11/16" Ø HOLES ①
NOTE: TRIM CORNER OF ANGLE IN FIELD TO CLEAR TRUSS MEMBER (IF NECESSARY)
℄ 13/16"Ø HOLES FOR 3/4"Ø H.S. BOLTS WITH HEX. NUTS AND WASHERS
SECTION E-E
RDWY. FACE OF TRUSS DIAGONALS
WT 7×13# (19" LONG)
2-ANGLES 4×3 1/2×3/8
SECTION F-F
WT7×13#
℄ 3-13/16"Ø HOLES (FIELD DRILL FOR RAIL ALIGNMENT)
℄ 13/16 Ø "HOLES FOR 3/4" Ø H.S. BOLTS WITH HEX. NUTS AND WASHERS.
NOTE: FOR RAIL POST NOTES SEE SHEET NO. 23.
OPEN CURB AND RAIL DETAILS
SEE FINAL PLANS
TYPICAL DETAIL OF BOLTS BETWEEN RAIL POSTS
OUTLET
OUTLET
EDGE OF GRID
BOTT. FLG. OF MC10×33.6#
℄ RAIL POST
℄ 7/8" Ø H.S. BOLT
DETAILED SEPT 1989
CHECKED SEPT 1989
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.
SHEET NO. 24 OF 27.
ST.CHARLES-ST.LOUIS COUNTY
J-1000R

STATE	PROJ. NO.	SHEET NO.
MO.		35



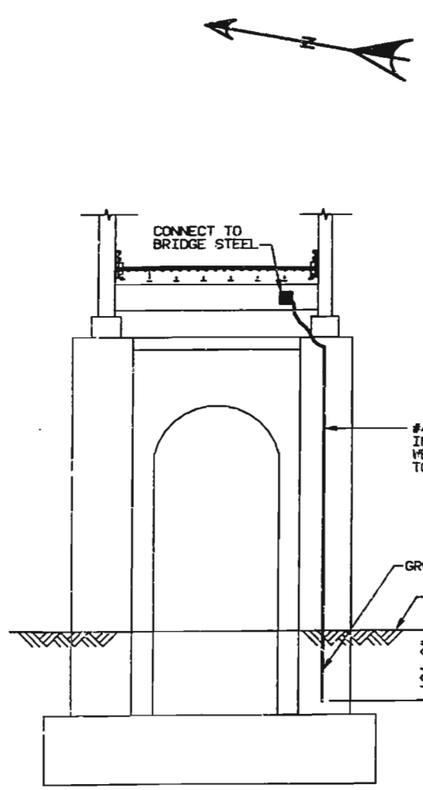
PLAN



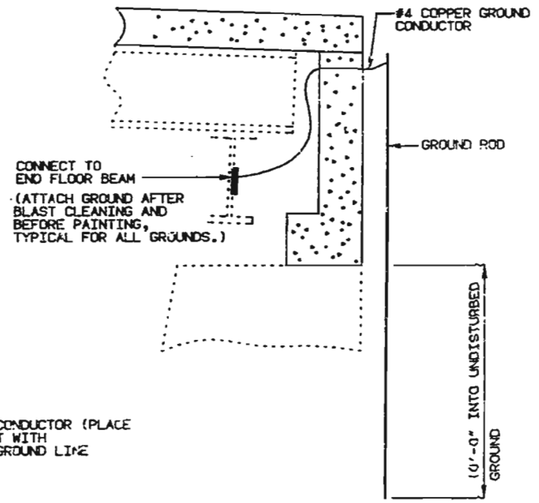
ELECTRICAL DIAGRAM

SYMBOLS

- 180° RED PIER LIGHT
- 360° GREEN MID-CHANNEL LIGHT
- JUNCTION OR PULL BOX, SURFACE MOUNTED 6"×6"×4"
- JUNCTION BOX, SURFACE MOUNTED CONTAINING TRANSFER RELAY AND FUSE.
- CONDUIT, PVC SCHEDULE 40 ULTRAVIOLET GRAY, EXPOSED 1½", UNLESS OTHERWISE NOTED.
- CONDUIT, LIQUID TIGHT FLEXIBLE PVC SCHEDULE 40 ULTRAVIOLET GRAY 1½".
- BONDING JUMPER (NOTE 3)
- BRIDGE GROUND (NOTE 2)



SECTION A-A



GROUNDING DETAIL @ BT.#9 (BT#1 SIMILAR)

NOTES:

1. EXISTING NAVIGATION LIGHTS ON BRIDGE NO. J-1000 SHALL BE REMOVED AND DELIVERED TO STATE AFTER NEW LIGHTS ARE INSTALLED AND OPERATIONAL.
2. GROUND CABLE SHALL BE INSTALLED AT PIER NO.3. AND BENTS #1 AND # 9 AS SHOWN. FASTEN TO BRIDGE STEEL WITH COMPRESSION LUGS BOLTED AND BRAZED TO STEEL MEMBERS.
3. BOND STEEL SPANS TOGETHER WITH #4/0,19 STRAND, BARE, SOFT DRAWN COPPER. PROVIDE SLACK FOR BRIDGE MOVEMENT. FASTEN TO BRIDGE WITH COMPRESSION LUGS BOLTED AND BRAZED TO STEEL MEMBERS.
4. FOR SPECIFICATIONS, SEE SPECIAL PROVISIONS.

NOTE: CONDUIT SHALL BE PLACED ALONG THE BOTTOM, OF RAIL POSTS AND ATTACHED TO EACH POST, SEE SHEET NO.12.

A ½" HOLE MAY BE DRILLED NEAR THE BOTTOM OF THE RAIL POST FOR ATTACHMENT OF CONDUIT HANGERS AS LONG AS THEY DO NOT INTERFERE WITH POST ATTACHMENTS TO THE LONGITUDINAL STRINGERS.

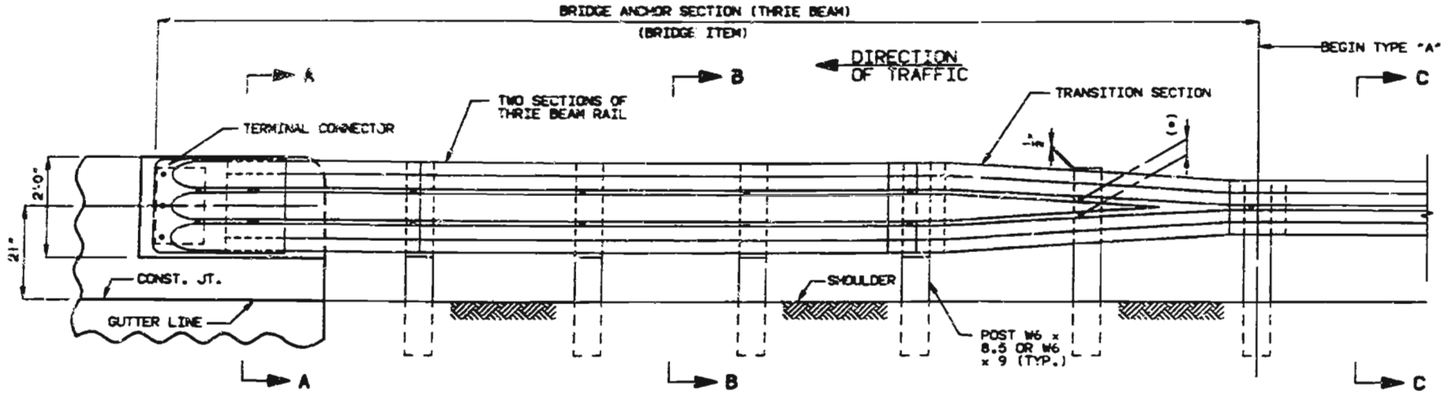
EXPANSION AT THE EXPANSION PIERS SHALL BE PROVIDED FOR BY USING METHODS IN ACCORDANCE WITH CONDUIT MANUFACTURE PRACTICES.

PULL BOXES SHALL BE USED IN ACCORDANCE WITH INDUSTRY PRACTICES.

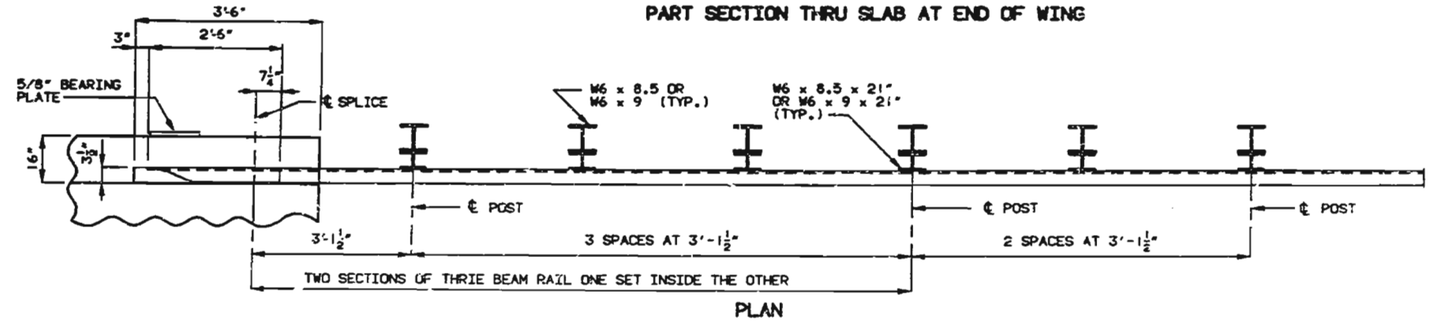
WEEPHOLES SHALL BE PROVIDED IN CONDUIT FOR DRAINAGE.

#43746

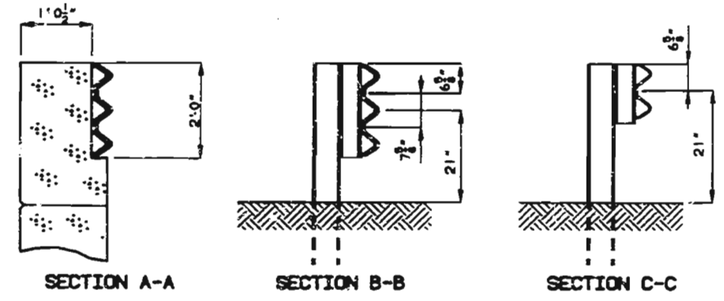
STATE	PROJ. NO.	SHEET NO.
MO.		35A



PART SECTION THRU SLAB AT END OF WING



PLAN



NOTES:

DESIGN AASHTO 1989 SPECIFICATIONS (FOR THRIE BEAM RAIL DESIGN ONLY).

THE THRIE BEAM RAIL, END SHOE AND THE TRANSITION SECTION FOR THE BRIDGE ANCHOR SECTION SHALL BE MADE OF STEEL AND SHALL BE 10 GAGE. ZINC COATING SHALL BE TYPE 2.

FOR PROTECTIVE COATING AND MATERIAL REQUIREMENTS, SEE SECTION 1040 OF THE MISSOURI STANDARD SPECIFICATIONS.

RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

WASHERS SHALL BE USED AT ALL POST BOLTS (BETWEEN BOLT HEAD AND BEAM). THEY SHALL BE RECTANGULAR IN SHAPE (3" X 1-3/4" X 3/16" Min.) AND FLAT, OR WHEN NECESSARY OF SUCH DESIGN AS TO FIT THE CONTOUR OF THE THRIE BEAM RAILING. WASHERS SHALL HAVE A 11/16" X 1" SLOTTED HOLE.

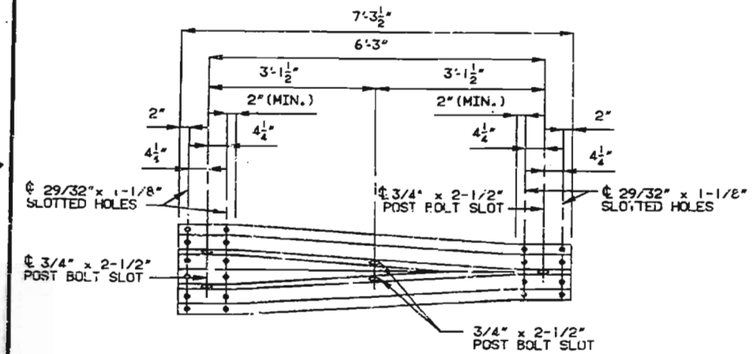
USE 5/8"Ø BUTTON-HEAD OVAL, SHOULDER BOLTS WITH HEX NUTS AT ALL SLOTS. (THE THICKNESS OF THE HEX NUTS = 3/8".)

THE BEARING PLATE SHALL BE FABRICATED FROM MATERIAL MEETING AND IN ACCORDANCE WITH ASTM GRADE A36 AND GALVANIZED IN ACCORDANCE WITH AASHTO M111.

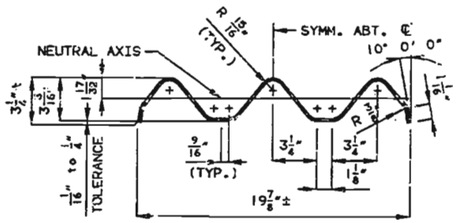
ALL LAP SPLICES, INCLUDING END SHOES, SHALL BE MADE IN THE DIRECTION OF TRAFFIC.

SEE MISSOURI STANDARD PLANS DRAWING 606.00 FOR DETAILS NOT SHOWN.

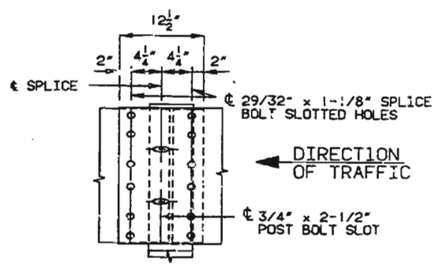
(•) VERIFY BY RAIL TRANSITION PRODUCER.



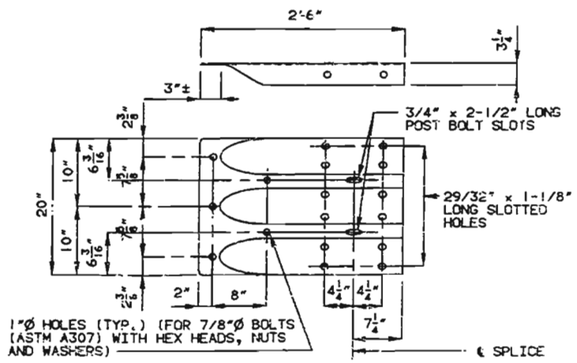
TRANSITION SECTION



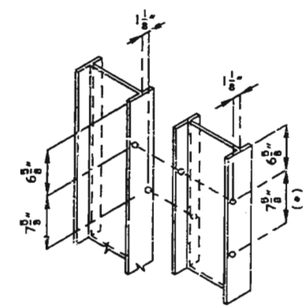
SECTION THRU THRIE BEAM RAIL



THRIE BEAM RAIL SPLICE AT POST



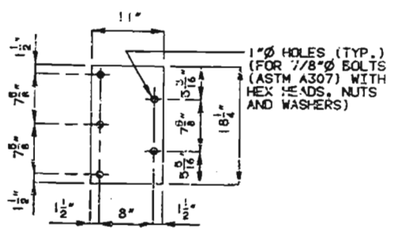
TERMINAL CONNECTOR



(ALL HOLES 13/16" DIAMETER)

HOLE PUNCHING DETAILS

(FOR STEEL POST & BLOCKS)



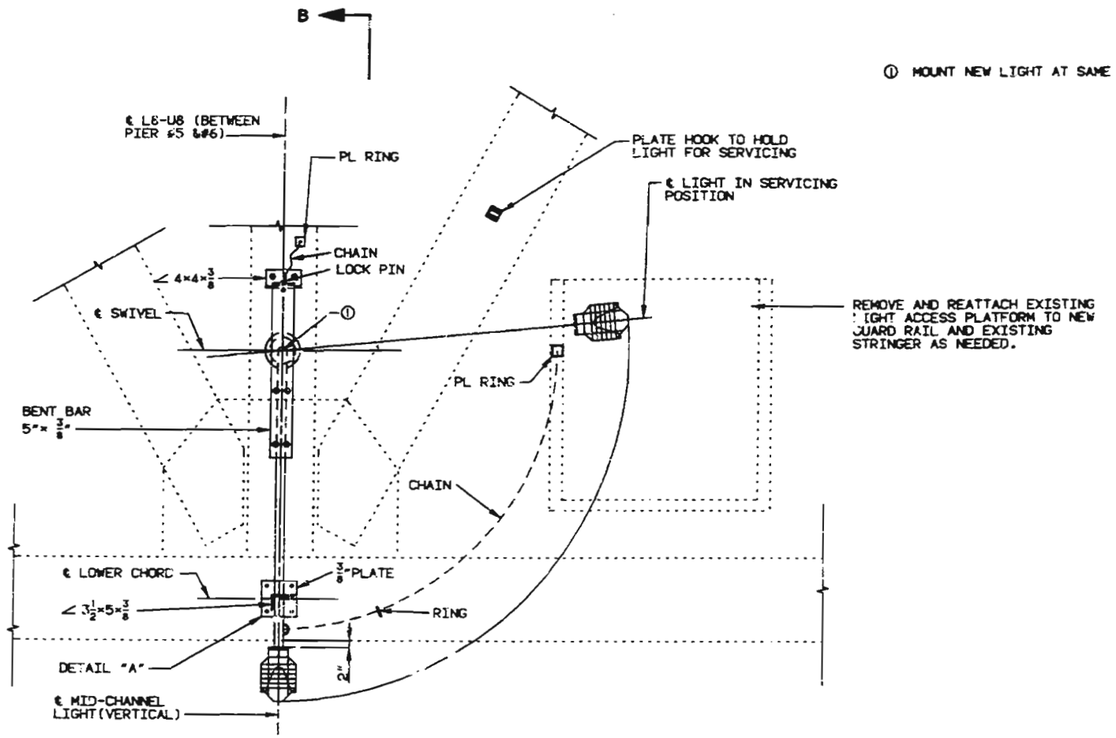
5/8" BEARING PLATE

ANCHOR SEC	REVISED (2)
AUG. 1988	JUNE 1989

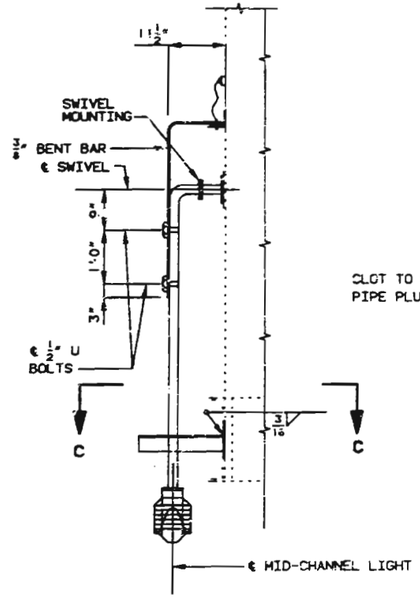
DETAILED SEPT. 1989
CHECKED SEPT. 1989

STATE	PROJ. NO.	SHEET NO.
MO.		36

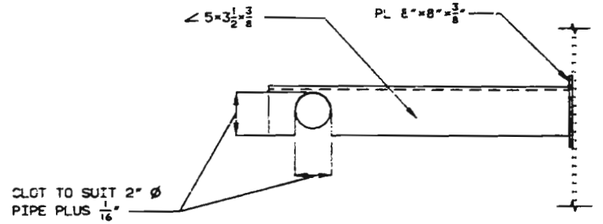
① MOUNT NEW LIGHT AT SAME LOCATION AS EXISTING LIGHT.



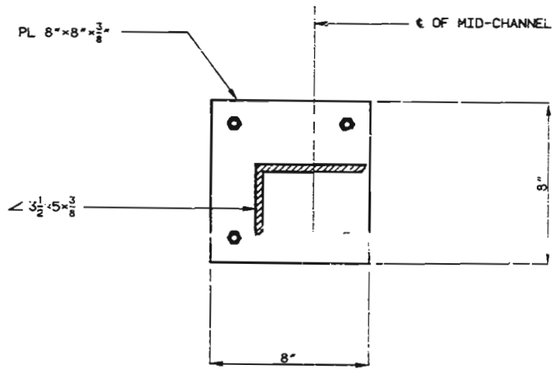
TYPICAL ELEVATION SHOWING
LIGHT ATTACHMENT AT L8-U8(SPAN 5-6)



SECTION B-B



SECTION C-C



DETAIL "A"

TYPICAL LIGHT DETAIL
AT PIER #5 AND #6
(DOWNSTREAM SIDE)

NOTES:

NAVIGATION LIGHTING SYSTEM CONSISTS OF CONDUIT, WIRING AND JUNCTION BOXES NOT SHOWN, LIGHT FIXTURES, PIPE COMPLETE WITH SWIVEL MOUNTING, MOUNTING FLANGE AND BOLTS, BENT BAR 5"×3/8" WITH U-BOLTS, LOCKING PINS, RINGS, HOOKS, CHAINS AND FIELD DRILLING OF HOLES FOR CONNECTING RINGS, HOOKS, LOCKING PINS AND PIPE MOUNTING FLANGES.

PIER LIGHTS SHALL BE BOLTED TO LIGHT SUPPORT PLATE AND MID-CHANNEL LIGHT PIPE MOUNTING FLANGE SHALL BE BOLTED TO TRUSS POST WITH NUMBER AND SIZE OF BOLTS RECOMMENDED BY LIGHT MANUFACTURER.

AFTER EXISTING LIGHTING FIXTURES ARE REMOVED FROM STRUCTURE THEY SHALL BE DELIVERED TO MISSOURI HIGHWAY AND TRANSPORTATION DEPARTMENT.

THE COST OF REMOVING EXISTING NAVIGATION LIGHTS AND FURNISHING AND INSTALLING ELECTRICAL GROUND SYSTEM SHALL BE INCLUDED IN PRICE BID FOR "NAVIGATION LIGHTING SYSTEM".

FOR CONDUIT LAYOUT, WIRING AND JUNCTION BOXES, SEE ELECTRICAL DRAWING SHEET NO. 25.

NAVIGATION LIGHTING DETAILS

DETAILED JUNE 1989
CHECKED JUNE 1989

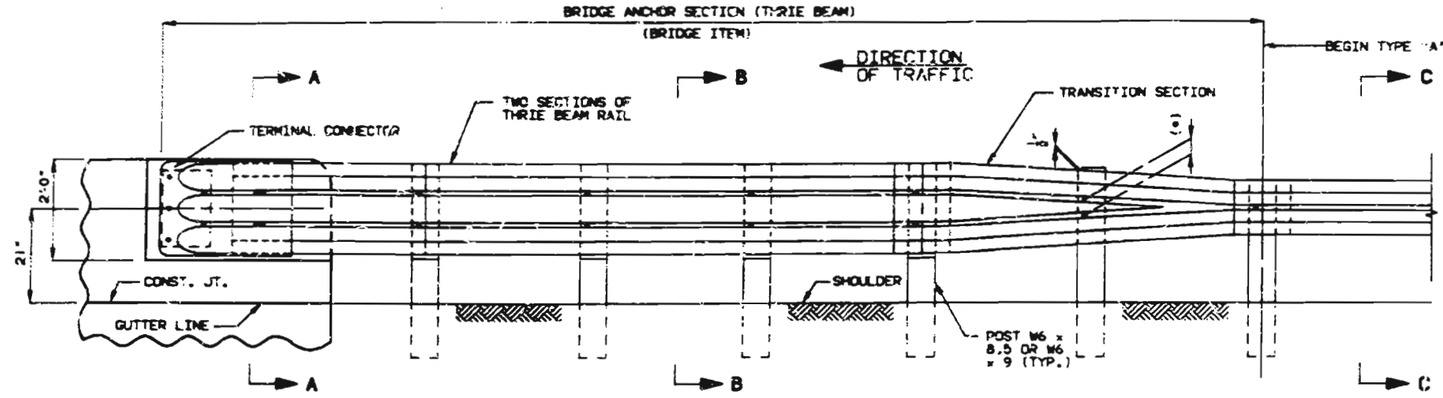
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

ST. CHARLES-ST. LOUIS COUNTY

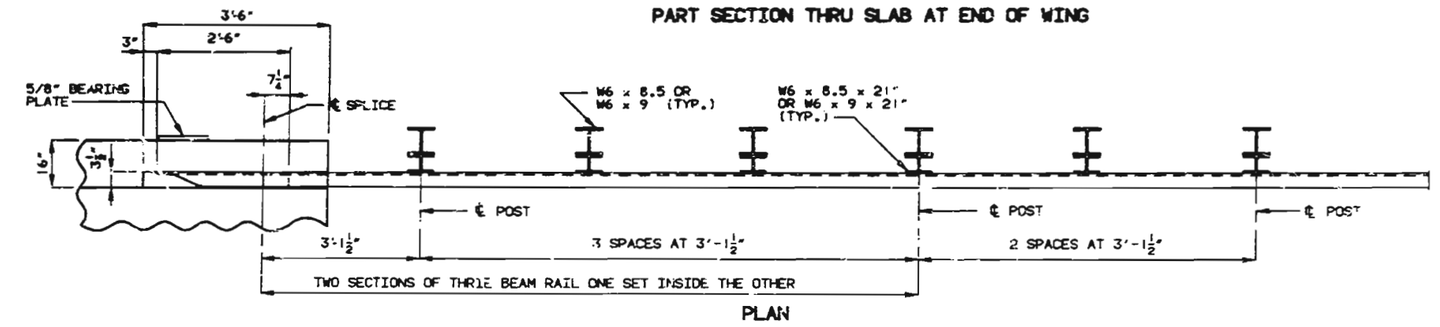
J-1000R

47468

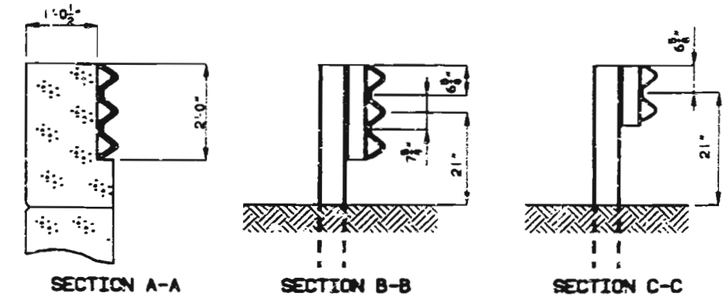
STATE	PROJ. NO.	SHEET NO.
MO.		36A



PART SECTION THRU SLAB AT END OF WING



PLAN



NOTES:

DESIGN AASHTO 1989 SPECIFICATIONS (FOR THRIE BEAM RAIL DESIGN ONLY).

THE THRIE BEAM RAIL, END SHOE AND THE TRANSITION SECTION FOR THE BRIDGE ANCHOR SECTION SHALL BE MADE OF STEEL AND SHALL BE 10 GAGE. ZINC COATING SHALL BE TYPE 2.

FOR PROTECTIVE COATING AND MATERIAL REQUIREMENTS, SEE SECTION 1040 OF THE MISSOURI STANDARD SPECIFICATIONS.

RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

WASHERS SHALL BE USED AT ALL POST BOLTS (BETWEEN BOLT HEAD AND BEAM). THEY SHALL BE RECTANGULAR IN SHAPE (3" X 1-3/4" X 3/16" MIN.) AND FLAT, OR WHEN NECESSARY OF SUCH DESIGN AS TO FIT THE CONTOUR OF THE THRIE BEAM RAILING. WASHERS SHALL HAVE A 11/16" X 1" SLOTTED HOLE.

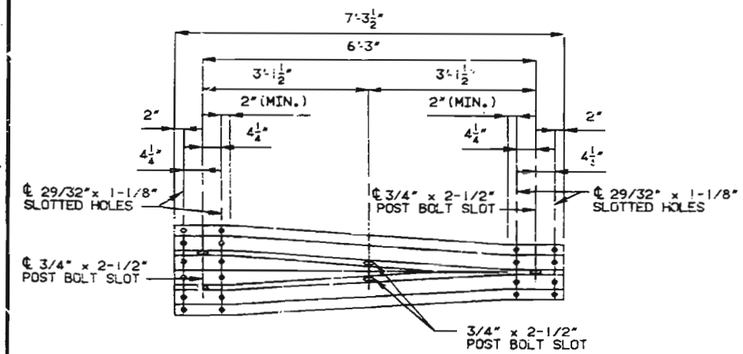
USE 5/8"Ø BUTTON-HEAD OVAL, SHOULDER BOLTS WITH HEX NUTS AT ALL SLOTS. (THE THICKNESS OF THE HEX NUTS = 3/8".)

THE BEARING PLATE SHALL BE FABRICATED FROM MATERIAL MEETING AND IN ACCORDANCE WITH ASTM GRADE A36 AND GALVANIZED IN ACCORDANCE WITH AASHTO M111.

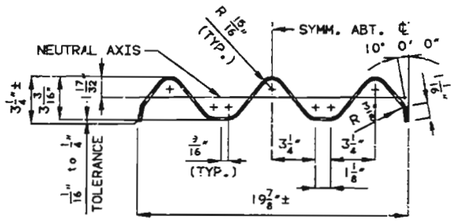
ALL LAP SPLICES, INCLUDING END SHOES, SHALL BE MADE IN THE DIRECTION OF TRAFFIC.

SEE MISSOURI STANDARD PLANS DRAWING 606.00 FOR DETAILS NOT SHOWN.

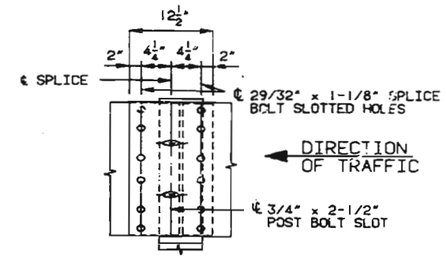
(*) VERIFY BY RAIL TRANSITION PRODUCER.



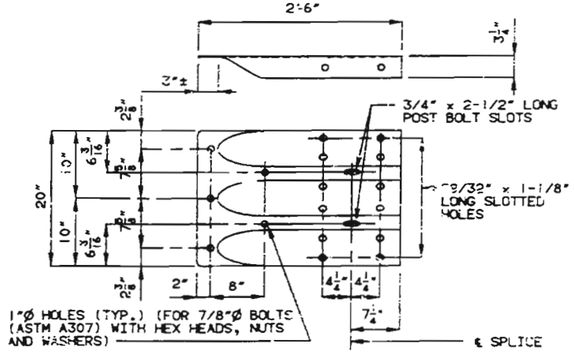
TRANSITION SECTION



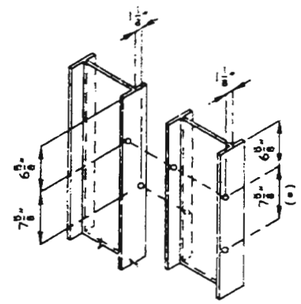
SECTION THRU THRIE BEAM RAIL



THRIE BEAM RAIL SPLICE AT POST



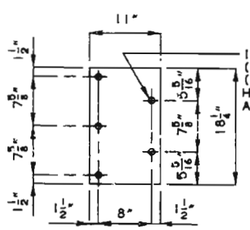
TERMINAL CONNECTOR



(ALL HOLES 13/16" DIAMETER)

HOLE PUNCHING DETAILS

(FOR STEEL POST & BLOCKS)



5/8" BEARING PLATE

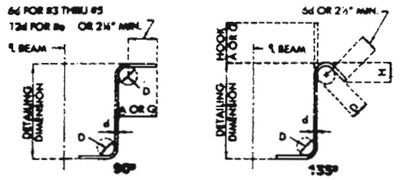
ANCHOR SEC	REVISED (2)	JUNE 1989
	AUG. 1988	

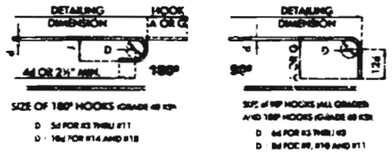
DETAILED SEPT. 1989
CHECKED SEPT. 1989

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

ST CHARLES-ST. LOUIS COUNTY

J-1000R





STIRRUP HOOK DIMENSIONS				
GRADES 40-50-60 KSI				
BAR SIZE	D (IN.)	90° HOOK	135° HOOK	
		HOOK A OR G	HOOK A OR G	APPROX H
#3	1½"	4"	4"	2½"
#4	2"	4½"	4½"	3"
#5	2½"	6"	5½"	3¾"
#6	4½"	12"	7¾"	4½"

NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.

END HOOK DIMENSIONS				
BAR SIZE	D (IN.)	180° HOOKS		90° HOOKS
		ALL GRADES		ALL GRADES
		A OR G	J	A OR G
#3	2¼"	5"	3"	6"
#4	3"	6"	3½"	8"
#5	3¾"	7"	4½"	10"
#6	4½"	8"	5½"	12"
#7	5¼"	10"	6½"	14"
#8	6"	11"	8"	16"
#9	9½"	15"	11½"	19"
#10	10¾"*	17"	13½"	22"
#11	12"	19"	14½"	2'-0"
#14	18¼"	2'-3"	21½"	2'-7"

NOTES:

ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEG. STD. HOOKS.

HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.

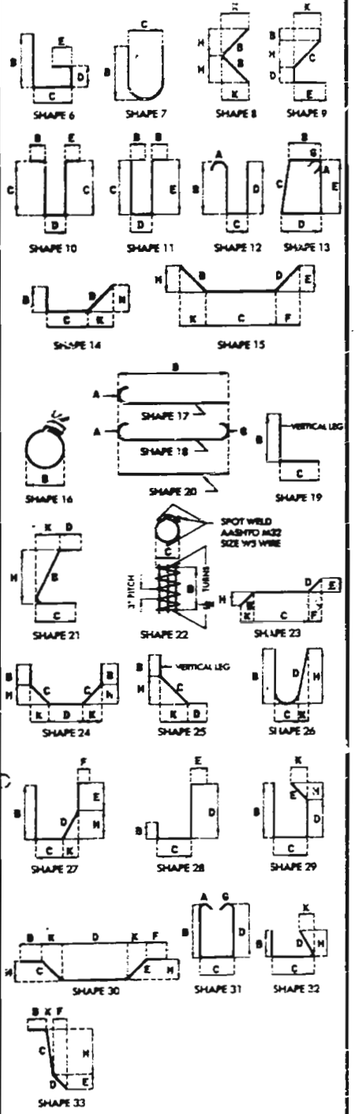
E - EPOXY COATED REINFORCEMENT.
S - STIRRUP
X - BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.
V - BAR DIMENSIONS VARY BY EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.
NO. EA. - NUMBER OF BARS OF EACH LENGTH.
NOMINAL LENGTHS - ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST INCH)
ACTUAL LENGTHS - ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.
PAYWEIGHTS ARE BASED ON ACTUAL LENGTHS.

COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO. / SIZE MARK	LOCATION	(E) EPOXY	SHAPE NO	(S) STIRRUP	(X) SUBSTR.	(V) VARIES	NO. EACH	DIMENSIONS B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.
		BENT NO 1																
6	6M10	WING	E	26				6	3.000							6 3	6 3	74
8	6M11	WING		26				8	3.000							8 3	8 3	99
24	6M12	WING		26			V	4 6	6.000							6 6	6 6	
		INCR = 11.375 IN							3.000							3 3	3 3	288
1	6M16	APPROACH MARCH		26					28 9.000							28 9	28 9	75
2	6M17	BACKWALL		26					34 4.000							34 4	34 4	168
2	6M18	WING BRACE		23	S				16.125	3 8.000				11.375	11.375	9 8	9 8	19
2	6M20	WING		26					2 0.000							3 0	3 0	9
4	6T11	WING		23	S				2 1.000	7 11.750	23.000			4 11.062	6 3.375	12 9	11 11	32
29	9B19	APPROACH MARCH		16	S					15.000	9.000					3 3	3 3	66
35	9W16	BACKWALL		16	S					16.000	9.000					3 3	3 3	139
24	6M15	WING		26			V	4	6 6.000							6 6	6 5	
		INCR = 9.625 IN							2 6.000							2 6	2 6	162
12	3W12	WING		26					7 2.000							7 2	7 2	189
		BENT NO 9																
10	6P61	WING		15	S				14.000	4 4.000	14.000	9.875	9.875	9.875	9.875	6 8	6 7	99
4	6M68	WING	E	26					9 3.000							9 3	9 3	56
8	6M61	WING		26					9 3.000							9 3	9 3	111
24	6M63	WING		26			V	4	9 8.000							9 8	9 8	
		INCR = 14.000 IN							3 2.000							3 2	3 2	219
2	6M64	BACKWALL		26					39 9.000							39 9	39 9	139
8	6M65	BACKWALL		26					39 9.000							39 9	39 9	212
1	6M66	BACKWALL		26					31 9.000							31 9	31 9	21
4	6T61	WING		23	S				2 8.000	7 10.375	2 6.000			4 2.000	6 8.000	12 4	12 3	74
4	6T62	CURTAIN WALL		19	S				7 1.000	4 6.000						11 2	11 5	69
14	6M60	CURTAIN WALL		18	S				12.000	4 6.000	9.000	3 9.000				11 6	10 8	168
30	6M65	APPROACH MARCH		18	S					15.000	6.000					3 0	2 10	57
20	6M60	WING		26			V	4	2 6.000							6 4	6 4	184
		INCR = 7.625 IN							6 6.000							6 10	6 10	62
8	6M61	WING		26					6 10.000							6 10	6 10	73
16	6M62	CURTAIN WALL		26					6 10.000									
34	9M63	BACKWALL		26					6 9.000							6 9	6 9	232
12	9M64	BACKWALL		26					6 10.000							6 10	6 10	86
		CHORD BAR ATTACHMENT																429
96	5B1	END POST	E	19	S				3 8.000	10.000						4 6	4 5	443
22	5B4	END POST	E	26					8 3.000							8 3	8 3	190
4	5B5	END POST	E	26					8 6.000							8 6	8 6	54
4	5B6	CURB	E	26					8 9.000							8 3	8 3	35
20	5B7	CURB	E	26	S				5 1.000							5 1	5 1	106
20	5B8	CURB	E	26	S				4 9.000							4 9	4 9	99
		END OF BAR LIST																

NOTE: Two (2) additional #6 HIO & #5 A4 are included in bar bill for testing.

BENDING DIAGRAMS



STATE	PROJ. NO	SHEET NO
MO		37

STD. 90.8.5 | REVISED | APR 1989
MAY 1974

DETAILED JUNE 1989
CHECKED JULY 1989

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

⚠ Revised Jan. 19, 1990

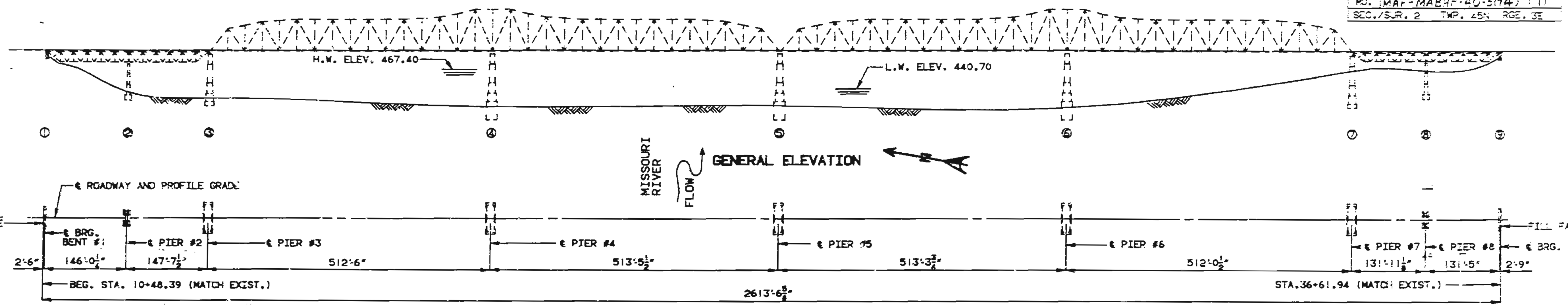
SEE FINAL PLANS
Sheet No. 27 of 27

ST. CHARLES - ST. LOUIS COUNTY

J-1000R

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO.	MAF-MABHF-40-5(74)	11
SEC./SUR. 2	TWP. 45N	RGE. 3E



FINAL QUANTITIES

ITEM		SUBSTRUCTURE	SUPERSTRUCTURE	TOTAL
CLASS 1 EXCAVATION	CU.YD.	60.5		60.5
PARTIAL REMOVAL OF SUBSTRUCTURE CONC.	LUMP SUM	1		1
REMOVAL OF EXISTING BRIDGE DECK	SQ. FT.		88,493	88,493
POLYMER CONCRETE OVERLAY (SEE SPECIAL PROVISIONS)	SQ. YD.		9256	9256
CLASS B1 CONCRETE	CU.YD.	27.0	3.0	30.0
SUBSTRUCTURE REPAIR (FORMED) SEE SPECIAL PROVISIONS	SQ. FT.	1216		1216
SUBSTRUCTURE REPAIR (UNFORMED) SEE SPECIAL PROVISIONS	SQ. FT.	654		654
PROTECTIVE COATING- CONCRETE BENTS (DELETERIOUS AGENTS)	LUMP SUM		1	1
PREFORMED COMPRESSION EXPANSION JOINT SEAL (1.0 IN.)	LIN. FT.		2016	2016
REINFORCING STEEL (BRIDGES)	LBS.		2960	2960
NAVIGATION LIGHTING SYSTEM	LUMP SUM		1	1
REINFORCING STEEL (EPOXY COATED)	LBS.		1050	1050
EXPANSION DEVICE (FINGER PLATE)	LIN. FT.		96	96
FABRICATED STRUCTURAL CARBON STEEL (MISC.)	LBS.		57620	57620
FABRICATED STRUCTURAL LOW ALLOY STEEL (A-572)(MISC.)	LBS.		1050	1050
STEEL GRID FLOOR (CONCRETE FILLED)(4¼")(SEE SPECIAL PROVISION)	SQ. FT.		87209	87209
BRIDGE RAIL (TWO TUBE STRUCTURAL STEEL)	LIN. FT.		5224	5224
VERTICAL DRAIN AT END BENTS	EACH	2		2
PAINTING (SYSTEM C) GREEN ••	LUMP SUM		0	0
OPEN CURBING	LIN. FT.		3900	3900
CLOSED CURBING	LIN. FT.		1327	1327
PRESSURE GROUTING (EPOXY)	LIN. FT.	42		42
FLOORBEAM TOP FLANGE ANGLE REPLACEMENT (THRU TRUSS) •	EACH		10	10
SPECIAL WORK (BRIDGES)	LUMP SUM			1
BRIDGE ANCHOR SECTION	EACH			4

•SEE SPECIAL PROVISIONS
•• ESTIMATED AT 4,200 TONS

LINE #	ITEM	TOTAL
504.01	WELD REM & CRACK RPR	51248.34
504.02	FLOORBEAM REPLACEMENT	243,270.02
504.03	PORTAL REVISION	61,906.38
504.04	HAZARDOUS WASTE REMOVAL	50,425.41
504.05	STRINGER REPLACEMENT	17,091.56
504.06	PAINT SYSTEM C	1.00
504.07	CONTAIN BLST PR LA PT	309,799.12
504.08	SHUT DOWN REMBSMT	1.00
504.09	FLOOR BEAM REPL I-R	1.06
504.10	PREF EXP JT SL (2")	32.00

NOTE: ALL REINFORCEMENT IS INCLUDED IN SUPERSTRUCTURE QUANTITIES.

NOTE: ROCK REVETMENT AT BT. #1 AND #9 SHALL BE RESTORED AS SHOWN ON SHEET NO. 2 OF 22 OF ORIGINAL PLANS FOR BR. NO. J-1000. THE RESTORATION SHALL BE PAID FOR AS A ROADWAY ITEM.

GENERAL NOTES:

DESIGN SPECIFICATIONS: A.A.S.H.T.O.-1983 AND INTERIMS THRU 1988. LOAD FACTOR DESIGN

DESIGN LOADING: HS20-44 FLOOR SYSTEM, NO FUTURE WEARING SURFACE, EARTH 120#/CU.FT. EQUIVALENT FLUID PRESSURE 45#/CU.FT.

DESIGN UNIT STRESSES: CLASS B1 CONCRETE f'c= 4,000 psi
CLASS B1 SPECIAL CONC. SPEC. MIX (SUPERSTR. GRID FILL) f'c=4,000 psi
REINFORCING STEEL (GRADE 60) fy=60,000 psi
STRUCTURAL CARBON STEEL fy=36,000 psi
STRUCTURAL STEEL (A.S.T.M. A-572) GRADE 50 fy=50,000 psi
STRUCTURAL STEEL TUBING (TS) fy=46,000 psi

REINFORCING STEEL: MINIMUM CLEARANCE TO REINFORCING STEEL SHALL BE 1½", UNLESS OTHERWISE SHOWN.

FLOOR SYSTEM: STEEL GRID FLOOR (CONC. FILLED) (SEE SPECIAL PROVISIONS)

PAINTING: SYSTEM C(GREEN)BY CONTRACTOR IN ACCORDANCE WITH STD. SPEC. 712.12 AND SPECIAL PROVISIONS.

STRUCTURAL STEEL: STRUCTURAL STEEL TUBING (TS) FOR RAIL SHALL BE A-500-501 (GRADE B) ALL OTHER STRUCTURAL STEEL SHALL BE A-36 EXCEPT AS NOTED.

NAVIGATION AND CLEARANCE LIGHTS: ALL NAVIGATION AND CLEARANCE LIGHTING SHALL BE KEPT IN OPERATION DURING ALL CONSTRUCTION.

FIELD CONNECTION: FIELD CONNECTIONS, HIGH STRENGTH BOLTS ¾"Ø, HOLES 13/16"Ø, EXCEPT AS NOTED.

ALL MISSING OR DETERIORATED RIVETS SHALL BE REMOVED AND REPLACED WITH HIGH STRENGTH BOLTS.
BARS BONDED IN OLD CONCRETE NOT REMOVED SHALL BE CLEANLY STRIPPED AND EMBEDDED INTO NEW CONCRETE WHERE POSSIBLE. IF LENGTH IS AVAILABLE, OLD BARS SHALL EXTEND INTO NEW CONCRETE AT LEAST 40 DIAMETERS FOR SMOOTH BARS AND 30 DIAMETERS FOR DEFORMED BARS.

LIGHT DOTTED LINES INDICATE OLD WORK. HEAVY LINES INDICATE NEW WORK. CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN FIELD BEFORE ORDERING NEW STEEL.

PROFILE GRADE ELEVATIONS SHALL BE 1⅛" ABOVE EXISTING PROFILE GRADE.

PAYMENT FOR FURNISHING AND INSTALLING RESIN ANCHOR SYSTEMS SHALL BE FULLY COVERED BY THE CONTRACT UNIT PRICE FOR CONCRETE.

B.M. 483.19 on TOP of BARRIER @ S.W. CORNER STA 10+48
493.26 on TOP of BARRIER @ S.E. CORNER STA 36+62

BRIDGE OVER MISSOURI RIVER

STATE ROAD FROM WENTZVILLE TO ST.LOUIS
NEAR WELDON SPRINGS
PROJECT NO. STA. 10+48.39
JOB NO. 6-P-40-298C RTE. 40
ST.CHARLES-ST.LOUIS COUNTY

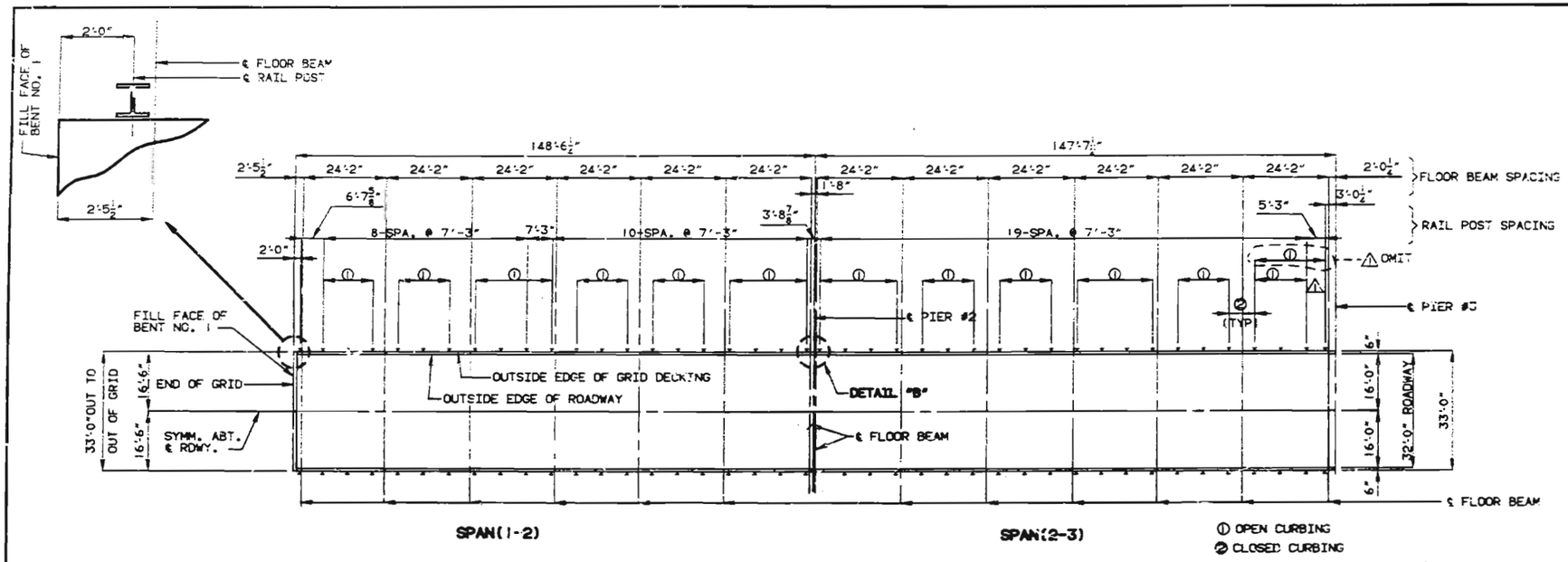
STD. 706.35
J-1000R

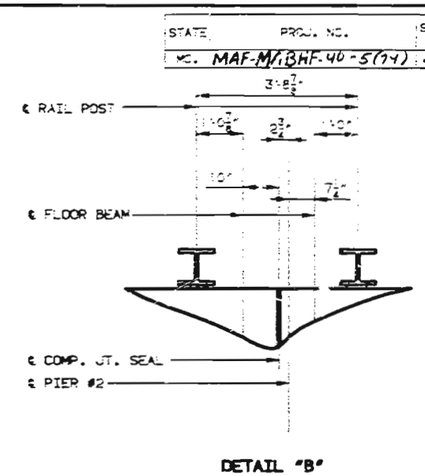
DESIGNED MAY 1989
DETAILED SEPT 1989
CHECKED SEPT 1989

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 1A OF 27

421

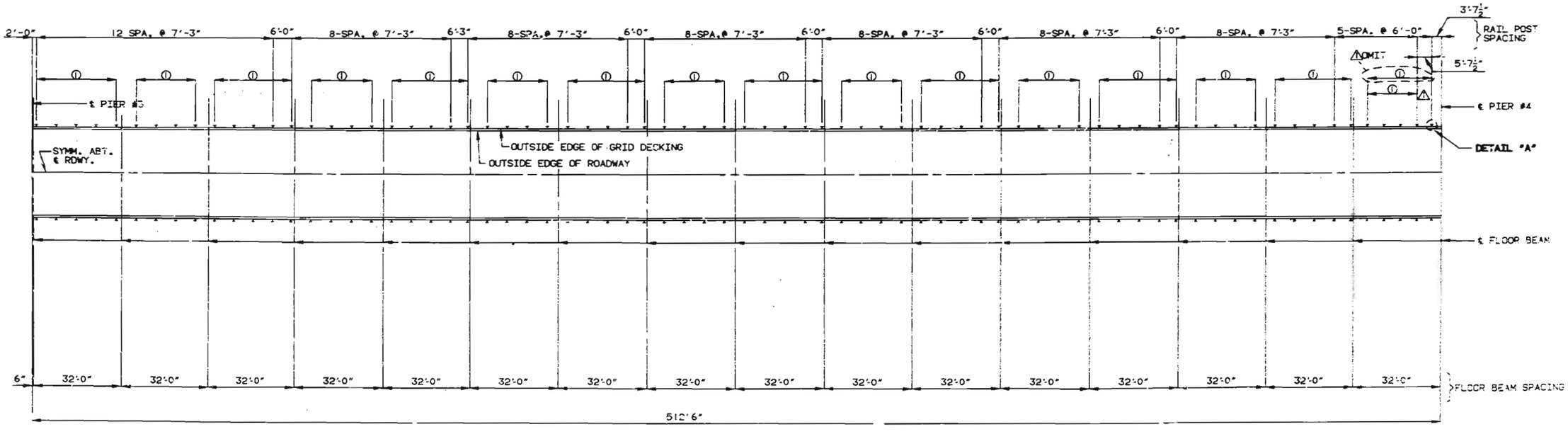




NOTE: FOR DETAIL "A" SEE SHEET NO.24.
FOR DETAILS OF OPEN CURB SEE SHEET NO. 24.
FOR DETAILS OF CLOSED CURB SEE SHEET NO. 23.
FOR DETAILS OF GRID SPLICE SEE SHEET NO. 16.

NOTE: DIMENSIONS SHOWN ARE HORIZ. AND TAKEN FROM ORIGINAL PLANS.

NOTE: FOR GRID DETAILS AT EXP. DEVICE AT PIER NO. 2 SEE SHEET NO.19.



SPAN(3-4)

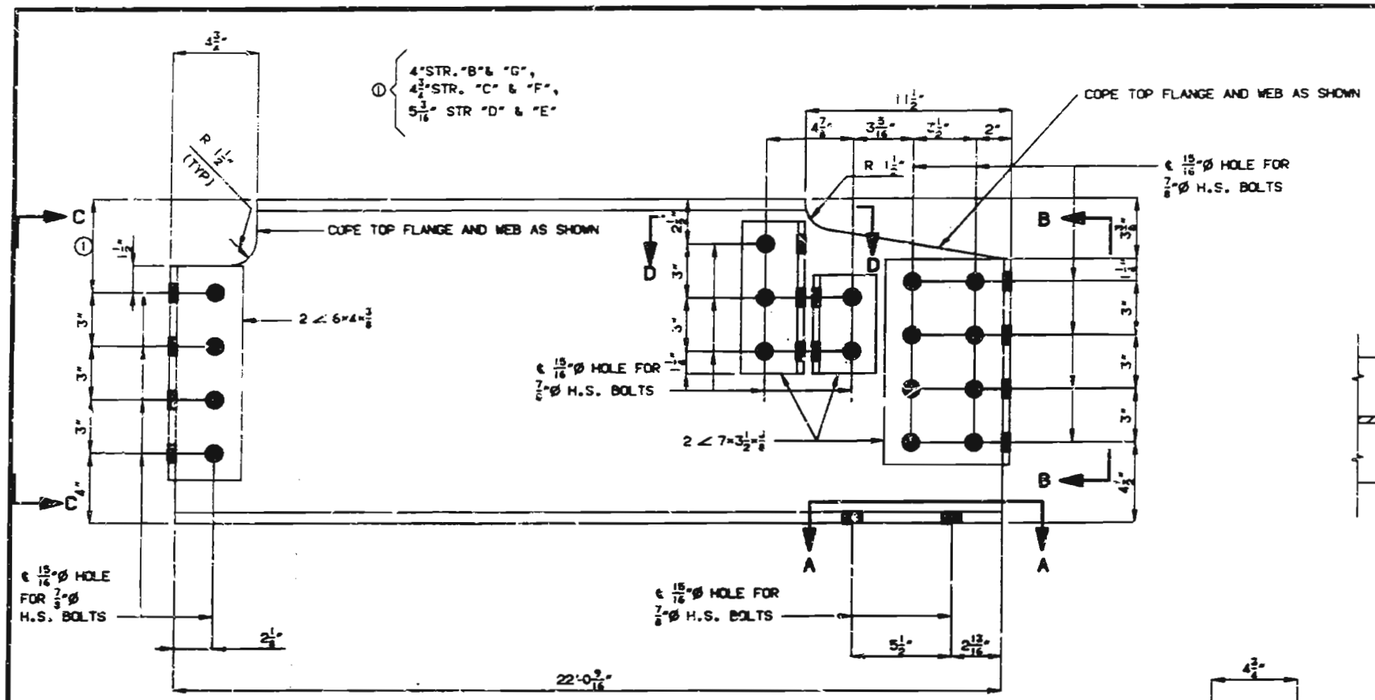
PART PLAN OF GRID DECK

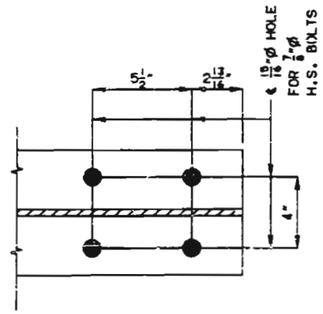
DETAILED SEPT 1989
CHECKED SEPT 1989

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS. ⚠ REVISED 12/5/89

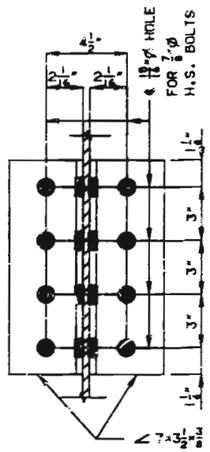
42

STATE	PROJ. NO.	SHEET NO.
MO.	MAF-MABHF-70-5(74)	38

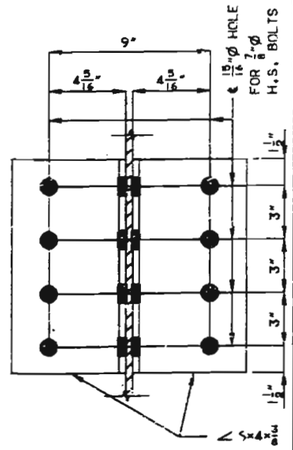




SECTION A-A

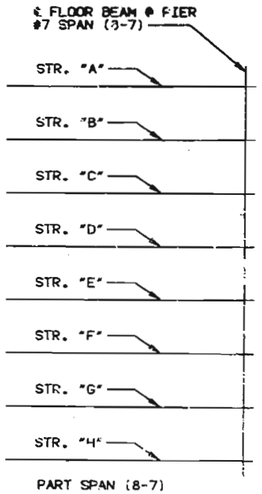


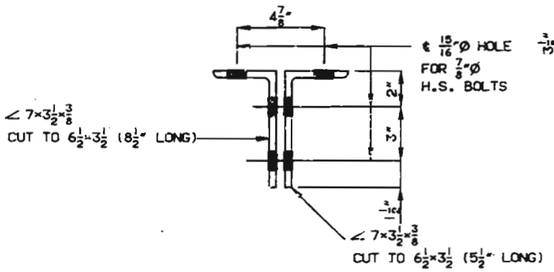
SECTION B-B



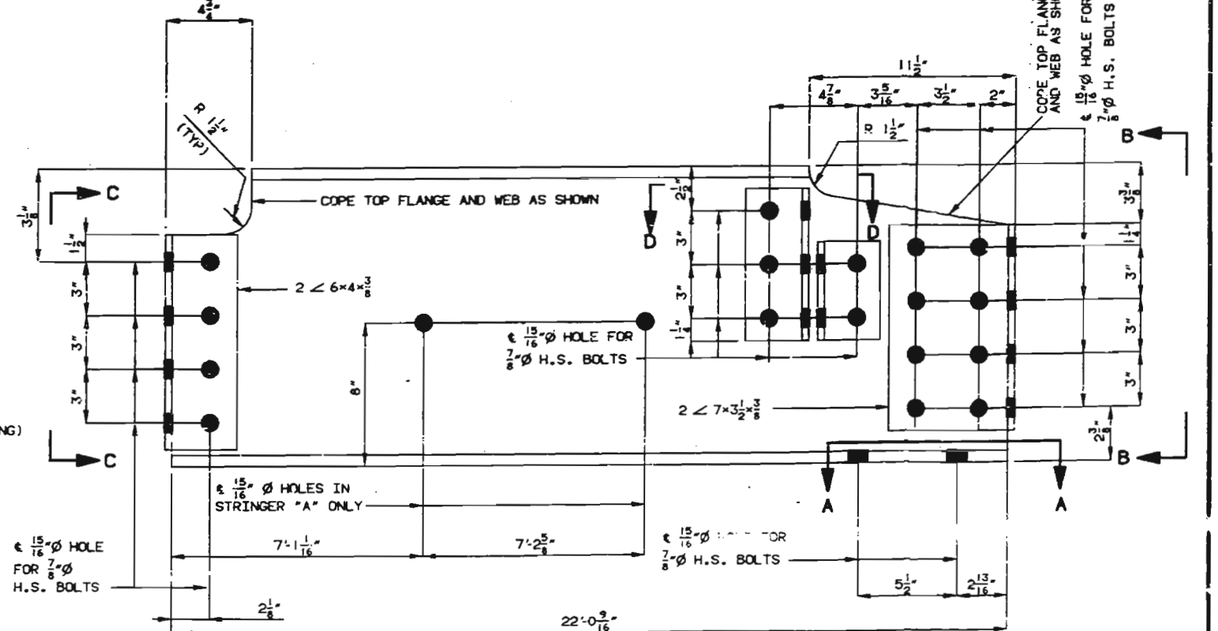
SECTION C-C

6 INTERIOR STRINGERS "B","C","D","E","F" & "G"
W 18×55





SECTION D-D



2 EXTERIOR STRINGERS "A" & "H"
W 16×40

DETAIL OF REPLACEMENT STRINGERS AT PIER NO.7 SPAN(8-7)

473

DETAILED MAY 1990
CHECKED MAY 1990

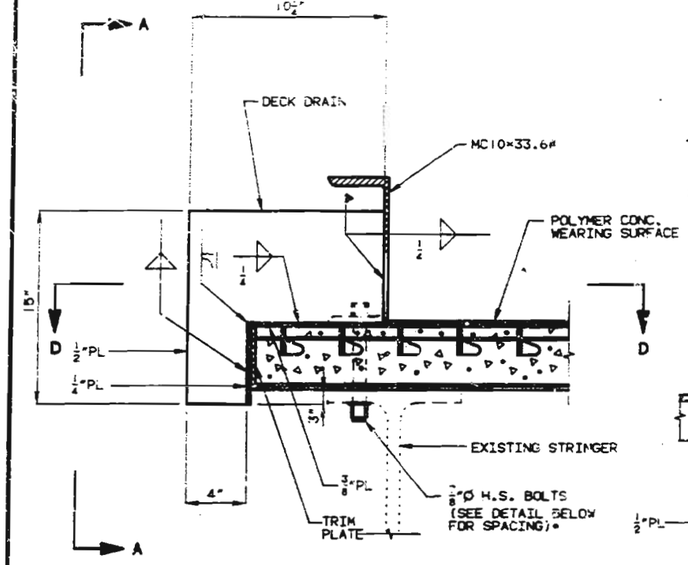
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

18A-A final Plans
SHEET NO. 18A OF 27

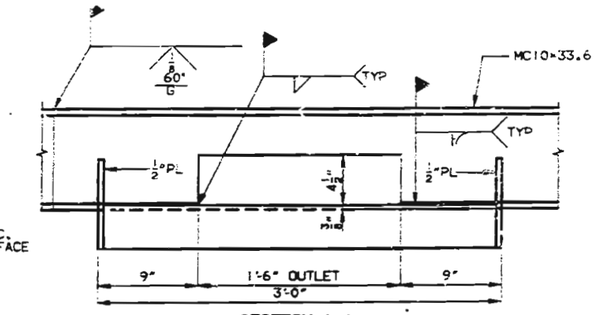
ST. CHARLES-ST. LOUIS COUNTY

J-1000R
FINAL PLANS

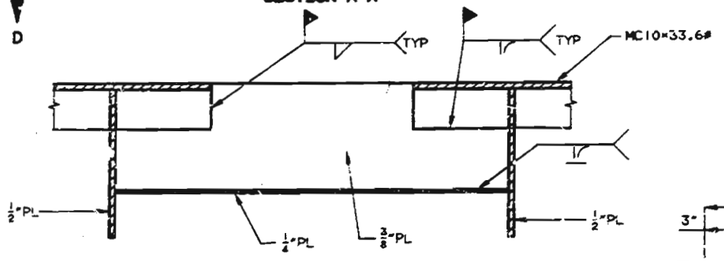
STATE	PROJ. NO.	SHEET NO.
MO.	MAF-MABHF-90-S(TH)	24



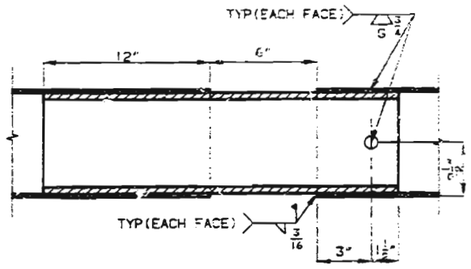
TYPICAL SECTION THRU CURB OUTLET SHOWING DECK DRAIN



SECTION A-A



SECTION D-D



DETAIL "C"

NOTE: FOR LOCATION OF DETAIL "C" SEE SHEET NO. 23.
FOR BOLTING NOTES SEE SHEET NO. 23.

• FIELD DRILL $\frac{15}{16}$" ø HOLE IN LEG OF MC10×33.6# AND FLANGE OF EXISTING STR. OFFSET HOLES TO MISS INTERFERENCE. BOLT CURB DOWN BEFORE CONCRETE IS POURED. MANUFACTURER OF GRID TO ALLOW FOR PLACEMENT OF CURB. (NO BOLTS LOCATED INSIDE OF OUTLET.)

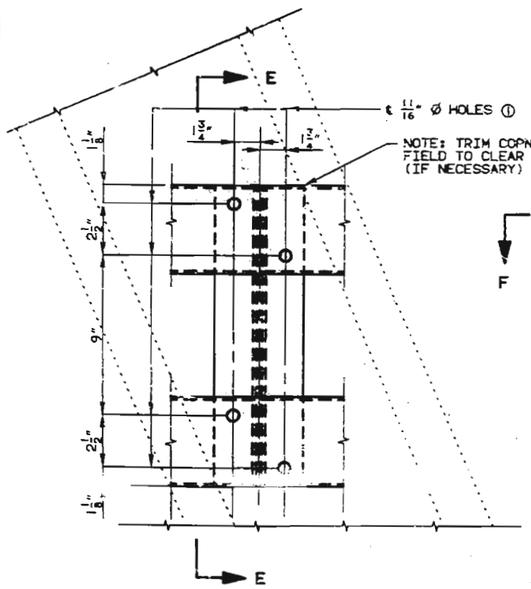
IN AREAS OF CLOSED CURBING USE SAME SPACING AT RAIL POST WITH AN ADDITIONAL BOLT CENTERED BETWEEN RAIL POSTS.

NOTE: COST OF MATERIALS, FABRICATION, AND INSTALLATION OF DECK DRAINS SHALL BE INCLUDED IN PRICE BID FOR OPEN CURBING.

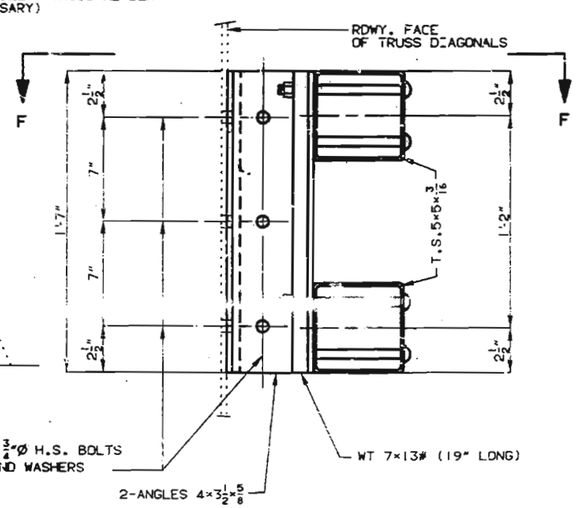
CENTER ONE OUTLET PER RAIL POST SPACING IN AREAS OF OPEN CURBING.

① USE ⅝"ø BUTTON HEAD BOLTS WITH ONE FLAT WASHER AND HEX. NUT. HOLES TO BE FIELD DRILLED.

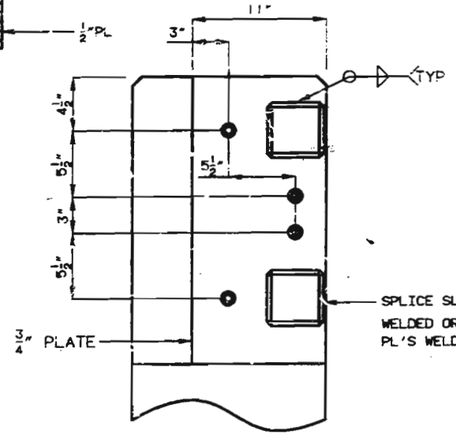
NOTE: FOR LOCATION OF DETAIL "A" SEE SHEET NO. 13, 14 & 15.
FOR DETAILS OF RAIL ATTACHMENT SEE SHEET NO. 23.



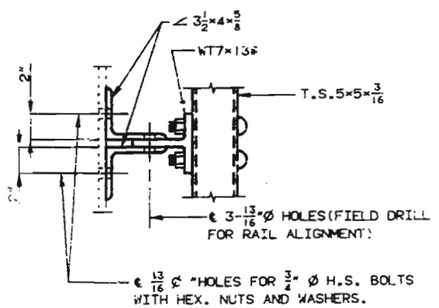
DETAIL "A"



SECTION E-E

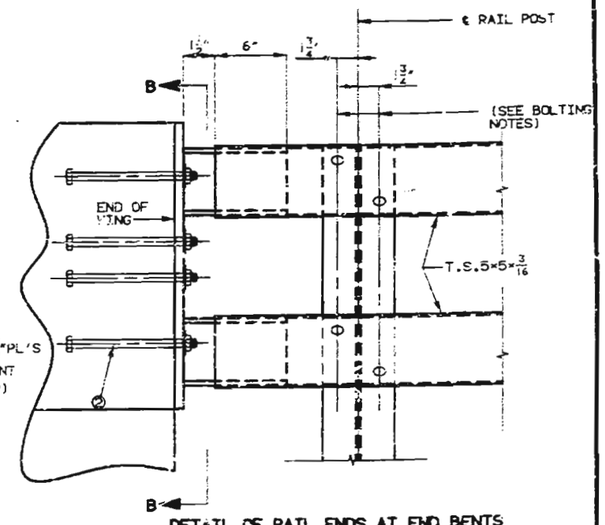


SECTION B-B



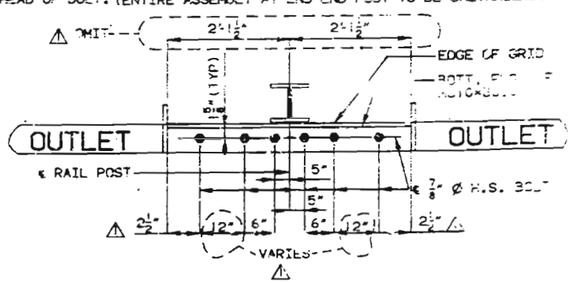
SECTION F-F

NOTE: FOR RAIL POST NOTES SEE SHEET NO. 23.



DETAIL OF RAIL ENDS AT END BENTS

② ℄ 1" ø ANCHOR BOLT (A-307) WITH HEX NUT AND WASHER (18" LONG), THREADED RODS, GRADE A-321 (7" LONG) WITH 2 HEX NUTS AND WASHERS MAY BE SUBSTITUTED FOR A-307 ANCHOR BOLTS. EACH OF THE A-321 THREADED RODS SHALL BE FURNISHED WITH A 1"×2½"×2½" PLA (ASTM A-36) TACK WELD TO HEAD OF BOLT. (ENTIRE ASSEMBLY AT END END POST TO BE GALVANIZED)



TYPICAL DETAIL OF BOLTS BETWEEN RAIL POSTS

OPEN CURB AND RAIL DETAILS

DETAILED SEPT 1989
CHECKED SEPT 1989

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS. ⚠ REVISED 12/5/89

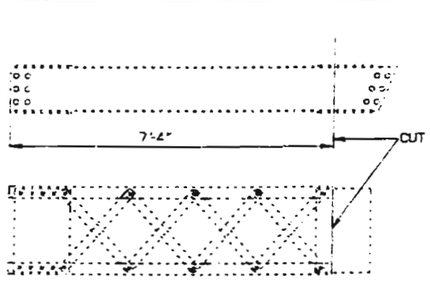
SHEET NO. 24A OF 27.

ST. CHARLES--ST. LOUIS COUNTY

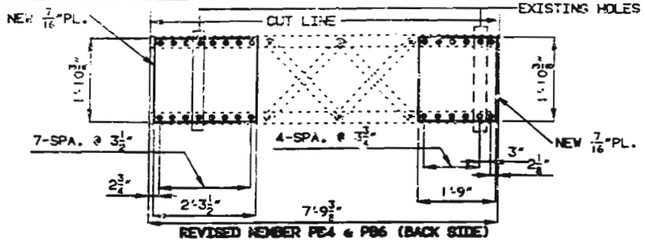
J-1000R
FINAL PLANS

47x4

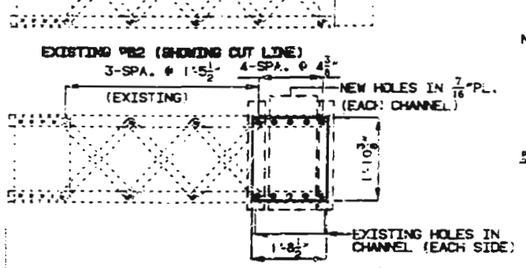
STATE	PROJ. NO.	SHEET NO.
MO.	MAF-MABAF-40-5(74)	39



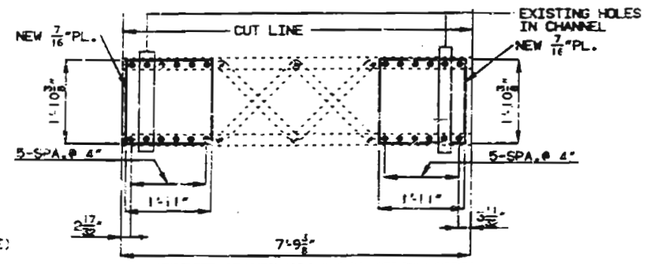
EXISTING PB2 (SHOWING CUT LINE)



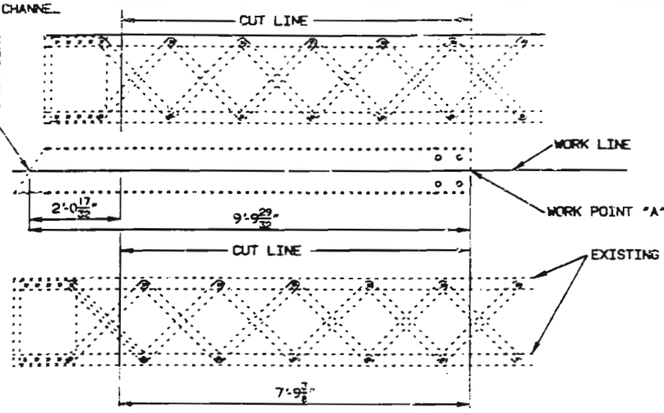
REVISED MEMBER PB4 & PB6 (BACK SIDE)



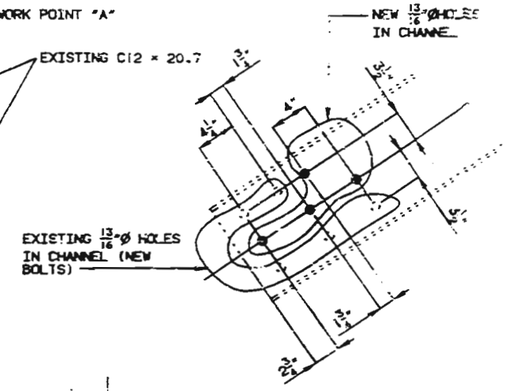
EXISTING PB2 (SHOWING ADDITION OF 7/16"PL.)



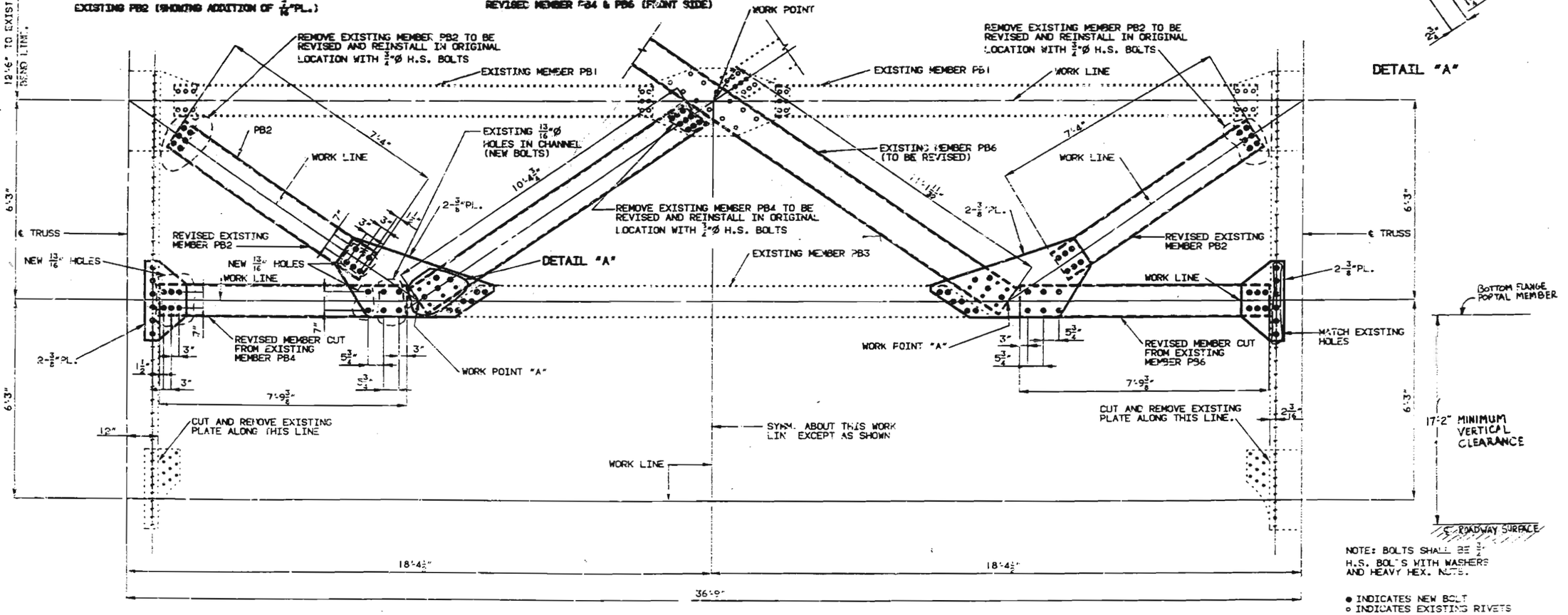
REVISED MEMBER PB4 & PB6 (FRONT SIDE)



EXISTING PB4 & PB6 (SHOWING CUT LINES)



DETAIL "A"



NOTE: BOLTS SHALL BE 3/4" H.S. BOLTS WITH WASHERS AND HEAVY HEX. NUTS.

● INDICATES NEW BOLT
○ INDICATES EXISTING RIVETS

REVISED PORTALS AT L0-U1 AND L0'-U1'

475

DETAILED FEB 1990
CHECKED FEB 1990

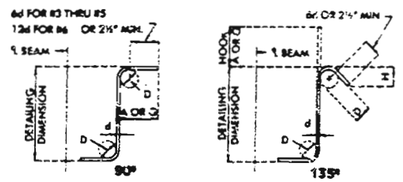
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

24A-A Final Plans
SHEET NO. 24A OF 27

ST. CHARLES-ST. LOUIS COUNTY

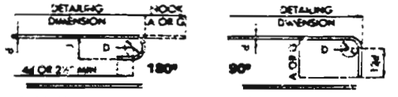
J-1000R

RL PLANS



STIRRUP HOOK DIMENSIONS				
		GRADES 40-50-60 KSI		
BAR SIZE	D (IN.)	90° HOOK	135° HOOK	
		HOOK A OR G	HOOK A OR G	APPROX H
#3	1½"	4"	4"	2½"
#4	2"	4½"	4½"	3"
#5	2½"	6"	5½"	3¾"
#6	4½"	12"	7¾"	4½"

NOTE UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



SIZE OF 180° HOOKS (GRADE 40 KSI)
D - 3d FOR #3 THRU #11
D - 10d FOR #14 AND #18

SIZE of 90° HOOKS (ALL GRADES)
AND 180° HOOKS (GRADE 60 KSI)
D - 6d FOR #3 THRU #8
D - 8d FOR #9, #10 AND #11
D - 10d FOR #14 AND #18

END HOOK DIMENSIONS				
BAR SIZE	D (IN)	180° HOOKS ALL GRADES		90° HOOKS ALL GRADES
		A OR G	J	A OR G
#3	2½"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3¾"	7"	5"	10"
#6	4½"	8"	6"	12"
#7	5¼"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9¾"	15"	11¼"	19"
#10	10¾"	17"	13"	22"
#11	12"	19"	14¾"	2'-0"
#14	18¼"	2'-3"	21¼"	2'-7"

NOTES:

ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEG. TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEG. STD. HOOKS.

HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.

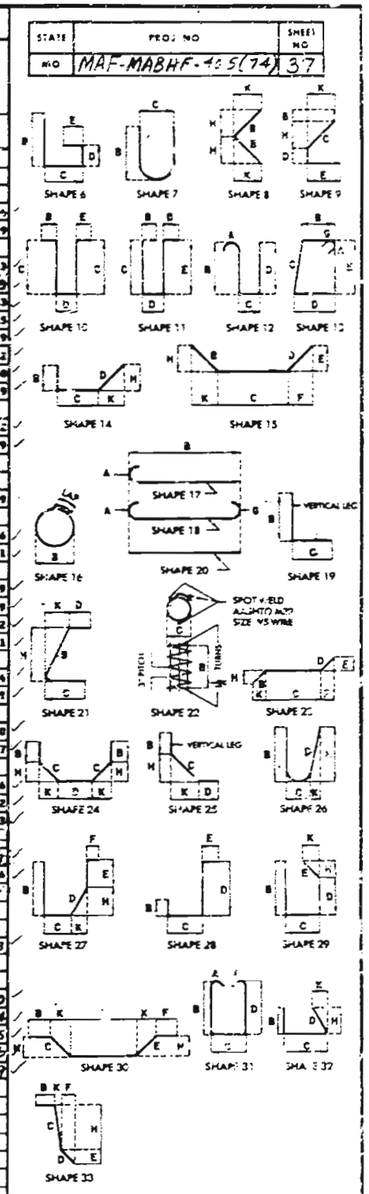
E - EPOXY COATED REINFORCEMENT.
S - STIRRUP
X - BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.
V - BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.
NO. EA. - NUMBER OF BARS OF EACH LENGTH.
NOMINAL LENGTHS - ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST INCH)
ACTUAL LENGTHS - ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.
PAY WEIGHTS ARE BASED ON ACTUAL LENGTHS.

COMPLETE BILL OF REINFORCING STEEL

NO. REQD.	MARK NO. SIZE MARK	LOCATION	E	EPOXY	SHAPE NO	S STIRRUP	X	SUBSTR.	V	NO. EACH	DIMENSIONS B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.
		BENT NO 1																		
6	6N10	WING	E	E						8	3.000							8 3	8 3	74
8	6N11	WING		E						8	3.000							8 3	8 3	99
24	6N12	WING		E				V	4	8	0.000							8 0	8 0	
		INCR = 11.375 IN								3	3.000							3 3	3 3	233
1	6N14	APPROACH MAUNCH		E						78	9.000							26 9	28 9	79
2	6N17	BACKWALL		E						34	4.000							34 4	34 4	183
2	6N18	WING BRACE		E	23	S					16.125	3 8.000				11.375	11.375	5 8	5 8	19
2	6N19	WING		E						3	0.000							3 0	3 0	9
4	6T11	WING		E	25	S				2	1.000	7 11.750	23.000			4 11.000	6 3.375	12 0	11 11	72
29	4N13	APPROACH MAUNCH		E	18	S						15.000	9.000					3 3	3 4	66
35	5N14	BACKWALL		E	18	S						12.000	9.000					3 5	3 3	119
24	6V10	WING		E				V	4	6	6.000							6 6	6 6	
		INCR = 9.625 IN								2	6.000							2 6	2 6	162
12	6V12	WING		E	[illegible]					7	2.000							7 2	7 2	129
		BENT NO 9																		
10	6T61	WING		E	19	S					16.000	4 4.000	16.000	9.875	9.875	9.875	9.875	6 8	6 7	99
4	6N6C	WING	E	E	20					9	3.000							9 3	9 3	56
8	6N61	WING		E	20					9	3.000							9 3	9 3	111
24	6N62	WING		E	28			V	4	9	0.000							9 0	9 0	
		INCR = 14.000 IN								3	2.000							3 2	3 2	219
2	6N64	BACKWALL		E	28					39	9.000							39 9	39 9	139
6	6N65	BACKWALL		E	28					39	9.000							39 9	39 9	212
1	6N66	BACKWALL		E	28					39	9.000							39 9	39 9	21
4	6T61	WING		E	25	S				2	8.000	7 10.375	2 6.000			4 2.000	6 8.000	12 4	12 3	74
4	6T62	CURTAIN WALL		E	19	S				7	1.000	4 6.000						11 7	11 5	69
14	4N65	CURTAIN WALL		E	11	S					12.000	4 6.000	9.000	3 9.000				11 6	10 8	180
30	4N65	APPROACH MAUNCH		E	10	S						15.000	6.000					3 0	2 10	57
28	6V66	WING		E	20			V	4	2	6.000							2 6	2 6	
		INCR = 7.625 IN								6	4.000							6 4	6 4	186
8	6V61	WING		E	20					6	10.750							6 10	6 10	82
16	6V62	CURTAIN WALL		E	20					6	10.000							6 10	6 10	73
68	5V63	BACKWALL		E	20					6	9.000							6 9	6 9	478
12	5V64	BACKWALL		E	20					6	10.000							6 10	6 10	86
		GUARD RAIL ATTACHMENT																		
96	5R1	END POST	E	E	19	S				3	8.000	10.000						4 6	4 9	443
22	5R4	END POST	E	E	20					8	3.000							8 3	8 3	152
4	5R5	END POST	E	E	20					8	6.000							8 8	8 8	56
4	5R6	CURB	E	E	20					8	3.000							8 3	8 3	35
20	5R7	CURB	E	E	20	S				5	1.000							5 1	5 1	105
20	5R8	CURB	E	E	20	S				4	9.000							4 9	4 9	97
		END OF BAR LIST																		

NOTE: Two (2) additional #6 #10 & #5 #4 are included in bar bill for testing.

BENDING DIAGRAMS



STATE	PROJ. NO	SHEET NO
MO	MAF-MABHF-[illegible](74)	37

STD. 90.8.5	REVISED
MAY 1974	APR 1980

DETAILED June 1989
CHECKED July 1989

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

Sheet No. 27A of 27

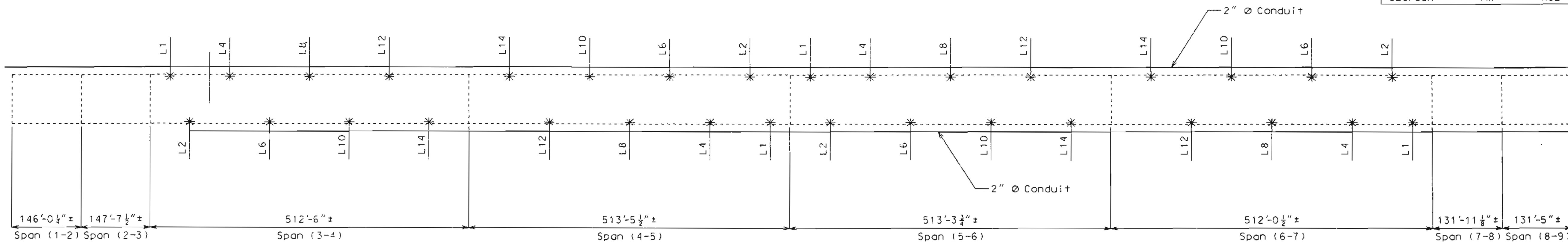
ST. CHARLES - ST. LOUIS COUNTY

J-1000R

FINAL PLANS

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

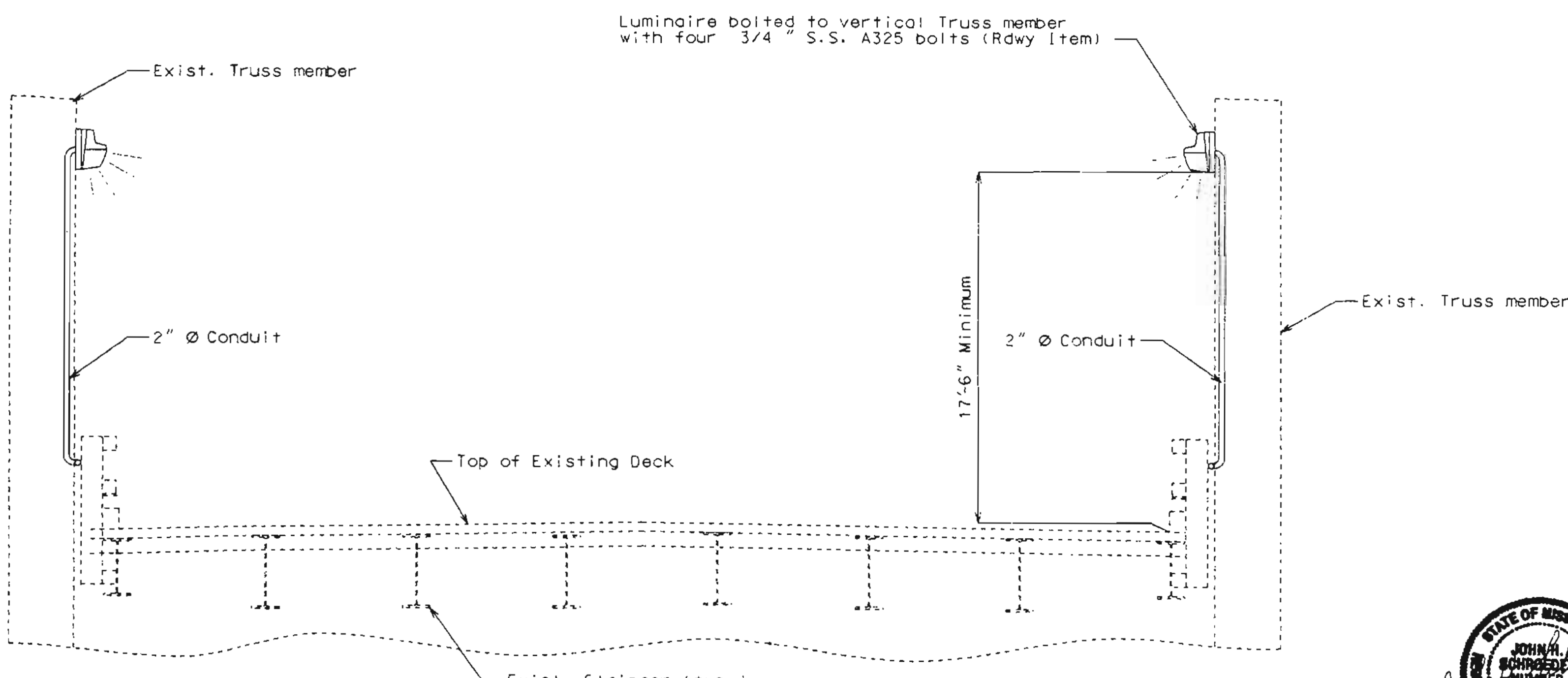
State	Proj. No.	Sheet No.
MO		B95
SEC/SUR	TWP	RGE



PLAN PLACEMENT OF LUMINAIRES

✱ Luminaire on vertical truss member

ESTIMATED QUANTITIES				
ITEM		SUBSTR.	SUPERSTR.	TOTAL
Conduit System on Structure	lump sum			1



TYPICAL SECTION THRU TRUSS
SPAN (3-4),(4-5),(5-6) & (6-&7)

General Notes:

All conduit shall be 2"Ø flexible metallic conduit secured to the rail posts and to the truss verticals at about 5'-0" cts.

Weepholes shall be provided at appropriate locations to drain any moisture in the conduit,system.

Expansion fittings shall be installed on conduit lines at each slab expansion device.

Expansion fittings shall provide a minimum movement in either direction of 9" at Piers 3 and 9 and 11 1/2" at Pier 5.

Junction boxes shall be placed as required. The terminations and covers shall be of watertight construction.

Payment for furnishing and installing Conduit System complete in place, will be paid for at the contract unit price for Conduit System on Structure. lump sum.

Traffic over structure to be maintained during construction. (See roadway plans for traffic control).

Outline of old work is indicated by dashed lines. Heavy lines indicate new work.

Cost of furnishing and placing anchor bolts for light standard shall be included in the contract unit price for other items.

Light standards, wiring and fixtures shall be furnished and installed by others.

For details of light standards, and wiring, see electrical plans.

STATE OF MISSOURI
JOHN R. SCHROEDER
NUMBER E-19027
REGISTERED PROFESSIONAL ENGINEER
DATE 9/12/00

BRIDGE OVER MISSOURI RIVER

STATE ROAD FROM RTE. 94 TO RTE. 340
IN CHESTERFIELD
PROJECT NO. STA. 00 + 319.549±
JOB NO. J6P0672F RTE. 40 W.B.L.

LIGHTING DETAILS FOR BRIDGE

ST. CHARLES - ST. LOUIS COUNTY
Date: 9/12/00

J10004

REV.

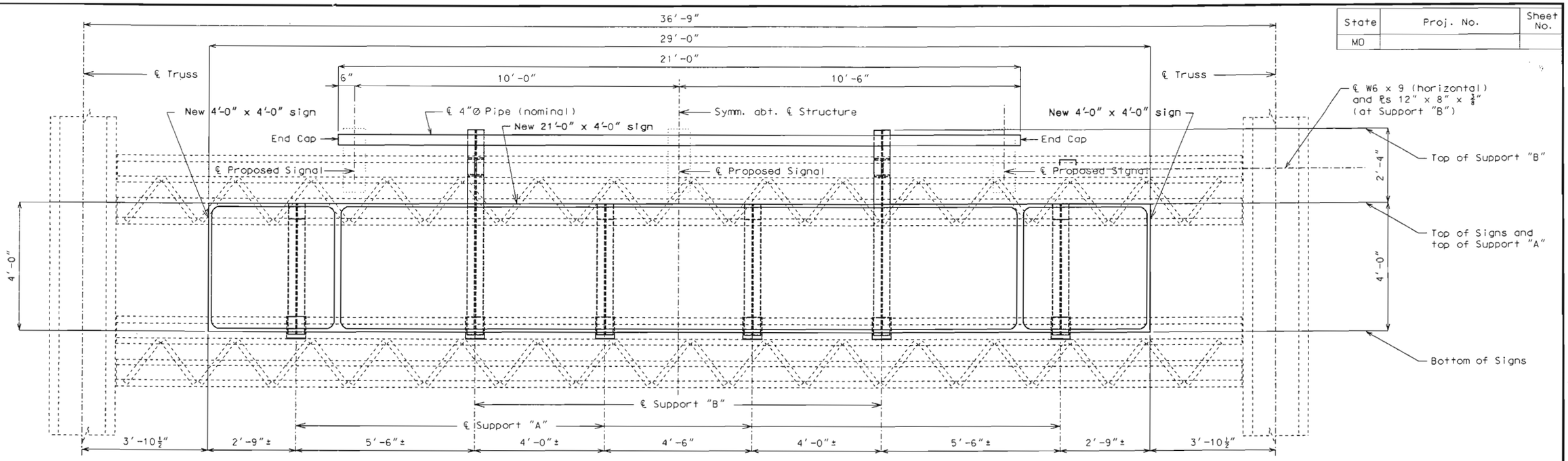
Designed July 2000
Detailed July 2000
Checked Aug. 2000

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

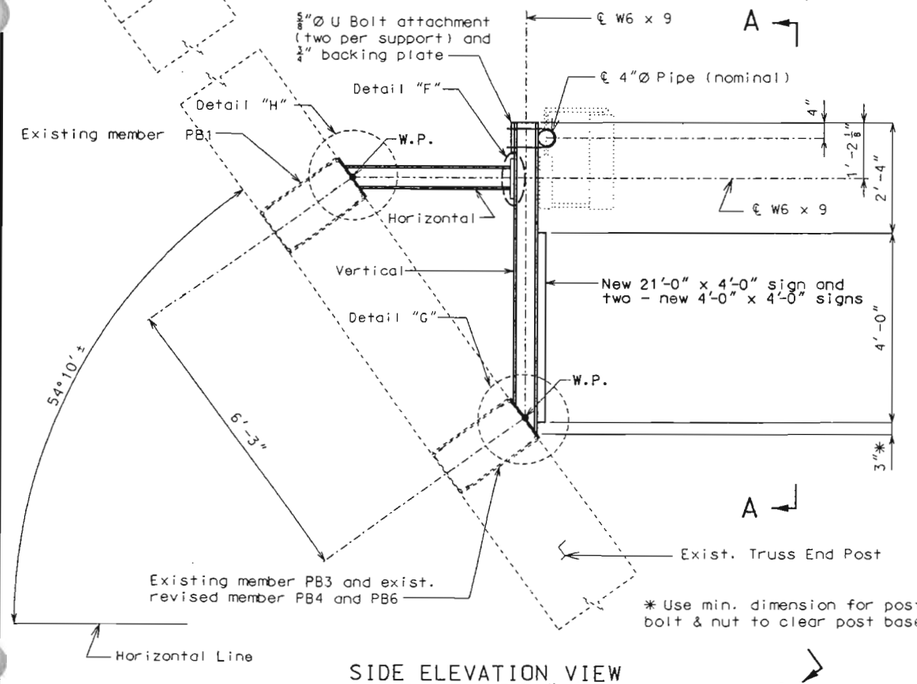
Sheet No. 1 of 1

14:55:26 30 AUG 2000

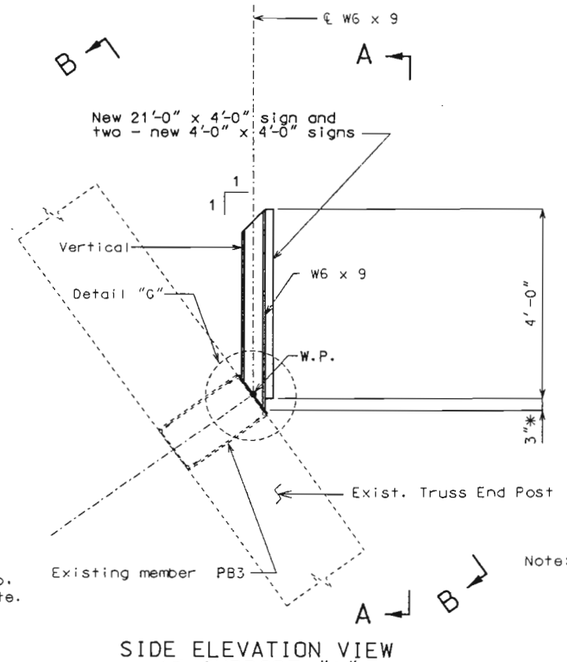
State	Proj. No.	Sheet No.
MO		



FRONT ELEVATION A-A



SIDE ELEVATION VIEW AT SUPPORT "B"



SIDE ELEVATION VIEW AT SUPPORT "A"

ESTIMATED QUANTITIES

ITEM		SUBSTR.	SUPERSTR.	TOTAL
Fabricated Sign Support Brackets	lump sum			1

GENERAL NOTES:

Center and level signs.

All pipe, end caps, bolts, nuts and washers shall be galvanized.

All structural steel shall be ASTM A709 Grade 36, galvanized.

The cost of furnishing and erecting the new sign supports, complete-in-place, shall be paid for as "Fabricated Sign Support Brackets" per lump sum.

Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

The contractor shall verify all dimensions in field before ordering new steel.

Shift sign support brackets to minimum extent necessary to allow for clearence to existing gusset plates.

Cost of 4"Ø (nominal) Pipe ASTM A53 Grade B (schedule 40), including end caps per details from Mo. Std. Plan 903.10 and attachment, approved by the Engineer, to be included in bid price above.

12" extruded panels for signs shall be full length (29').

Proposed Signals and wiring shall be furnished and installed by others.

STATE OF MISSOURI JOHN N. SCHROEDER NUMBER E-19027 REGISTERED PROFESSIONAL ENGINEER
DATE 1/8/02

Note: Existing cross bracing not shown for clarity, see Elevation B-B.
For Elevation B-B, see sheet no. 2.
For Detail "F", Detail "G" and Detail "H", see sheet no. 3.

Sign Attachment to End Portal at Pier No. 7

Job No. J6P0672F

ST. CHARLES -ST. LOUIS COUNTY J10004

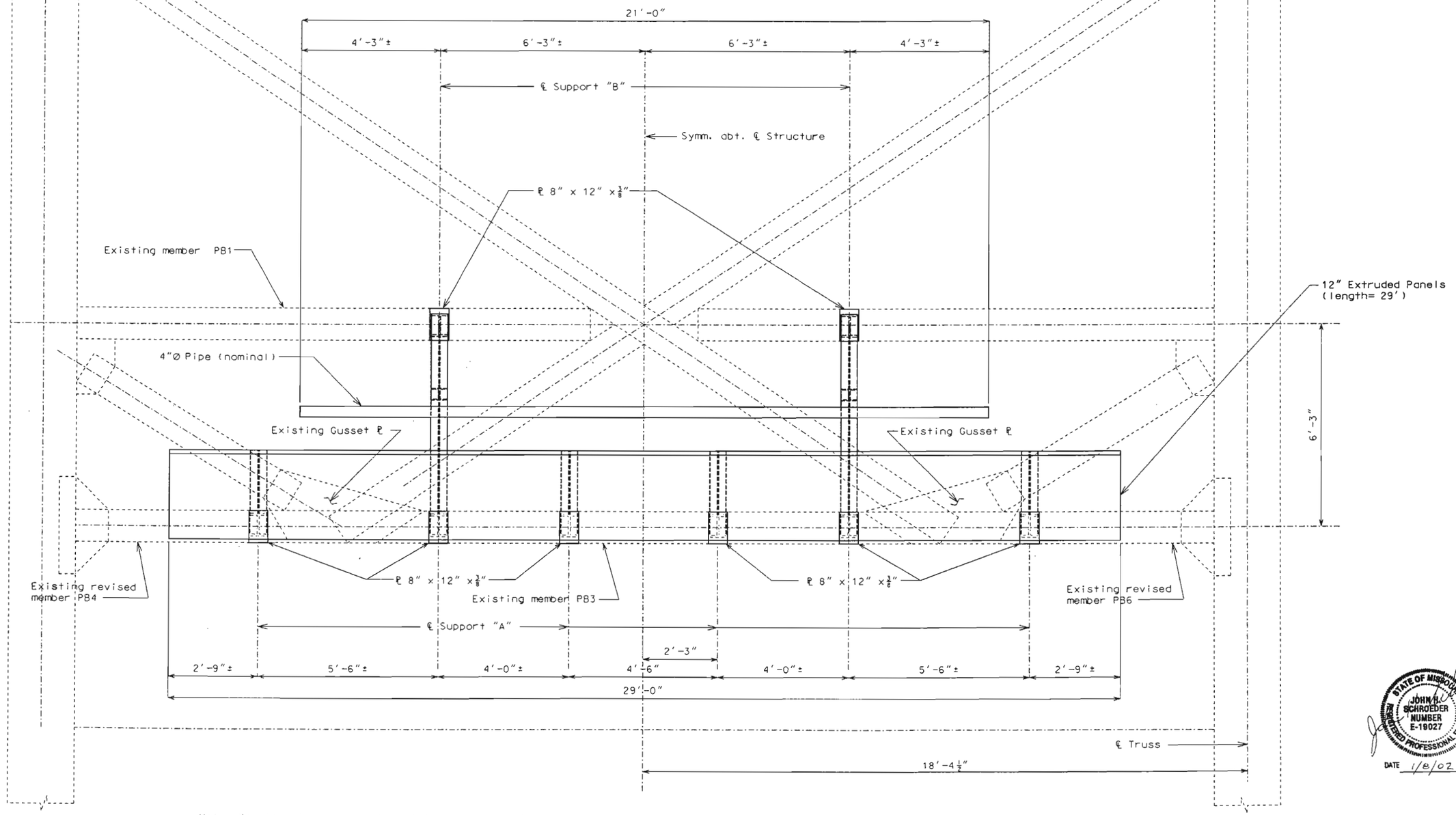
REV.

Detailed Dec. 2001
Checked Dec. 2001

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

T:\br-proj\bander\SIGNS\j6p0672f\j6p0672f_j10004_1a.dgn 4:07 AM 12/27/2001

State	Proj. No.	Sheet No.
MO		



Note: For location of Elevation B-B see sheet no.1

ELEVATION B-B

Sign Attachment to End Portal at Pier No. 7

Job No. J6P0672F

ST. CHARLES -ST. LOUIS COUNTY J10004

REV.

STATE OF MISSOURI JOHN H. SCHROEDER NUMBER E-19027 REGISTERED PROFESSIONAL ENGINEER

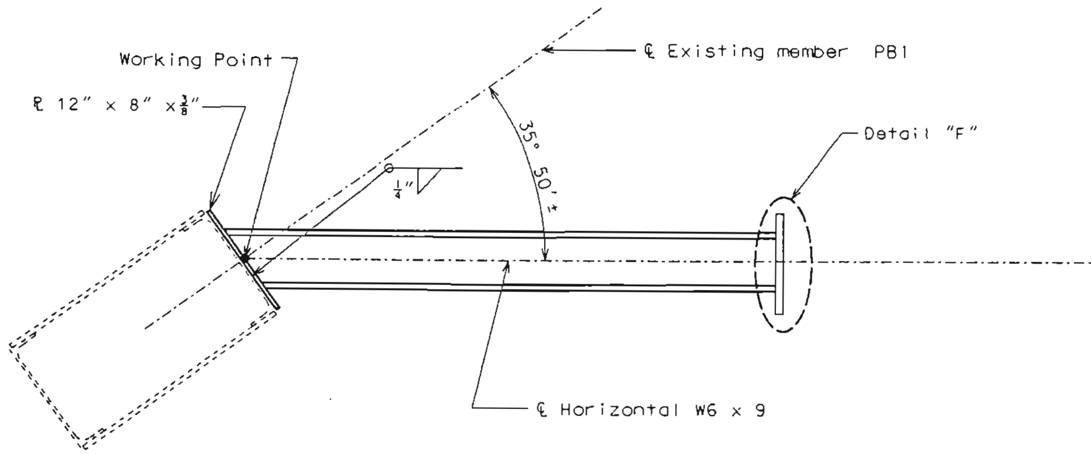
DATE 1/8/02

Detailed Dec. 2001
Checked Dec. 2001

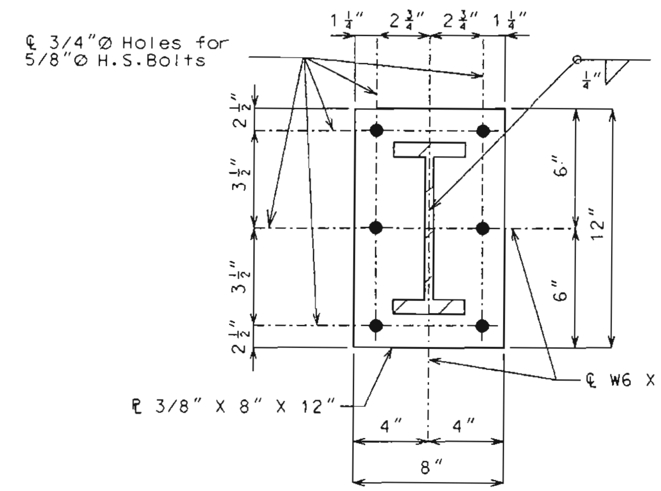
Note: This drawing is not to scale. Follow dimensions.

t:\br-proj-bander\SIGNS\j6p0672f_j10004.dgn 10:08:09 AM 12/26/2001

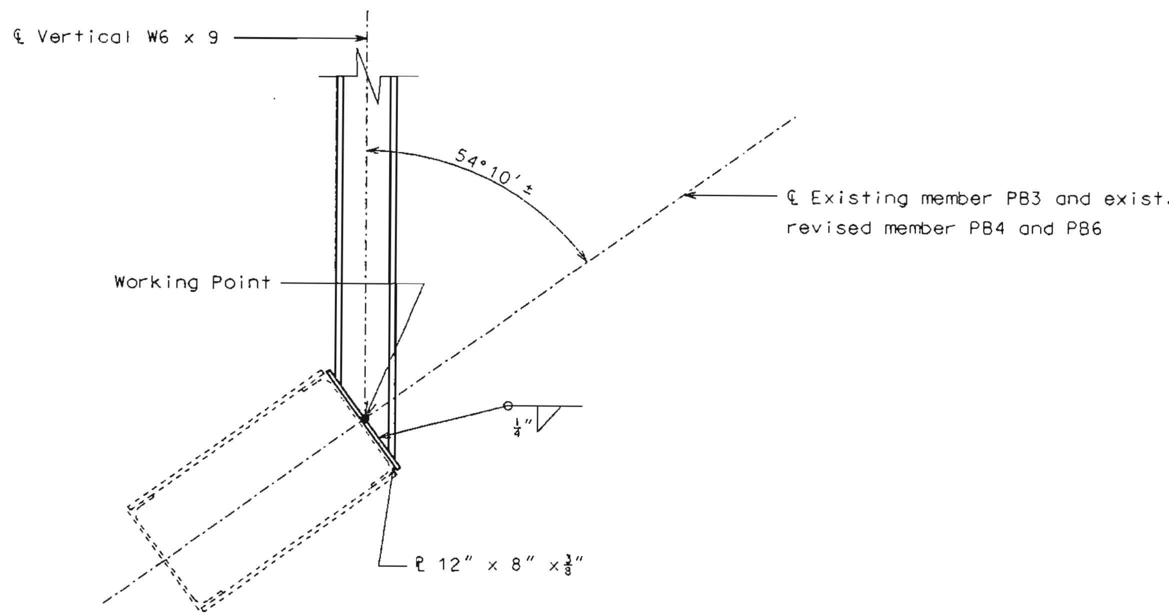
State	Proj. No.	Sheet No.
MO		



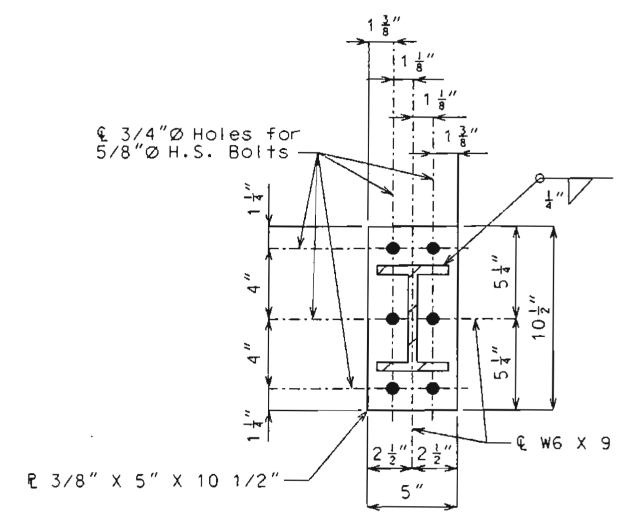
DETAIL "H"



DETAIL "G" AND DETAIL "H"



DETAIL "G"



DETAIL "F"

Note: For Location of Detail "F" . Detail "G" . & Detail "H". see sheet no. 1.

STATE OF MISSOURI JOHN H. SCHROEDER NUMBER E-19027 REGISTERED PROFESSIONAL ENGINEER

DATE 1/8/02

Sign Attachment to End Portal
at Pier No. 7

Job No. J6P0672F

Detailed Dec. 2001
Checked Dec. 2001

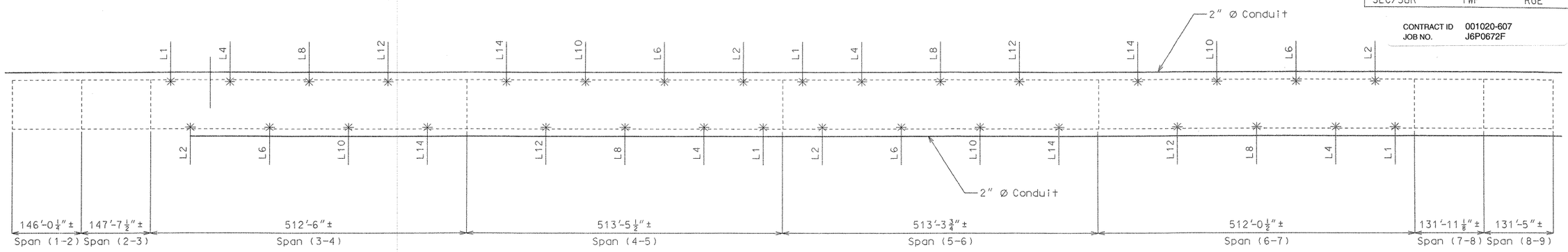
Note: This drawing is not to scale. Follow dimensions.

ST. CHARLES -ST. LOUIS COUNTY | J10004 | REV.

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

State	Proj. No.	Sheet No.
MO	FAF-40-5(89)	895
SEC/SUR	TWP	RGE

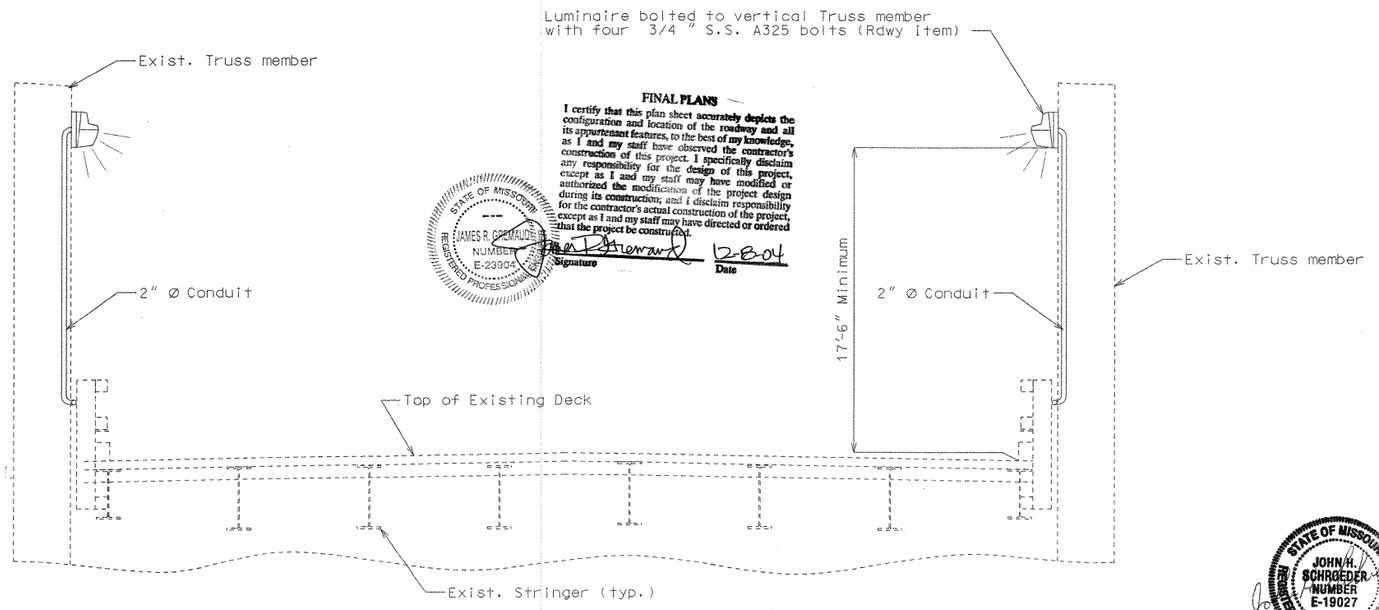
CONTRACT ID 001020-607
JOB NO. J6P0672F



PLAN PLACEMENT OF LUMINAIRES

✳ Luminaire on vertical truss member

ESTIMATED QUANTITIES			
ITEM	SUBSTR.	SUPERSTR.	TOTAL
Conduit System on Structure lump sum			1



FINAL PLANS
I certify that this plan sheet accurately depicts the configuration and location of the roadway and all its appurtenant features, to the best of my knowledge, as I and my staff have observed the contractor's construction of this project. I specifically disclaim any responsibility for the design of this project, except as I and my staff may have modified or authorized the modification of the project design during its construction; and I disclaim responsibility for the contractor's actual construction of the project, except as I and my staff may have directed or ordered that the project be constructed.
STATE OF MISSOURI — JAMES R. GREMAUDEAU — NUMBER E-23904 — REGISTERED PROFESSIONAL ENGINEER
Signature
Date 12-8-04

TYPICAL SECTION THRU TRUSS
SPAN (3-4),(4-5),(5-6) & (6-&7)

STATE OF MISSOURI — JOHN H. SCHROEDER — NUMBER E-19027 — REGISTERED PROFESSIONAL ENGINEER
DATE 9/13/00

General Notes:

All conduit shall be 2"Ø flexible metallic conduit secured to the rail posts and to the truss verticals at about 5'-0" cts.

Weepholes shall be provided at appropriate locations to drain any moisture in the conduit system.

Expansion fittings shall be installed on conduit lines at each slab expansion device.

Expansion fittings shall provide a minimum movement in either direction of 9" at Piers 3 and 9 and 11 1/2" at Pier 5.

Junction boxes shall be placed as required. The terminations and covers shall be of watertight construction.

Payment for furnishing and installing Conduit System complete in place, will be paid for at the contract unit price for Conduit System on Structure, lump sum.

Traffic over structure to be maintained during construction. (See roadway plans for traffic control).

Outline of old work is indicated by dashed lines. Heavy lines indicate new work.

Cost of furnishing and placing anchor bolts for light standard shall be included in the contract unit price for other items.

Light standards, wiring and fixtures shall be furnished and installed by others.

For details of light standards, and wiring, see electrical plans.

LIGHTING DETAILS FOR BRIDGE

BRIDGE OVER MISSOURI RIVER

STATE ROAD FROM RTE. 94 TO RTE. 340
IN CHESTERFIELD
PROJECT NO. STA. 00 + 319.549±
JOB NO. J6P0672F RTE. 40 W.B.L.

ST. CHARLES - ST. LOUIS COUNTY
Date: 9/12/00

J10004 REV.

Designed July 2000
Detailed July 2000
Checked Aug. 2000

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

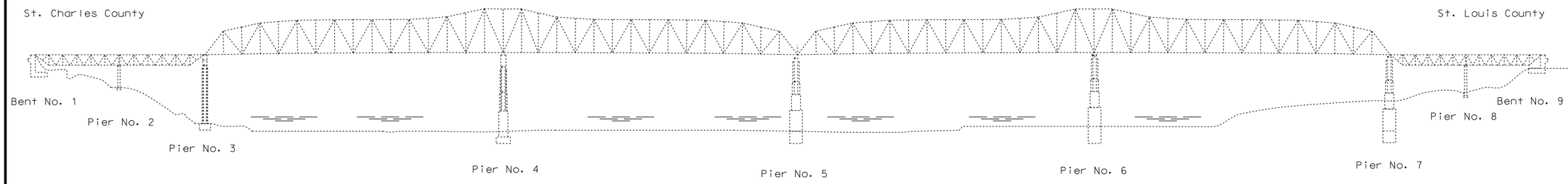
Sheet No. 1 of 1

T:\br-proj\taylod2\j6p0672f\j-1000R_001c.dgn 14:55:26 30 AUG 2000

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

REHABILITATE & U.I.P. EXISTING 145', 145' DECK TRUSS SPANS, (512'-512') (512'-512') CONTINUOUS THRU TRUSS SPANS, 130', 130' DECK TRUSS SPANS

SEC/SUR 34 TWP 46N RGE 3E



GENERAL ELEVATION

General Notes:

Design Specifications:

2002 - AASHTO 17th Edition
Load Factor Design
Seismic Performance Category A
Bridge Deck Rating = 7

Design Loading:

H20 (1931); HS20-44 (1989) (Grid Deck only)
No Future Wearing Surface

Design Unit Stresses:

Structural Steel (ASTM A709 Grade 50) fy = 50,000 psi

Verify Dimensions:

Contractor shall verify all dimensions in field before ordering new material.

Traffic Control:

Maintain one to two lanes of traffic on structure limited to nightime construction except for allowed weekend closures.
See roadway plans & roadway job special provisions for traffic control during construction.

Fabricated Steel Connections:

Field connections shall be made with 3/4" diameter high strength bolts and 13/16" diameter holes, except as noted or where 7/8"Ø rivets are being replaced.

High strength bolts, nuts and washers will be sampled for quality assurance as specified in Sec 106 and Field Section (FS-712) from Materials Manual.

Structural Steel Repairs:

Fabricated structural steel shall be ASTM A709 Grade 50, except as noted.

All new steel shall be subject to notch toughness requirements.

A water resistant, durable, seal material shall be provided at all ends of repair plates and angles with gaps between new and existing structural steel. All required structural steel coating shall be applied prior to the installation of the seal material.

Concrete Protective Coatings:

Protective coating for concrete bents and piers (Urethane) shall be applied as shown on the bridge plans and in accordance with Sec 711.

Rivets:

All missing or deteriorated rivets shall be removed and replaced with high strength bolts. Rivets along the outside row of rivets at gusset plates with excessive pack rust shall be removed and replaced with high strength bolts, per the engineer's direction. The cost of furnishing and installing these high strength bolts will be considered completely covered by the contract unit price for Rivet Removal and Replacement, except as noted (See Special Provisions).

Miscellaneous:

Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.

"Sec" refers to the sections in the standard and supplemental specifications unless specified otherwise.

For Structural Steel Protective Coating notes, see Sheet No. 3.

Contractor shall verify all dimensions in field before ordering new material.

Estimated Quantities

Item		Total
Removal of Existing Bar Dams & Adjacent Wearing Surface	linear foot	96
Substructure Repair (Formed)	sq. foot	375
Protective Coating - Concrete Bents and Piers (Urethane)	lump sum	1
Cleaning and Coating Bearing	each	26
Rehabilitate Bearing	each	2
Bearing Seat Repair	each	3
Fatigue Crack Repair	each	3
Recoating Gusset Plates (System H)	each	106
Repair Existing Gusset Plates	each	17
Replace Existing Gusset Plates	each	6
Rivet Removal and Replacement	each	1000
Rivet Removal, Inspection and Replacement	each	72
Splice Plate Repair	each	16
Strengthening Existing Gusset Plates	each	32
Stringer Repair	each	1
Modified Finger Plate	linear foot	96
Silicone Expansion Joint Sealant	linear foot	64

REPAIRS TO BRIDGE:
RTE. 40 W.B. OVER MISSOURI RIVER

STATE ROAD FROM RTE. 94 TO RTE. CC
ABOUT 2.5 MILES SOUTHEAST OF RTE. 94
STA. 10+48.39± (MATCH EXIST.)

STATE OF MISSOURI
DEAN DAVID FRANKE
NUMBER PE-28132
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 5/13/2010
ROUTE 40 | STATE MO
DISTRICT BR | SHEET NO. 1
COUNTY ST. CHARLES ST. LOUIS
JOB NO. J6P1977
CONTRACT ID.
PROJECT NO.
BRIDGE NO. J10005

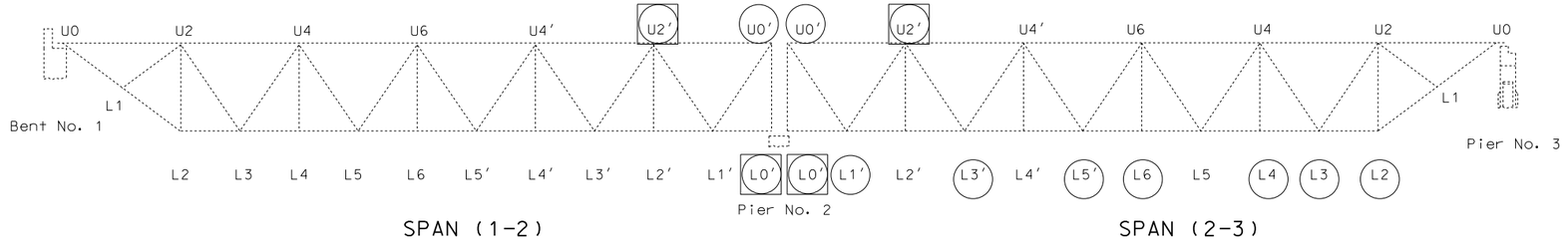
DESCRIPTION | DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

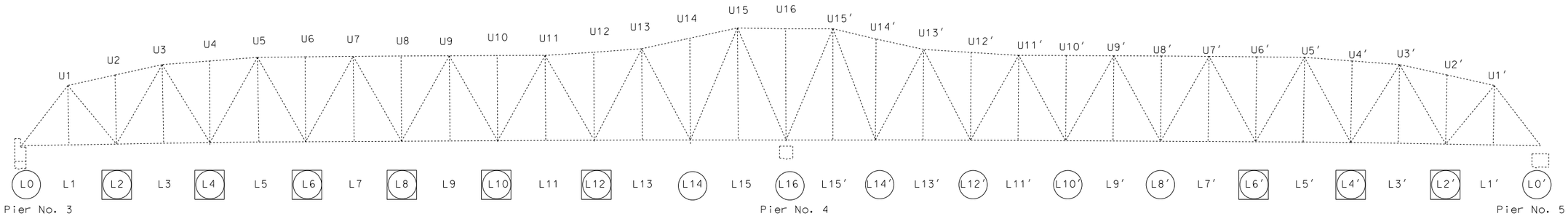
Detailed Oct. 2009
Checked Oct. 2009

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



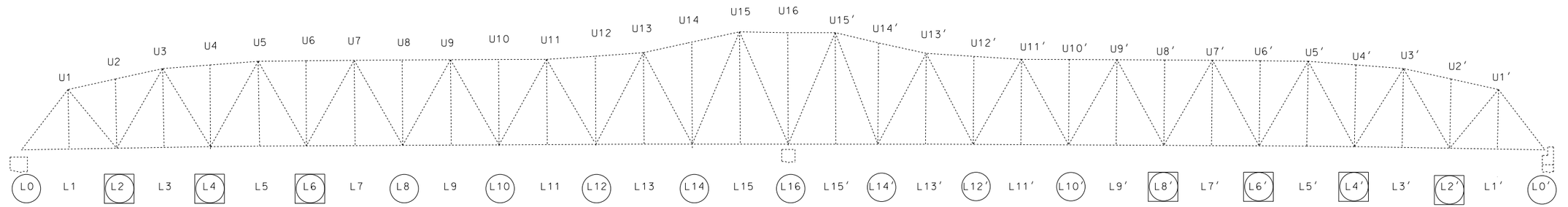
SPAN (1-2)

SPAN (2-3)



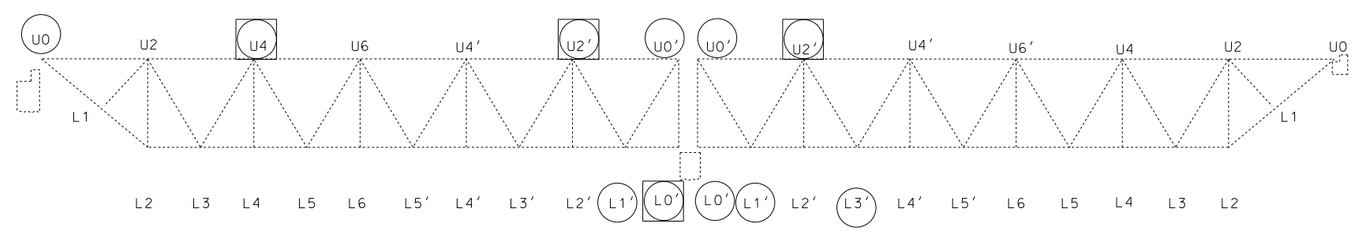
SPAN(3-4)

SPAN (4-5)



SPAN (5-6)

SPAN (6-7)



SPAN (7-8)

SPAN (8-9)

Notes:

The contractor shall stencil in black paint all the trusses panel points, except the end panels, on the east and west sides. The capital letters and number shall be approximately 3 inches in height. The corresponding upper panel point number for the deck trusses shall be stenciled on the outside face of vertical members except the L1 & L1′ shall be stenciled on the outside face of one of the diagonal member(s). The corresponding lower panel point number for the thru trusses shall be stenciled on the roadway face of the vertical member at a location 5 feet above the top of the deck. Also the even panel point numbers shall be stenciled on the outside gusset face of the east and west sides.

□ Panel points to be repaired. (Work with Sheets No. 6 thru 11).

○ Panel points to be recoated. (work with Sheet No. 3).

Some of the panel points in the field are mislabeled. The panel points shown on this sheet shall be used.

ELEVATION SHOWING PANEL POINT LOCATIONS TO BE RECOATED OR REPAIRED

Detailed Jan. 2010
Checked Jan. 2010

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

STATE OF MISSOURI
DEAN DAVID FRANKE
NUMBER PE-28132
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 2/11/2010

ROUTE	STATE
40	MO
DISTRICT	SHEET NO.
BR	2

COUNTY: ST. CHARLES, ST. LOUIS

JOB NO. J6P1977

CONTRACT ID.

PROJECT NO.

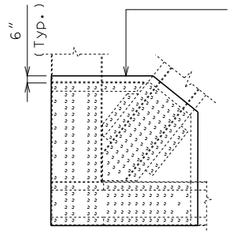
BRIDGE NO. J10005

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

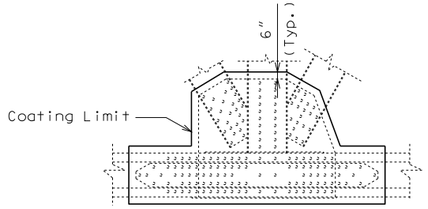
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



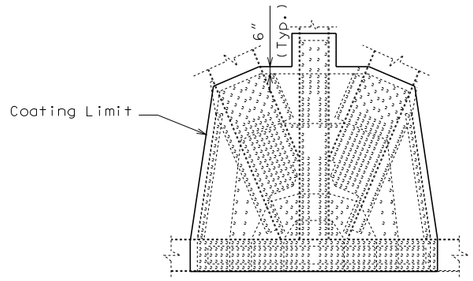
PART ELEVATION AT L0 & L0'
SHOWING COATING LIMITS
(8 LOCATIONS)(THRU TRUSS)

Note: Coat panel point at L0 E. & W. in Spans (3-4) & (5-6) and L0' E. & W. in Spans (4-5) & (6-7).



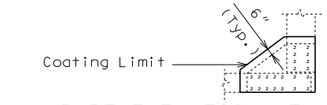
PART ELEVATION AT L2 & L2'
SHOWING COATING LIMITS
(56 LOCATIONS)(THRU TRUSS)
(L2, L2' shown, L4, L4', L6, L6', L8, L8', L10, L10', L12, L12', L14 & L14' similar)

Note: Coat panel point E. & W.: at L2, L4, L6, L8, L10, L12 & L14 in Spans (3-4) & (5-6) and L2', L4', L6', L8', L10', L12' & L14' in Spans (4-5) & (6-7)



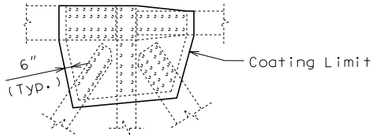
PART ELEVATION AT L16
SHOWING COATING LIMITS
(4 LOCATIONS)(THRU TRUSS)

Note: Coat panel point at L16 E. & W. at Piers No. 4 & 6.



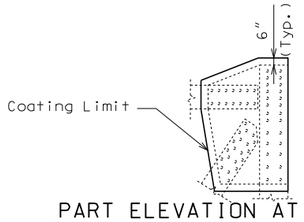
PART ELEVATION AT L0'
SHOWING COATING LIMITS
(8 LOCATIONS)(DECK TRUSS)

Note: Coat panel point at L0' E. & W. in Spans (1-2), (2-3), (7-8) & (8-9).



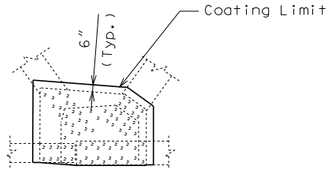
PART ELEVATION AT U2'
SHOWING COATING LIMITS
(8 LOCATIONS)(DECK TRUSS)

Note: Coat panel point at U2' E. & W. in Spans (1-2), (2-3), (7-8) & (8-9).



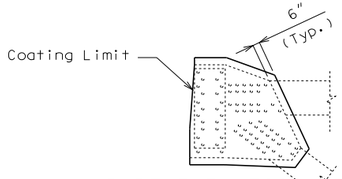
PART ELEVATION AT U0'
SHOWING COATING LIMITS
(8 LOCATIONS)(DECK TRUSS)

Note: Coat panel point at U0' E. & W. in Spans (1-2) & (2-3) and E. & W. in Spans (7-8) & (8-9).



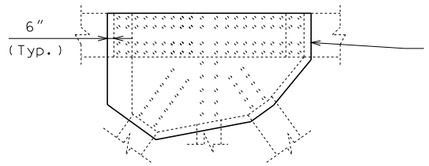
PART ELEVATION AT L1'
SHOWING COATING LIMITS
(4 LOCATIONS)(DECK TRUSS)

Note: Coat panel point at L1' W. in Span (2-3) and E. in Span (7-8) and E. & W. in Span (8-9).



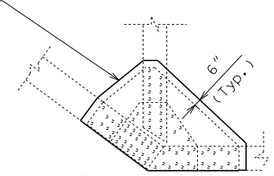
PART ELEVATION AT U0
SHOWING COATING LIMITS
(1 LOCATION)(DECK TRUSS)

Note: Coat panel point at U0 W. in Span (7-8).



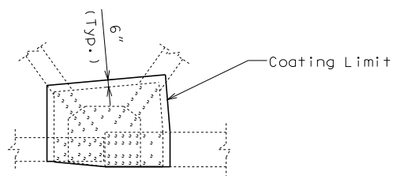
PART ELEVATION AT U4
SHOWING COATING LIMITS
(1 LOCATION)(DECK TRUSS)

Note: Coat panel point at U4 E. in Span (7-8).



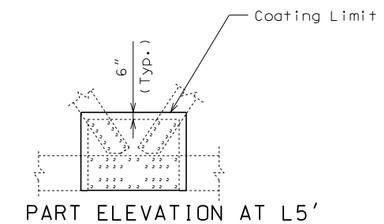
PART ELEVATION AT L2
SHOWING COATING LIMITS
(1 LOCATION)(DECK TRUSS)

Note: Coat panel point at L2 W. in Span (2-3).



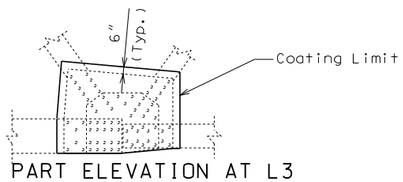
PART ELEVATION AT L3'
SHOWING COATING LIMITS
(2 LOCATIONS)(DECK TRUSS)

Note: Coat panel point at L3' W. in Spans (2-3) & (8-9).



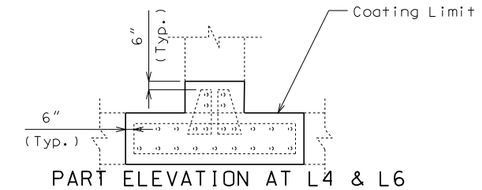
PART ELEVATION AT L5'
SHOWING COATING LIMITS
(1 LOCATION)(DECK TRUSS)

Note: Coat panel point at L5' W. in Span (2-3).



PART ELEVATION AT L3
SHOWING COATING LIMITS
(1 LOCATION)(DECK TRUSS)

Note: Coat panel point at L3 W. in Span (2-3).



PART ELEVATION AT L4 & L6
SHOWING COATING LIMITS
(3 LOCATIONS)(DECK TRUSS)

Note: Coat panel point at L4 W. in Span (2-3) and L6 E. & W. in Span (2-3).

Structural Steel Protective Coatings:

Protective Coating: System H in accordance with Sec 1081.

Coating Limits:

Coating limit at each panel point shall include all structural steel within the panel point to a limit of 6 inches beyond all connection plates, vertical and horizontal, at the panel point. Within coating limits shown all existing & new steel shall be coated with complete System H. Within this limit, items to be coated shall include all beams, plates, channels, angles, rivets, bolts and miscellaneous structural steel items. New finish field coat shall overlap existing coating by a minimum of 6 inches.

Surface Preparation: Surface preparation of all existing steel within the defined coating limits shall be in accordance with Sec 1081 for "Recoating of Structural Steel (System G or H)". The cost of surface preparation will be considered completely covered by the contract unit price per each for "Recoating Gusset Plates (System H)".

Prime Coat of Existing Steel: The cost of the prime coat will be considered completely covered by the contract unit price per each for "Recoating Gusset Plates (System H)". Tint of the prime coat for System H shall be similar to the color of the field coat to be used.

Prime Coat of New Steel: The cost of the prime coat will be considered included with the new steel being supplied for the repairs. Tint of the prime coat for System H shall be similar to the color of the field coat to be used.

Field Coat: The color of the finish field coat shall be Green (Federal Standard #24260). The cost of the intermediate field coat will be considered completely covered by the contract unit price per each for "Recoating Gusset Plates (System H)". The cost of the finish field coat will be considered completely covered by the contract unit price per each for "Recoating Gusset Plates (System H)".

Bearings:

Bearings shall be cleaned and coated with System H. (See Special Provisions)

Each panel point will be considered 1 location. E & W will be considered separate locations.

DETAILS OF STRUCTURAL STEEL PROTECTIVE COATING

(Elevation view shown, plan view similar)

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

Detailed Oct. 2009
Checked Oct. 2009

STATE OF MISSOURI
DEAN DAVID FRANKE
NUMBER PE-28132
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 5/13/2010

ROUTE	STATE
40	MO
DISTRICT	SHEET NO.
BR	3

COUNTY: ST. CHARLES
ST. LOUIS

JOB NO.: J6P1977

CONTRACT ID.:

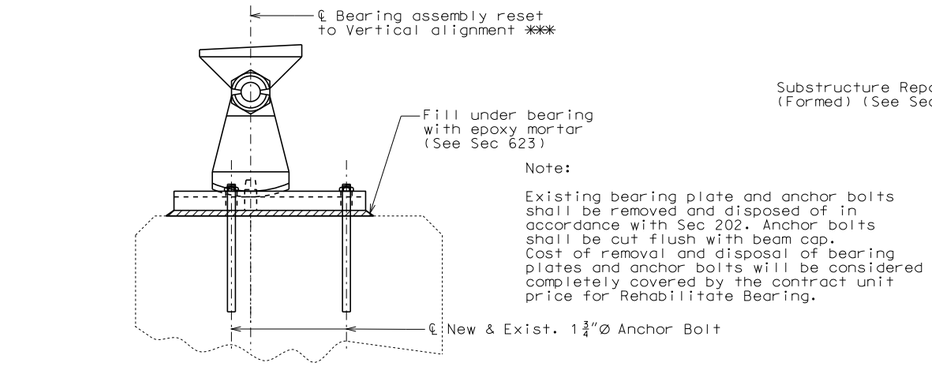
PROJECT NO.:

BRIDGE NO.: J10005

DESCRIPTION	DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

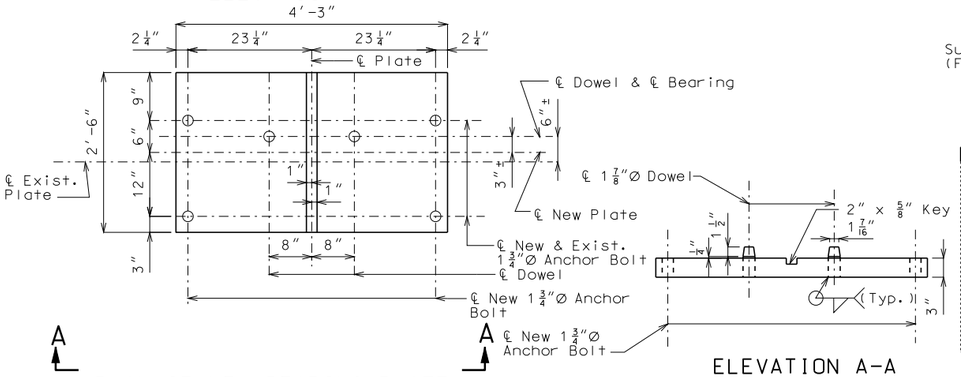
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



ELEVATION

Note:

Existing bearing plate and anchor bolts shall be removed and disposed of in accordance with Sec 202. Anchor bolts shall be cut flush with beam cap. Cost of removal and disposal of bearing plates and anchor bolts will be considered completely covered by the contract unit price for Rehabilitate Bearing.



PLAN OF NEW BEARING PLATE

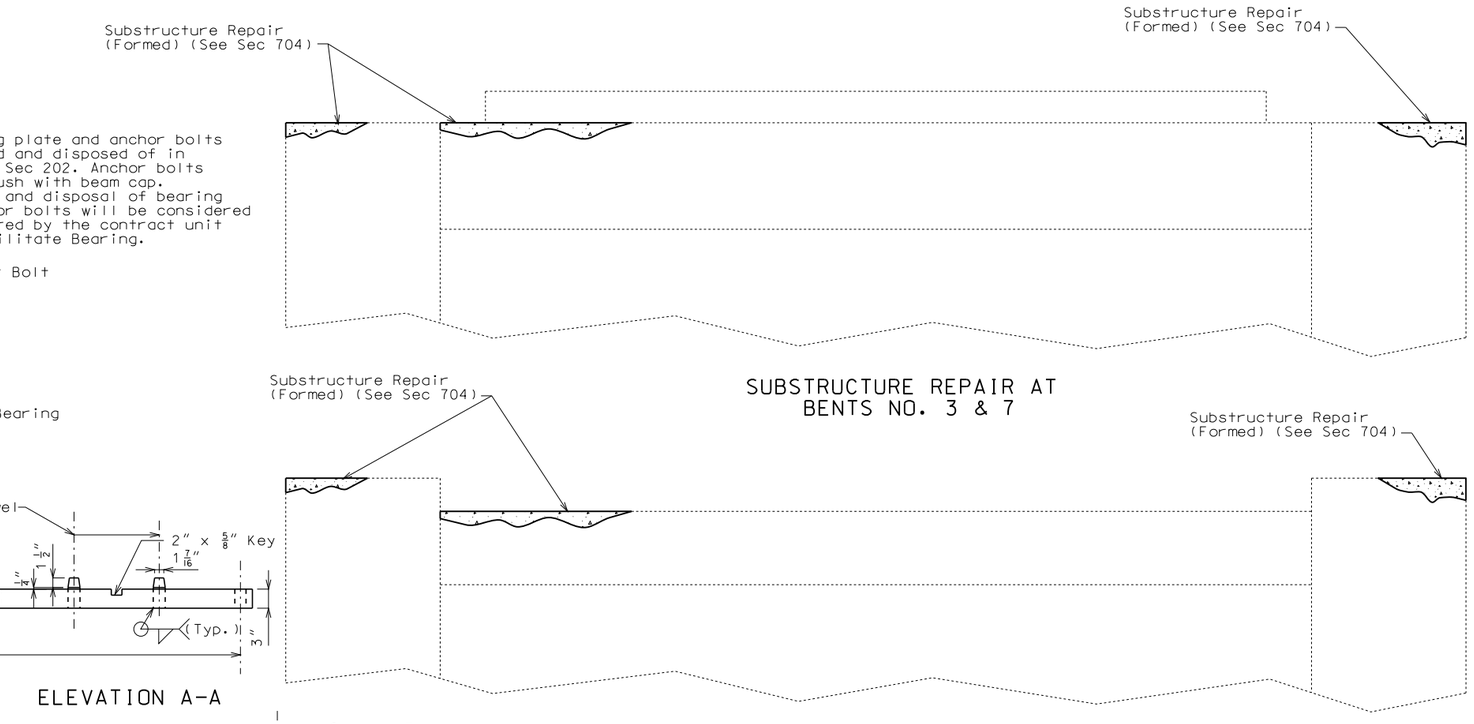
ELEVATION A-A

DETAIL SHOWING RESET BEARINGS FOR DECK TRUSS AT PIER NO. 7

Notes:

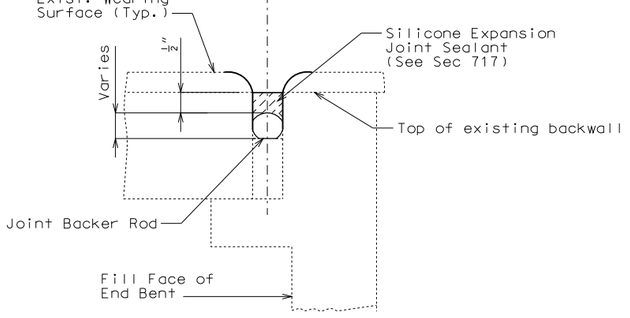
See Job Special Provision "Rehabilitate Bearing".

*** Bearing shall be vertical at 60° F. The position of the bearing shall be moved toward or away from the centerline of pier 5/16" from vertical for each 10° rise or fall in temperature at installation.

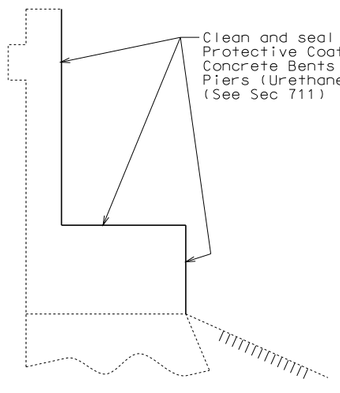


SUBSTRUCTURE REPAIR AT BENTS NO. 3 & 7

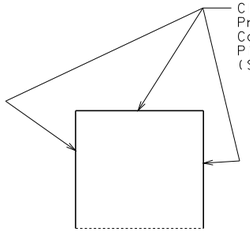
SUBSTRUCTURE REPAIR AT BENTS NO. 2, 4, 5, 6 & 8



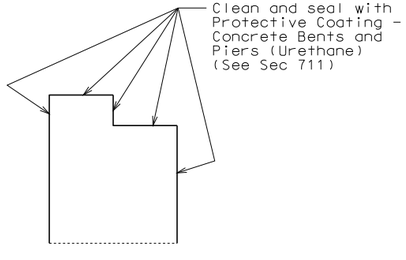
SECTION THRU JOINT AT FILL FACE OF BENTS NO. 1 & 9



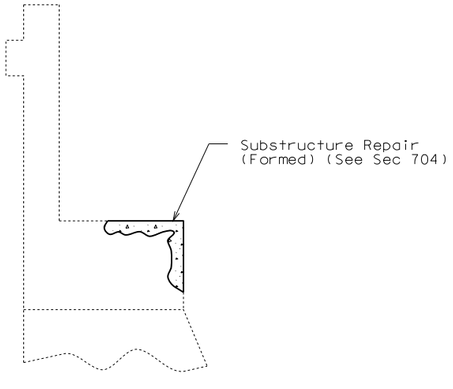
TYPICAL SECTION THRU BENTS NO. 1 & 9 SHOWING PROTECTIVE COATING



TYPICAL SECTION THRU PIERS NO. 2, 4, 5, 6 & 8 SHOWING PROTECTIVE COATING



TYPICAL SECTION THRU PIERS NO. 3 & 7 SHOWING PROTECTIVE COATING



SUBSTRUCTURE REPAIR AT BENTS NO. 1 & 9

Detailed Oct. 2009
Checked Oct. 2009

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

STATE OF MISSOURI
DEAN DAVID FRANKE
NUMBER PE-28132
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 2/11/2010

ROUTE	STATE
40	MO
DISTRICT	SHEET NO.
BR	4

COUNTY ST. CHARLES ST. LOUIS

JOB NO. J6P1977

CONTRACT ID.

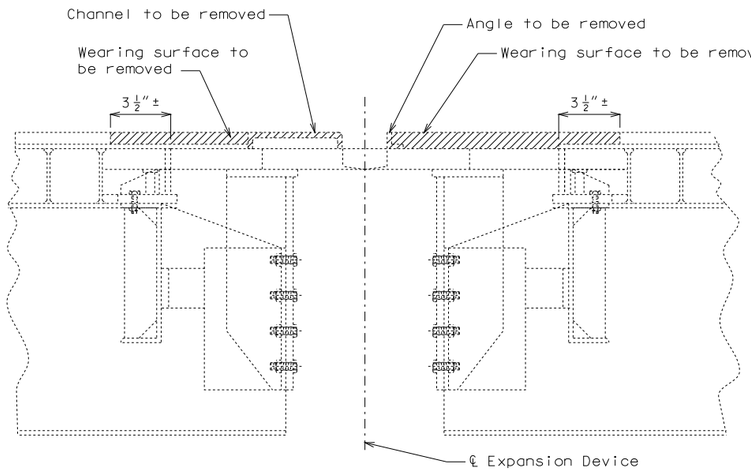
PROJECT NO.

BRIDGE NO. J10005

DESCRIPTION	DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

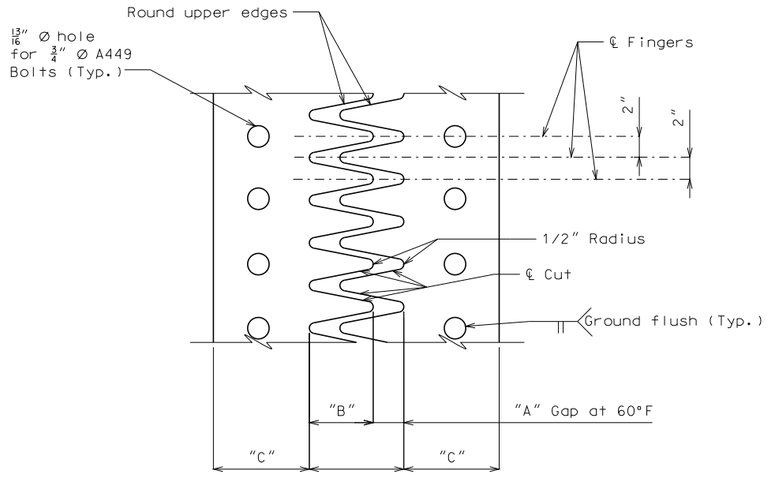
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



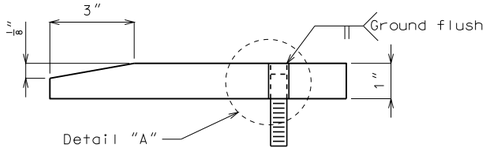
PART SECTION THRU EXPANSION DEVICE SHOWING REMOVAL

Note: Payment for removal and disposal of existing channel, angle and wearing surface will be considered completely covered by the contract unit price for Removal of Existing Bar Dams and Adjacent Wearing Surface.

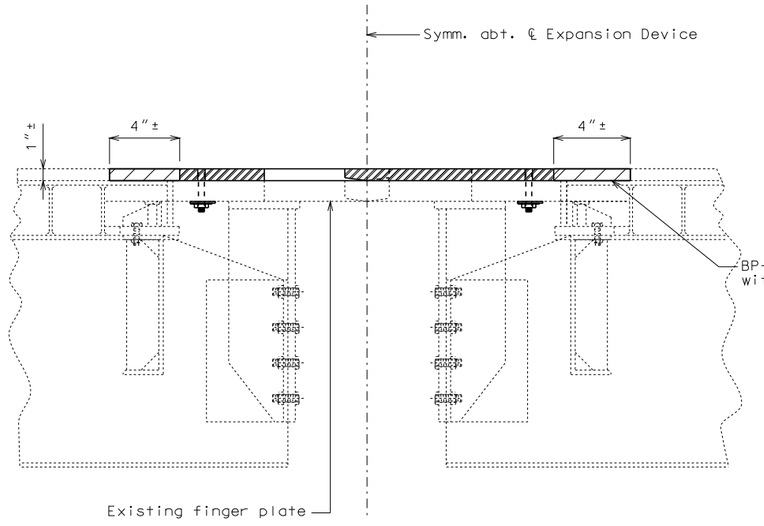
Removal of Existing Bar Dams and Adjacent Wearing Surface will be measured to the nearest linear foot from roadway face of curb to roadway face of curb along the centerline of existing joint for each joint.



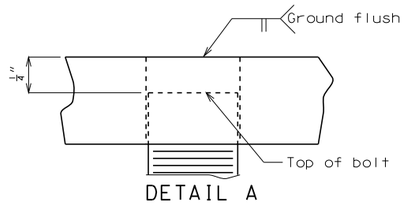
TYPICAL PLAN OF PLATE



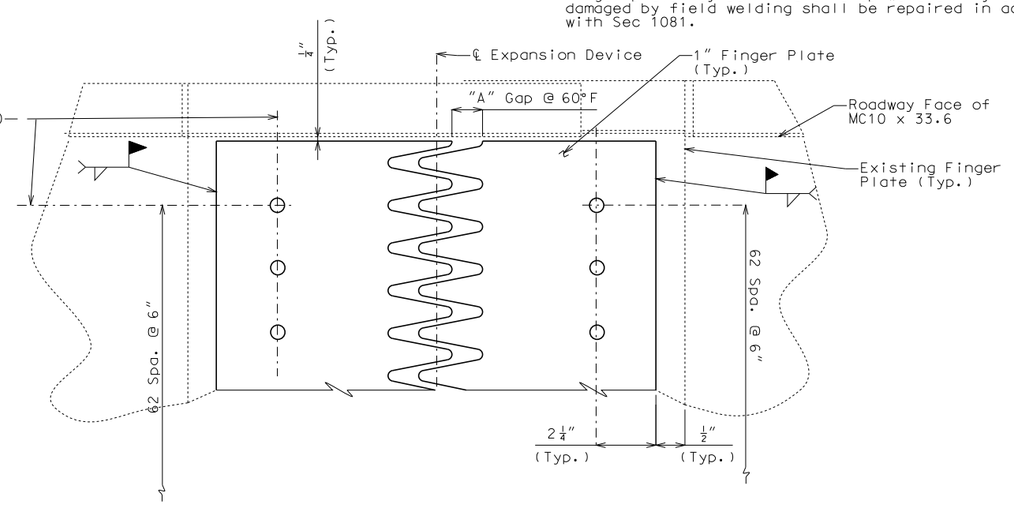
FINGER DETAIL



PART SECTION SHOWING MODIFIED FINGER PLATE TO BE INSTALLED



DETAIL A



PART PLAN OF MODIFIED FINGER PLATE EXPANSION DEVICE

Note: Asphaltic concrete not shown for clarity.

GENERAL NOTES:

New fingers of the modified finger plate shall align & match the the old fingers outline.

Modified finger plate shall be cut with a machine guided gas torch from one plate. The plate from which fingers are cut may be spliced before fingers are cut. The surface of cut shall be perpendicular to the surface of the plate. The cut shall not exceed 1/8" in width. The centerline of cut shall not deviate more than 1/16" from the position of centerline of cut shown.

Plan dimensions are based on installation at 60°F. The expansion gap and other dimensions shall be increased or decreased "D" for each 10° fall or rise in temperature at installation.

Materials for the expansion device shall be ASTM A709 Grade 50 structural steel.

Structural steel for the expansion device shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum) or galvanized in accordance with ASTM A123.

The cost of furnishing all materials, coating or galvanizing, equipment and labor necessary for Modified Finger Plate, complete-in-place, will be considered completely covered by contract unit price for Modified Finger Plate per linear foot.

Modified Finger Plate Expansion device shall be fabricated for staged construction. A partial joint penetration groove weld splice shall be required. Welds shall be ground flush to provide a smooth surface. The expansion device shall be fabricated and installed to the crown and grade of the roadway. See Sec 1081.6 for repairing galvanized metal.

Penetration welds shall be nondestructively tested by an approved method.

Asphaltic concrete shall be in accordance with Sec 403.

The cost of furnishing and installing all materials including tack coat and asphaltic concrete adjacent to Modified Finger Plate will be considered completely covered by the contract unit price for Modified Finger Plate per linear foot.

Welding of bolts to finger plate shall be sequenced such that the surface temperature of the steel adjacent to the hole to be welded has cooled to 125°F.

At the contractor's option, welding of the bolts to the finger plate may be field or shop welded. Any coating damaged by field welding shall be repaired in accordance with Sec 1081.

✳ Match existing gap

TABLE OF PLATE DIMENSIONS				
Pier No.	"A"✳	"B"	"C"	"D"
3	4 3/4"	10 1/2"	8 1/4"	5/8"
5	5 3/4"	12 1/2"	7"	5/8"
7	4 3/4"	10 1/2"	7 1/4"	5/8"

STATE OF MISSOURI
DEAN DAVID FRANKE
NUMBER PE-28132
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 5/13/2010

ROUTE	STATE
40	MO
DISTRICT	SHEET NO.
BR	5

COUNTY: ST. CHARLES ST. LOUIS
JOB NO.: J6P1977
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: J10005

DESCRIPTION | DATE

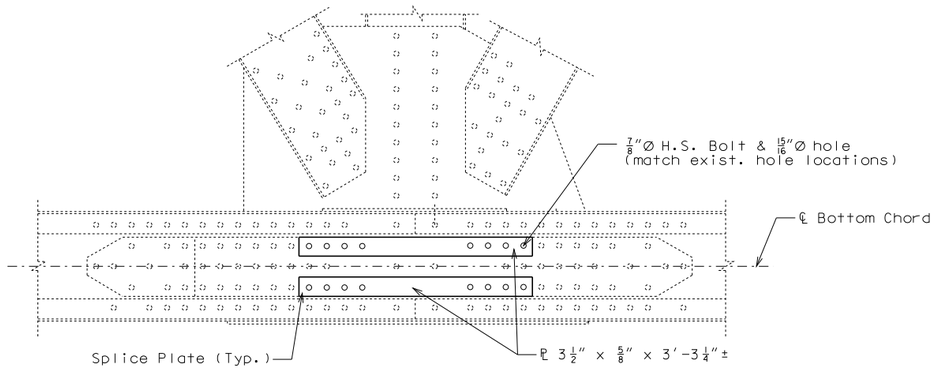
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

Detailed Oct. 2009
Checked Oct. 2009

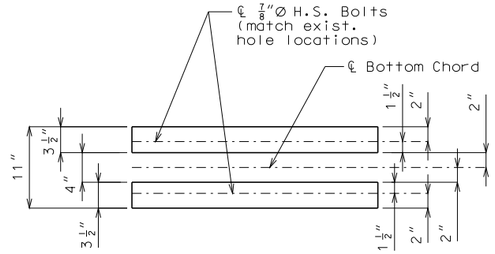
DETAILS OF MODIFIED FINGER PLATE EXPANSION DEVICE AT PIERS NO. 3, 5 & 7

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

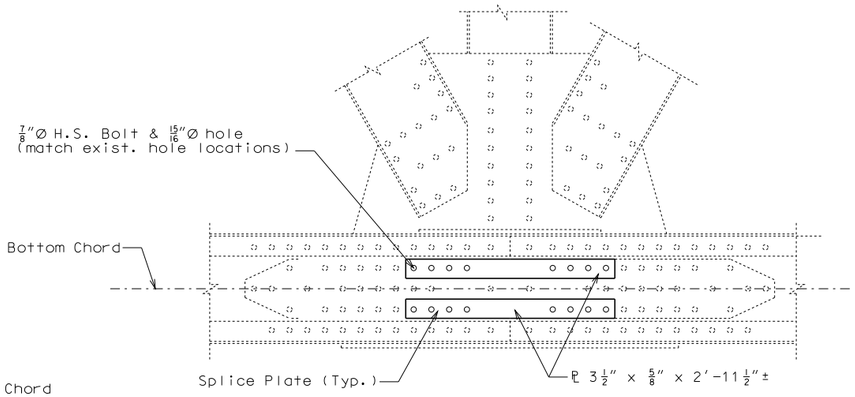


TYPICAL PART ELEVATION OF
SPLICE PLATE REPAIR @ L4 & L4'
(7 REPAIRS)

Note: Repair splice plate at L4 W and E int. & ext. plates in Span (3-4). Repair splice plate at L4' W ext. plate in Span (4-5) and L4' E ext. plate & W ext. plate in Span (6-7).

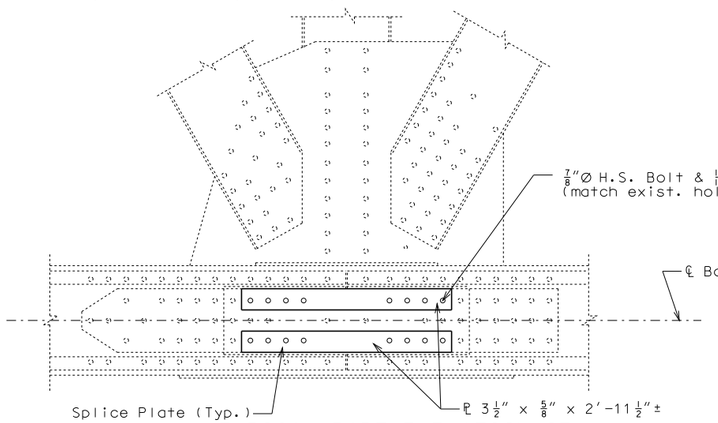


TYPICAL DETAIL OF SPLICE PLATES



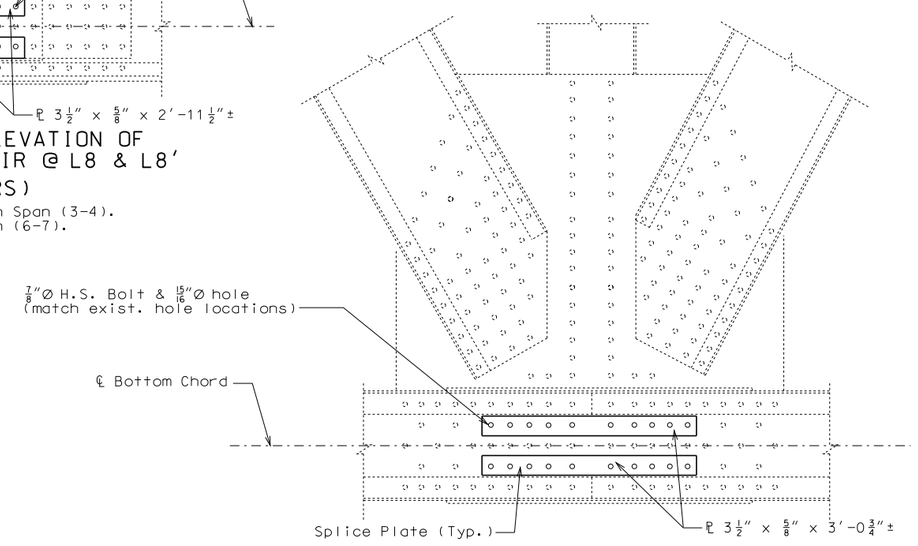
TYPICAL PART ELEVATION OF
SPLICE PLATE REPAIR @ L6 & L6'
(5 REPAIRS)

Note: Repair splice plate at L6 E ext. plate and W int. plate in Span (3-4) and at L6 E & W ext. plate in Span (5-6). Repair splice plate at L6' W ext. plate in Span (4-5).



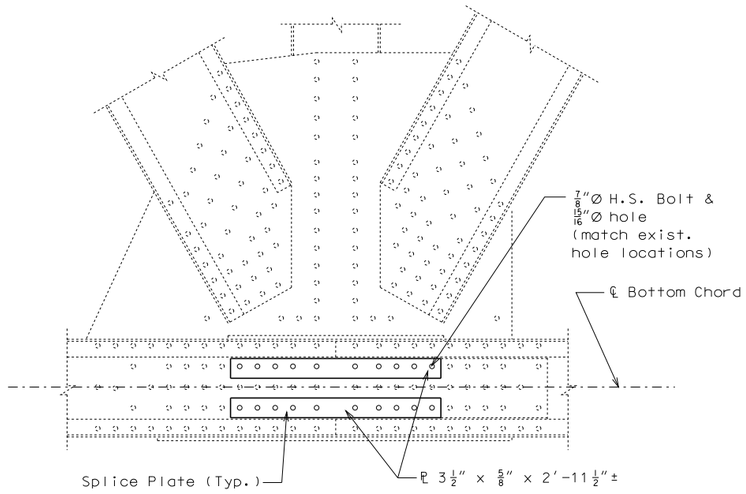
TYPICAL PART ELEVATION OF
SPLICE PLATE REPAIR @ L8 & L8'
(2 REPAIRS)

Note: Repair splice plate at L8 E ext. plate in Span (3-4). Repair splice plate at L8' W int. plate in Span (6-7).



TYPICAL PART ELEVATION OF
SPLICE PLATE REPAIR @ L12
(1 REPAIR)

Note: Repair splice plate at L12 W ext. plate in Span (3-4).



TYPICAL PART ELEVATION OF
SPLICE PLATE REPAIR @ L10
(1 REPAIR)

Note: Repair splice plate at L10 W ext. plate in Span (3-4).

Note: New plates shall be installed one at a time.

Match existing hole locations in existing splice plates by field drilling holes in new plates. Replace rivets with H.S. bolts. See Special Provisions for Rivet Removal & Replacement except that cost of work and material to complete this item including the new plates and structural steel will be considered completely covered by the contract unit price for Splice Plate Repair.

Work shall be performed while the bridge is closed to traffic with only one splice plate repair per span performed at a time.

Each location will be considered one repair. E and W, int. & ext. will be considered separate locations.

DETAILS OF SPLICE PLATE REPAIR

Detailed Oct. 2009
Checked Oct. 2009

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

STATE OF MISSOURI
DEAN DAVID FRANKE
NUMBER PE-28132
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 5/13/2010

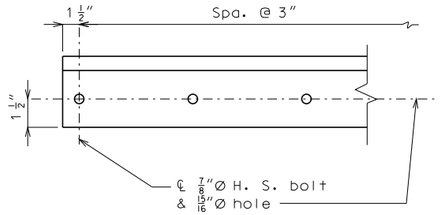
ROUTE	STATE
40	MO
DISTRICT	SHEET NO.
BR	6

COUNTY: ST. CHARLES ST. LOUIS
JOB NO.: J6P1977
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: J10005

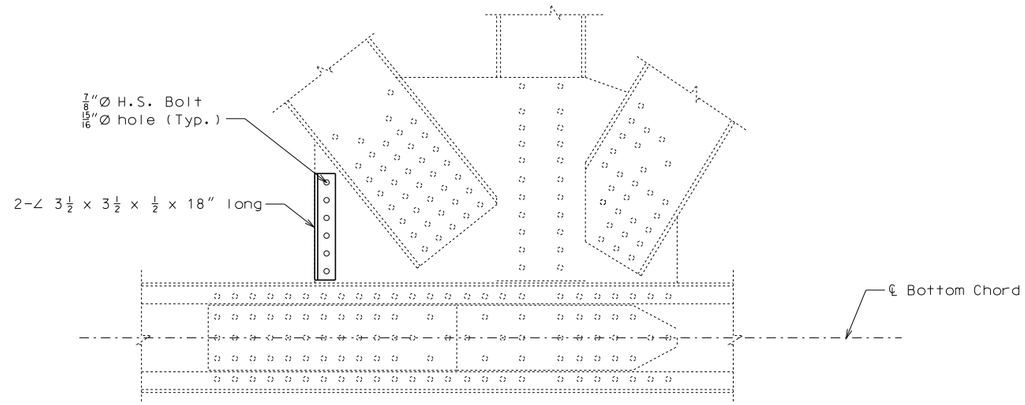
DATE	DESCRIPTION

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



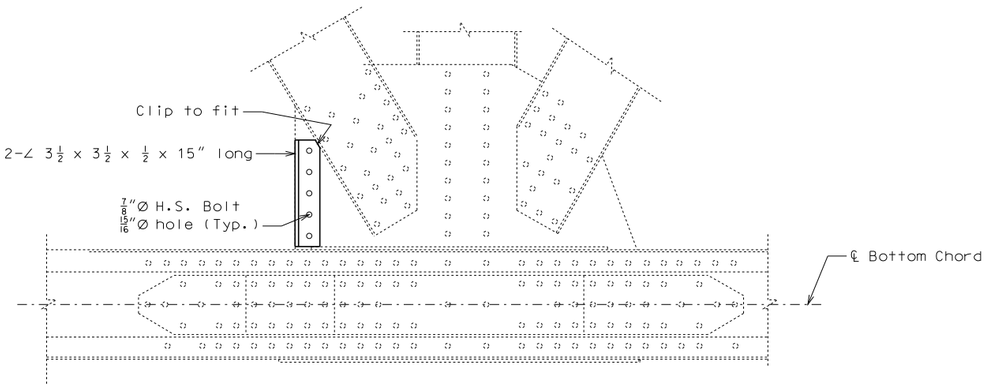
PART DETAIL OF ∠ 3½ X 3½ X ½
SHOWING BOLT SPACING



DETAILS OF GUSSET PLATE STENGTHENING
AT L2 & L2'

(16 LOCATIONS WITH 1 ANGLE)

Note:
Strengthen gusset plates at L2 E. & W. int. & ext. in Spans (3-4) & (5-6). Strengthen gusset plates at L2' E. & W. ext. & int. in Spans (4-5) & (6-7).



DETAILS OF GUSSET PLATE STENGTHENING
AT L4 & L4'

(16 LOCATIONS WITH 1 ANGLE)

Note:
Strengthen gusset plates at L4' E. & W. int. & ext. in Spans (4-5) & (6-7).
Strengthen gusset plates at L4 E. & W. int. & ext. in Spans (3-4) & (5-6).

Note:

Furnishing and installing new angles and bolts for strengthening of gusset plates will be considered completely covered by the contract unit price for Strengthening Existing Gusset Plates.

Field drill holes in existing gusset plates and use 7/8"Ø A325 H.S. bolts to attach angles to existing gusset plates.

Each location will be considered one repair. E and W, int. & ext. will be considered separate locations.

DETAILS OF GUSSET PLATE STRENGTHENING

Detailed Oct. 2009
Checked Oct. 2009

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

STATE OF MISSOURI
DEAN DAVID FRANKE
NUMBER PE-28132
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 2/22/2010

ROUTE	STATE
40	MO
DISTRICT	SHEET NO.
BR	7

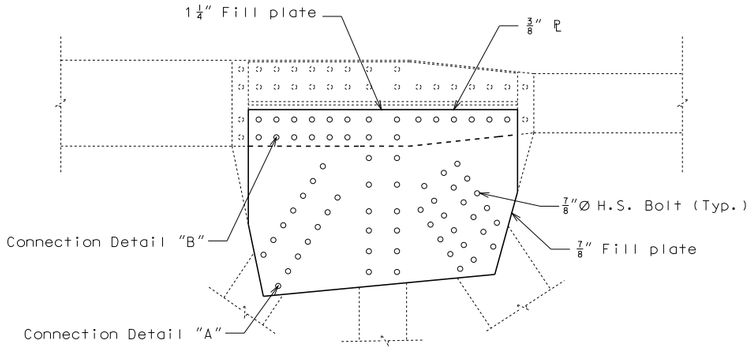
COUNTY: ST. CHARLES, ST. LOUIS
JOB NO.: J6P1977
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: J10005

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

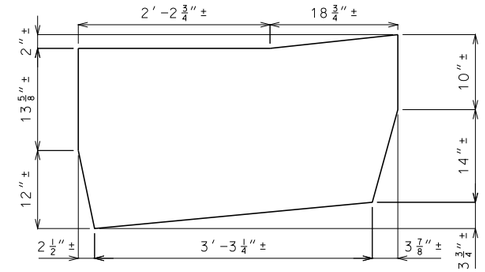
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



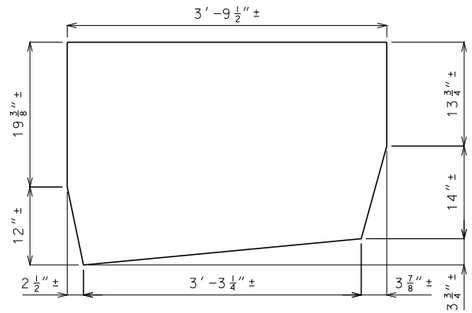
DETAILS OF GUSSET PLATE REPAIR AT U2' IN SPANS (1-2) & (2-3)

(8 REPAIRS)

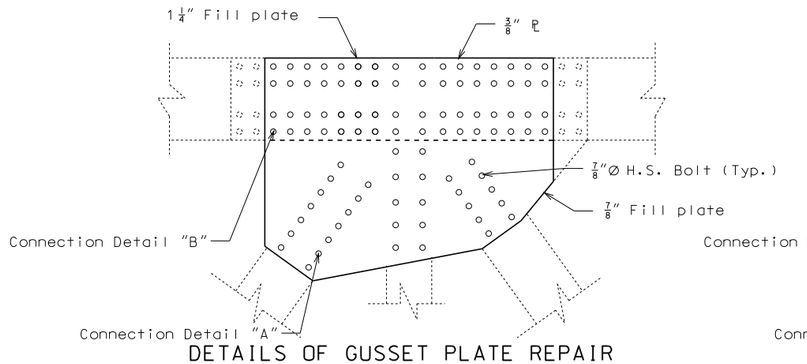
Note: Repairs shall be made at int. and ext. plates on E. & W. sides.



DETAIL OF 7/8" FILL PLATE AT U2' IN SPANS (1-2) & (2-3)



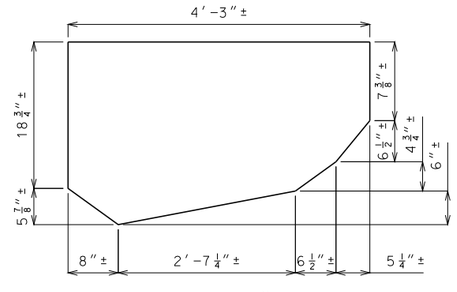
DETAIL OF 3/8" PLATE & 1 1/4" FILL PLATE AT U2' IN SPANS (1-2) & (2-3)



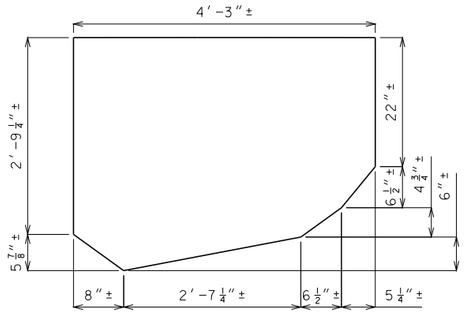
DETAILS OF GUSSET PLATE REPAIR AT U4 IN SPAN (7-8)

(1 REPAIR)

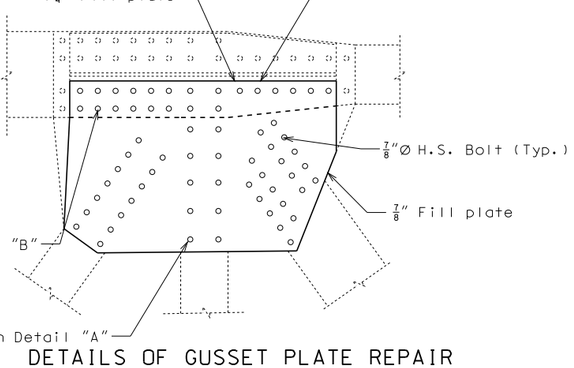
Note: Repairs shall be made at ext. plate on E. side.



DETAIL OF 7/8" FILL PLATE AT U4 IN SPAN (7-8)



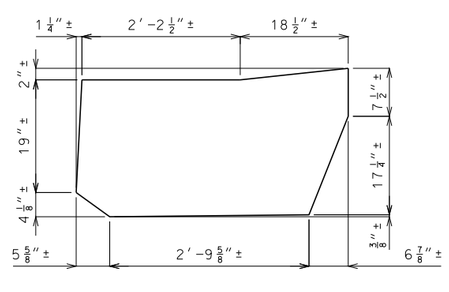
DETAIL OF 3/8" PLATE & 1 1/4" FILL PLATE AT U4 IN SPAN (7-8)



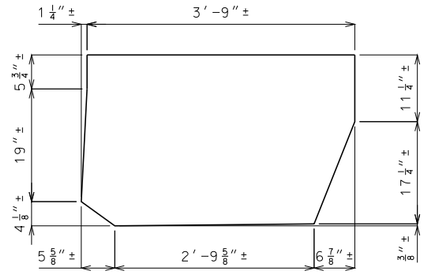
DETAILS OF GUSSET PLATE REPAIR AT U2' IN SPANS (7-8) & (8-9)

(8 REPAIRS)

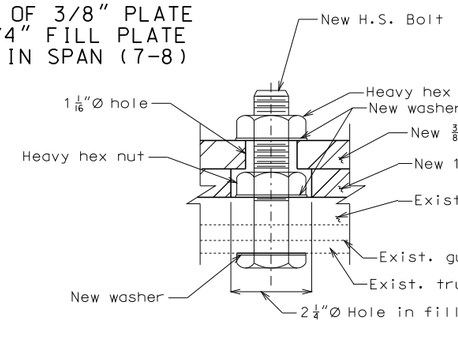
Note: Repairs shall be made at int. and ext. plates on E. & W. sides.



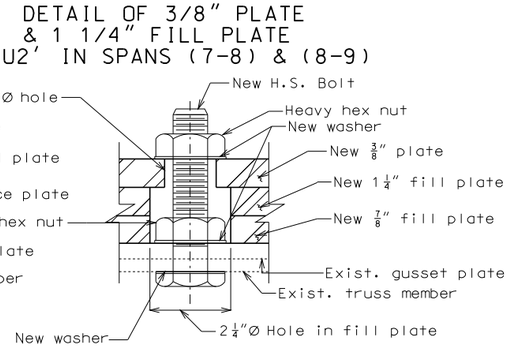
DETAIL OF 7/8" FILL PLATE AT U2' IN SPANS (7-8) & (8-9)



DETAIL OF 3/8" PLATE & 1 1/4" FILL PLATE AT U2' IN SPANS (7-8) & (8-9)



CONNECTION DETAIL "B"



CONNECTION DETAIL "A"

Note:

Furnishing and installing new plates and bolts for repairing of gusset plates will be considered completely covered by the contract unit price for Repair Existing Gusset Plates.

Field drill holes in new plates and use 7/8"Ø H.S. bolts to attach to existing gusset plates.

See Special Provisions for Rivet Replacement except that cost of work will be considered completely covered by the contract unit price for Repair Existing Gusset Plates.

Each location will be considered one repair. E and W, int. & ext. will be considered separate locations.

DETAILS OF GUSSET PLATE REPAIR

Detailed Oct. 2009
Checked Oct. 2009

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

STATE OF MISSOURI
DEAN DAVID FRANKE
NUMBER PE-28132
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 2/11/2010

ROUTE	STATE
40	MO
DISTRICT	SHEET NO.
BR	8

COUNTY: ST. CHARLES ST. LOUIS

JOB NO.: J6P1977

CONTRACT ID.:

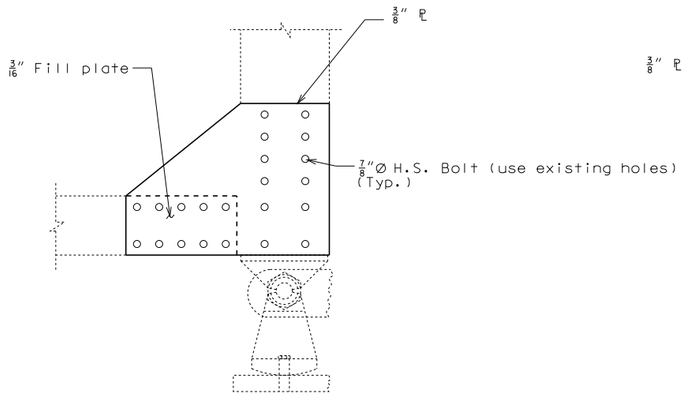
PROJECT NO.:

BRIDGE NO.: J10005

DESCRIPTION	DATE

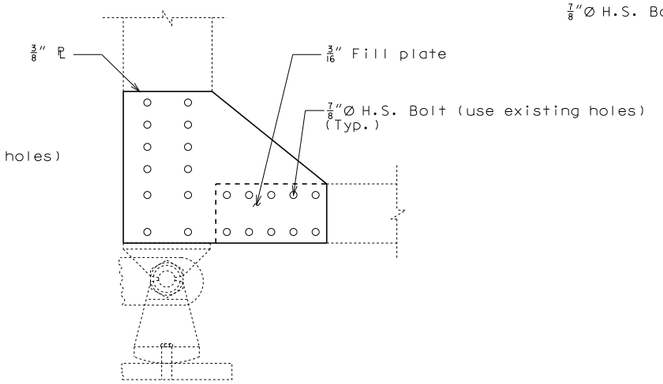
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



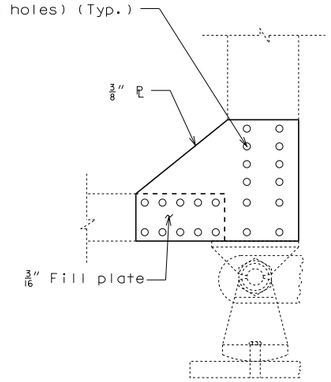
DETAILS OF EXTERIOR GUSSET PLATE REPLACEMENT AT LO' IN SPAN (1-2) (2 REPLACEMENTS)

Note:
Ext. gusset plate shall be replaced at LO' E. & W. in Span (1-2).



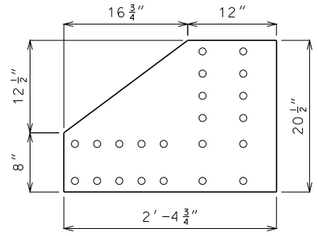
DETAILS OF EXTERIOR GUSSET PLATE REPLACEMENT AT LO' IN SPAN (2-3) (2 REPLACEMENTS)

Note:
Ext. gusset plate shall be replaced at LO' E. & W. in Span (2-3).

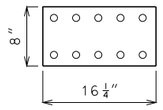


DETAILS OF EXTERIOR GUSSET PLATE REPLACEMENT AT LO' IN SPAN (7-8) (2 REPLACEMENTS)

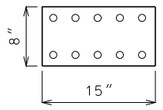
Note:
Ext. gusset plate shall be replaced at LO' E. & W. in Span (7-8).



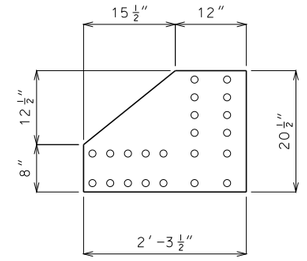
DETAIL OF 3/8" PLATE SHOWING DIMENSIONS LOCATED IN SPANS (1-2) & (2-3)



DETAIL OF 3/16" FILL PLATE SHOWING DIMENSIONS LOCATED IN SPANS (1-2) & (2-3)



DETAIL OF 3/16" FILL PLATE SHOWING DIMENSIONS LOCATED IN SPAN (7-8)



DETAIL OF 3/8" PLATE SHOWING DIMENSIONS LOCATED IN SPAN (7-8)

Note:

Removing existing plates, bolts and rivets and furnishing and installing new plates and bolts for replacing gusset plates will be considered completely covered by the contract unit price for Replace Existing Gusset Plates.

Field drill 15/16"Ø holes in new plates (match existing locations) and use 7/8"Ø H.S. bolts to attach to existing truss members.

See Special Provisions for Rivet Replacement except that cost of work will be considered completely covered by the contract unit price for Replace Existing Gusset Plates.

Each location will be considered one repair. E and W, int. & ext. will be considered separate locations.

DETAILS OF GUSSET PLATE REPLACEMENT

Detailed Oct. 2009
Checked Oct. 2009

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

STATE OF MISSOURI
DEAN DAVID FRANKE
NUMBER PE-28132
PROFESSIONAL ENGINEER

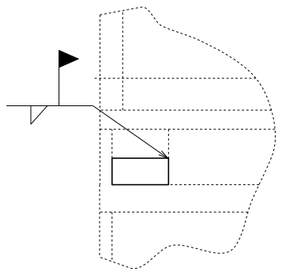
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 2/11/2010
ROUTE 40 | STATE MO
DISTRICT BR | SHEET NO. 9
COUNTY ST. CHARLES ST. LOUIS
JOB NO. J6P1977
CONTRACT ID.
PROJECT NO.
BRIDGE NO. J10005

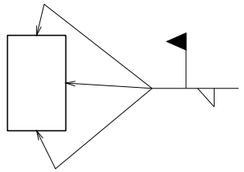
DESCRIPTION | DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

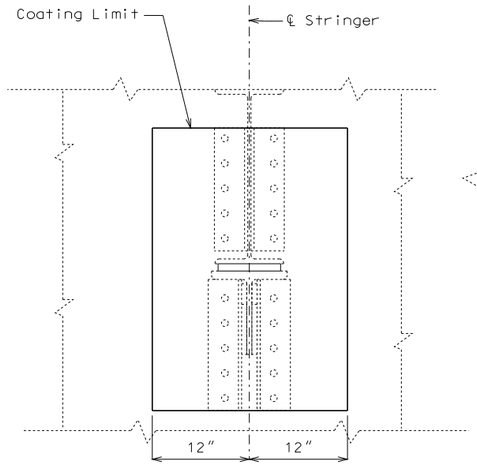


PART ELEVATION

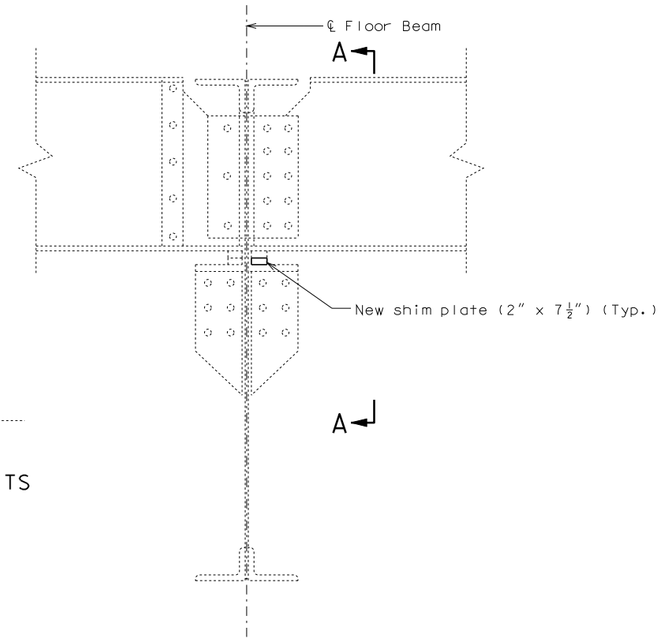


PLAN OF SHIM PLATE

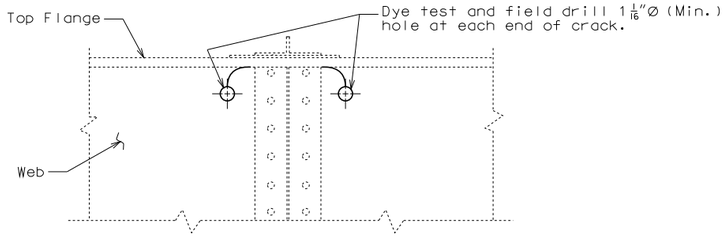
WELDING DETAILS



SECTION A-A SHOWING COATING LIMITS
(North side only)



TYPICAL PART SECTION AT
FLOOR BEAM SHOWING BEARING SEAT REPAIR
@ STRINGER NO. 1 @ NORTH SIDE OF L11 & L13 IN SPAN (3-4) &
STRINGER NO. 8 @
NORTH SIDE OF L14 IN SPAN (3-4)



DETAIL OF WEB CRACK REPAIR
WHERE CRACKS ARE ENCOUNTERED
IN FLOOR BEAMS AT BENTS NO. 1 & 9

Note:

Cost of fatigue crack repair including dye test and field drilling will be considered completely covered by the contract unit price for Fatigue Crack Repair.

Crack repair shall not be performed under live load.

Note:

The cost of furnishing, fabricating and installing new single shim plate and cleaning and recoating will be considered completely covered by the contract unit price for Bearing Seat Repair.

For Structural Steel Protective Coating Notes, see Sheet No. 2.

Area around bearing seats shall be cleaned and recoated in accordance with plans prior to installation of shim. Cleaning using abrasives shall be done prior to installing shim.

Shim plate may not be required by the engineer at all locations. Where required, the gap between the existing bearing plate and top flange shall be measured with a feeler gauge. New Grade 36 steel single shim plate shall be placed between the existing bearing plate and top flange to fill the gap without raising or supporting the stringer.

DETAILS OF FATIQUE CRACK REPAIR AND BEARING SEAT REPAIR

Detailed Oct. 2009
Checked Oct. 2009

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

STATE OF MISSOURI
DEAN DAVID FRANKE
NUMBER PE-28132
PROFESSIONAL ENGINEER

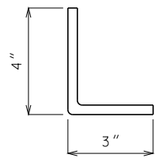
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 5/13/2010
ROUTE 40 | STATE MO
DISTRICT BR | SHEET NO. 10
COUNTY ST. CHARLES ST. LOUIS
JOB NO. J6P1977
CONTRACT ID.
PROJECT NO.
BRIDGE NO. J10005

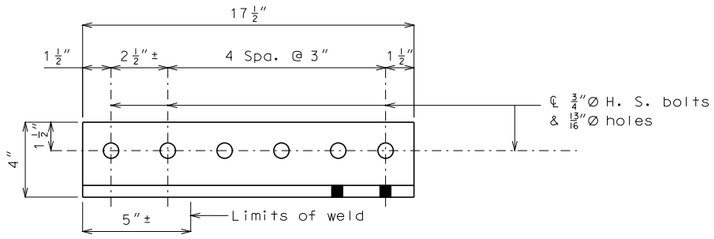
DESCRIPTION | DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

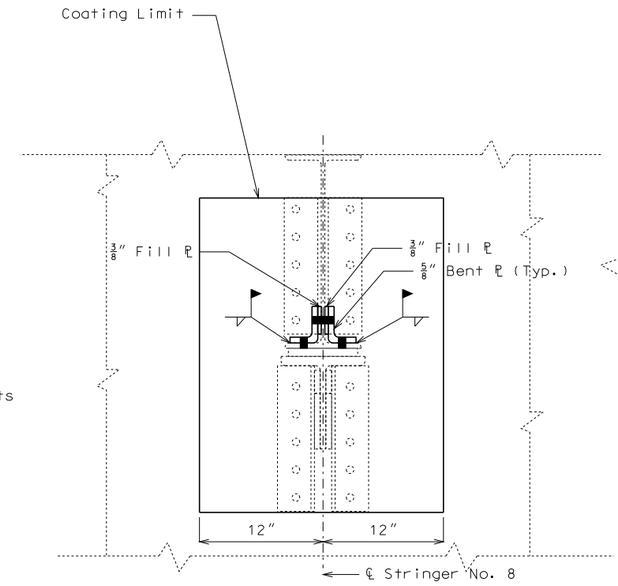
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



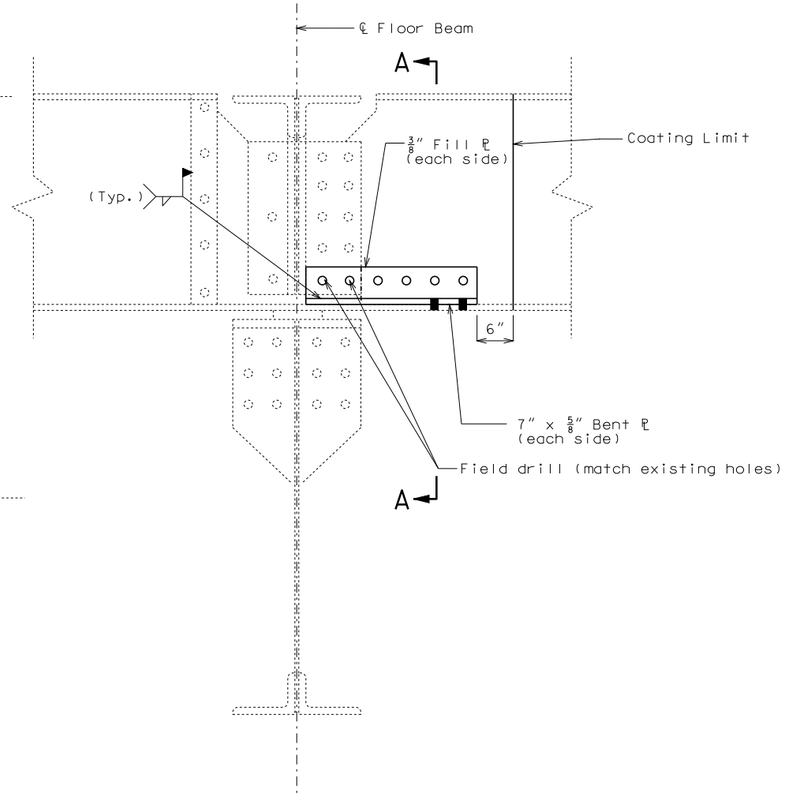
DETAIL OF $\frac{5}{8}$" BENT PLATE

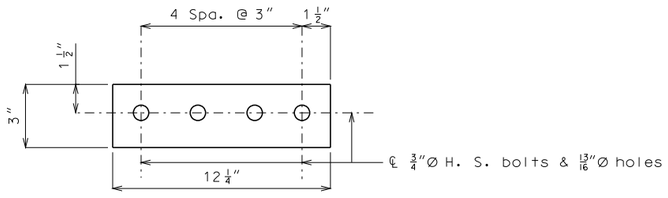


DETAIL OF $\frac{5}{8}$" BENT ℄
SHOWING BOLT SPACING



SECTION A-A





DETAIL OF $\frac{3}{8}$" FILL PLATE

PART SECTION AT ℄ FLOORBEAM @ L8 IN SPAN (5-6)

Note:

Payment for furnishing, fabricating and installing bent plate and fill plate and cleaning and recoating will be considered completely covered by the contract unit price for Stringer Repair.

For Structural Steel Protective Coating Notes, see Sheet No. 2.

See Special Provisions for Rivet Removal and Replacement except that both rivets shall be removed at the same time, and that cost of work will be considered completely covered by the contract unit price for Stringer Repair.

DETAILS OF STRINGER REPAIR

Detailed Oct. 2009
Checked Oct. 2009

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

STATE OF MISSOURI
DEAN DAVID FRANKE
NUMBER PE-28132
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 2/11/2010

ROUTE	STATE
40	MO
DISTRICT	SHEET NO.
BR	11

COUNTY
ST. CHARLES
ST. LOUIS

JOB NO.
J6P1977

CONTRACT ID.

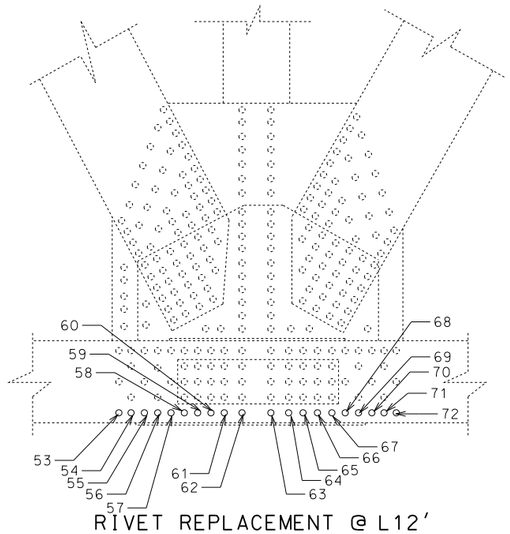
PROJECT NO.

BRIDGE NO.
J10005

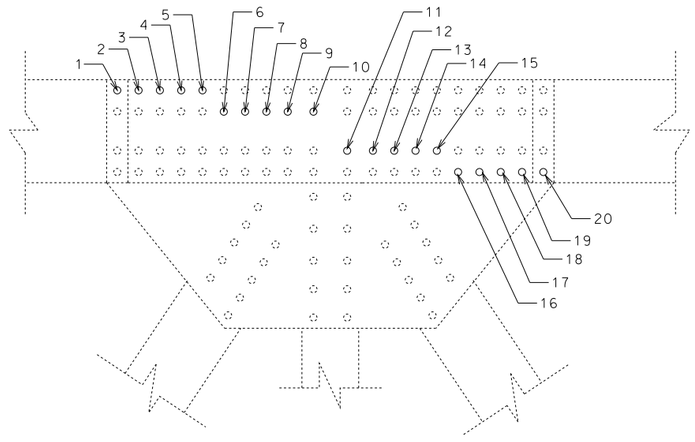
DESCRIPTION	DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

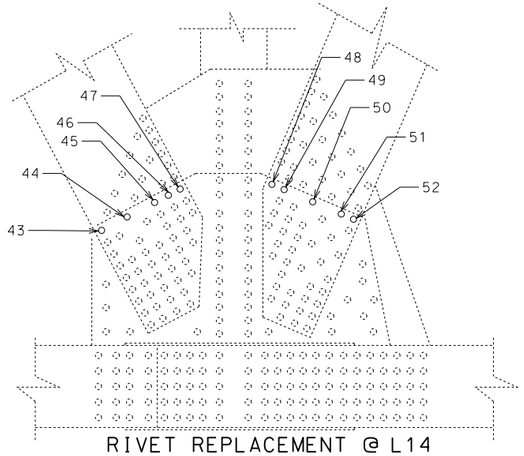
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



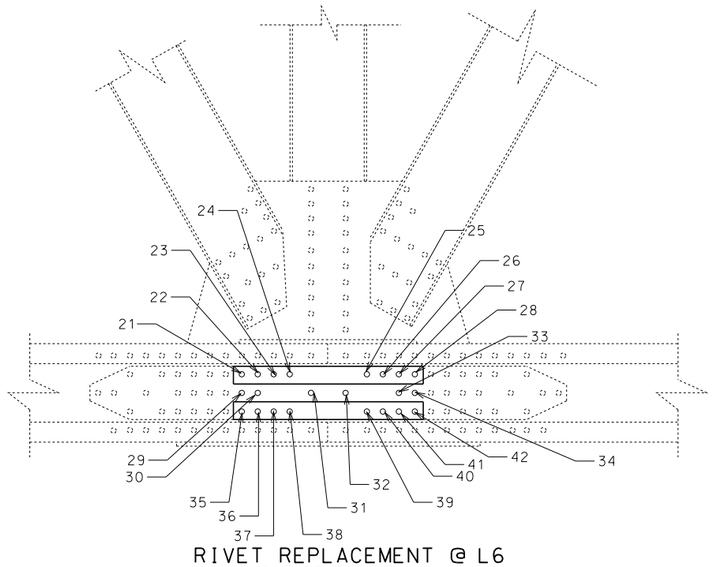
RIVET REPLACEMENT @ L12'
IN SPAN (6-7)
EAST INTERIOR GUSSET PLATE



RIVET REPLACEMENT @ U6
IN SPAN (1-2)
EAST EXTERIOR GUSSET PLATE



RIVET REPLACEMENT @ L14
IN SPAN (5-6)
EAST INTERIOR GUSSET PLATE



RIVET REPLACEMENT @ L6
IN SPAN (3-4)
WEST INTERIOR GUSSET PLATE

Notes:

Rivets indicated for removal and replacement shall be given to the engineer. Rivets shall be identified according to numbered locations indicated on the plans. Additional rivets may be removed and replaced at the engineer's direction. The engineer will send removed rivets to MoDOT Bridge Division for inspection of section loss.
The cost of removing, replacing and identifying rivets and any other incidental work will be considered completely covered by the contract unit price for Rivet Removal, Inspection and Replacement.

LOCATIONS OF RIVET REMOVAL, INSPECTION AND REPLACEMENT

Detailed Nov. 2009
Checked Nov. 2009

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

STATE OF MISSOURI
DEAN DAVID FRANKE
NUMBER PE-28132
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 2/11/2010
ROUTE: 40 | STATE: MO
DISTRICT: BR | SHEET NO.: 12
COUNTY: ST. CHARLES ST. LOUIS
JOB NO.: J6P1977
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: J10005

DESCRIPTION | DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

MEMORANDUM

Missouri Department of Transportation
Bridge Division
Central Office

TO: Jesse Jonas
Chesterfield Project Office

CC/ATT: Ed Hassinger – d6
Dave Ahlvers - cm
John Gahagan - br
Chad Daniel- br
Dean Franke - br
Kent Nelson - br (2)

FROM: Dean Franke *DDF*
Structural Project Manager

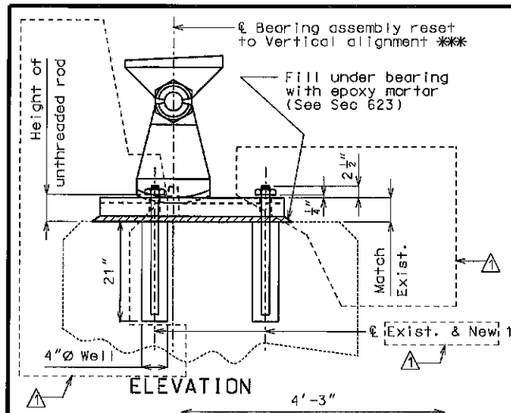
DATE: July 8, 2010

SUBJECT: Change Order
Bridge No. J10005
Rte 40
Job No. J6P1977, St. Louis/St.Charles County
June 2010 Letting

Please find attached six sets of half-sized prints for bridge sheet no's. 4 for the above referenced structure.

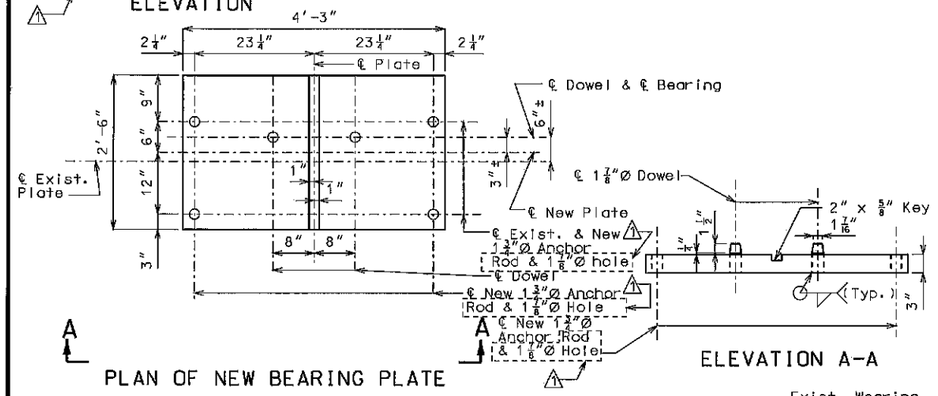
This change order is for adding the required details for the anchor bolts/rods for the new bearing plate at pier no. 7.

ddf
Attachments



Note:

Existing bearing plate and anchor bolts shall be removed and disposed of in accordance with Sec 202. Anchor bolts shall be cut flush with beam cap. Cost of removal and disposal of bearing plates and anchor bolts will be considered completely covered by the contract unit price for Rehabilitate Bearing.



DETAIL SHOWING RESET BEARINGS FOR DECK TRUSS AT PIER NO. 7

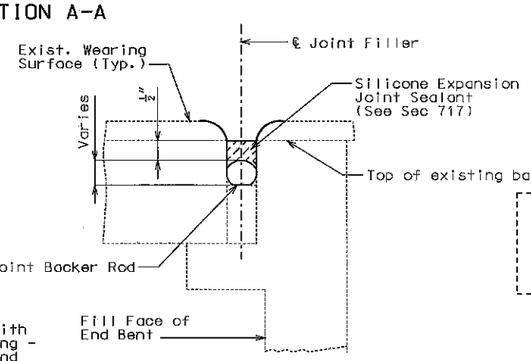
Notes:

See Job Special Provision "Rehabilitate Bearing".

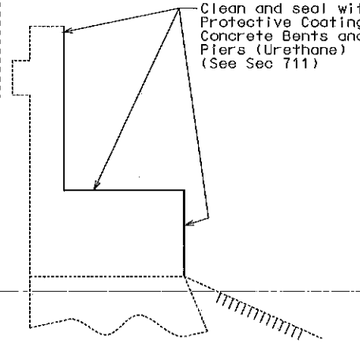
*** Bearing shall be vertical at 60° F. The position of the bearing shall be moved toward or away from the centerline of pier 1/16" from vertical for each 10° rise or fall in temperature at installation.

Anchor rods shall be 1¾ Ø ASTM F1554 Grade 55 swedged rods and shall extend 18" into the concrete with AASHTO M291 (ASTM A563) Hex or Heavy Hex nuts. Actual manufacturer's certified mill test reports (chemical and mechanical) shall be provided. Swedging shall be 1" less than extension into the concrete. 1

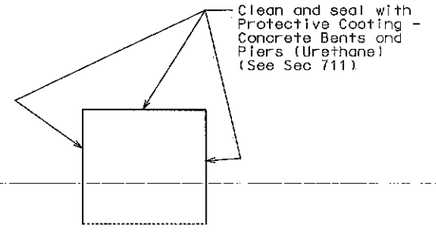
All structural steel for the anchor rods and heavy hexagon nuts shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum).



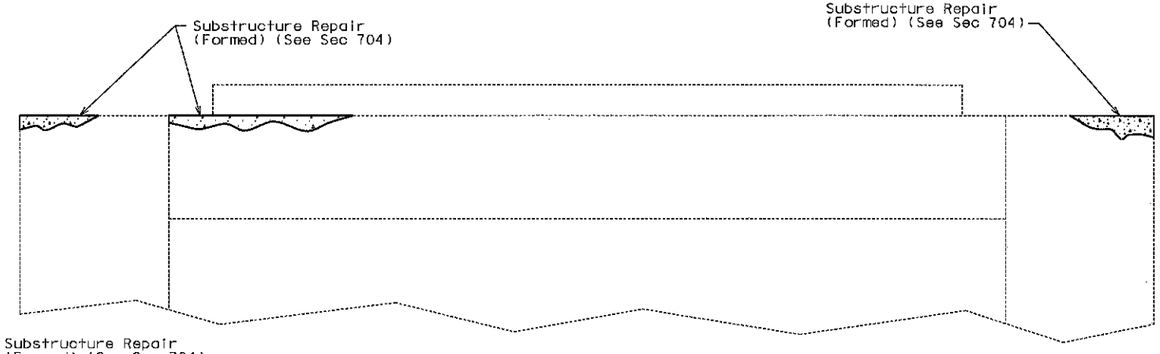
SECTION THRU JOINT AT FILL FACE OF BENTS NO. 1 & 9



TYPICAL SECTION THRU BENTS NO. 1 & 9 SHOWING PROTECTIVE COATING

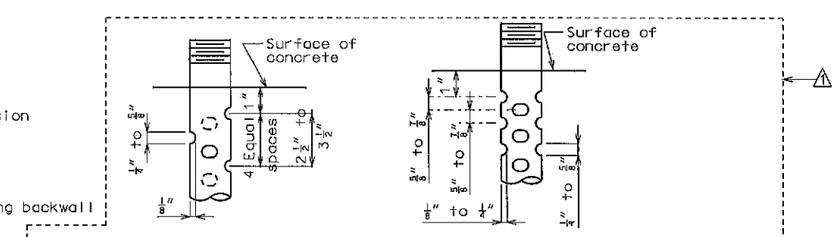


TYPICAL SECTION THRU PIERS NO. 2, 4, 5, 6 & 8 SHOWING PROTECTIVE COATING



SUBSTRUCTURE REPAIR AT BENTS NO. 3 & 7

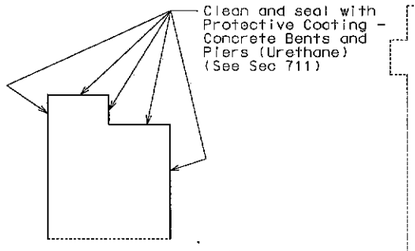
SUBSTRUCTURE REPAIR AT BENTS NO. 2, 4, 5, 6 & 8



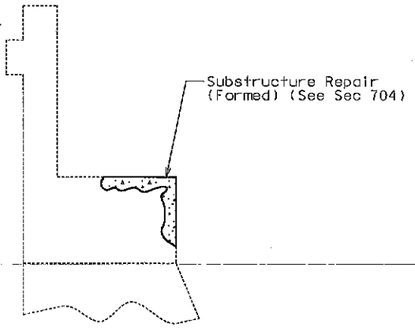
DETAIL OF 3/4"Ø THRU 2 1/2"Ø ANCHOR RODS

OPTIONAL DETAIL OF 1 3/8"Ø THRU 2 1/2"Ø ANCHOR RODS

SWEDGE ANCHOR ROD DETAILS



TYPICAL SECTION THRU PIERS NO. 3 & 7 SHOWING PROTECTIVE COATING



SUBSTRUCTURE REPAIR AT BENTS NO. 1 & 9

1 Details Added Sheet Revised 7/8/2010

Detailed Oct. 2009
Checked Oct. 2009

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

STATE OF MISSOURI
DEAN DAVID FRANKE
NUMBER PE-28132
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 7/8/2010

ROUTE	STATE
40	MO
DISTRICT	SHEET NO.
BR	4

COUNTY: ST. CHARLES, ST. LOUIS
JOB NO.: J6P1977
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: J10005

DESCRIPTION	DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
MoDOT

MEMORANDUM

Missouri Department of Transportation
Bridge Division
Central Office

TO: Jesse Jonas
Chesterfield Project Office

CC/ATT: Ed Hassinger – d6
Dave Ahlvers - cm
John Gahagan - br
Chad Daniel- br
Dean Franke - br
Kent Nelson - br (2)

FROM: Dean Franke *DDF*
Structural Project Manager

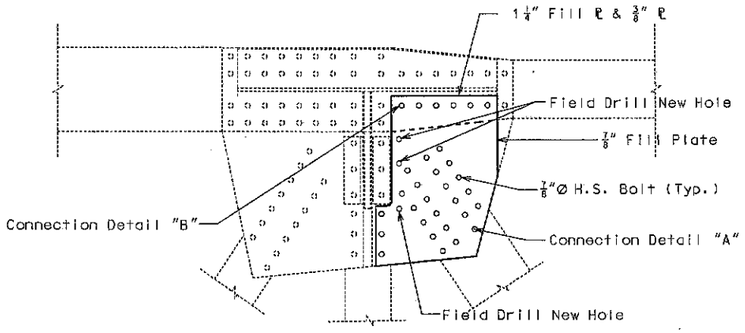
DATE: July 29, 2010

SUBJECT: Change Order
Bridge No. J10005
Rte 40
Job No. J6P1977, St. Louis/St.Charles County
June 2010 Letting

Please find attached six sets of half-sized prints for bridge sheet no's. 8 & 8a for the above referenced structure.

This change order is for adjusting the conflict of installing the interior gusset plate repairs.

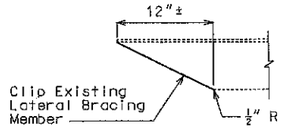
ddf
Attachments



DETAILS OF GUSSET PLATE REPAIR AT U2′ IN SPANS (1-2) & (2-3)

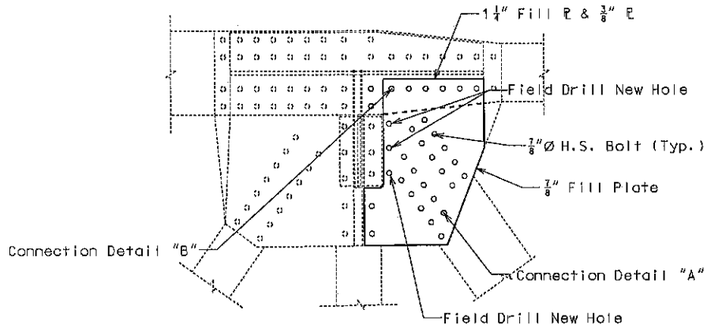
(4 REPAIRS)

Note: Repairs shall be made at int. plates on E. & W. sides.
Lateral and diagonal bracing members not shown for clarity.



DETAILS OF CLIPPING OF EXISTING LATERAL BRACING AT U2′ IN SPANS (1-2) & (2-3)

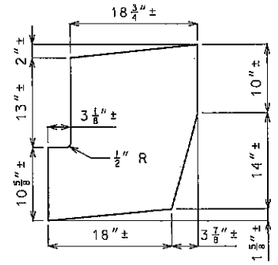
(Contractor to provide a smooth cut line.)



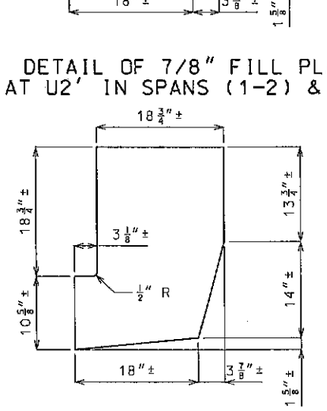
DETAILS OF GUSSET PLATE REPAIR AT U2′ IN SPANS (7-8) & (8-9)

(4 REPAIRS)

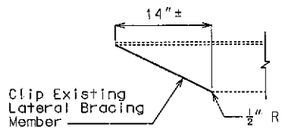
Note: Repairs shall be made at int. plates on E. & W. sides.
Lateral and diagonal bracing members not shown for clarity.



DETAIL OF 7/8" FILL PLATE AT U2′ IN SPANS (1-2) & (2-3)

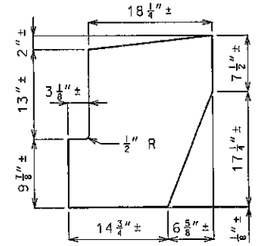


DETAIL OF 3/8" PLATE & 1 1/4" FILL PLATE AT U2′ IN SPANS (1-2) & (2-3)

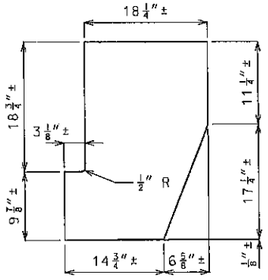


DETAILS OF CLIPPING OF EXISTING LATERAL BRACING AT U2′ IN SPANS (7-8) & (8-9)

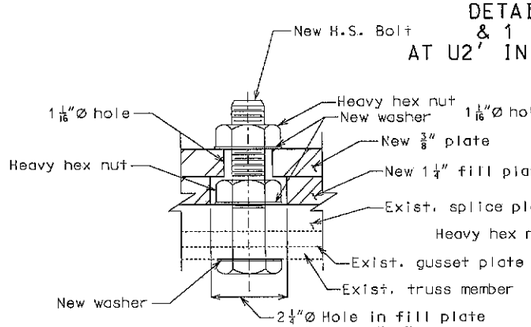
(Contractor to provide a smooth cut line.)



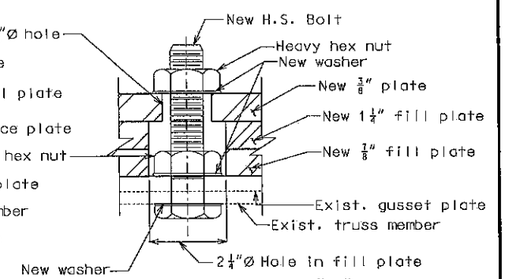
DETAIL OF 7/8" FILL PLATE AT U2′ IN SPANS (7-8) & (8-9)



DETAIL OF 3/8" PLATE & 1 1/4" FILL PLATE AT U2′ IN SPANS (7-8) & (8-9)



CONNECTION DETAIL "B"



CONNECTION DETAIL "A"

Note:

Furnishing and installing new plates and bolts for repairing of gusset plates will be considered completely covered by the contract unit price for Repair Existing Gusset Plates.

Field drill holes in new plates and use ⅞"Ø H.S. bolts to attach to existing gusset plates.

See Special Provisions for Rivet Replacement except that cost of work will be considered completely covered by the contract unit price for Repair Existing Gusset Plates.

Each location will be considered one repair. E and W, int. will be considered separate locations.

DETAILS OF INTERIOR GUSSET PLATE REPAIR

Detailed Oct. 2009
Checked Oct. 2009

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

Δ2 Sheet Added 7/26/2010

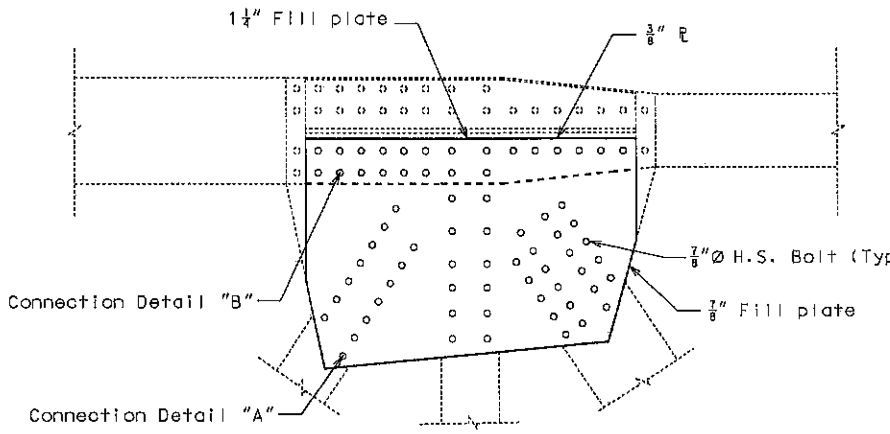
STATE OF MISSOURI
DEAN DAVID FRANKE
NUMBER PE-2982
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 7/29/2010
ROUTE 40 | STATE MO
DISTRICT BR | SHEET NO. 8a
COUNTY ST. CHARLES ST. LOUIS
JOB NO. J6P1977
CONTRACT ID.
PROJECT NO.
BRIDGE NO. J10005

DESCRIPTION	DATE

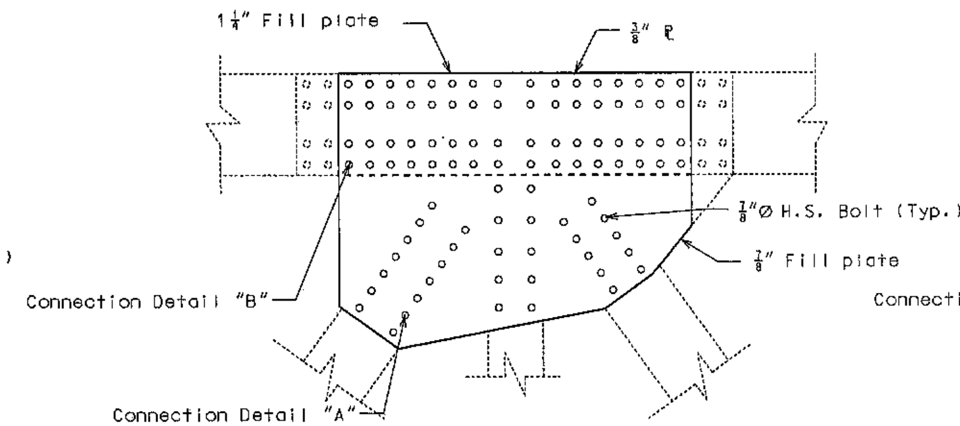
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
MoDOT



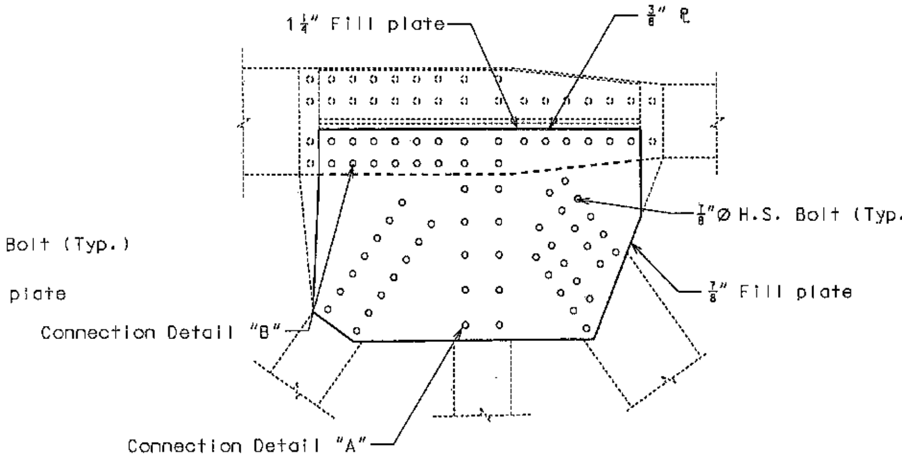
DETAILS OF GUSSET PLATE REPAIR
AT U2' IN SPANS (1-2) & (2-3)
(4 REPAIRS) ← Revised

Note: Repairs shall be made at ext. plates on E. & W. sides.



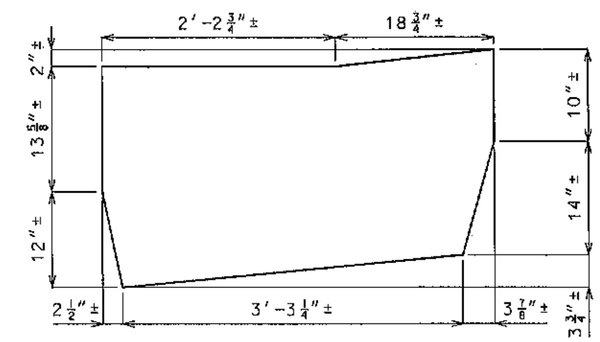
DETAILS OF GUSSET PLATE REPAIR
AT U4 IN SPAN (7-8)
(1 REPAIR)

Note: Repairs shall be made at ext. plate on E. side.

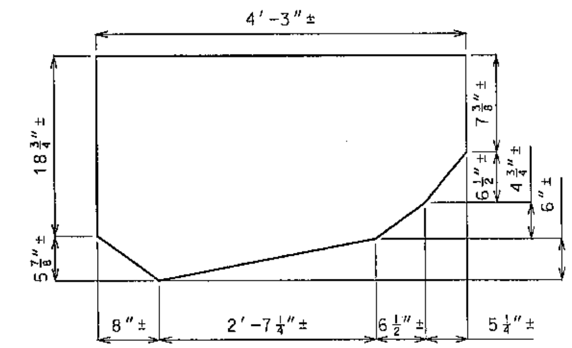


DETAILS OF GUSSET PLATE REPAIR
AT U2' IN SPANS (7-8) & (8-9)
(4 REPAIRS) ← Revised

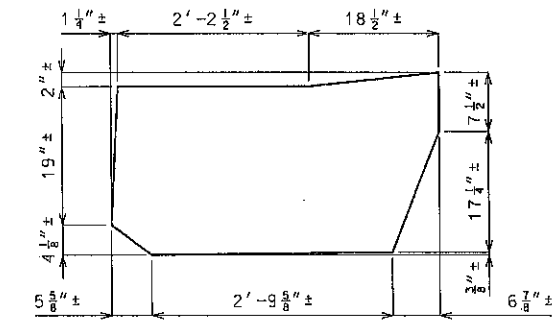
Note: Repairs shall be made at ext. plates on E. & W. sides.



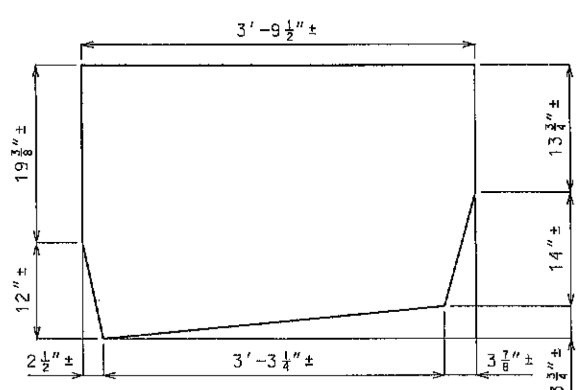
DETAIL OF 7/8" FILL PLATE
AT U2' IN SPANS (1-2) & (2-3)



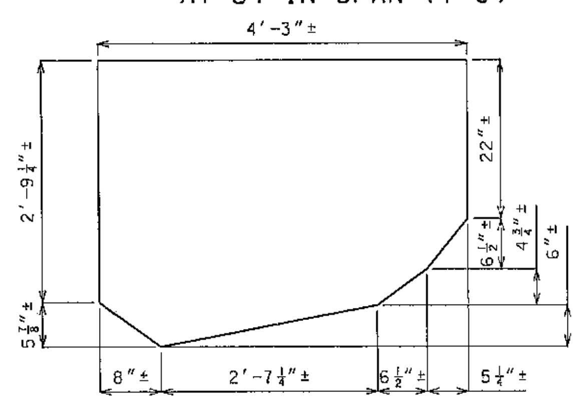
DETAIL OF 7/8" FILL PLATE
AT U4 IN SPAN (7-8)



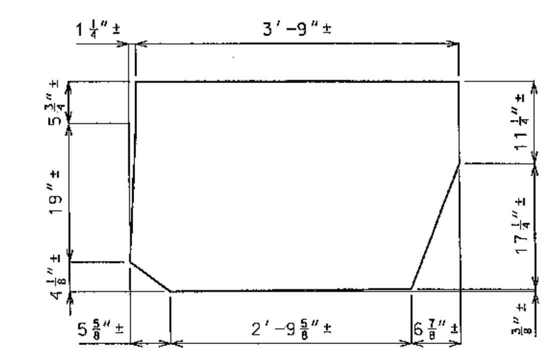
DETAIL OF 7/8" FILL PLATE
AT U2' IN SPANS (7-8) & (8-9)



DETAIL OF 3/8" PLATE
& 1 1/4" FILL PLATE
AT U2' IN SPANS (1-2) & (2-3)



DETAIL OF 3/8" PLATE
& 1 1/4" FILL PLATE
AT U4 IN SPAN (7-8)



DETAIL OF 3/8" PLATE
& 1 1/4" FILL PLATE
AT U2' IN SPANS (7-8) & (8-9)

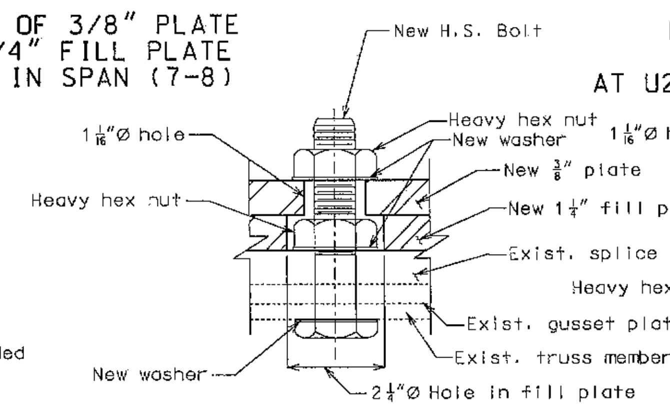
Note:

Furnishing and installing new plates and bolts for repairing of gusset plates will be considered completely covered by the contract unit price for Repair Existing Gusset Plates.

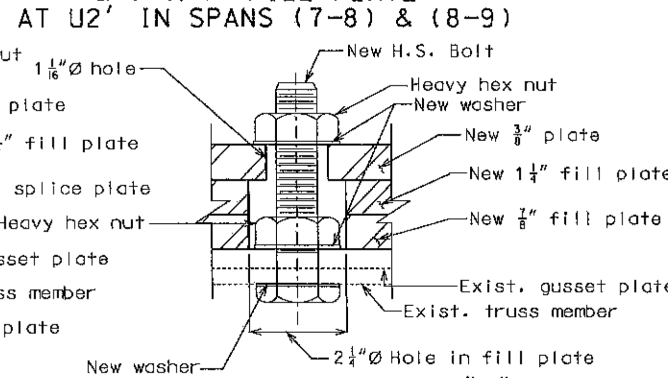
Field drill holes in new plates and use ⅞"Ø H.S. bolts to attach to existing gusset plates.

See Special Provisions for Rivet Replacement except that cost of work will be considered completely covered by the contract unit price for Repair Existing Gusset Plates.

Each location will be considered one repair. E and W. ext. will be considered separate locations.



CONNECTION DETAIL "B"



CONNECTION DETAIL "A"

Added

DETAILS OF EXTERIOR GUSSET PLATE REPAIR

Detailed Oct. 2009
Checked Oct. 2009

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

Sheet No. 8 of 12

⚠2 Sheet Revised 7/26/2010

STATE OF MISSOURI
DEAN DAVID FRANKE
NUMBER PE-28132
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	7/29/2010
ROUTE 40	STATE MO
DISTRICT BR	SHEET NO. 8
COUNTY	ST. CHARLES ST. LOUIS
JOB NO.	J6P1977
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	J10005

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

MEMORANDUM

Missouri Department of Transportation
Bridge Division
Central Office

TO: Jesse Jonas
Chesterfield Project Office

CC/ATT: Ed Hassinger – d6
Dave Ahlvers - cm
John Gahagan - br
Chad Daniel- br
Dean Franke - br
Kent Nelson - br (2)

FROM: Dean Franke *DDF*
Structural Project Manager

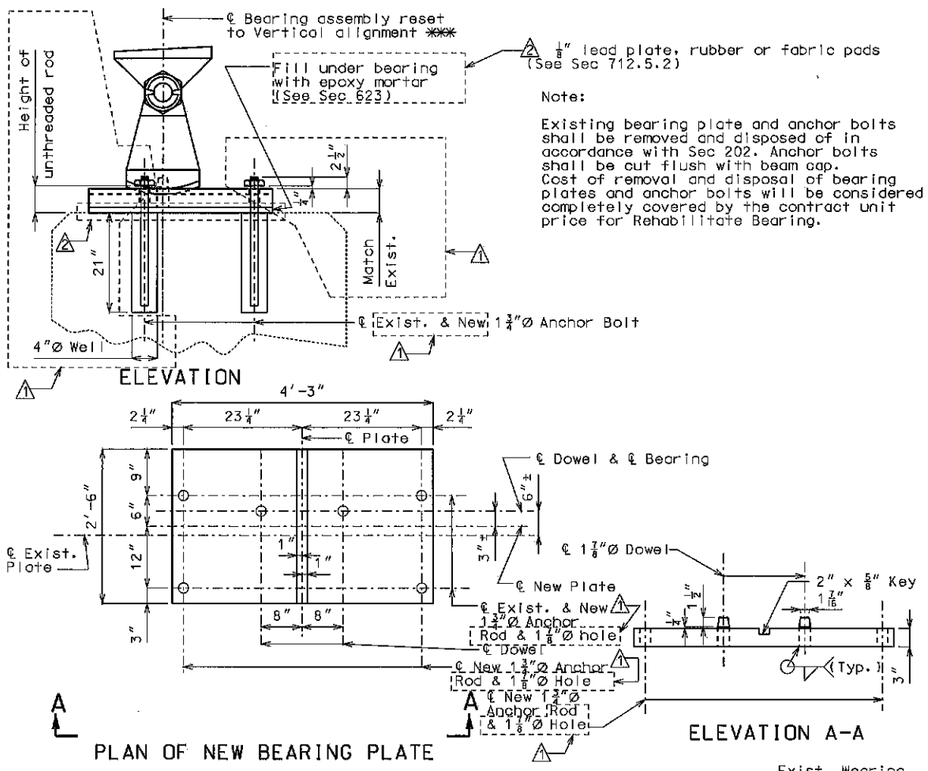
DATE: Sept 13, 2010

SUBJECT: Change Order
Bridge No. J10005
Rte 40
Job No. J6P1977, St. Louis/St.Charles County
June 2010 Letting

Please find attached six sets of half-sized prints for bridge sheet no's. 4 & 6 for the above referenced structure.

This change order is for field conditions that were different than planned. Sheet 4 was revised to show 1/8" lead plate, rubber or fabric pads under the new bearing plate instead of mortar. Sheet 6 was revised due to bulging of the existing splice plate that required filler plates to bridge the bulging splice plate. Also middle splice plate repair was added at the bulging splice plate locations.

ddf
Attachments



DETAIL SHOWING RESET BEARINGS FOR DECK TRUSS AT PIER NO. 7

Note:

Existing bearing plate and anchor bolts shall be removed and disposed of in accordance with Sec 202. Anchor bolts shall be cut flush with beam cap. Cost of removal and disposal of bearing plates and anchor bolts will be considered completely covered by the contract unit price for Rehabilitate Bearing.

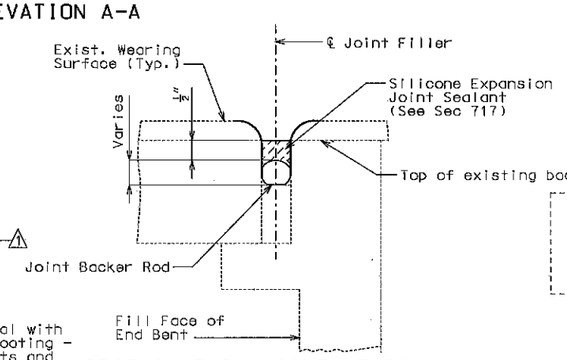
Notes:

See Job Special Provision "Rehabilitate Bearing".

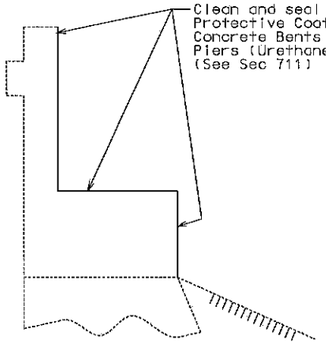
*** Bearing shall be vertical at 60° F. The position of the bearing shall be moved toward or away from the centerline of pier 3/16" from vertical for each 10° rise or fall in temperature at installation.

Anchor rods shall be 1 3/4 Ø ASTM F1554 Grade 55 swedged rods and shall extend 18" into the concrete with AASHTO M291 (ASTM A563) Hex or Heavy Hex nuts. Actual manufacturer's certified mill test reports (chemical and mechanical) shall be provided. Swedging shall be 1" less than extension into the concrete.

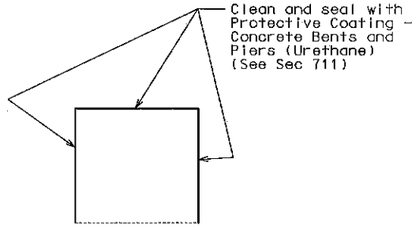
All structural steel for the anchor rods and heavy hexagon nuts shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum).



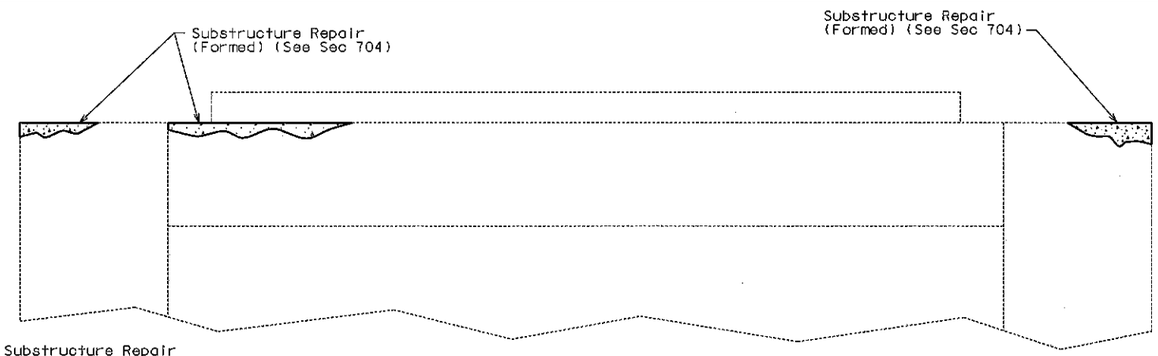
SECTION THRU JOINT AT FILL FACE OF BENTS NO. 1 & 9



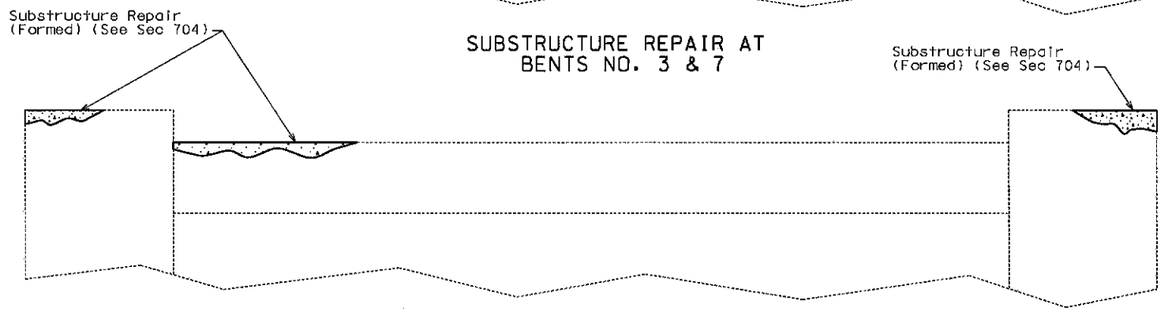
TYPICAL SECTION THRU BENTS NO. 1 & 9 SHOWING PROTECTIVE COATING



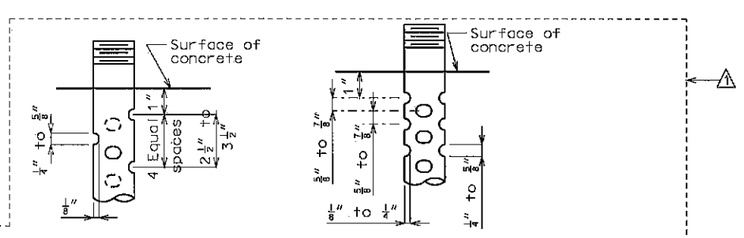
TYPICAL SECTION THRU PIERS NO. 2, 4, 5, 6 & 8 SHOWING PROTECTIVE COATING



SUBSTRUCTURE REPAIR AT BENTS NO. 3 & 7



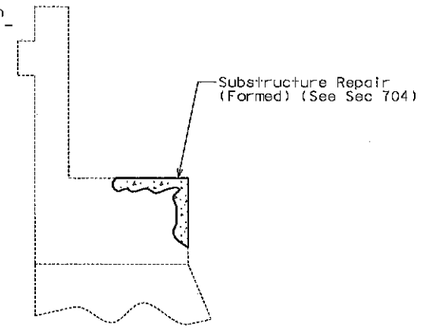
SUBSTRUCTURE REPAIR AT BENTS NO. 2, 4, 5, 6 & 8



DETAIL OF 3/4"Ø THRU 2 1/2"Ø ANCHOR RODS

OPTIONAL DETAIL OF 1 3/8"Ø THRU 2 1/2"Ø ANCHOR RODS

SWEDGE ANCHOR ROD DETAILS



SUBSTRUCTURE REPAIR AT BENTS NO. 1 & 9

2 Sheet Revised 9/13/2010

1 Details Added Sheet Revised 7/8/2010

Detailed Oct. 2009
Checked Oct. 2009

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

Sheet No. 4 of 12

STATE OF MISSOURI
DEAN DAVID FRANKE
NUMBER PE-2813
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 9/13/2010

ROUTE	STATE
40	MO
DISTRICT	SHEET NO.
BR	4

COUNTY ST. CHARLES ST. LOUIS

JOB NO. J6P1977

CONTRACT ID.

PROJECT NO.

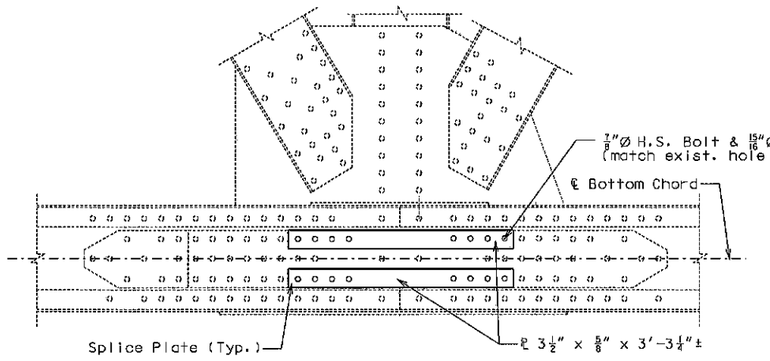
BRIDGE NO. J10005

DESCRIPTION	DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

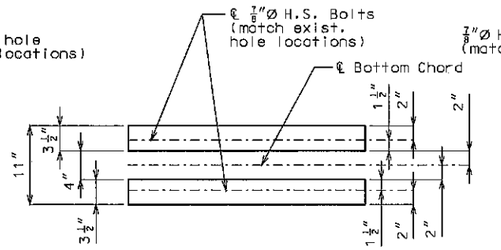
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

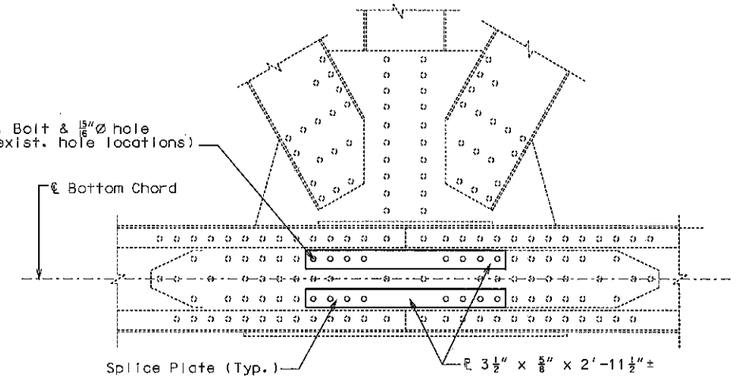


TYPICAL PART ELEVATION OF
SPLICE PLATE REPAIR @ L4 & L4'
(7 REPAIRS)

Note: Repair splice plate at L4 W and E int. & ext. plates in Span (3-4). Repair splice plate at L4' W ext. plate in Span (4-5) and L4' E ext. plate & W ext. plate in Span (6-7).

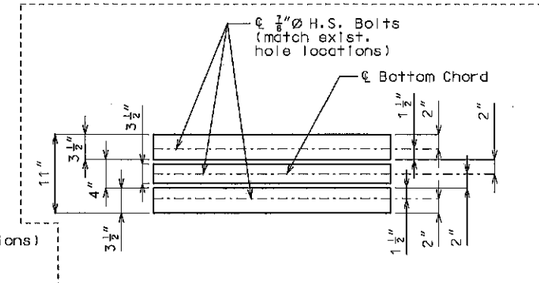


TYPICAL DETAIL OF SPLICE PLATES

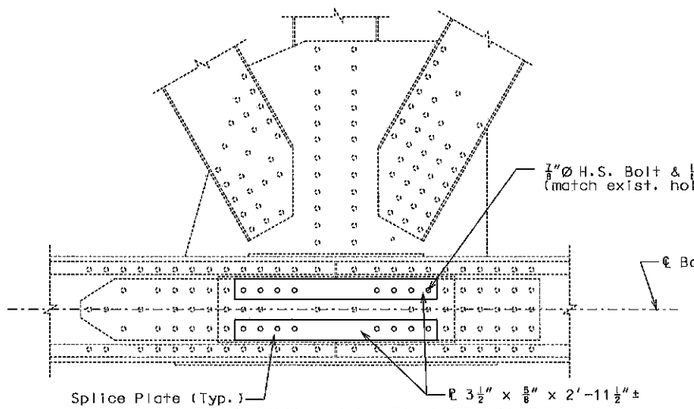


TYPICAL PART ELEVATION OF
SPLICE PLATE REPAIR @ L6 & L6'
(5 REPAIRS)

Note: Repair splice plate at L6 E ext. plate and W int. plate in Span (3-4) and at L6 E & W ext. plate in Span (5-6). Repair splice plate at L6' W ext. plate in Span (4-5).

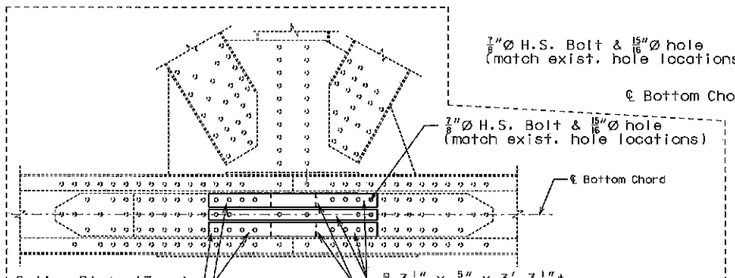


TYPICAL DETAIL OF SPLICE PLATES



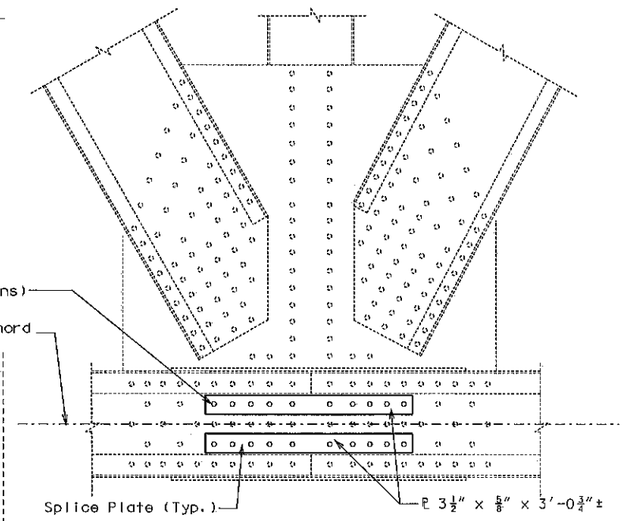
TYPICAL PART ELEVATION OF
SPLICE PLATE REPAIR @ L8 & L8'
(2 REPAIRS)

Note: Repair splice plate at L8 E ext. plate in Span (3-4). Repair splice plate at L8' W int. plate in Span (6-7).



TYPICAL PART ELEVATION OF
BULGING SPLICE PLATE REPAIR

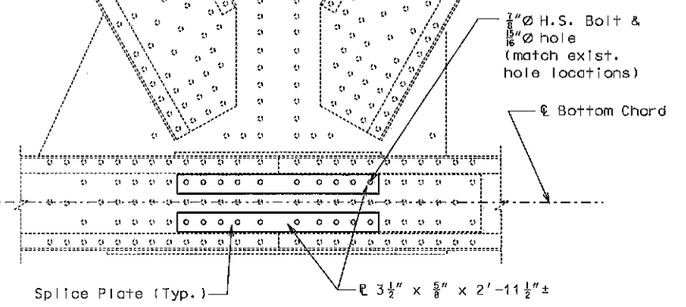
Note: Repair bulging splice plate at Span (3-4) at L6 W int., Span (3-4) L4 E & W int. and any other locations requiring filler plates. Filler plate thickness and length to be determined by contractor's field measurements. Splice plates shall be raised up to bridge over bulge in existing plate. Filler plate height shall be 3½".



Added

TYPICAL PART ELEVATION OF
SPLICE PLATE REPAIR @ L12
(1 REPAIR)

Note: Repair splice plate at L12 W ext. plate in Span (3-4).



TYPICAL PART ELEVATION OF
SPLICE PLATE REPAIR @ L10
(1 REPAIR)

Note: Repair splice plate at L10 W ext. plate in Span (3-4).

Note: New plates shall be installed one at a time.

Match existing hole locations in existing splice plates by field drilling holes in new plates. Replace rivets with H.S. bolts. See Special Provisions for Rivet Removal & Replacement except that cost of work and material to complete this item including the new plates and structural steel will be considered completely covered by the contract unit price for Splice Plate Repair.

Work shall be performed while the bridge is closed to traffic with only one splice plate repair per span performed at a time.

Each location will be considered one repair. E and W, int. & ext. will be considered separate locations.

Added

Sheet Revised 9/13/2010

DETAILS OF SPLICE PLATE REPAIR

Detailed Oct. 2009
Checked Oct. 2009

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

STATE OF MISSOURI
DEAN DAVID FRANKE
NUMBER PE-2012
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 9/13/2010

ROUTE	STATE
40	MO
DISTRICT	SHEET NO.
BR	6

COUNTY: ST. CHARLES, ST. LOUIS
JOB NO.: J6P1977
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: J10005

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

MEMORANDUM

Missouri Department of Transportation
Bridge Division
Central Office

TO: Jesse Jonas
Chesterfield Project Office

CC/ATT: Ed Hassinger – d6
Dave Ahlvers - cm
John Gahagan - br
Chad Daniel- br
Dean Franke - br
Kent Nelson - br (2)

FROM: Dean Franke *DDF*
Structural Project Manager

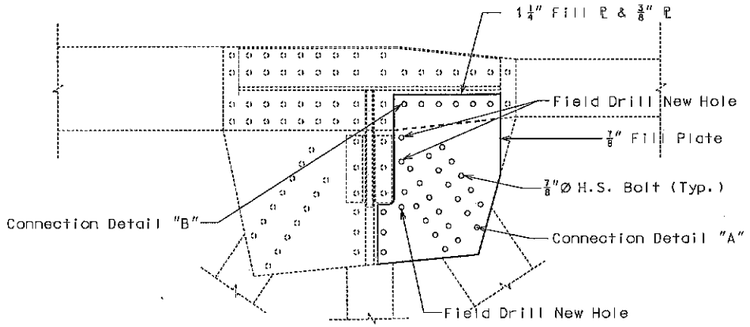
DATE: October 14, 2010

SUBJECT: Change Order
Bridge No. J10005
Rte 40
Job No. J6P1977, St. Louis/St.Charles County
June 2010 Letting

Please find attached half-sized prints for bridge sheet no's. 8a for the above referenced structure.

This change order is for allowing partial removal of lateral bracing to remove and install new bolts for repairing gusset plates.

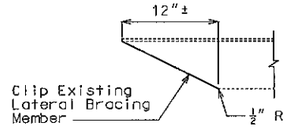
ddf
Attachments



DETAILS OF GUSSET PLATE REPAIR AT U2′ IN SPANS (1-2) & (2-3)

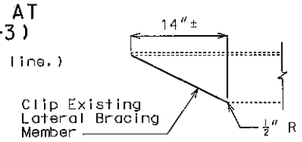
(4 REPAIRS)

Note: Repairs shall be made at int. plates on E. & W. sides.
Lateral and diagonal bracing members not shown for clarity.



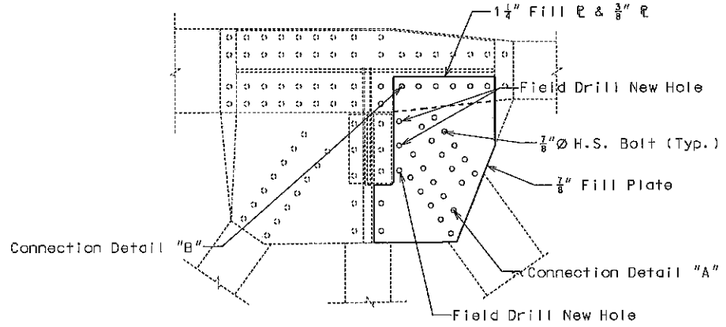
DETAILS OF CLIPPING OF EXISTING LATERAL BRACING AT U2′ IN SPANS (1-2) & (2-3)

(Contractor to provide a smooth cut line.)



DETAILS OF CLIPPING OF EXISTING LATERAL BRACING AT U2′ IN SPANS (7-8) & (8-9)

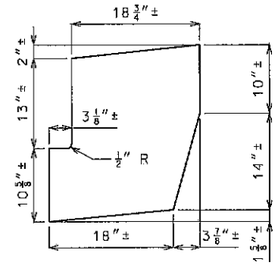
(Contractor to provide a smooth cut line.)



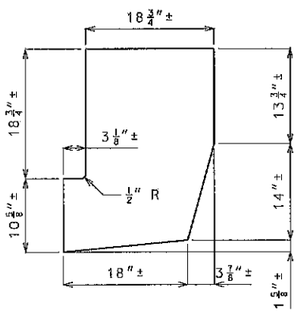
DETAILS OF GUSSET PLATE REPAIR AT U2′ IN SPANS (7-8) & (8-9)

(4 REPAIRS)

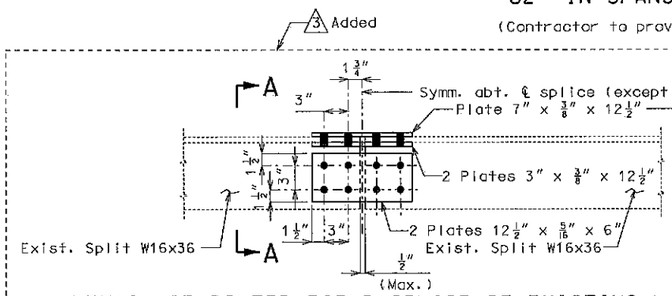
Note: Repairs shall be made at int. plates on E. & W. sides.
Lateral and diagonal bracing members not shown for clarity.



DETAIL OF 7/8" FILL PLATE AT U2′ IN SPANS (1-2) & (2-3)



DETAIL OF 3/8" PLATE & 1 1/4" FILL PLATE AT U2′ IN SPANS (1-2) & (2-3)



DETAIL OF BOLTED FIELD SPLICE OF EXISTING LATERAL BRACING AT U2′ IN SPANS (1-2), (2-3), (7-8) & (8-9)

Notes:

Contact surfaces shall be in accordance with Sec 1081 for surface preparation.

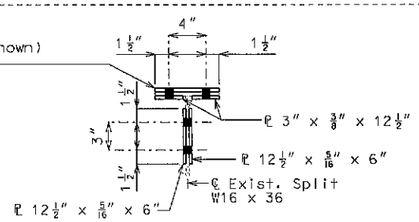
Use ⅞"Ø high strength bolts for 15/16"Ø holes.

Contractor shall determine splice location to allow rivet removal and replacement. Ends of splice plates shall be 12" minimum from existing connection plates.

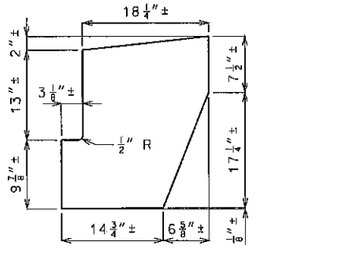
Contractor shall provide smooth cut lines.

Lateral bracing shall be temporarily supported.

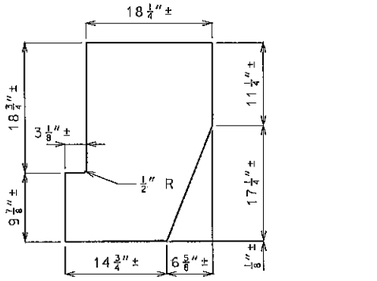
Fabricated structural steel for splice plates shall be ASTM A709 Grade 50.



SECTION A-A



DETAIL OF 7/8" FILL PLATE AT U2′ IN SPANS (7-8) & (8-9)



DETAIL OF 3/8" PLATE & 1 1/4" FILL PLATE AT U2′ IN SPANS (7-8) & (8-9)

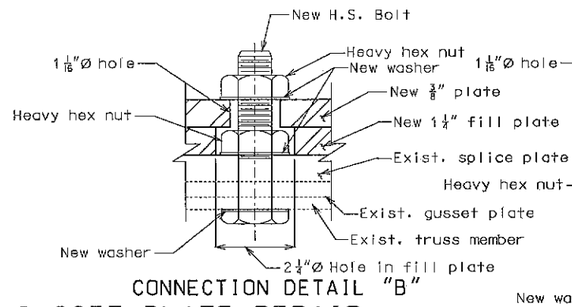
Note:

Furnishing and installing new plates and bolts for repairing of gusset plates will be considered completely covered by the contract unit price for Repair Existing Gusset Plates.

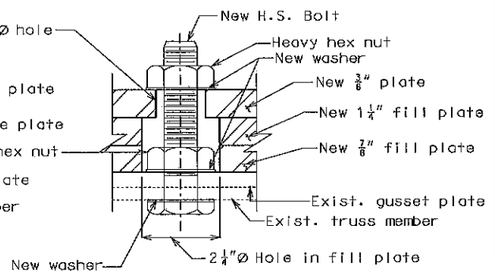
Field drill holes in new plates and use ⅞"Ø H.S. bolts to attach to existing gusset plates.

See Special Provisions for Rivet Replacement except that cost of work will be considered completely covered by the contract unit price for Repair Existing Gusset Plates.

Each location will be considered one repair. E and W. int. will be considered separate locations.



CONNECTION DETAIL "B"



CONNECTION DETAIL "A"

DETAILS OF INTERIOR GUSSET PLATE REPAIR

Detailed Oct. 2009
Checked Oct. 2009

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

2 Sheet Added 7/26/2010 3 Sheet Revised 10/14/2010

STATE OF MISSOURI
DEAN DAVID FRANKE
NUMBER PE-28132
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/14/2010
ROUTE 40 | STATE MO
DISTRICT BR | SHEET NO. 8a
COUNTY ST. CHARLES ST. LOUIS
JOB NO. J6P1977
CONTRACT ID.
PROJECT NO.
BRIDGE NO. J10005

NO. | DESCRIPTION | DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
MoDOT

MEMORANDUM

Missouri Department of Transportation
Bridge Division
Central Office

TO: Jesse Jonas
Chesterfield Project Office

CC/ATT: Ed Hassinger – d6
Dave Ahlvers - cm
John Gahagan - br
Chad Daniel- br
Dean Franke - br
Kent Nelson - br

FROM: Dean Franke *DDF*
Structural Project Manager

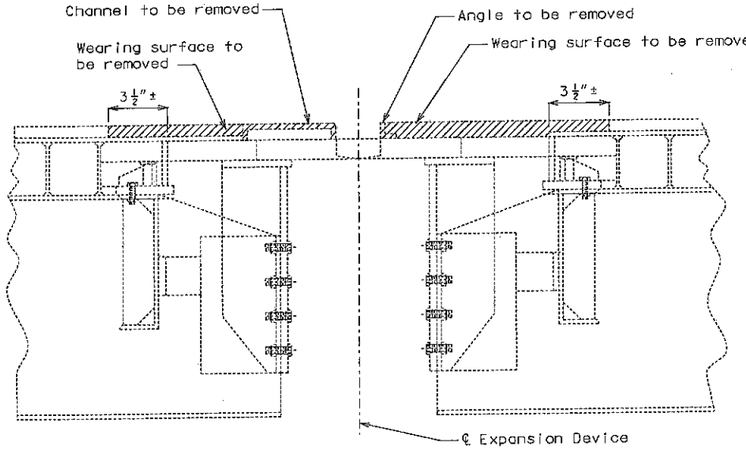
DATE: December 22, 2010

SUBJECT: Change Order
Bridge No. J10005
Rte 40
Job No. J6P1977, St. Louis/St.Charles County
June 2010 Letting

Please find attached half-sized prints for bridge sheet no's. 5 for the above referenced structure.

This change order is for better attaching the modified finger plate expansion device to the existing finger plate expansion device.

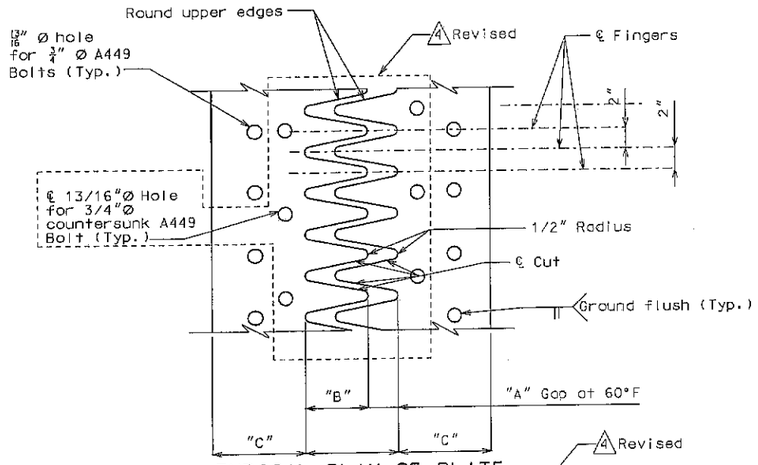
ddf
Attachments



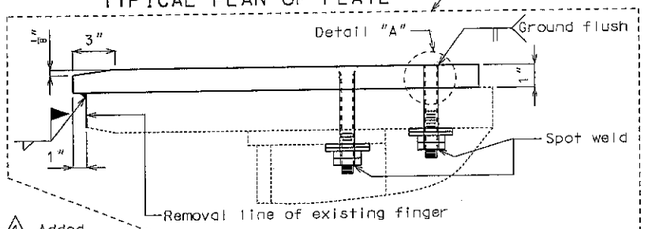
PART SECTION THRU EXPANSION DEVICE SHOWING REMOVAL

Note: Payment for removal and disposal of existing channel, angle and wearing surface will be considered completely covered by the contract unit price for Removal of Existing Bar Dams and Adjacent Wearing Surface.

Removal of Existing Bar Dams and Adjacent Wearing Surface will be measured to the nearest linear foot from roadway face of curb to roadway face of curb along the centerline of existing joint for each joint.



TYPICAL PLAN OF PLATE



FINGER DETAIL

GENERAL NOTES:

New fingers of the modified finger plate shall align & match the the old fingers outline.

Modified finger plate shall be cut with a machine guided gas torch from one plate. The plate from which fingers are cut may be spliced before fingers are cut. The surface of cut shall be perpendicular to the surface of the plate. The cut shall not exceed ¼" in width. The centerline of cut shall not deviate more than 1/16" from the position of centerline of cut shown.

Plan dimensions are based on installation at 60°F. The expansion gap and other dimensions shall be increased or decreased "D" for each 10° fall or rise in temperature at installation.

Materials for the expansion device shall be ASTM A709 Grade 50 structural steel.

Structural steel for the expansion device shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum) or galvanized in accordance with ASTM A123.

The cost of furnishing all materials, coating or galvanizing, equipment and labor necessary for Modified Finger Plate, complete-in-place, will be considered completely covered by contract unit price for Modified Finger Plate per linear foot.

Modified Finger Plate Expansion device shall be fabricated for staged construction. A partial joint penetration groove weld splice shall be required. Welds shall be ground flush to provide a smooth surface. The expansion device shall be fabricated and installed to the crown and grade of the roadway. See Sec 1081.6 for repairing galvanized metal.

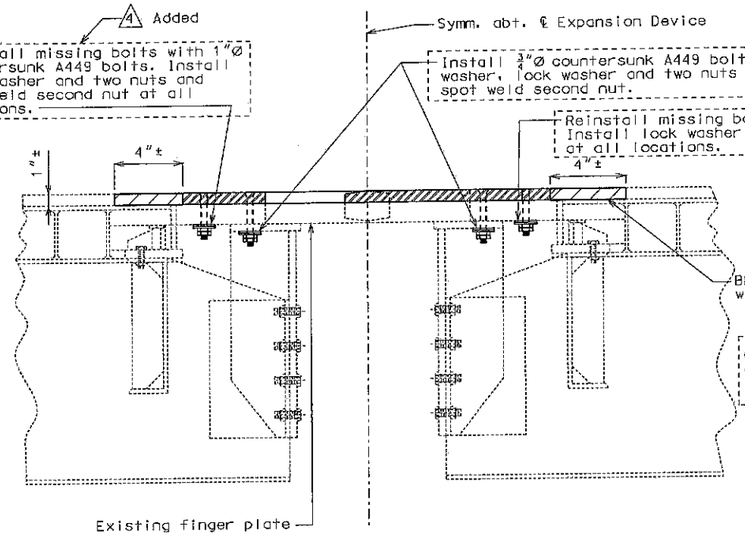
Penetration welds shall be nondestructively tested by an approved method.

Asphaltic concrete shall be in accordance with Sec 403.

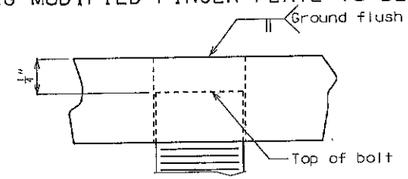
The cost of furnishing and installing all materials including tack coat and asphaltic concrete adjacent to Modified Finger Plate will be considered completely covered by the contract unit price for Modified Finger Plate per linear foot.

Welding of bolts to finger plate shall be sequenced such that the surface temperature of the steel adjacent to the hole to be welded has cooled to 125°F.

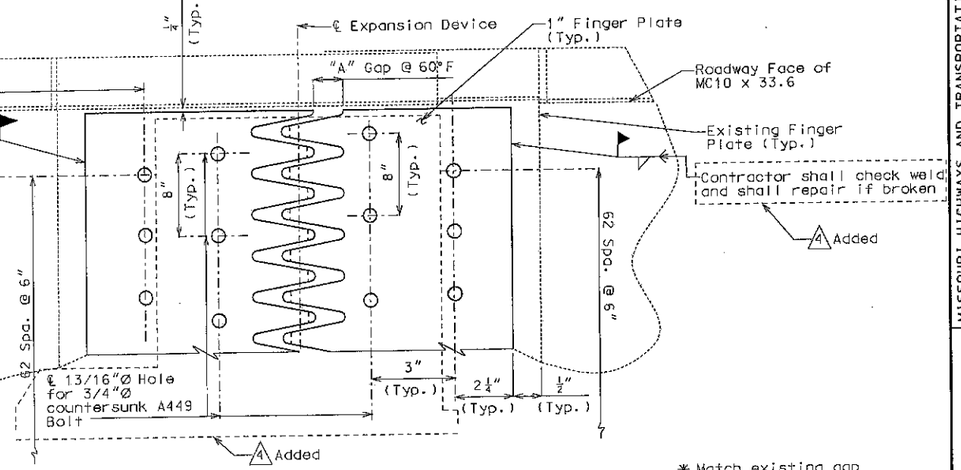
At the contractor's option, welding of the bolts to the finger plate may be field or shop welded. Any coating damaged by field welding shall be repaired in accordance with Sec 1081.



PART SECTION SHOWING MODIFIED FINGER PLATE TO BE INSTALLED



DETAIL A



PART PLAN OF MODIFIED FINGER PLATE EXPANSION DEVICE

Note: Asphaltic concrete not shown for clarity.

* Match existing gap

TABLE OF PLATE DIMENSIONS				
Pier No.	"A"*	"B"	"C"	"D"
3	4¾"	10½"	8¼"	5/8"
5	5¾"	12½"	7"	5/8"
7	4¾"	10½"	7¼"	5/8"

4 Sheet Revised 12/21/2010

DETAILS OF MODIFIED FINGER PLATE EXPANSION DEVICE AT PIERS NO. 3, 5 & 7

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

Detailed Oct. 2009
Checked Oct. 2009

STATE OF MISSOURI
DEAN DAVID FRANKE
NUMBER PE-2012
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 12/22/2010
ROUTE 40 | STATE MO
DISTRICT BR | SHEET NO. 5
COUNTY ST. CHARLES ST. LOUIS
JOB NO. J6P1977
CONTRACT ID.
PROJECT NO.
BRIDGE NO. J10005

DESCRIPTION | DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

Appendix B
Plates of Archival Photographs

Photo Index

Daniel Boone Bridge, J1000
St. Charles & St. Louis Counties, Missouri

Photographer, Images 1 and 4, Catherine V. Morrison
Date: 16 December 2011

Photographer, Images 2, 3, 5 and 6, Catherine V. Morrison
Date: 4 June 2010

Photographer, Images 7-27, Karen L. Daniels
Date: 8 January 2013

Location of Negatives: Digital Images; tiff images provided to State Historic Preservation Office and maintained by the Missouri Department of Transportation, Historic Preservation Section, Jefferson City, Missouri

#1 of 27
Aerial photograph, facing northwest from the St. Louis county side of the river, showing setting of the bridge and relationship to the parallel bridge A4017

#2 of 27
Aerial photograph, facing north from the St. Louis county side of the river, Daniel Boone Bridge (J1000) is on the right hand side

#3 of 27
Aerial photograph, facing northwest from the St. Louis County side of the river, Daniel Boone Bridge through truss spans

#4 of 27
Aerial photograph, facing west, Daniel Boone Bridge from the side

#5 of 27
Aerial photograph, facing northwest, spans 3 and 4

#6 of 27
Aerial photograph, facing southwest from St. Charles County side of the river, entire length of the Daniel Boone Bridge

#7 of 27
Facing northwest, Daniel Boone Bridge from levee

#8 of 27
Facing north, South portal of through truss span; includes companion bridge A4017; notice the shadow cast by the polygonal top chord onto the companion bridge

#9 of 27
Facing north, south portal

#10 of 27
Facing northwest, view along bottom chord from south to north

#11 of 27
Facing northwest, span 7 deck truss approach span

#12 of 27
Facing south, view span 8 deck truss and south abutment

#13 of 27
Facing east, span 8 deck truss approach span

#14 of 27
Facing northeast, pier 8

#15 of 27
Facing northeast, view along bridge from span 7 north

#16 of 27
Facing south, pier 7

#17 of 27
Facing north, bottom chord of through truss, spans 5-6

#18 of 27
Facing north, pier 6 in foreground

#19 of 27
Facing southwest, detail of through truss, span 6

#20 of 27
Facing northwest, detail of through truss, span 6

#21 of 27
Facing northwest, detail of through truss, span 6

#22 of 27
Facing northwest, through truss spans and river piers

#23 of 27
Facing west, detail of connection between side panel and bottom chord

#24 of 27
Facing west, detail of connection between side panel, top chord, lateral bracing and sway bracing

#25 of 27
Facing southwest, rocker bearings on pier 8

#26 of 27
Facing north, plate bearing on pier 7

#27 of 27
Facing south, view along bottom chord from north to south, includes view of back of wing walls of north abutment

#1 of 27: Aerial photograph, facing northwest from the St. Louis county side of the river, showing setting of the bridge and relationship to the parallel bridge A4017.

#2 of 27: Aerial photograph, facing north from the St. Louis county side of the river, Daniel Boone Bridge (J1000) is on the right hand side.

#3 of 27: Aerial photograph, facing northwest from the St. Louis County side of the river, Daniel Boone Bridge through truss spans.

#4 of 27: Aerial photograph, facing west, Daniel Boone Bridge from the side.

#5 of 27: Aerial photograph, facing northwest, spans 3 and 4.

#6 of 27: Aerial photograph, facing southwest from St. Charles County side of the river, entire length of the Daniel Boone Bridge.

#7 of 27: Facing northwest, Daniel Boone Bridge from levee.

#8 of 27: Facing north, South portal of through truss span; includes companion bridge A4017; notice the shadow cast by the polygonal top chord onto the companion bridge.

#9 of 27: Facing north, south portal.

#10 of 27: Facing northwest, view along bottom chord from south to north.

#11 of 27: Facing northwest, span 7 deck truss approach span.

#12 of 27: Facing south, view span 8 deck truss and south abutment.

#13 of 27: Facing east, span 8 deck truss approach span.

#14 of 27: Facing northeast, pier 8.

#15 of 27: Facing northeast, view along bridge from span 7 north.

#16 of 27: Facing south, pier 7.

#17 of 27: Facing north, bottom chord of through truss, spans 5-6.

#18 of 27: Facing north, pier 6 in foreground.

#19 of 27: Facing southwest, detail of through truss, span 6.

#20 of 27: Facing northwest, detail of through truss, span 6.

#21 of 27: Facing northwest, detail of through truss, span 6.

#22 of 27: Facing northwest, through truss spans and river piers.

#23 of 27: Facing west, detail of connection between side panel and bottom chord.

#24 of 27: Facing west, detail of connection between side panel, top chord, lateral bracing and sway bracing.

#25 of 27: Facing southwest, rocker bearings on pier 8.

#26 of 27: Facing north, plate bearing on pier 7.

#27 of 27: Facing south, view along bottom chord from north to south, includes view of back of wing walls of north abutment.