

MISSISSIPPI RIVER BRIDGE
AT LOUISIANA, MISSOURI
FOR THE
MISSOURI-ILLINOIS BRIDGE COMPANY.

HARRINGTON, HOWARD, AND ASH CONSULTING ENGINEERS

KANSAS CITY-NEW YORK

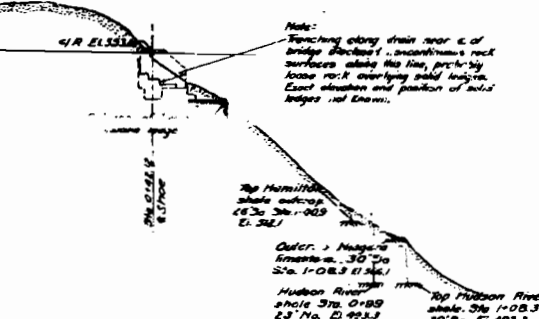
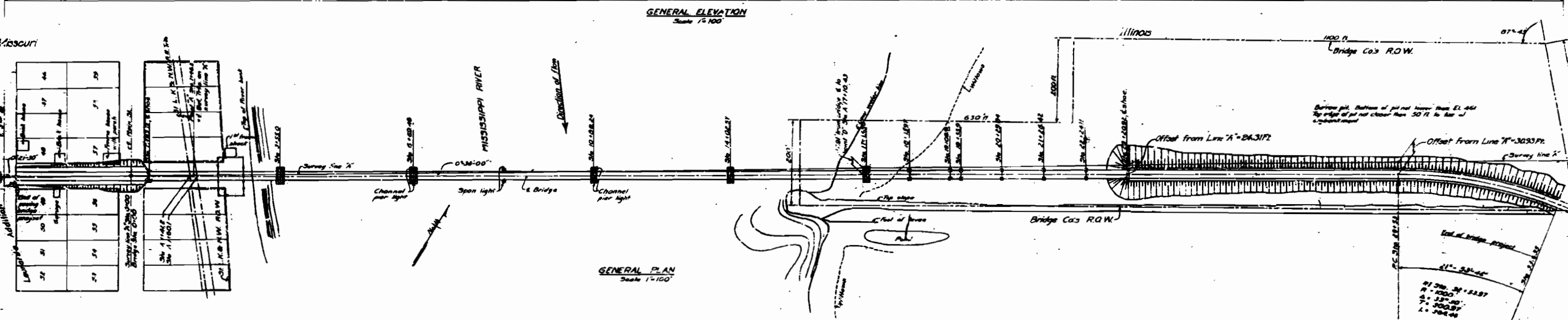
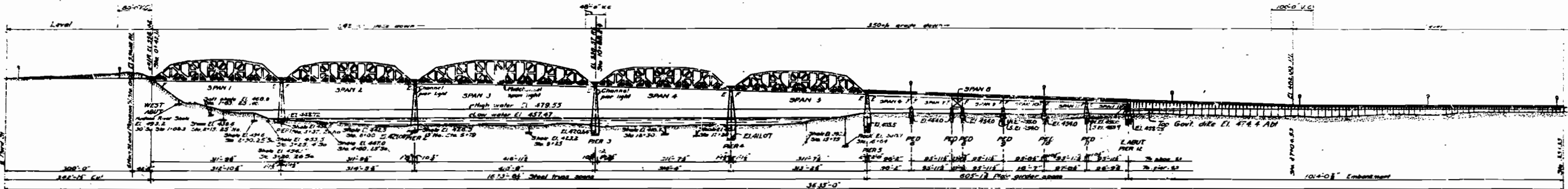
LIST OF DRAWINGS.

1. GENERAL PLAN AND ELEVATION.
2. CUTS AND EMBANKMENTS.
3. PIERS - 2, 3 AND 4.
4. PIERS - 1 AND 5, PEDESTALS 6 TO 11.
5. PIER 12 AND WEST ABUTMENT.
6. FLOOR SYSTEM, TRUSS AND GIRDER SPANS.
7. HANDRAILS, CASTINGS, LIGHTING DETAILS.
8. TRUSSES AND LATERALS - SPANS 1, 2, 4 AND 5.
9. TRUSSES AND LATERALS - SPANS 1, 2, 4 AND 5.
10. TRUSSES AND LATERALS - SPAN 3.
11. TRUSSES AND LATERALS - SPAN 3.
12. GIRDERS, COLUMNS AND BRACING - SPANS 6 TO 12.

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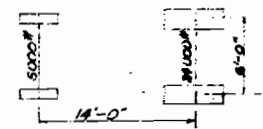
PIKE COUNTY
RT. 54

K-932



LOADING

Floor System 15 Ton Truck



Trusses and Girders

21000 # concentrated plus
450 # p.l.t. uniform.
The above loads for each traffic
lane 10 ft. wide.

Impact

30% for floor system except 60%
for end floorbeam and all floorbeam
connections.

On Girders and Trusses:

$$I = \frac{L}{250}$$

where L = loaded length.

NOTE:-

Elevations given are referred to Cairo
Datum Plane which is 20.435 feet below Gulf
Level. Zero of gage at Chicago and A.M. 7
Bridge is at Elev. 457.470 Cairo Datum.

Bench mark used for original survey
was P.B.M. 23 copper bolt loaded horizontally
in the first layer of stone below brick in N.E.
corner of brick saloon on the N.W. corner of
Haver and Georgia streets. Bolt is in second
stone N of door in same wall of building.
Elevation 488.764 Cairo Datum.

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MISSISSIPPI RIVER BRIDGE

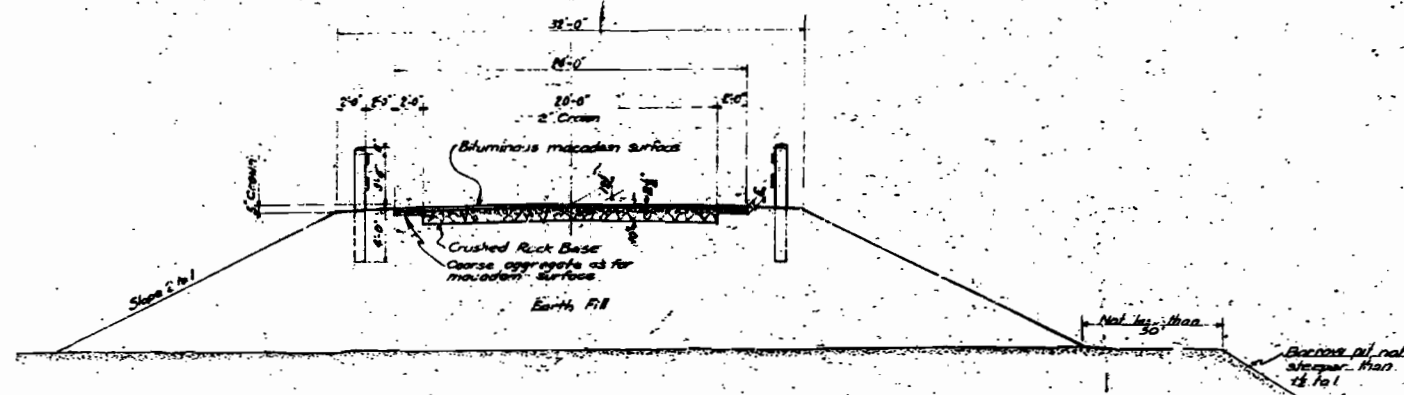
AT LOUISIANA, MISSOURI

FOR THE

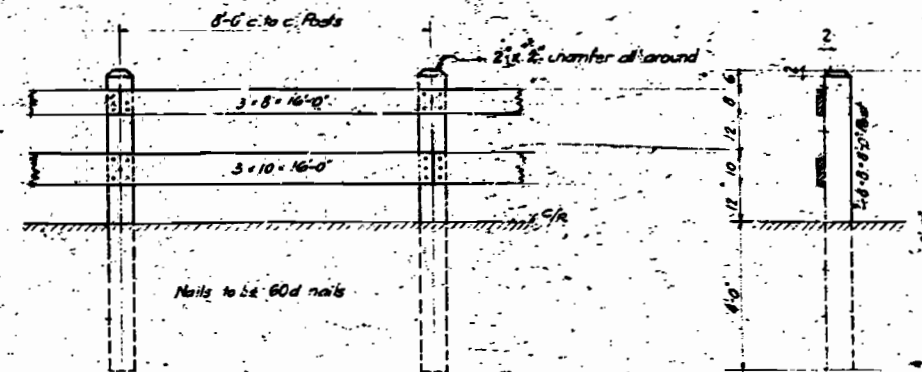
MISSOURI-ILLINOIS BRIDGE COMPANY

GENERAL PLAN AND ELEVATION

SCALE: 1/2\"/>



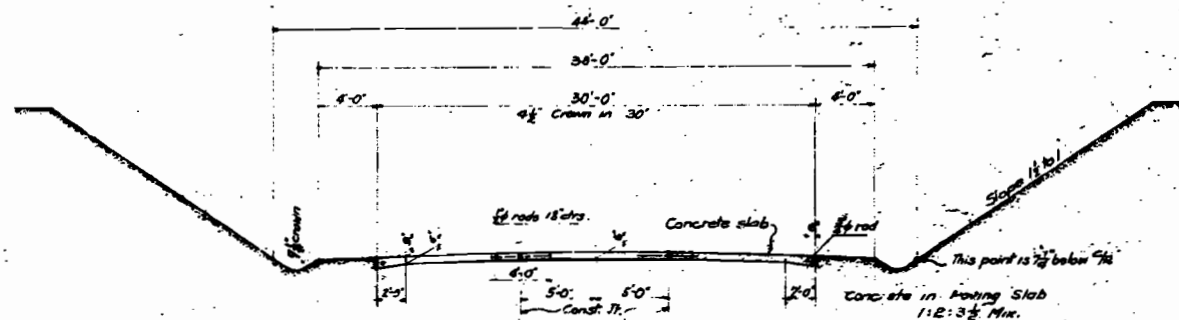
TYPICAL CROSS SECTION OF EMBANKMENT
ON TANGENT
Scale 1/4" = 1'-0"



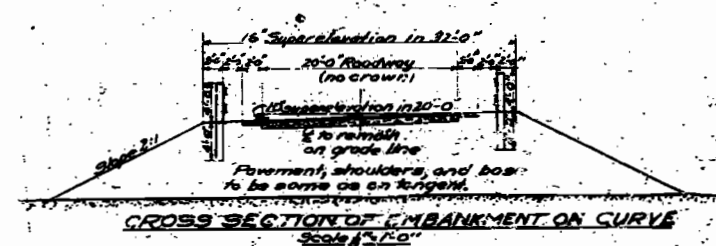
Paint all railing above ground with 1 coat of paint and two coats of paint. Lower 4' of post to be dipped in asphaltic cement or other water-proofing material.

For Lighting on Approaches See Sheets 1 and 7

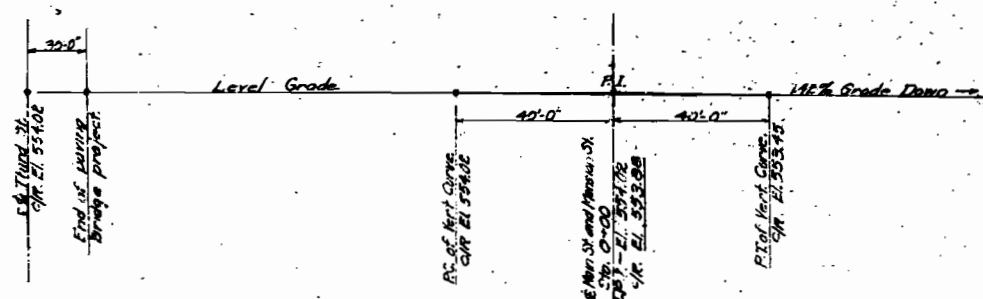
DETAIL OF RAILING
Scale 1/4" = 1'-0"



TYPICAL CROSS SECTION OF CUT
Scale 1/4" = 1'-0"



Note: Roadway surface is to be super-elevated on curve from Sta. 20+53 to Sta. 33+35 by sloping surface 1" per foot upwards toward the outside and downwards toward the inside of curve each way from center grade line as shown on cross-section above. The transition from cross-section for tangent is to begin at Sta. 20+53 and the change in gutter lines is to be made uniformly in 100 feet warping the roadway surface as necessary.



GRADE LINE, WEST APPROACH
Scale 1" = 40'-0"

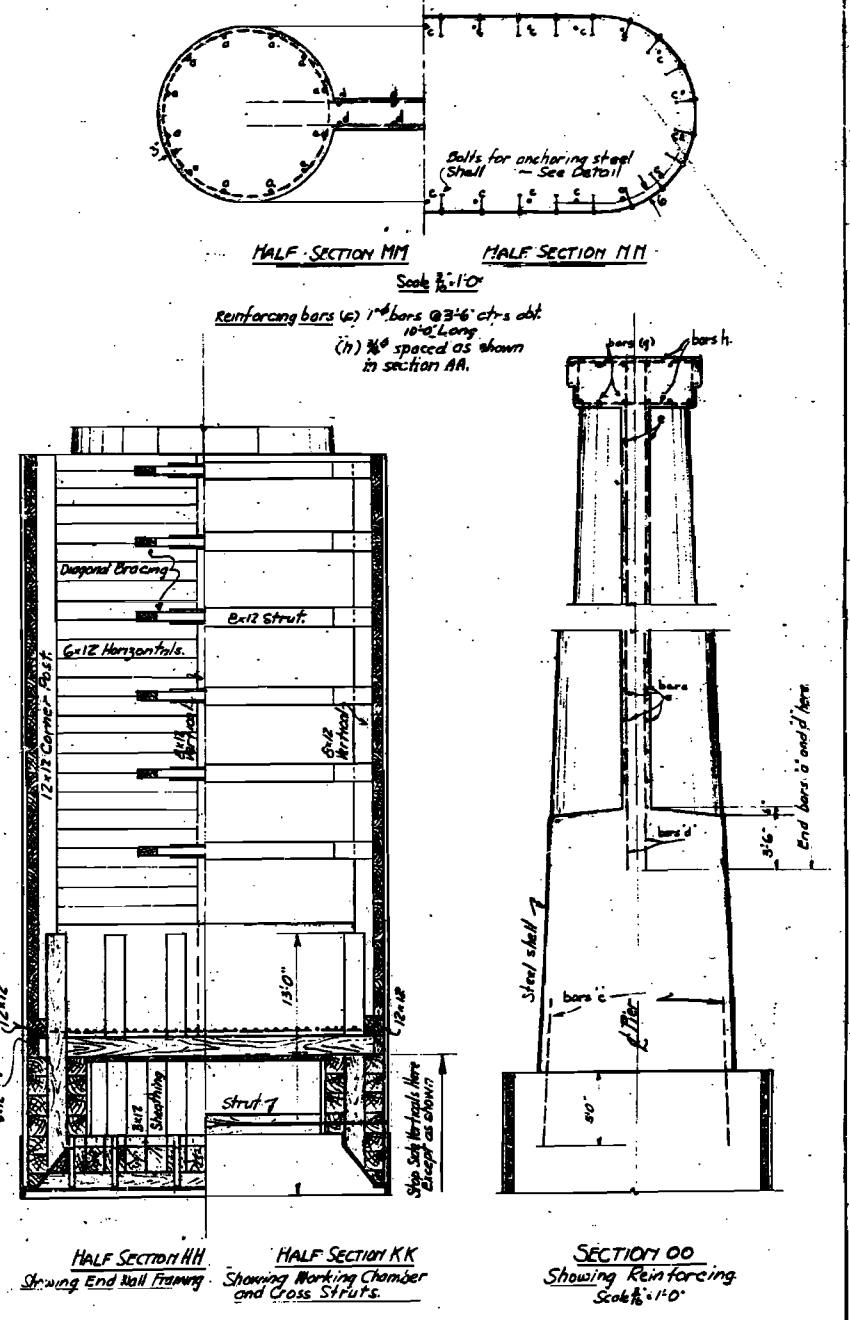
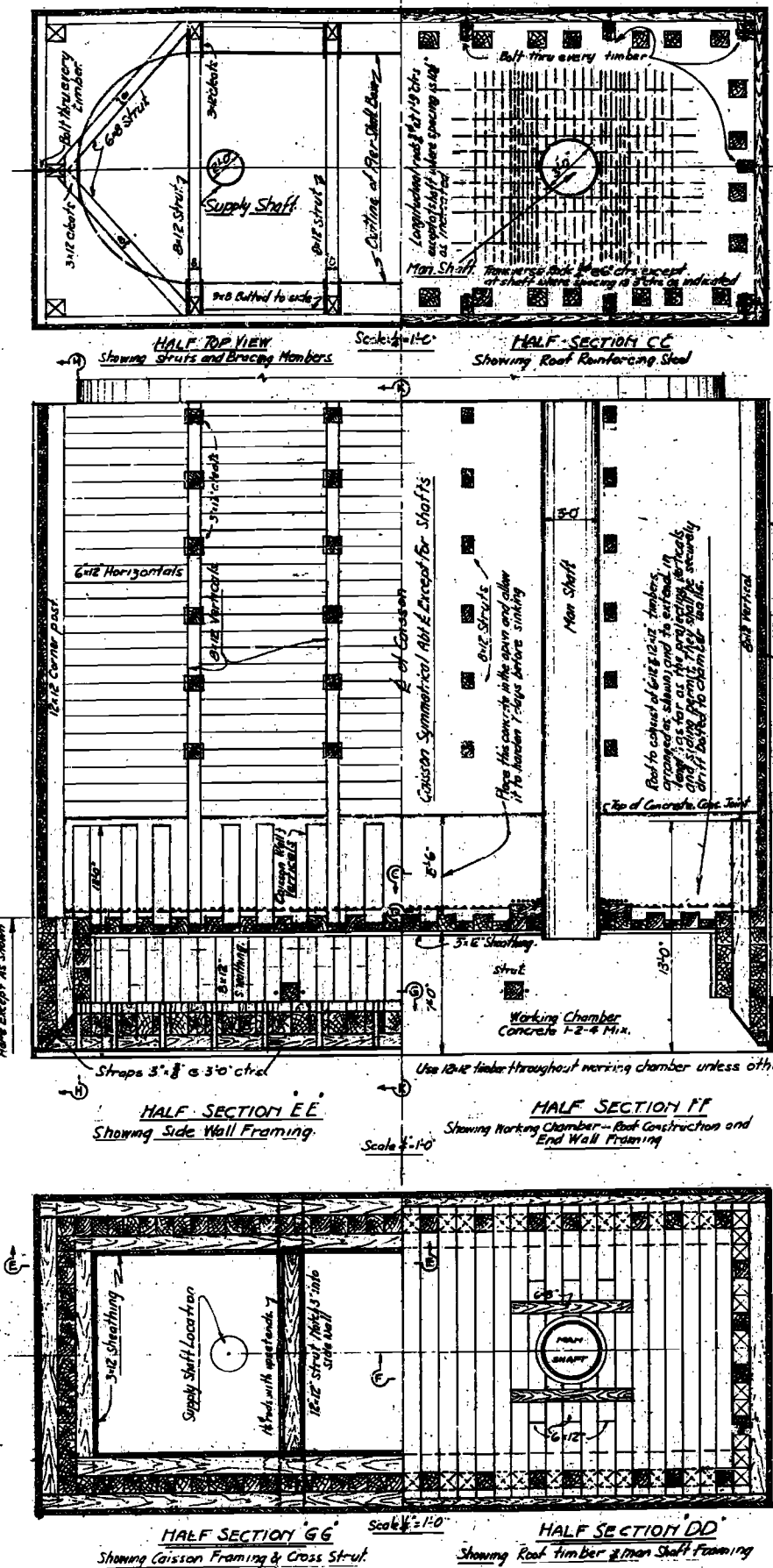
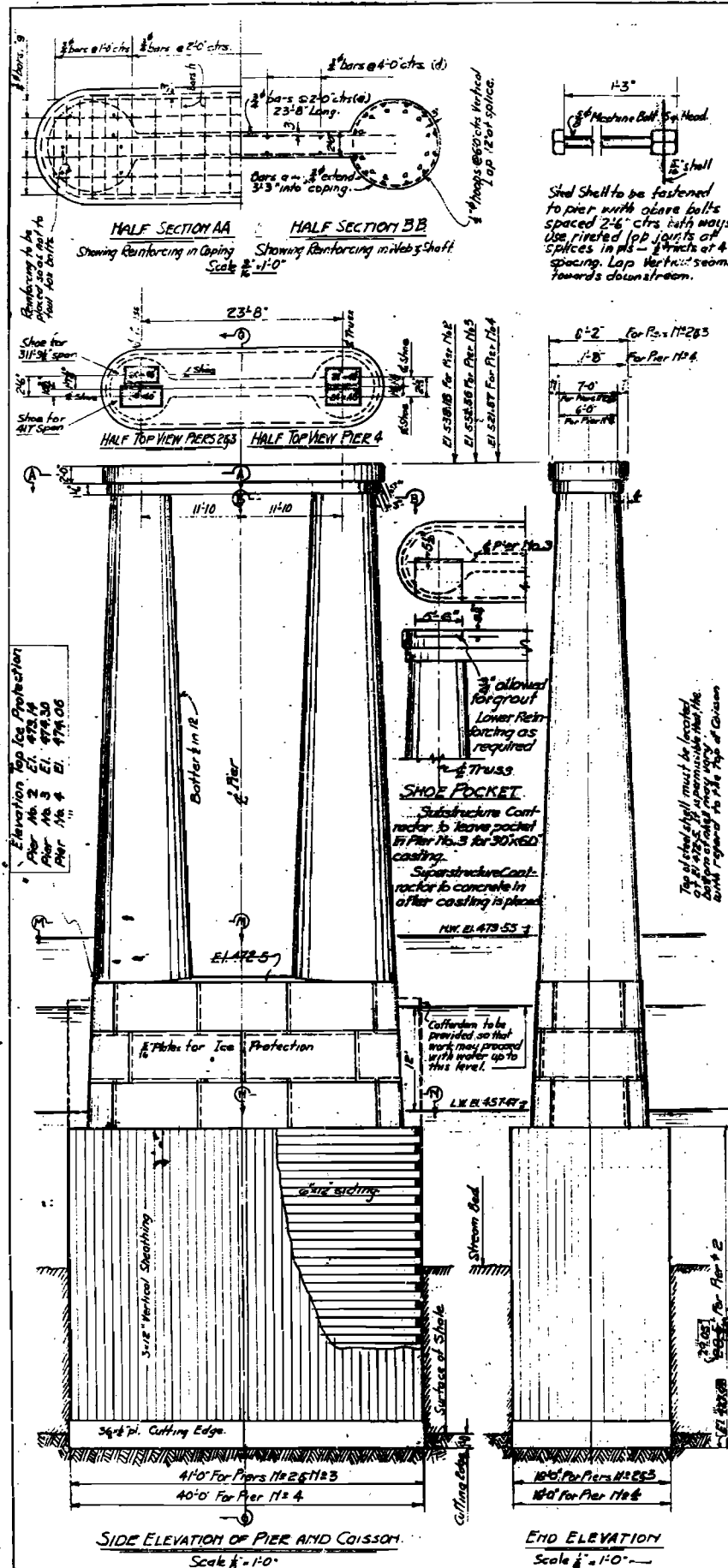
PIKE CO. K-932

MISSISSIPPI RIVER BRIDGE
AT LOUISIANA, MISSOURI
FOR THE
MISSOURI-ILLINOIS BRIDGE COMPANY

CUTS AND EMBANKMENTS

FILE: AS NOTED
DATE: 7-10-36
DRAWN BY: J. H. HARRIS
CHECKED BY: J. H. HARRIS
REVISIONS: 1-10-36
SHEET NO. 2

Revised for super-elevation F.S.W. 3-42



GENERAL NOTES

Details of timber framing and connections for caissons are largely omitted from this drawing. Before commencing construction the contractor will supply the engineer with complete drawings showing bolts, splices, fastenings as well as details of framing that he will use. Said drawings shall be approved by the Engineer before construction begins.

All concrete to be 1:2:4 mix except in working chamber of the pneumatic caissons which shall be 1:2:4 mix.

Provide substantial keys at all construction joints.

All exposed corners to be rounded to 1/8" radius.

Reinforcing steel to be placed 3" from face of concrete unless otherwise noted.

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MISSISSIPPI RIVER BRIDGE
AT LOUISIANA, MISSOURI

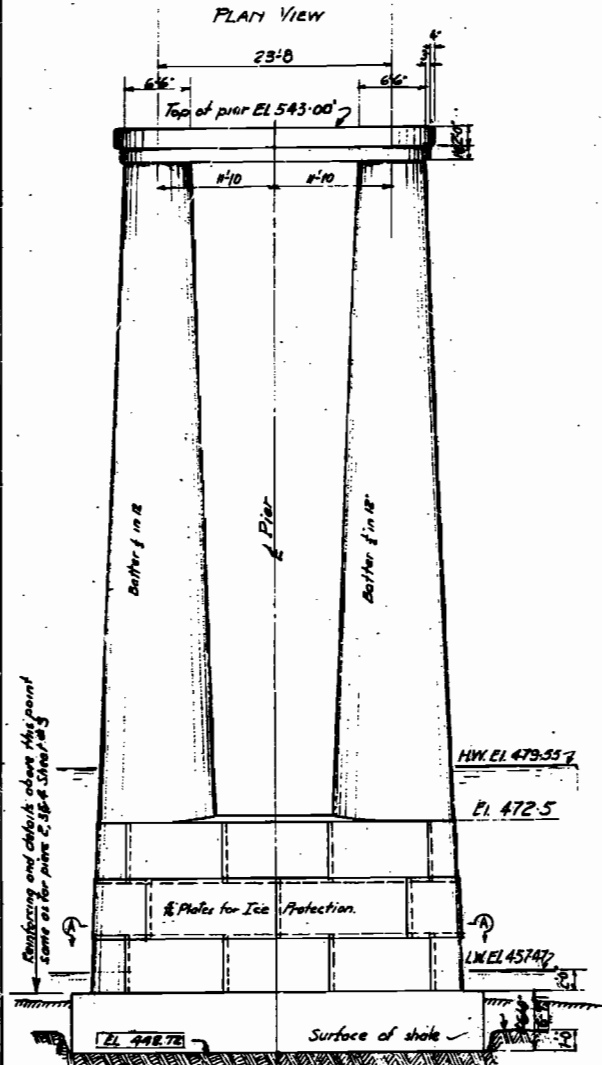
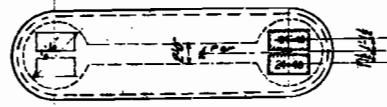
FOR THE
MISSOURI-ILLINOIS BRIDGE COMPANY

PIERS 2, 3 AND 4

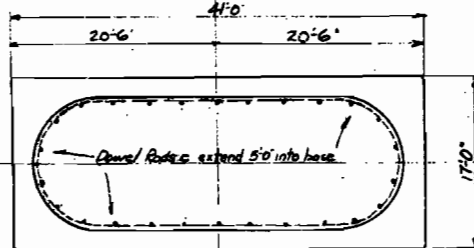
SCALE: SEE DETAIL
DRAWN BY: H. B. B. DATE: 12-15-26
CHECKED BY: C. B. B. DATE: 12-15-26
APPROVED BY: H. B. B. DATE: 12-15-26
REVISED: 12-15-26 G.E.R.

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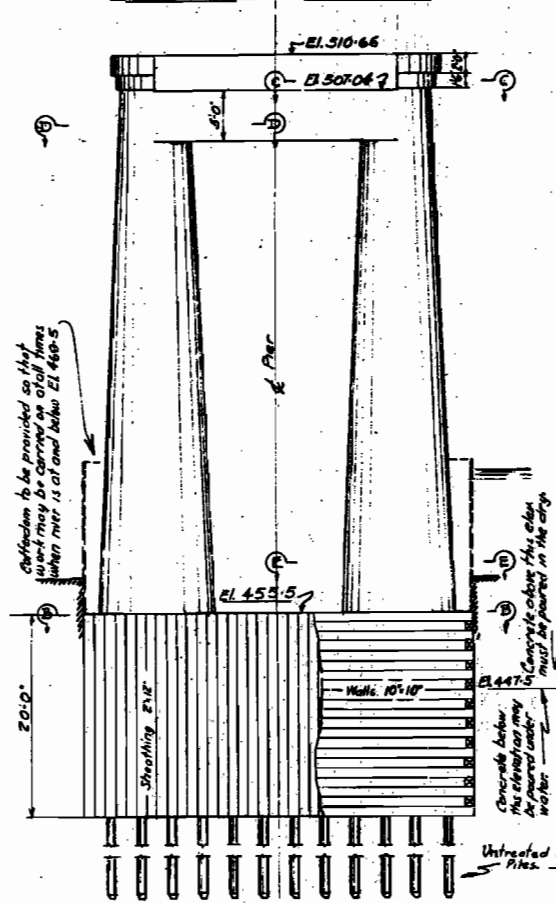
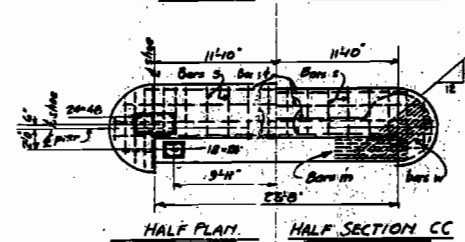
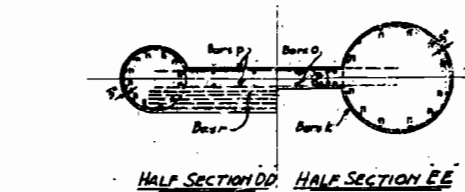
NOTE
The base for pier 1 shall be poured in the dry. This may be accomplished by use of a cofferdam which must be at such height that work may be carried on at all times when river is at and below EL 469.5



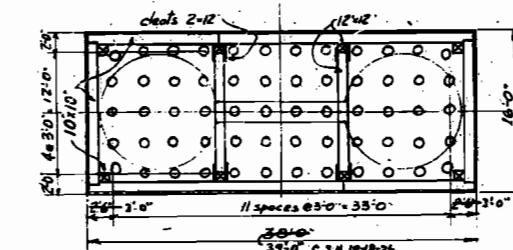
ELEVATION OF PIER 1
Scale 1/4" = 1'-0"



SECTION AA



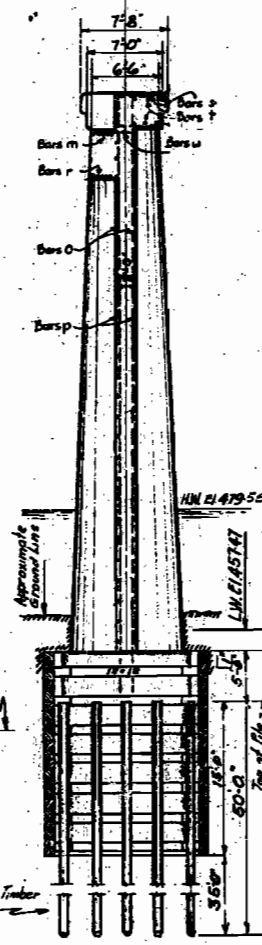
ELEVATION PIER 5
Scale 1/4" = 1'-0"



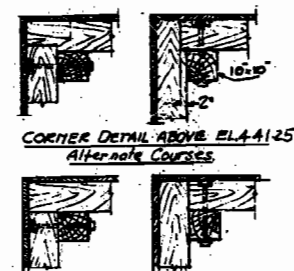
SECTION BB

Showing Top of Casson & Pile Spacing

REINFORCEMENT
Bars k - 1/2" dia. 6'-0" long, Lap 12" at splice.
Bars n - 1/2" dia. 6'-0" long, as shown Sect. CC.
Bars m - 1/2" dia. 6'-0" long, as shown Sect. CC.
Bars o - 1/2" dia. 6'-0" long, as shown Sect. CC.
Bars p - 1/2" dia. 6'-0" long, as shown Sect. CC.
Bars r - 1/2" dia. 6'-0" long, as shown Sect. CC.
Bars s - 1/2" dia. 6'-0" long, as shown Sect. CC.
Bars t - 1/2" dia. 6'-0" long, as shown Sect. CC.
Bars u - 1/2" dia. 6'-0" long, as shown Sect. CC.
Bars v - 1/2" dia. 6'-0" long, as shown Sect. CC.
Bars w - 1/2" dia. 6'-0" long, as shown Sect. CC.
Note - Reinforcing Bars must be carefully placed so as not to interfere with drilling holes for shoe for bolts.



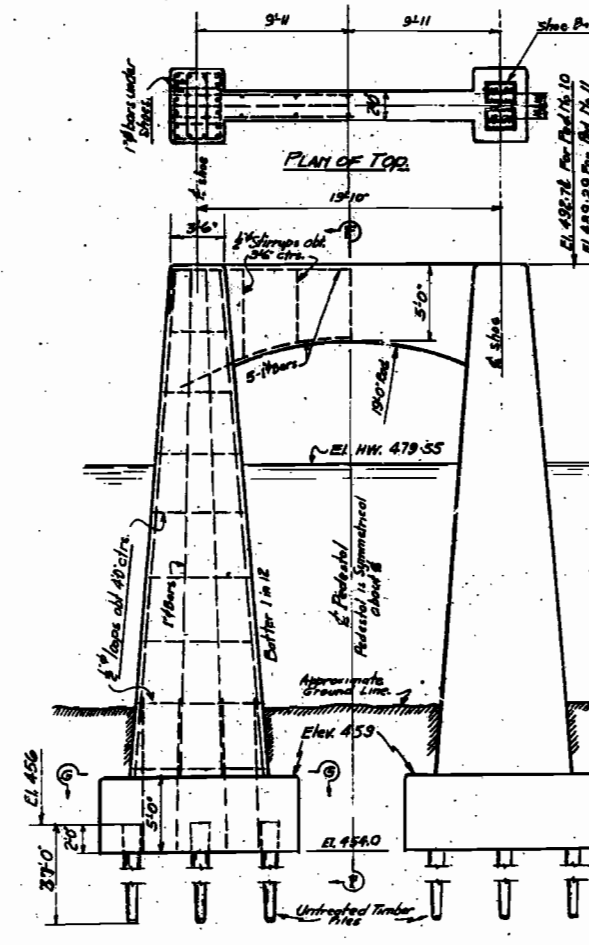
SECTION ON E
Scale 1/4" = 1'-0"



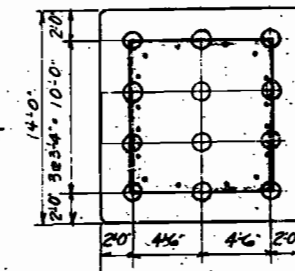
CORNER DETAIL ABOVE EL 441.25
Alternate Courses

CORNER DETAIL BELOW EL 441.25
Alternate Courses

Scale 1/4" = 1'-0"



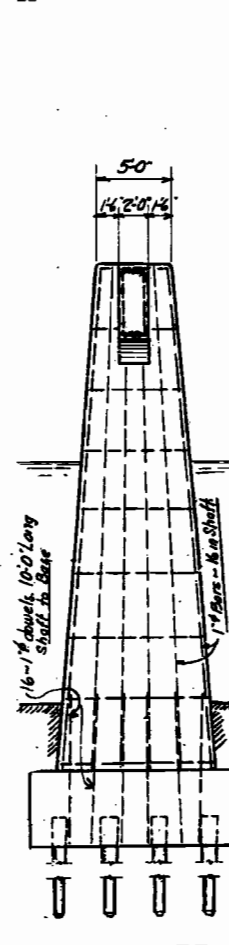
ELEVATION PEDESTALS No. 10 & 11
Scale 1/4" = 1'-0"



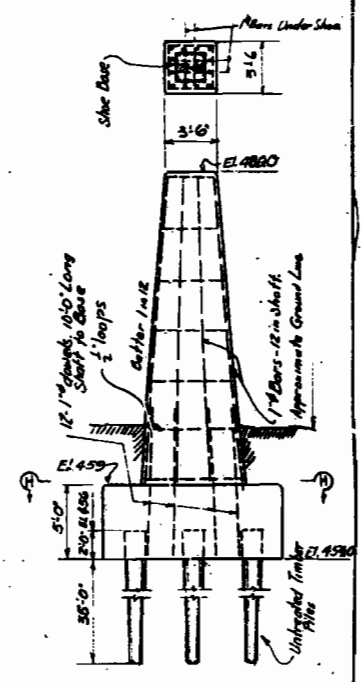
SECTION GG

Showing Pile Spacing & Details

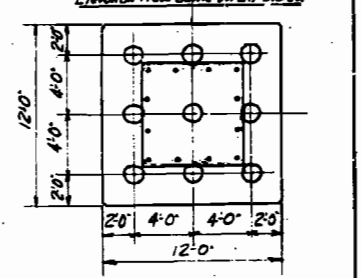
SECTION HH
Top EL 479.55
Bottom EL 479.76
Top EL 479.76
Bottom EL 479.76



SECTION FF



ELEVATION PEDESTALS No. 6, 7, 8, 9, 10, 11
Scale 1/4" = 1'-0"



SECTION HH

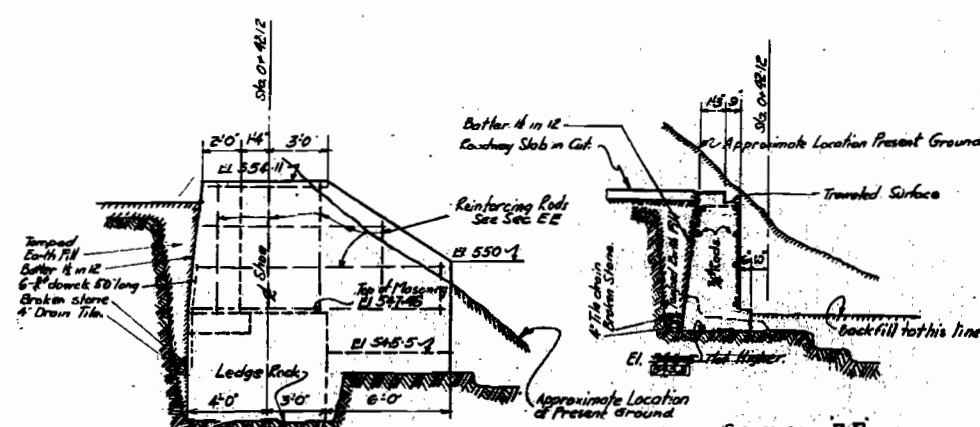
PEDESTAL No. 9
Top EL 479.55
Bottom EL 479.76

For General Notes See Sheet No. 3

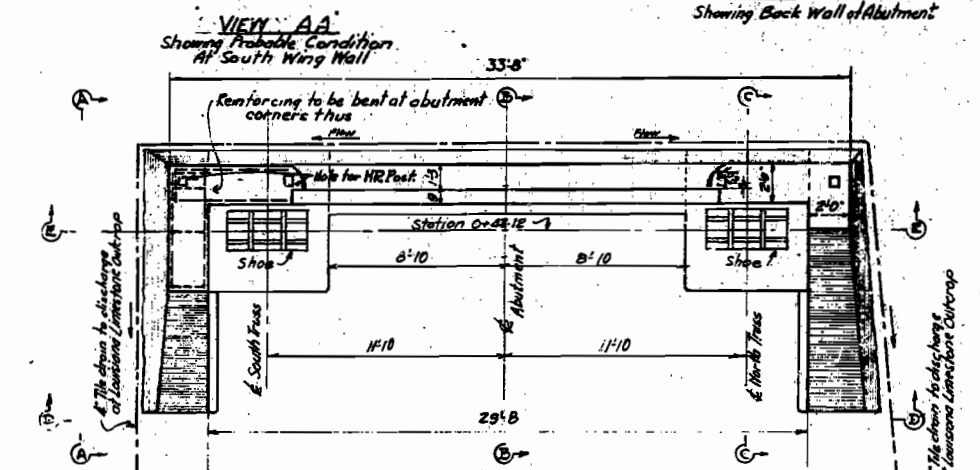
Piles shall be driven to a penetration of not less than 35'-0" below bottom of pier or pedestal, so as to support safely a load of 30 tons per pile as determined by the engineers.

PIKE CO. K-932
MISSISSIPPI RIVER BRIDGE
AT LOUISIANA, MISSOURI
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MISSOURI-ILLINOIS BRIDGE COMPANY
PIERS 1 AND 5 - PEDESTALS 6 TO 11

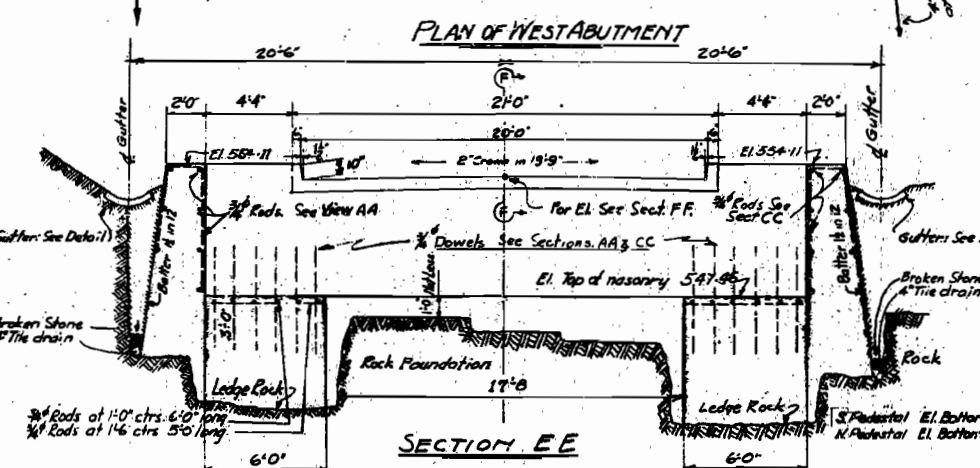
SCALE: 1/4" = 1'-0" except as noted
DRAWN BY: H.M.B. DATE: 8-14-28
CHECKED BY: C.M.G. DATE: 10-15-28
Rev. for Record 10-15-28 L.C.



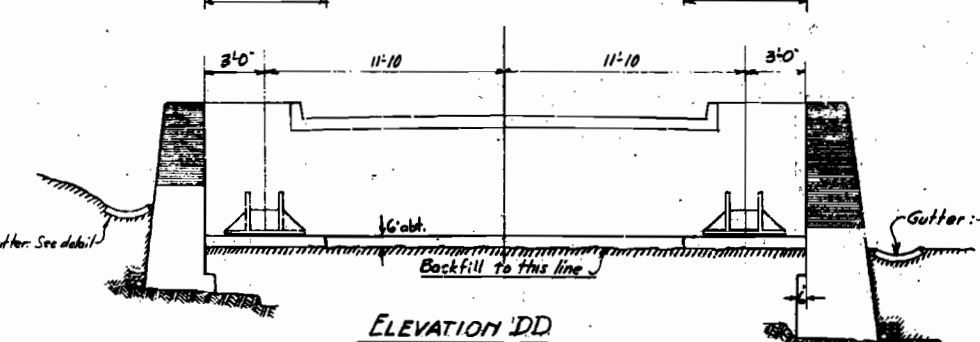
SECTION BB
Showing Back Wall of Abutment



VIEW AA
Showing Probable Condition at South Wing Wall

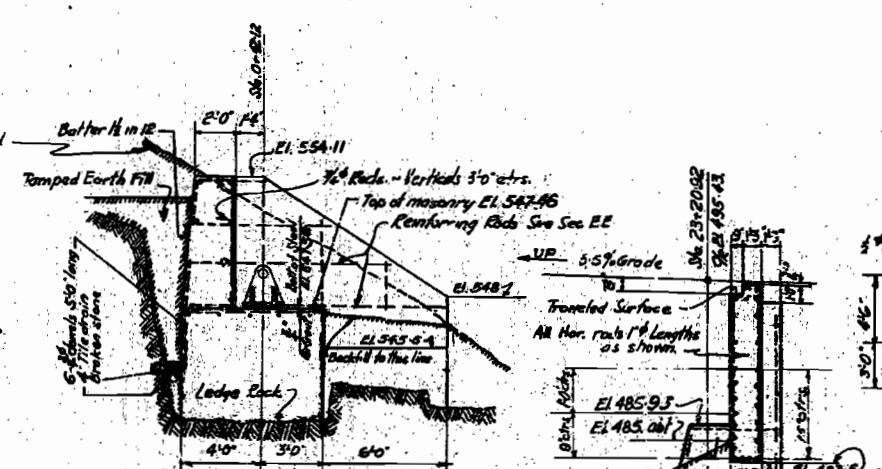


PLAN OF WEST ABUTMENT

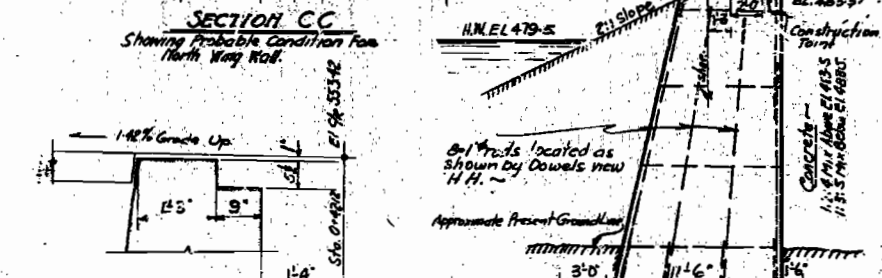


SECTION EE

ELEVATION DD
Showing Probable Conditions for Wing Walls



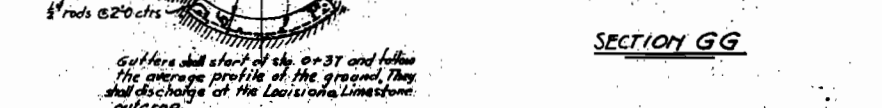
SECTION CC
Showing Probable Condition for North Wing Wall



SECTION FF
Showing Profile of Abutment Wall on 6' of Bridge



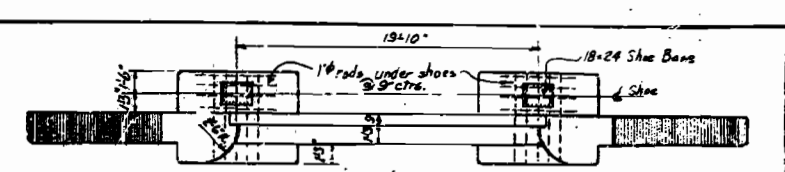
SECTION GG



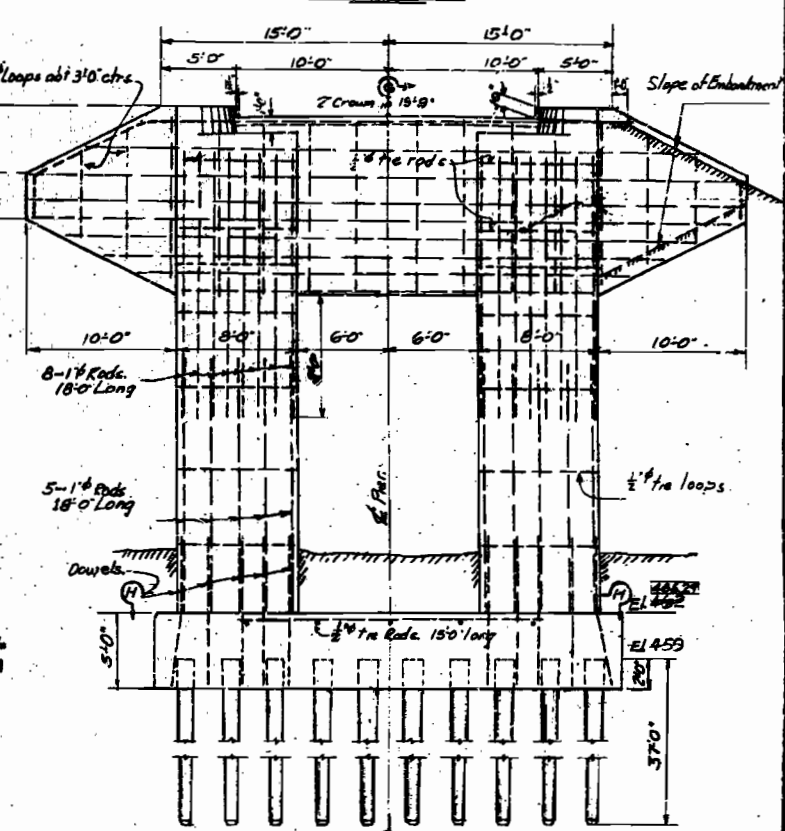
DETAIL OF GUTTER



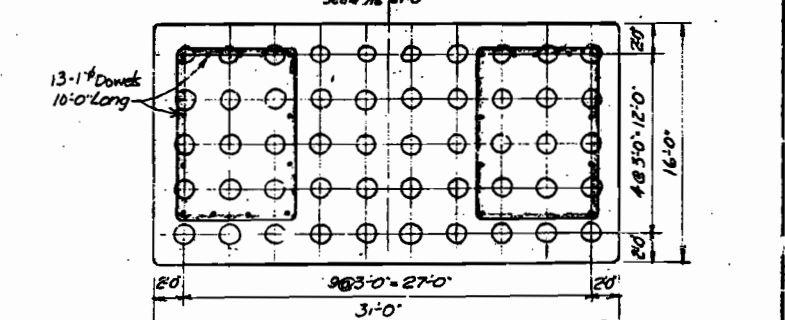
IMPORTANT NOTE



PLAN OF TOP



ELEVATION BURIED PIER 12 (EAST ABUTMENT)

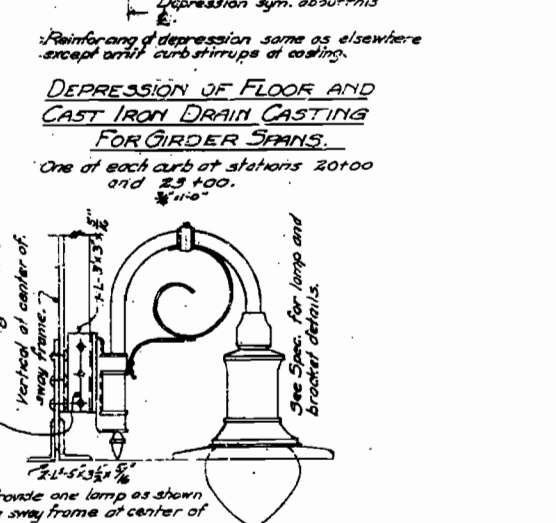
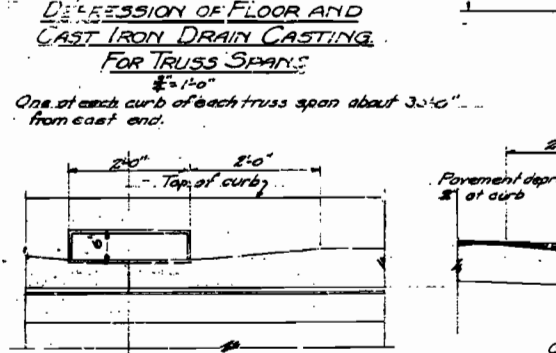
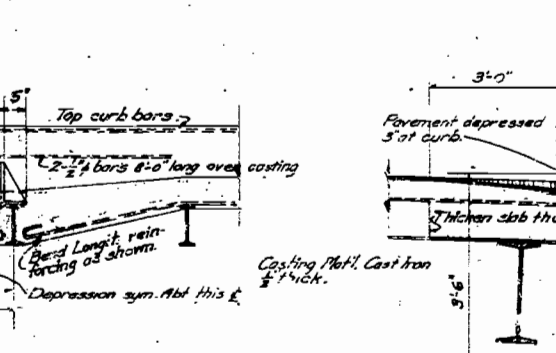
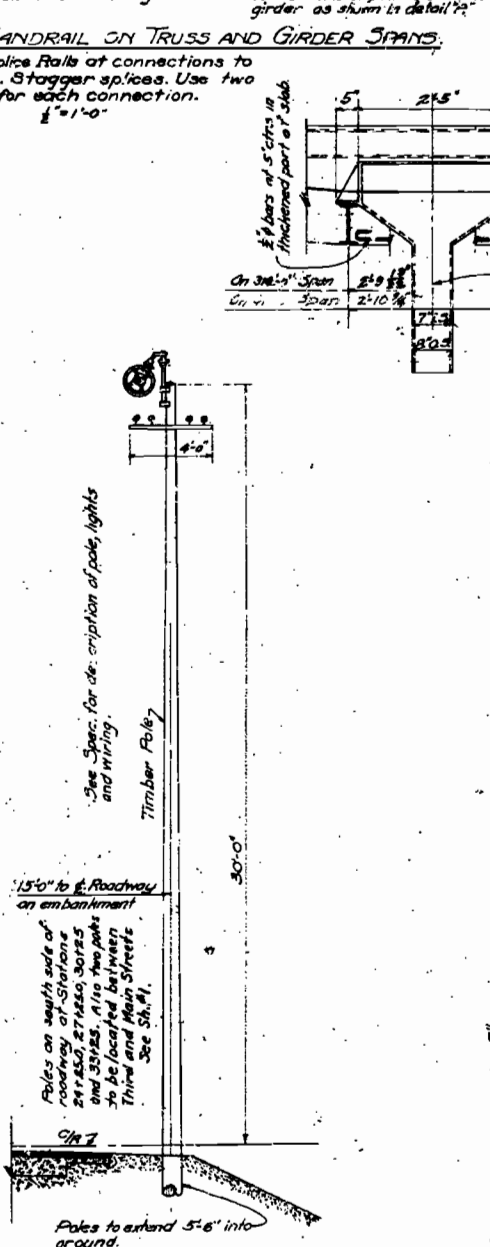
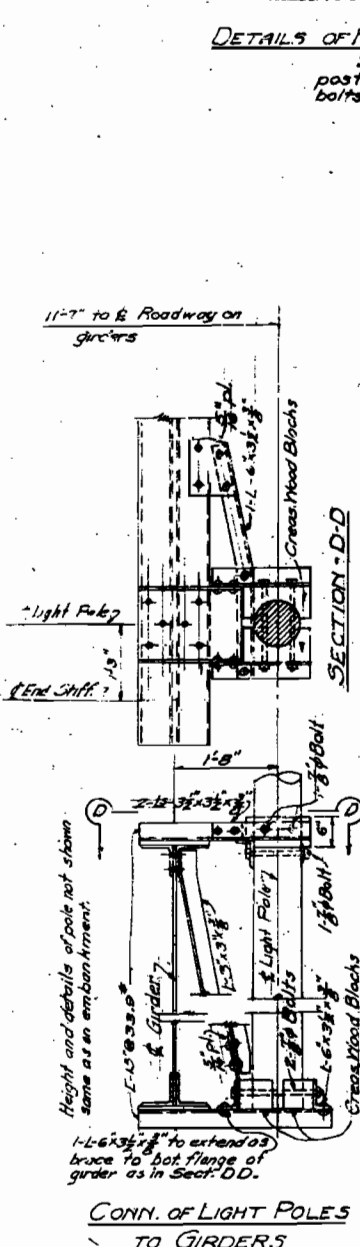
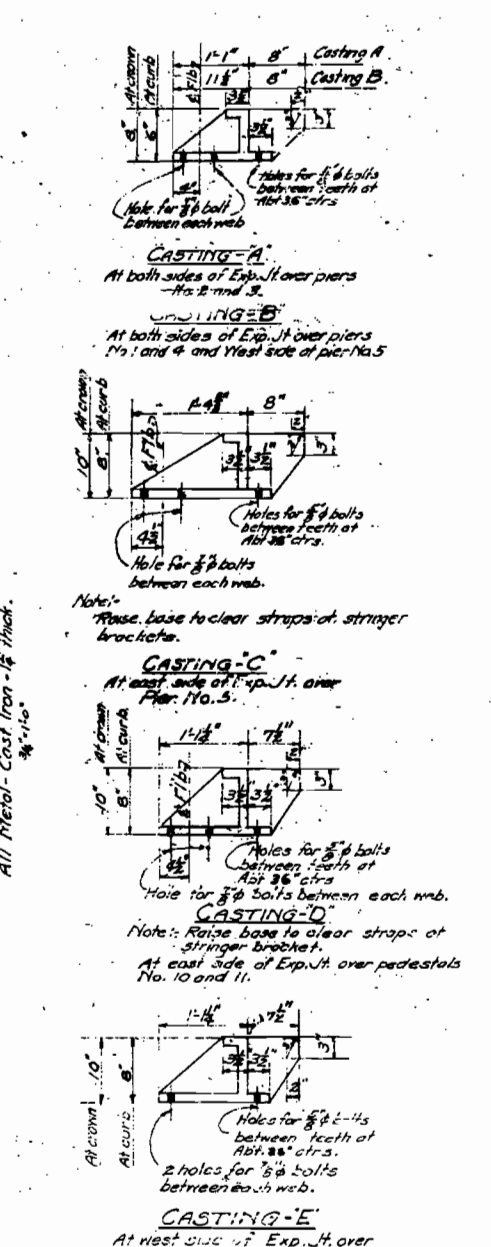
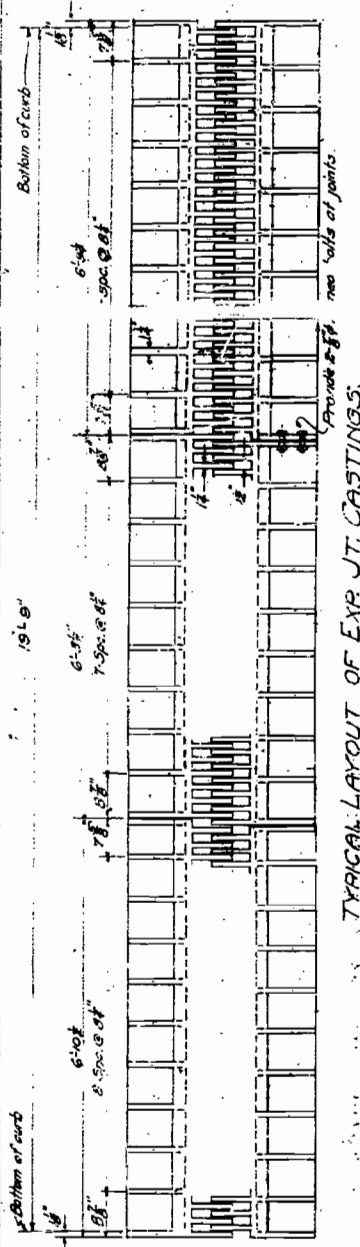
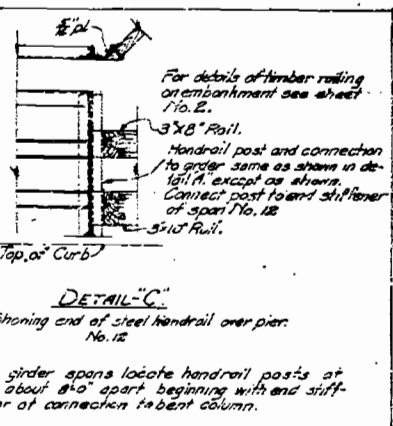
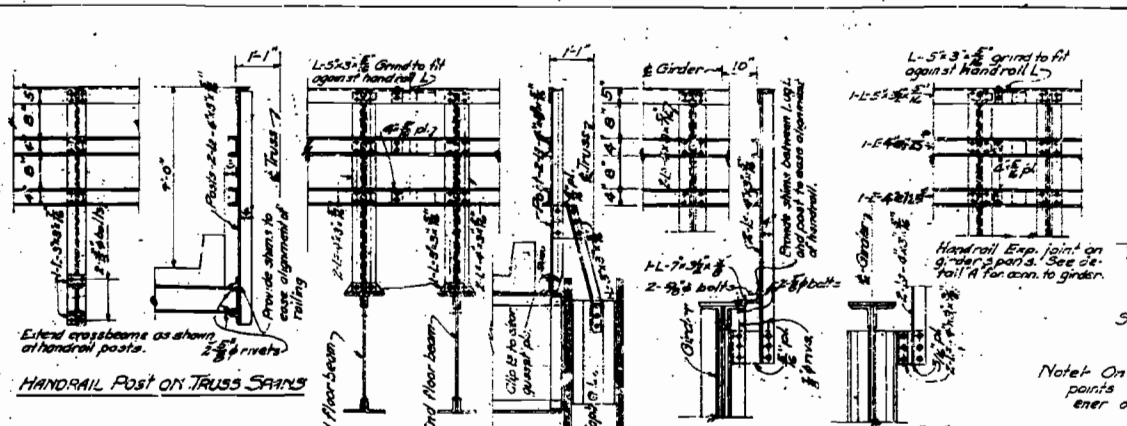
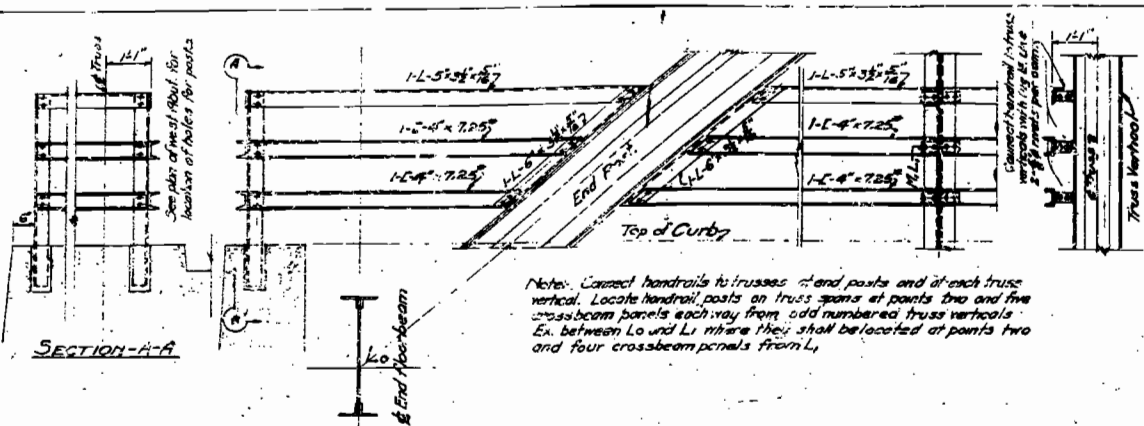


VIEW HH OF BASE

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MISSISSIPPI RIVER BRIDGE
AT LOUISIANA, MISSOURI
FOR THE
MISSOURI-ILLINOIS BRIDGE COMPANY
WEST ABUTMENT AND BURIED PIER 12

SCALE: As Noted
DATE: 9-16-26
DESIGNED BY: H. H. HARRINGTON
CHECKED BY: H. H. HARRINGTON
DATE: 10-15-26
DRAWN BY: H. H. HARRINGTON
DATE: 10-15-26
RECORD: 10-15-26
L.C.

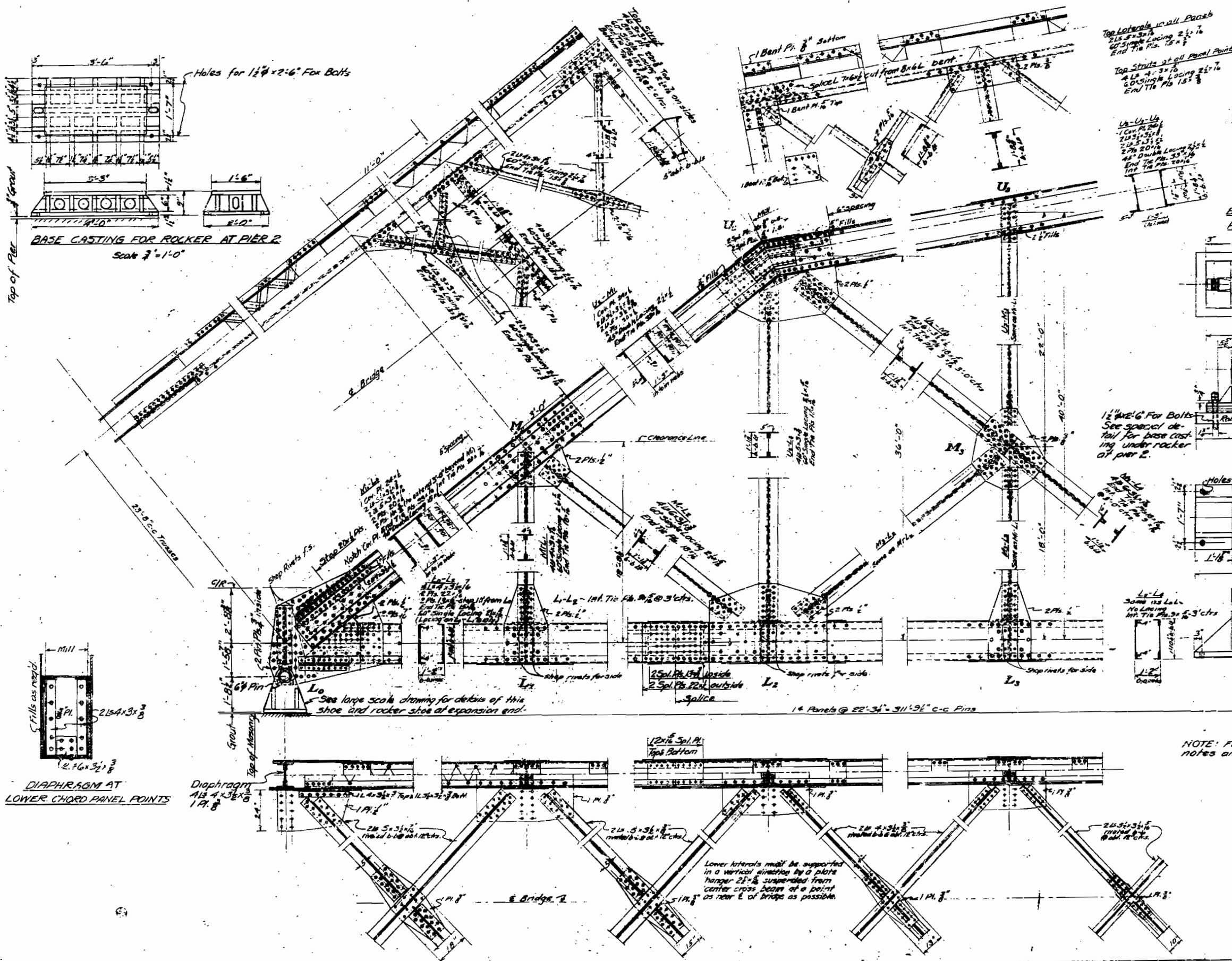


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MISSISSIPPI RIVER BRIDGE
AT LOUISIANA, MISSOURI
FOR THE
MISSOURI-ILLINOIS BRIDGE COMPANY

HANDBRAIL, CASTINGS
LIGHTING DETAILS

SCALE:
MADE BY HALL DATE 3-17-25
CHECKED BY C.M.G. DATE 10-13-26
SHEET NO. 1



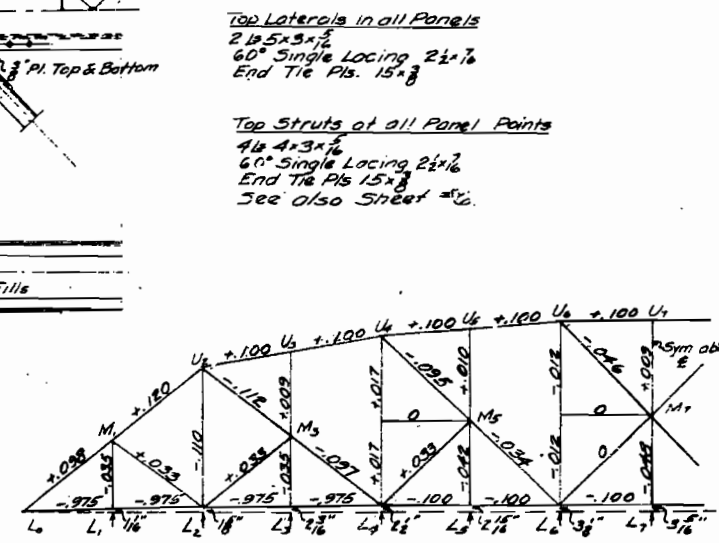
PIKE CO. K-932

MISSISSIPPI RIVER BRIDGE
AT LOUISIANA, MISSOURI

FOR THE
MISSOURI-ILLINOIS BRIDGE COMPANY

TRUSSES AND LATERALS
SPANS 1, 2, 4, AND 5

SCALE: 3/4" = 1'-0" EXCEPT AS NOTED
DRAWN BY: P.E.C. DATE: 2-10-26
CHECKED BY: G.M.S. DATE: 2-10-26
SHEET NO. 8



Top Struts at all Panel Points
 4ls $4 \times 3 \times \frac{1}{16}$
 6" Single Lacing $2 \frac{1}{2} \times \frac{1}{8}$
 End Tie Pls $15 \times \frac{3}{8}$
 See also Sheet #10.

This diagram shows in inches amount members are to be lengthened or shortened to make bottom chord horizontal and vertical, perpendicular to bottom chord under dead load plus live load.

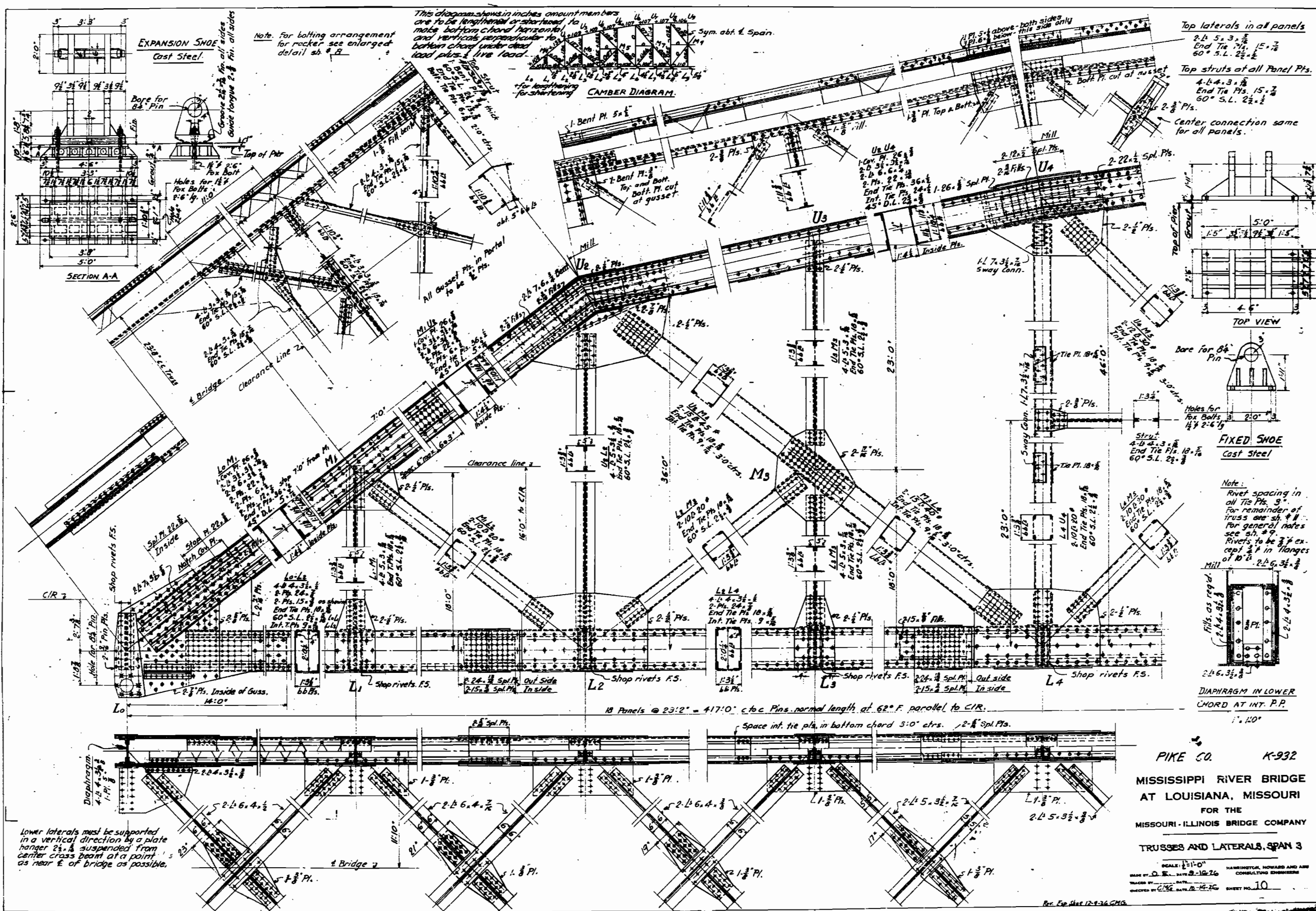
- + for lengthening
- for shortening

All rivets shall be driven at least 6 inches or 16 times the thickness of the thinnest outside plate at angle. Staggered pitch may be twice the gauge with a maximum of 10". In the ends of built-up compression members pitch shall not exceed $\frac{1}{2}$ " for a length equal to 12 times maximum width of member. For general requirements regarding painting, treating and other shop practice see specifications. In order to avoid oversight in shops these requirements must be clearly noted on shop drawings.

Lower Chord Diaphragms
 $4L \ 4 \times 3 \times \frac{3}{8}$
 $2L \ 6 \times 3 \frac{1}{2} \times \frac{3}{8}$
 $1 Pl. \ \frac{3}{8}$
 (See sheet #8 for sketch).

SCALE: 1"=10'-0"
DRAWN BY: P.V.C. DATE: 8-10-28
CHECKED BY: DATE:
APPROVED BY: DATE: 10-18-26
SHEET NO. 9

90



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Lower laterals must be supported in a vertical direction by a plate hanger 2 1/2" x 3" suspended from center cross beam at a point as near E. of bridge as possible.

Note: For bolting arrangement for rocker see enlarged detail sh. # 8.

This diagram shows in inches amount members are to be lengthened or shortened to make bottom chord horizontal and verticals perpendicular to bottom chord under dead load plus live load.

SYMB. abt. 1/2 Span.

For lengthening or shortening

CAMBER DIAGRAM.

Top laterals in all panels

2-L 5.3.3 1/2

End Tie Pls. 15.2

60° S.L. 2 1/2

Top struts of all Panel Pls.

4-L 4.3.3 1/2

End Tie Pls. 15.2

60° S.L. 2 1/2

Center connection same for all panels.

FIXED SHOE

Cast Steel

Note: Rivet spacing in all Tie Pls. 3". For remainder of truss see sh. # 8. For general notes see sh. # 9. Rivets to be 3" ex. except 2" in flanges of 10" x 2 1/2" x 3/4" Mill.

DIAPHRAGM IN LOWER CHORD AT INT. P.P.

1" x 10"

PIKE CO. K-932

MISSISSIPPI RIVER BRIDGE

AT LOUISIANA, MISSOURI

FOR THE

MISSOURI-ILLINOIS BRIDGE COMPANY

TRUSSES AND LATERALS, SPAN 3

SCALE: 1/4" = 1'-0"

MADE BY: D. E. B. DATE: 8-18-26

CHECKED BY: C. M. G. DATE: 10-14-26

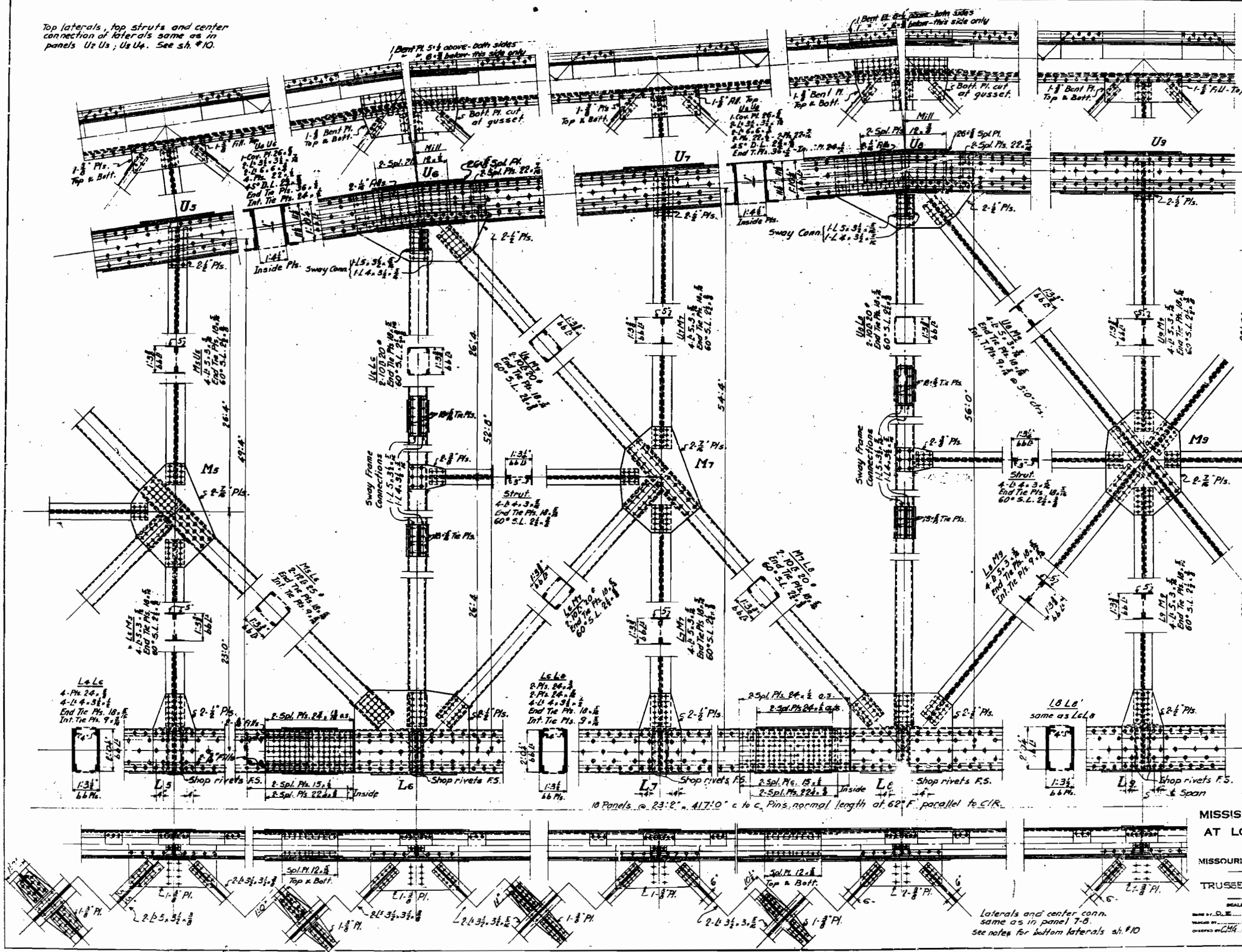
DESIGNED BY: C. M. G. DATE: 10-14-26

SHRIT NO. 10

Rev. Exp. Sheet 12-9-36 C.M.G.

Top laterals, top struts and center connection of laterals same as in panels U₂ U₃; U₃ U₄. See sh. #10.

Lacing bars on top chord shall be connected to flange of angles with two rivets on each side. See top chord on sheet #10.



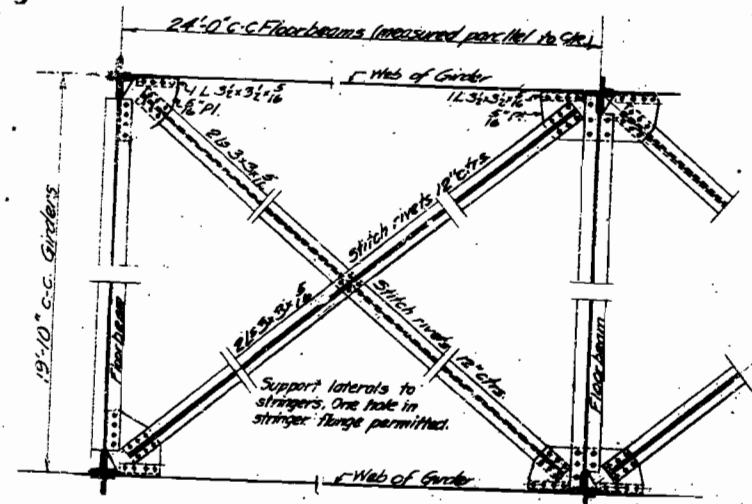
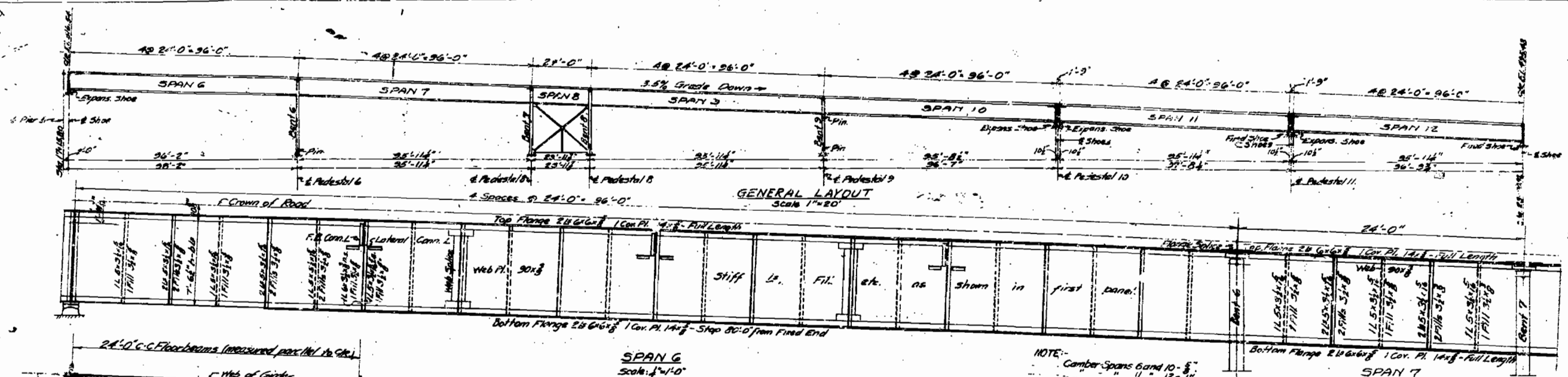
Note: Rivets to be 3/4" except 3/8" rivets in flanges of 10" D for general notes see sh. #9. Rivet spacing in all tie plates 3". Bottom chord to be detailed so as to maintain a net section of not more than 3 holes out of side plates at any section.

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10 Panels @ 23'-2" = 417'-0" c to c. Pins normal length at 60° F. parallel to C.R.

Laterals and center conn. same as in panel 7-8. See notes for bottom laterals sh. #10

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MISSISSIPPI RIVER BRIDGE
AT LOUISIANA, MISSOURI
FOR THE
MISSOURI-ILLINOIS BRIDGE COMPANY
TRUSSES AND LATERALS, SPAN 3
SCALE: 1/4"=1'-0"
DRAWN BY: D.L.E. DATE: 2-11-26
CHECKED BY: C.H.H. DATE: 10-15-26
SHEET NO. 11
HARRINGTON, HOWARD AND ASS.
CONSULTING ENGINEERS

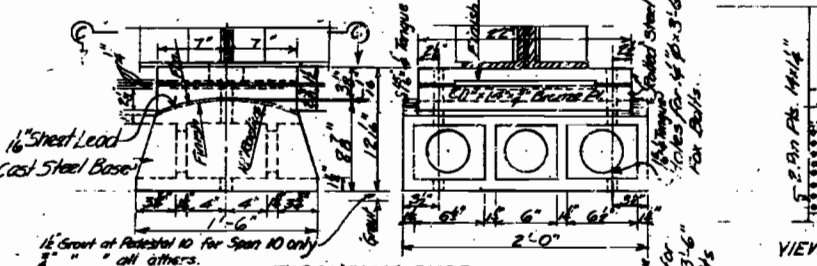


SPANS 7 & 9
Same as Span 6 except that bottom cover plate extends full length of span and end connections are as detailed and noted.

SPAN 10
Same as Span 6.

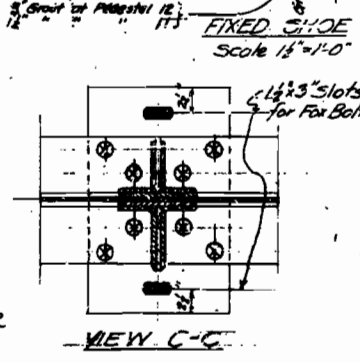
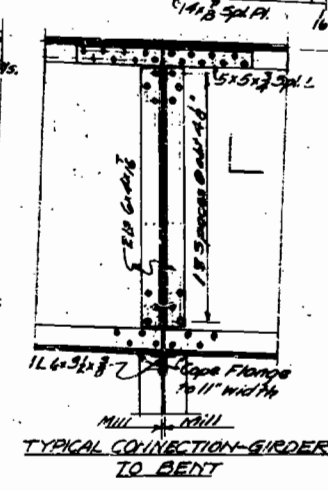
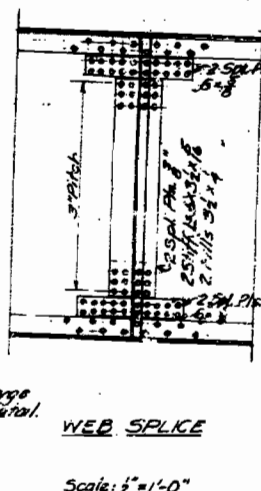
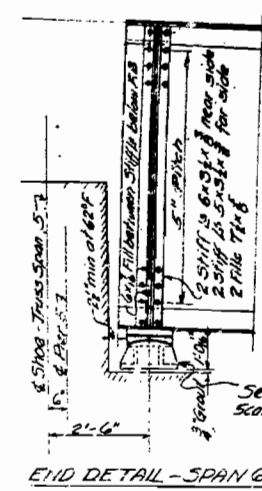
SPANS 11 & 12
Web and flange angles as for Span 6. Max. cov. pl. full length top 6" bottom 14" cov. pl. 4" top and bottom. End connections as detailed and noted. Otherwise similar to Span 6.

Flange rivet pitch 4" throughout for all spans.

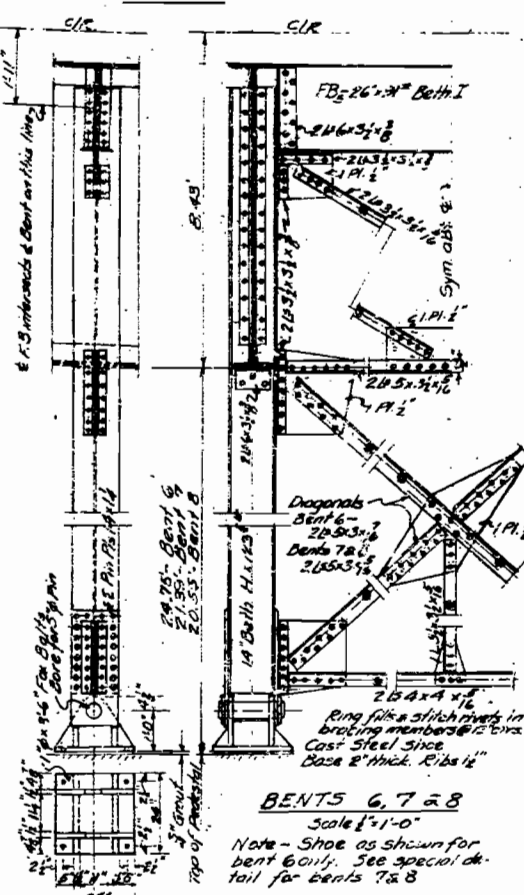
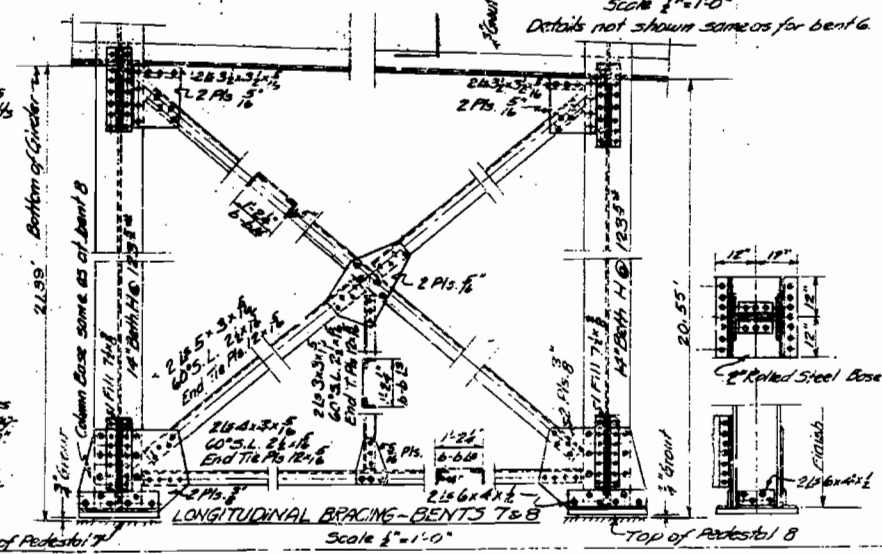


VIEW B-B

LATERAL BRACING
Scale 1/2"=1'-0"
Bracing similar throughout.



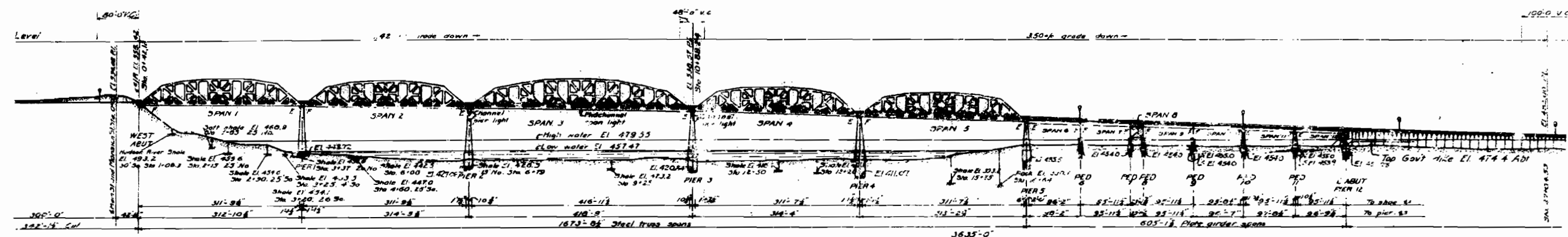
GENERAL NOTES
All rivets 7/8". Pitch not to exceed 6 inches or 16 times the thickness of the thinnest outside plate or angle. Staggered pitch may be twice the above with a max. of 10". For general requirements regarding painting, reaming and other shop practice see specifications. In order to avoid oversight in shops these requirements must be clearly noted on shop drawings.



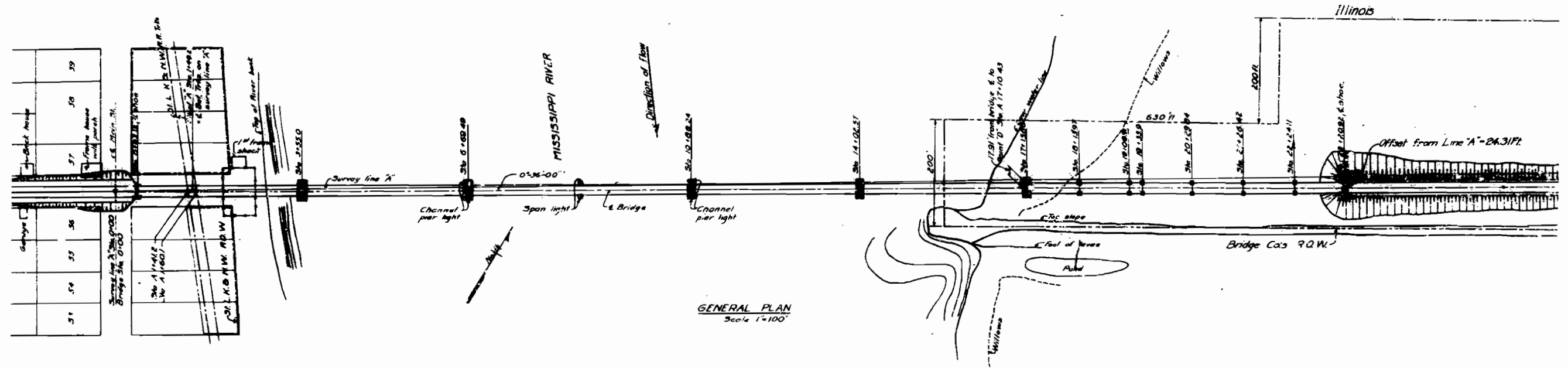
PIKE CO. K-932
MISSISSIPPI RIVER BRIDGE
AT LOUISIANA, MISSOURI
FOR THE
MISSOURI-ILLINOIS BRIDGE COMPANY
GIRDERS, COLUMNS, AND BRACING
SPANS 6 TO 12

SCALE: AS NOTED
DRAWN BY: E.W.C. DATE: 2-16-26
CHECKED BY: C.M.G. DATE: 12-16-26
SHOWN BY: 12

MISSOURI STATE HIGHWAY DEPARTMENT



GENERAL ELEVATION
Scale 1"=100'



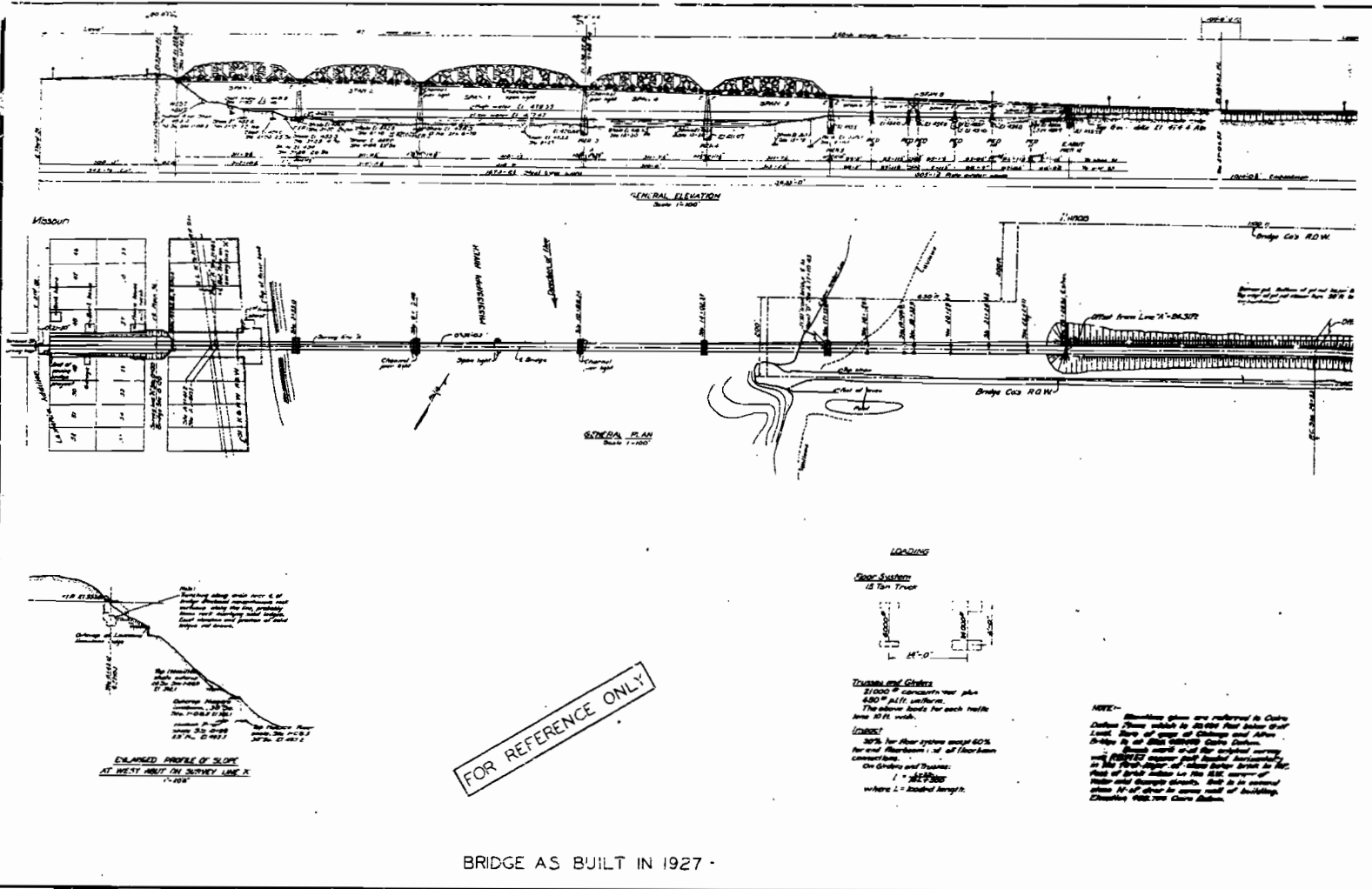
GENERAL PLAN
Scale 1"=100'

PAINTING BRIDGE OVER MISSISSIPPI RIVER
AT LOUISIANA MISSOURI
PROJECT NO. RTE. 54 CO82-54 (2M)
PIKE
PIKE
COUNTY MO.
COUNTY ILL.

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

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	6	



ESTIMATED QUANTITIES			
ITEM	SUBSTR.	SUPERSTR.	TOTAL
Removal of Existing Bridge Deck	Sq. Ft.	47,835	47,835
Asphaltic Cement (Asphaltic Concrete)	Ton.	21.5	21.5
Mineral Aggregate (Asphaltic Concrete) (TYPE A Mix)	Ton.	403.4	403.4
Bridge Deck Water Proofing (Liquid)	Sq. Ft.	5,148	5,148
Class B1 Concrete - Substructure Repair (columns)	Sq. Ft.	703.4	703.4
Elastomeric Expansion Joint Seal (2.0 inches) Lin. Ft.		20	20
Elastomeric Expansion Joint Seal (3.0 inches) Lin. Ft.		20	20
Elastomeric Expansion Joint Seal (4.0 inches) Lin. Ft.		20	20
Elastomeric Expansion Joint Seal (6.0 inches) Lin. Ft.		40	40
Preformed Compression Expansion Joint Seal (2.5 inches)	Lin. Ft.	40	40
Reinforcing Steel	Lb.	3,780	3,780
Substructure Repair (Pier Caps)	Sq. Ft.	1861.6	1861.6
Substructure Repair (Abutments)	Sq. Ft.	11.9	11.9
Fabricated Structural Carbon Steel (Miscellaneous) See Special Provisions	Lb.	253,840	253,840
Fabricated Structural Carbon Steel (Floor Beam Repair)	Lin. Ft.	20	20
Fabricated Structural Low Alloy Steel (A514)	Lb.	2,390	2,390
Temporary Construction Traffic Barrier	Lump Sum	1	1
Painting (System B) Green	Lump Sum	1	1
See Special Provisions			
Steel Grid Floor (Half Concrete Filled)	Sq. Ft.	47,870	47,870
Bridge Rail - 2 Tube Structural Steel	Lin. Ft.	4,560	4,560
Protective Coating For Concrete Bents	Lump Sum	1	1

GENERAL NOTES:

Design Loading:
Grid Deck (Half Concrete Filled) - H20-44

Design Unit Stresses:

Class B1 Concrete (substructure repair) $f_c = 4,600$ psi
Class B1 Concrete (Grid Deck) $f_c = 4,600$ psi
Reinforcing Steel (Grade 60) $f_y = 60,000$ psi
Structural Carbon Steel $f_s = 20,000$ psi
Structural Carbon Steel (A514) Bearing Collar Plates only $f_s = 55,000$ psi

Traffic Maintained:

Traffic over structure to be maintained during construction. (See Special Provisions)

Navigation and Clearance Lights:

All navigation and clearance lighting shall be kept in operation during all construction.

Reinforcing Steel:

Minimum clearance to reinforcing steel shall be 1 1/2" unless otherwise shown.

Structural Steel:

Structural Steel shall be A36 except as noted.

Old and New Work:

Outline of old work is indicated by light dashed lines. Heavy lines indicate new work. 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.

Concrete Bonding Compound:

An approved epoxy bonding agent is required between old and new concrete on pier caps.

Profile Grade:

No "Profile Grade Elevations" are given. A smooth traffic surface is to be obtained, top of expansion devices are to conform to crown and slope of roadway surface.

Minimum Vertical Clearance:

The final minimum vertical clearance from the top of the "Asphalt Concrete Wearing Surface" to the bottom of the lowest overhead horizontal truss member shall be 15'6".

Painting: Shop None; Field, System B Green. See Special Provisions.

Dimensions:

Contractor shall verify all dimensions in the field before ordering new steel.

PLANS FOR REDECKING AND REPAIR

BRIDGE OVER MISSISSIPPI RIVER

ROUTE 54

AT LOUISIANA, MISSOURI

PROJECT NO. 34F-54-4(12)

STA. 0+42.12 C. BRG

JOB NO. 3-P-54-135

RTE. 54

PIKE COUNTY, MISSOURI
AND PIKE COUNTY, ILLINOIS

DATE

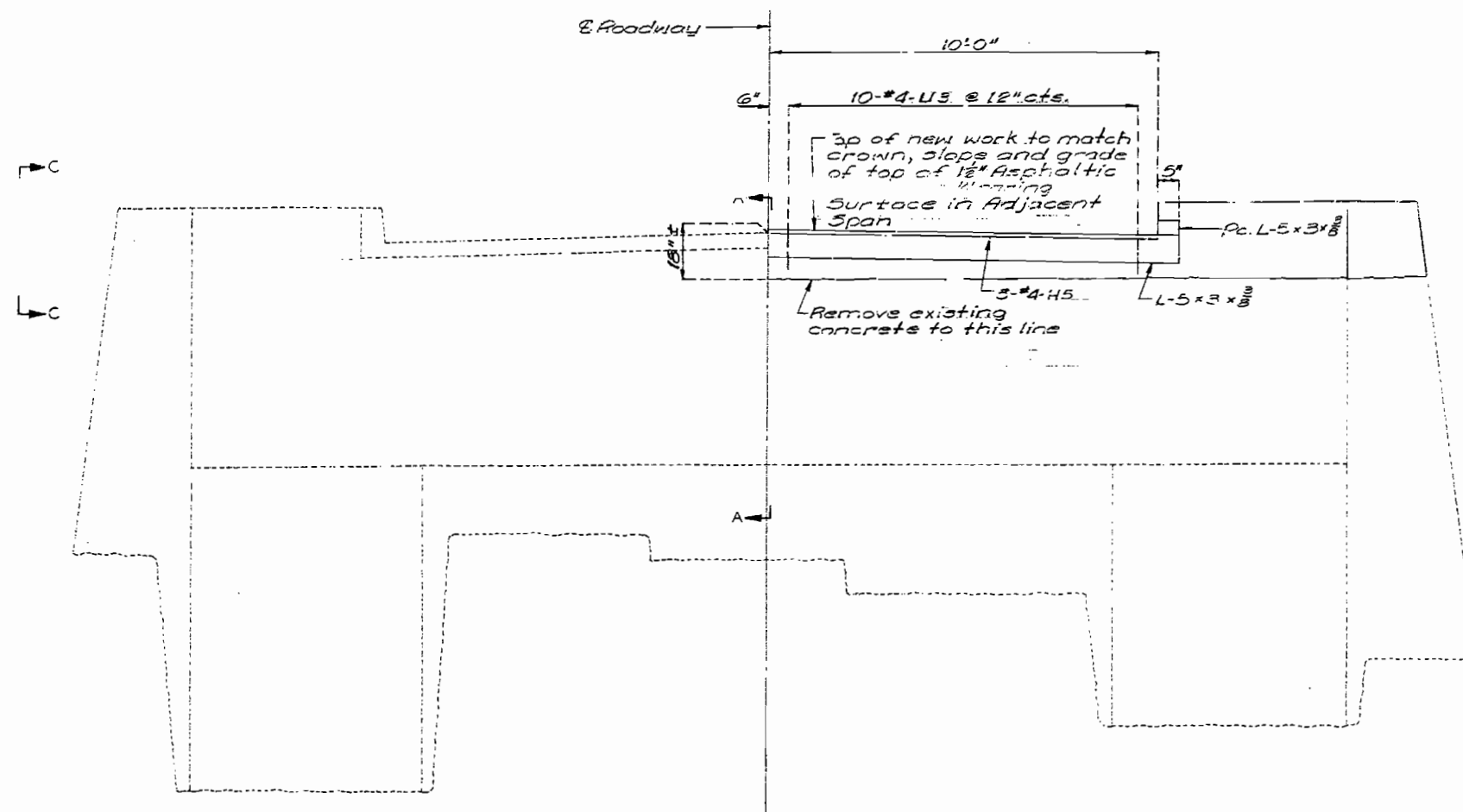
DESIGNED OCT. 1978
DETAILED NOV. 1978
CHECKED NOV. 1978

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

Sheet No. of 40.

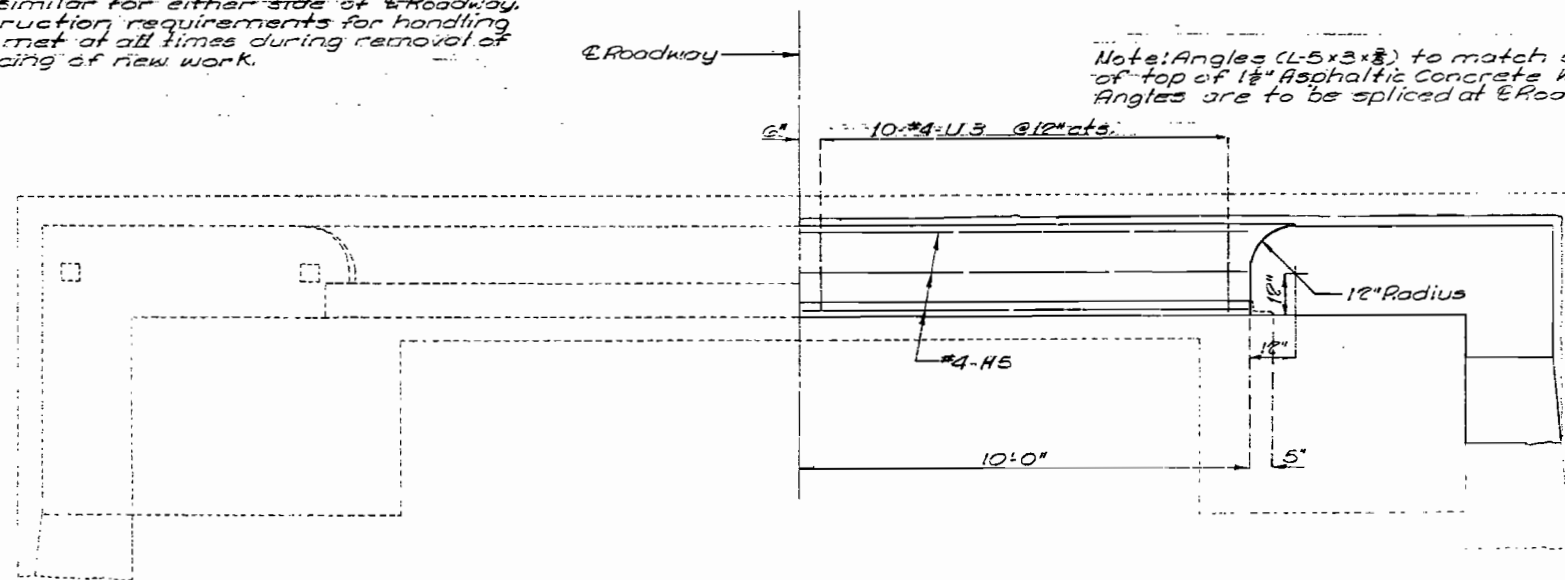
STD.
STD.
K-932 R

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	7	7



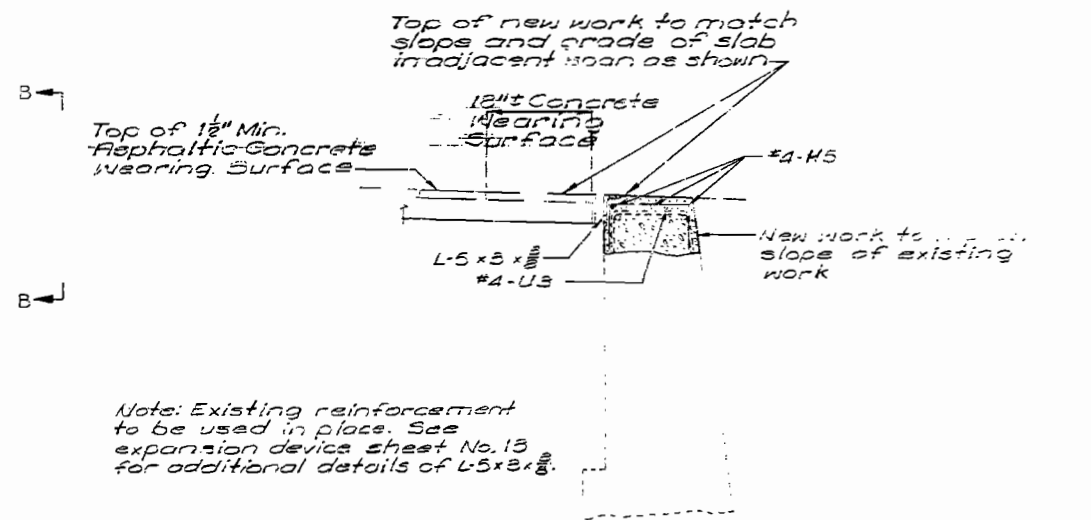
HALF ELEVATION SHOWING EXISTING ABUTMENT ELEVATION HALF ELEVATION SHOWING PROPOSED WORK ELEVATION

Note: Details for removal of old work and placing of new work are similar for either side of E Roadway. Stage construction requirements for handling traffic are to be met at all times during removal of old work and placing of new work.

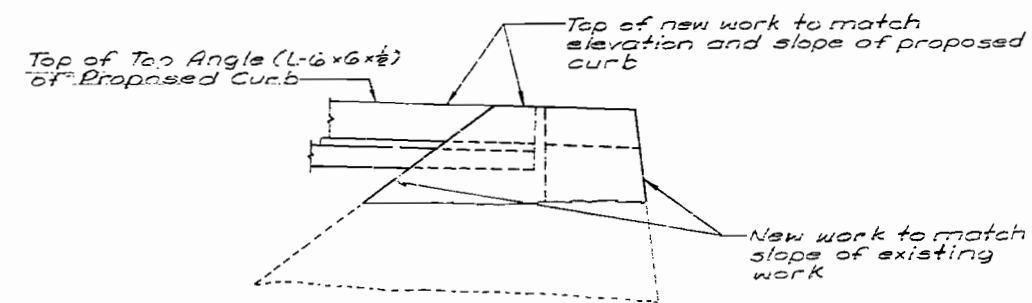


HALF PLAN SHOWING EXISTING ABUTMENT PLAN HALF PLAN SHOWING PROPOSED WORK

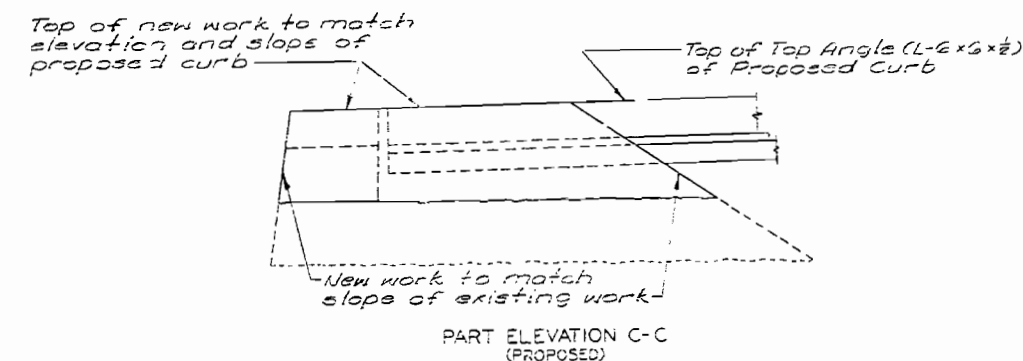
DETAILS OF WEST ABUTMENT



PART SECTION A-A (PROPOSED)



PART ELEVATION B-B (PROPOSED)



PART ELEVATION C-C (PROPOSED)

DETAILED SEPT. 1978
CHECKED OCT. 1978

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

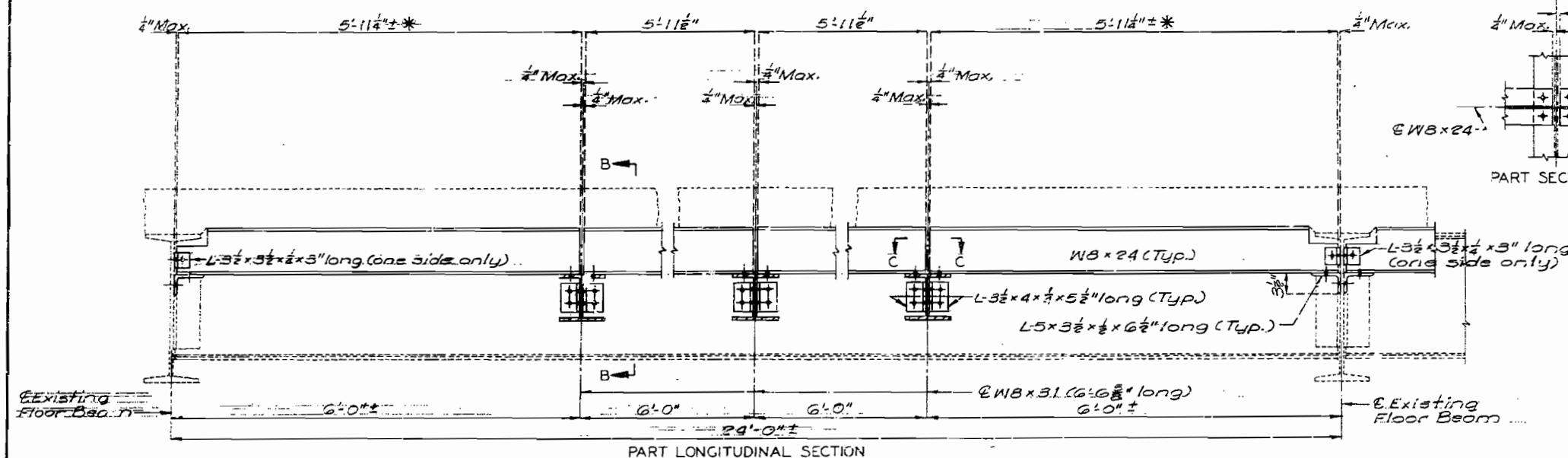
Sheet No. 2 of 20.

PIKE COUNTY MISSOURI
PIKE COUNTY ILLINOIS

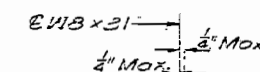
K-932R

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		3	13	

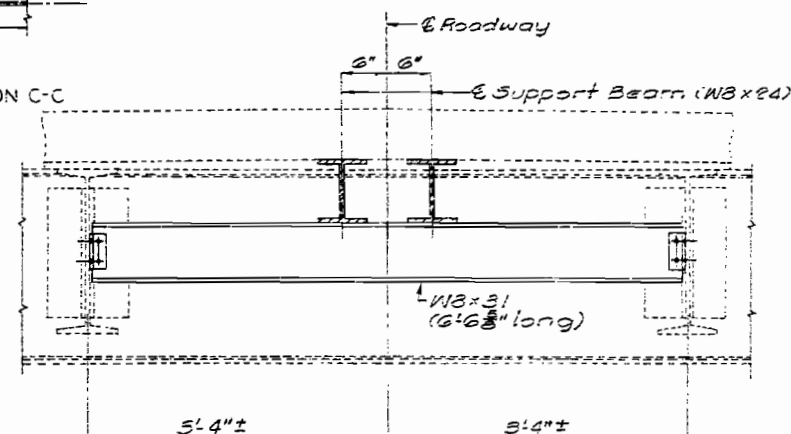
varies, adjust length of end support beams for proper fit.



DETAILS OF PROPOSED SUPPORT BEAM
(REQUIRED FOR ALL PLATE GIRDER SPANS)

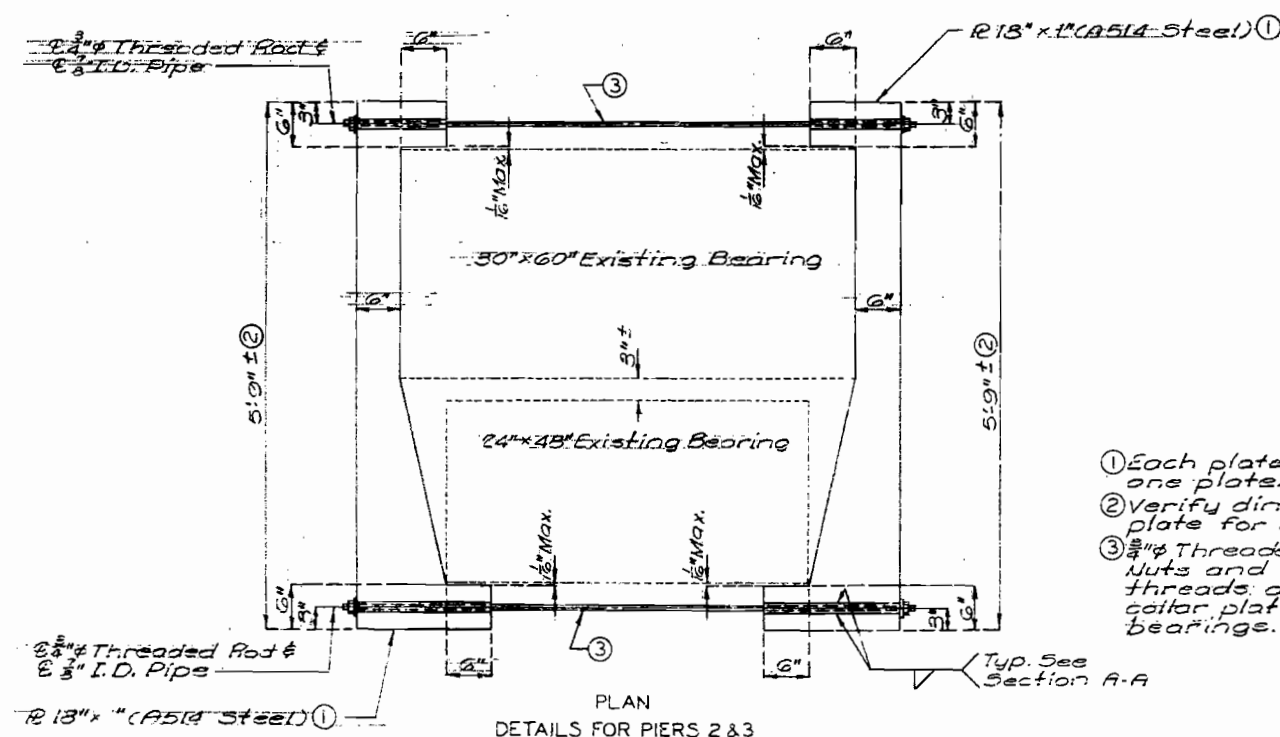
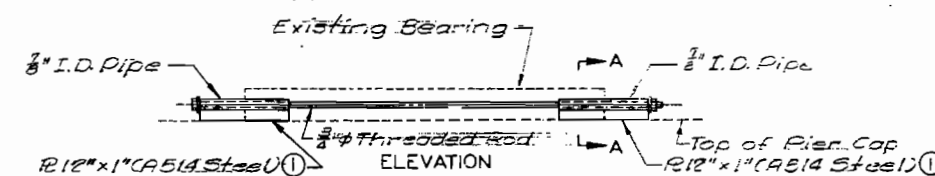
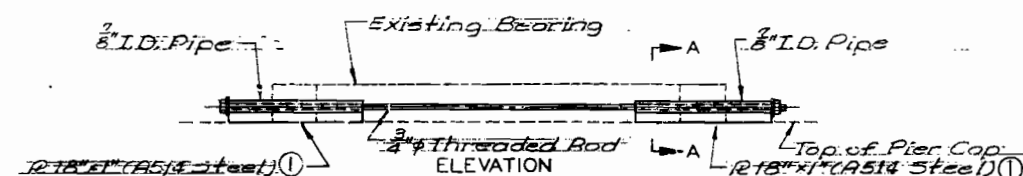


PART SECTION C-C

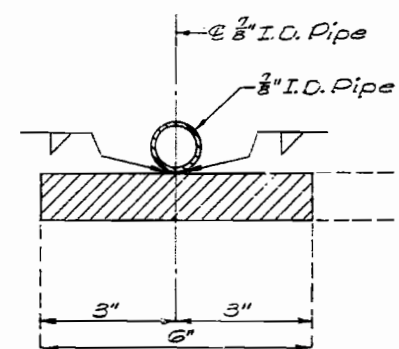


SECTION B-B

Note: See Section Near Floor Beam and Proposed Support Beam on sheet No. 11 for alternate installation of Support Beams.

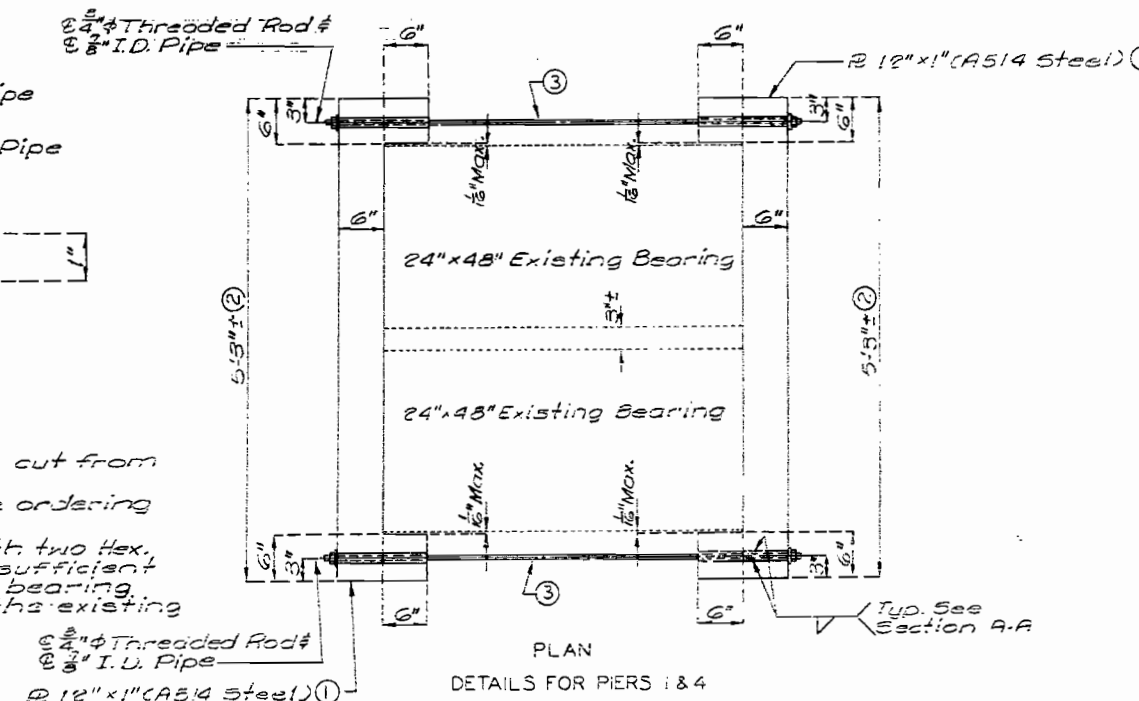


PLAN
DETAILS FOR PIERS 2 & 3



SECTION A-A

- ① Each plate for bearing collars to be cut from one plate.
- ② Verify dimensions in field before ordering plate for bearing collars.
- ③ 2" Threaded rods (A36), complete with two Hex. Nuts and two washers, shall have sufficient threads at each end to bring the bearing collar plates in tight contact with the existing bearings.



PLAN
DETAILS FOR PIERS 1 & 4

Note: Shop drawings will not be required for bearing collars.

DETAILS OF PROPOSED BEARING COLLARS-PIERS 1,2,3 & 4

DETAILED SEPT. 1972
CHECKED OCT. 1973

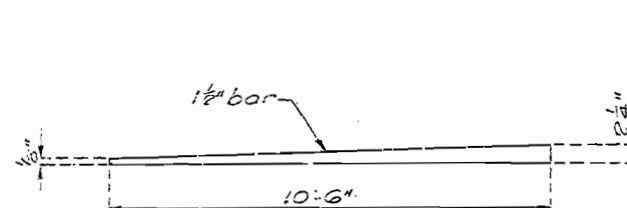
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 8 of 20.

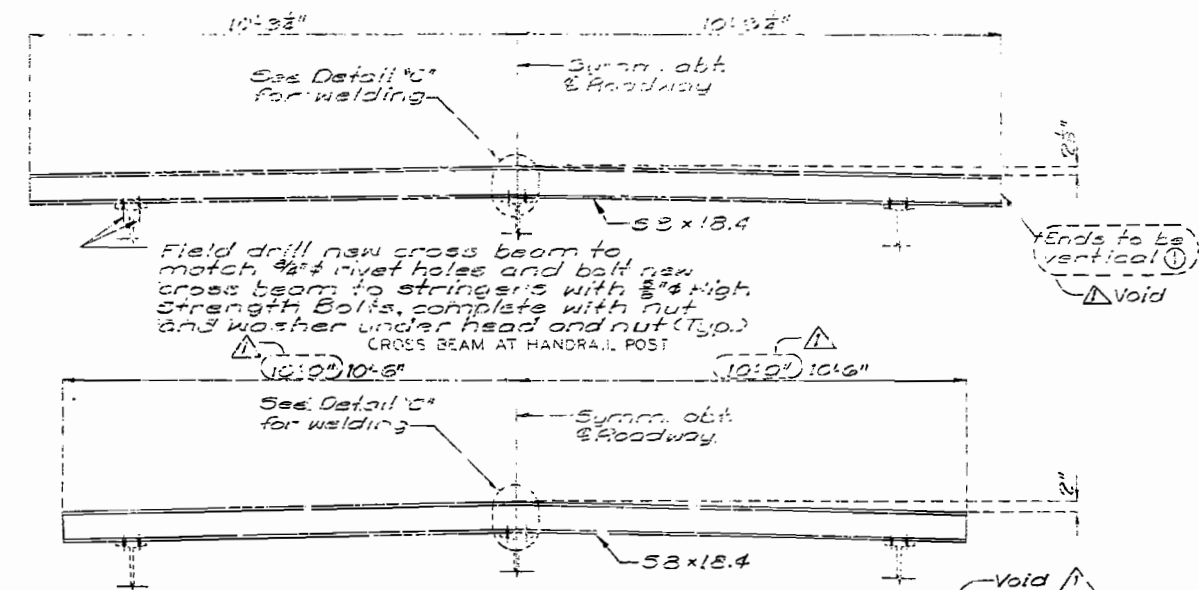
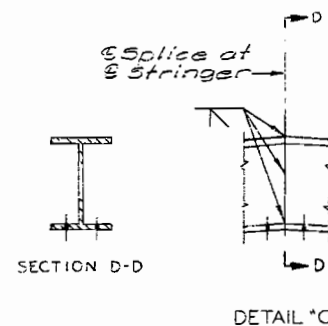
PIKE COUNTY MISSOURI
PIKE COUNTY ILLINOIS

K-952R

FED. ROAD DIST. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
1	MO.		14	

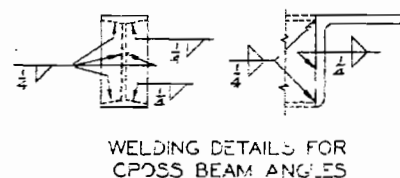


DETAILS OF 1/2" SHIM BAR



TYPICAL CROSS BEAM
DETAILS OF NEW CROSS BEAMS

① Field grinding or shims may be required for proper handrail alignment. Fixtures for attaching handrail to new cross beam to be the same as existing except field drill holes and use 3/8" high strength bolts for making connections.



WELDING DETAILS FOR CROSS BEAM ANGLES

HALF SECTION PROPOSED
SECTION NEAR CROSS BEAM

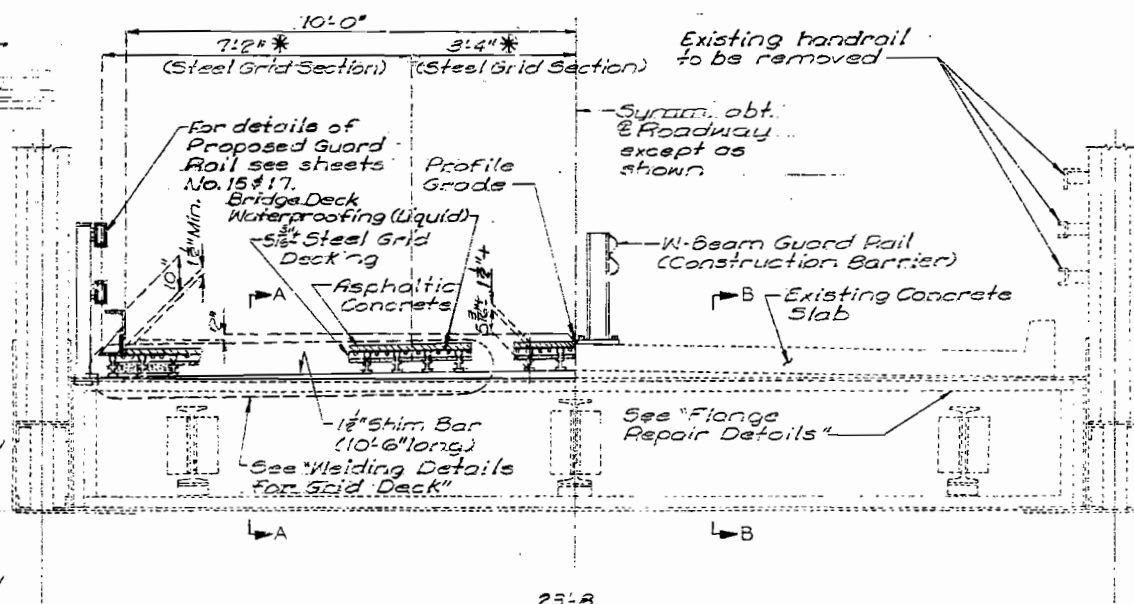
Note: Approximately 10% of the existing Cross Beams are deteriorated and are to be replaced with 53x18.4 beams, see "Details of New Cross Beams". Angles required at ends of existing Cross Beams are not required for new Cross Beams.

* See sheet No. 10 for altering widths of Steel Grid Sections.

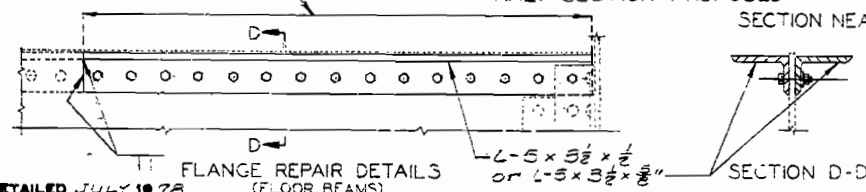
Note: Angles for flange repair are to match existing angles. New angles are to be field drilled to match existing rivet holes.

Use 3/8" High Strength Bolts, complete with nut and washer, for replacing rivets removed for flange repairs.

Weld new angles to old angles prior to tightening bolts. Length as determined by the engineer.



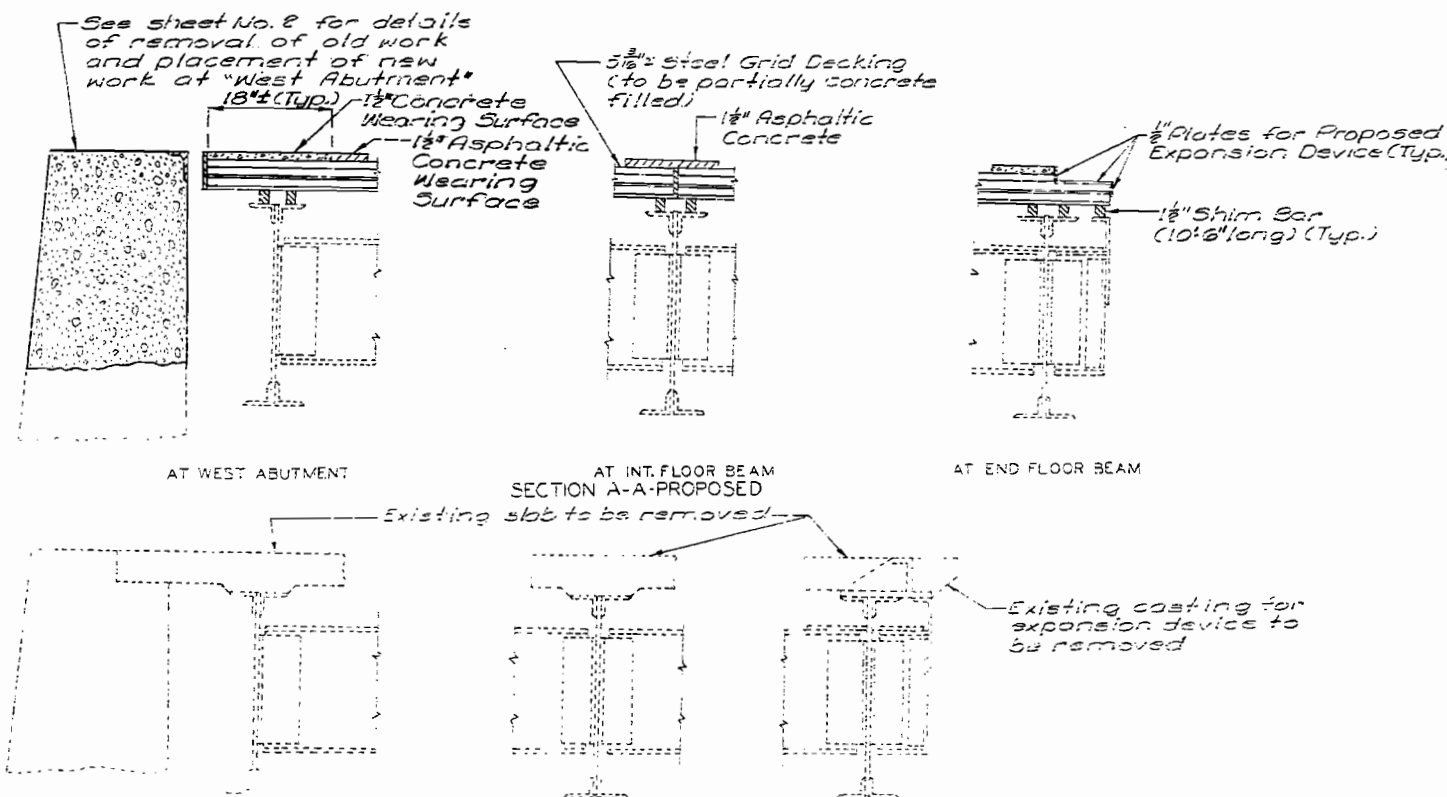
HALF SECTION PROPOSED
SECTION NEAR FLOOR BEAM



FLANGE REPAIR DETAILS
(FLOOR BEAMS)

Note: For "Welding Details for Grid Deck" and for "Plan of Grid Deck on Truss Spans" see sheet No. 10.

DETAILS FOR TRUSS SPANS



AT WEST ABUTMENT

AT INT. FLOOR BEAM
SECTION A-A PROPOSED

AT END FLOOR BEAM

AT WEST ABUTMENT

AT INT. FLOOR BEAM
SECTION B-B PRESENT

AT END FLOOR BEAM

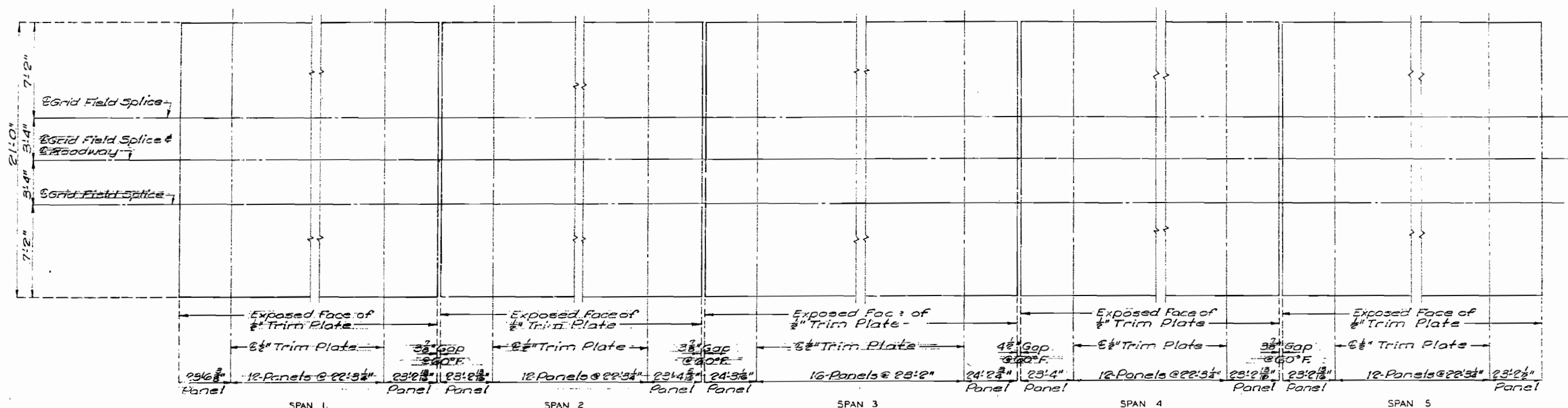
DETAILED JULY 10 78
CHECKED OCT 1978

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

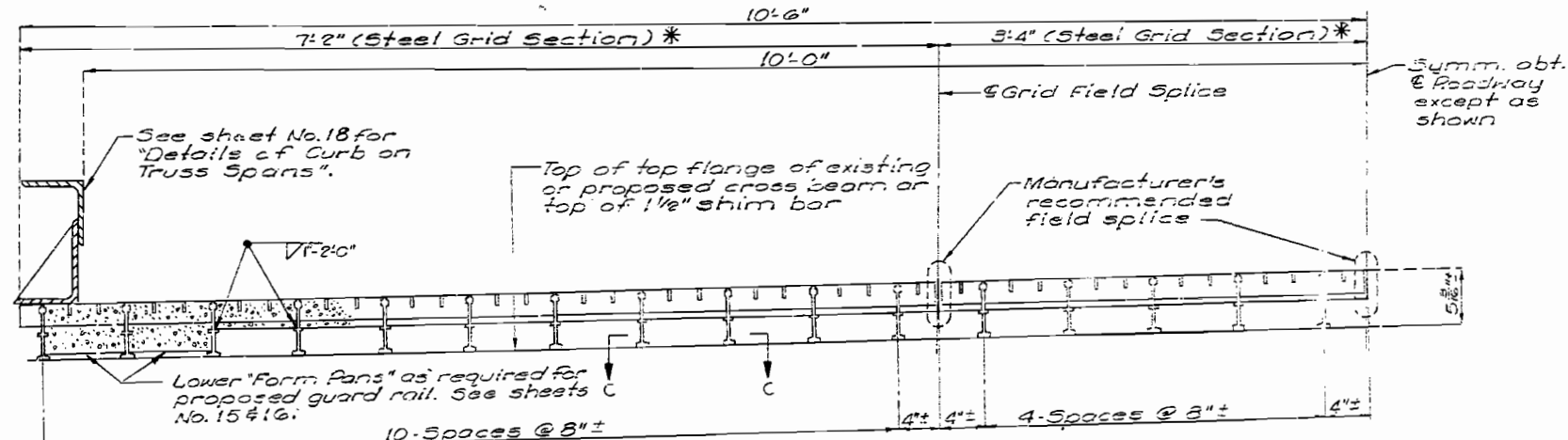
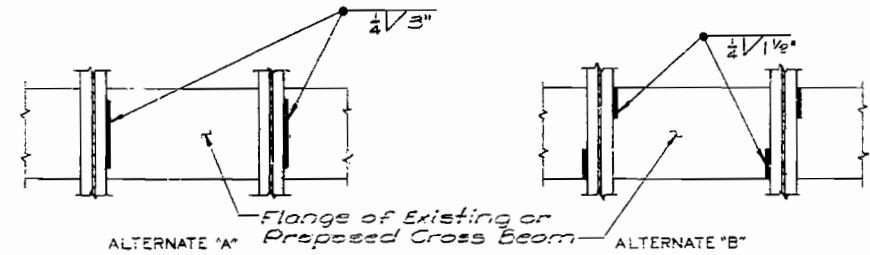
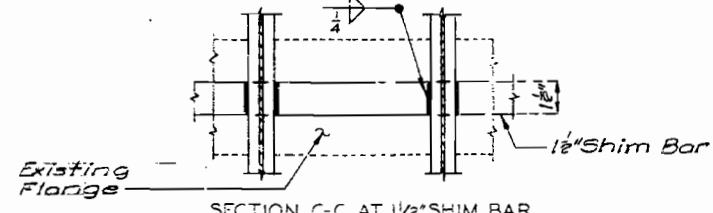
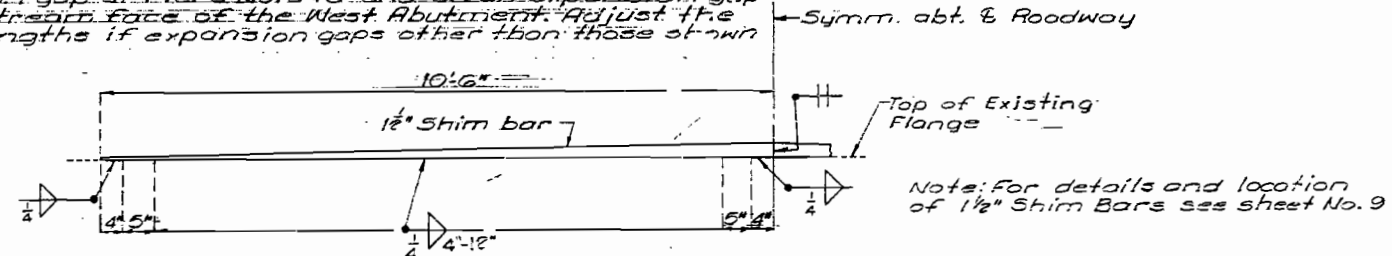
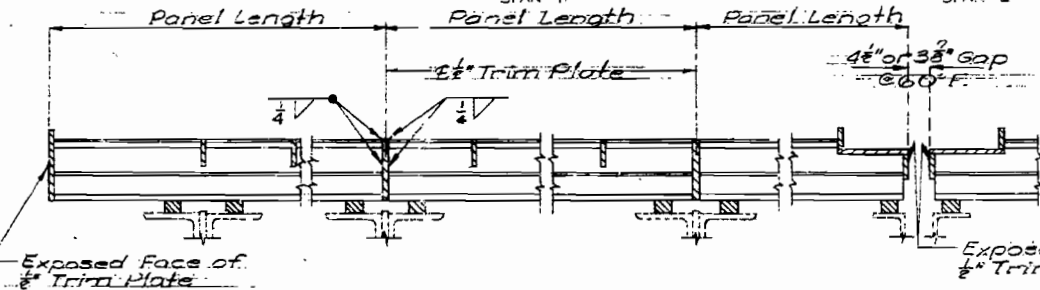
Sheet No. 9 of 20. A Revised 12-18-81

PIKE COUNTY MISSOURI
PIKE COUNTY ILLINOIS K-932R

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	15	



PLAN OF GRID DECK ON TRUSS SPANS
 Note: Grid Panel lengths are based on lengths shown on original design plans and on a 3/8" @ 60°F. expansion gap at Piers No. 1, 2 & 4; 4" @ 60°F. expansion gap at Piers No. 3 & 5 and on an expansion gap 1 1/2" @ 60°F. at the stream face of the West Abutment. Adjust the end grid panel lengths if expansion gaps other than those shown are used.



* Widths shown for Steel Grid Sections may be altered slightly (2" in either direction) to facilitate installation.
 Final Roadway Cross-Section to be as shown on sheet No. 9.

DETAILED JULY 1978
 CHECKED OCT. 1978

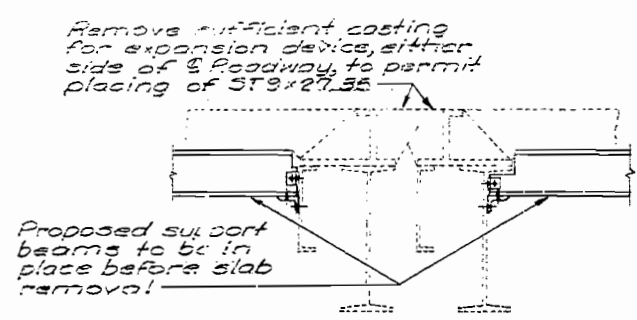
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 10 of 20.

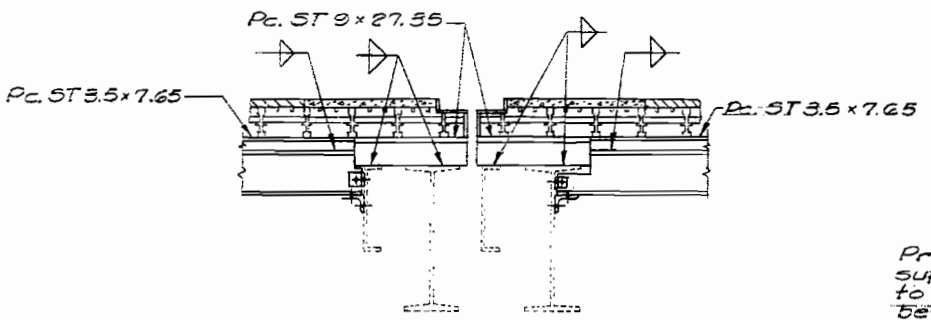
PIKE COUNTY MISSOURI
 PIKE COUNTY ILLINOIS

K-932R

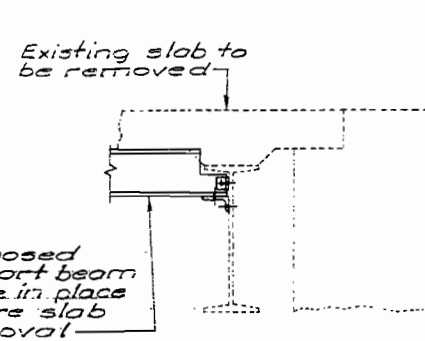
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MO.		18	16	



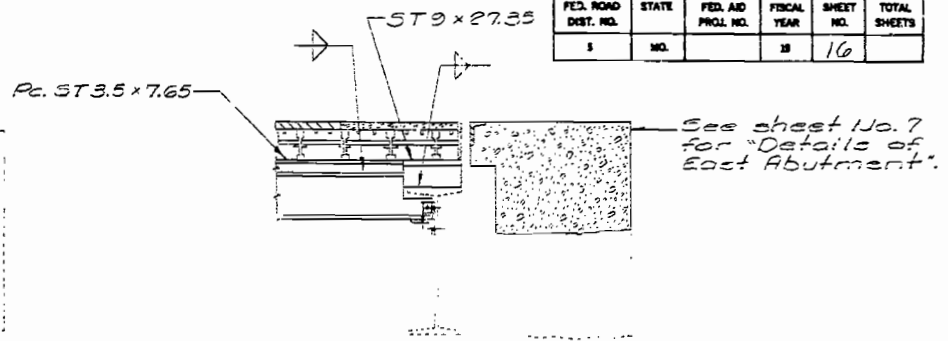
PART SECTION C-C PRESENT
(BEFORE SLAB REMOVAL)



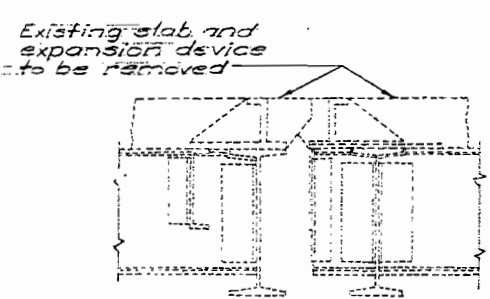
PART SECTION C-C PROPOSED



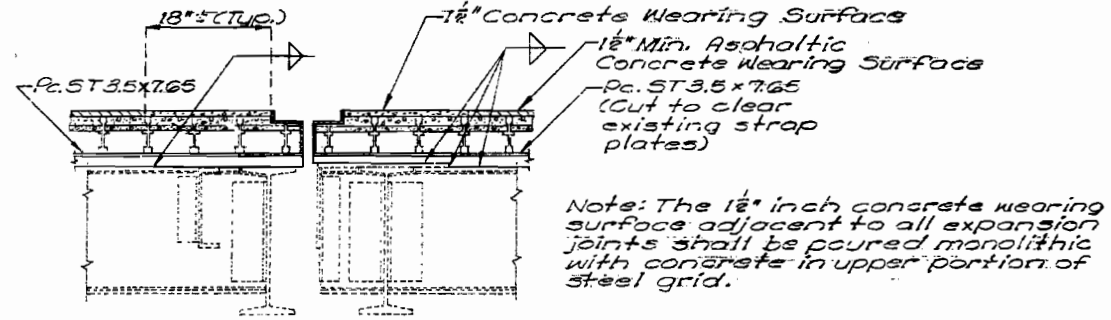
PART SECTION C-C PRESENT
(BEFORE SLAB REMOVAL)



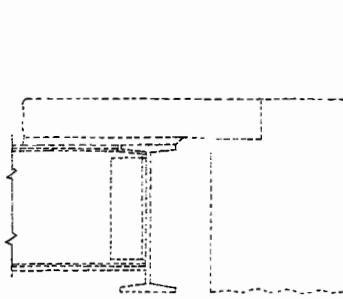
PART SECTION C-C PROPOSED



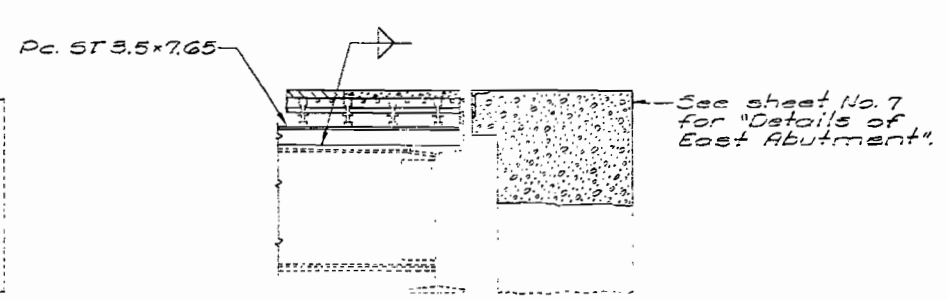
PART SECTION D-D PRESENT
DETAILS AT PIERS NO. 10 & 11



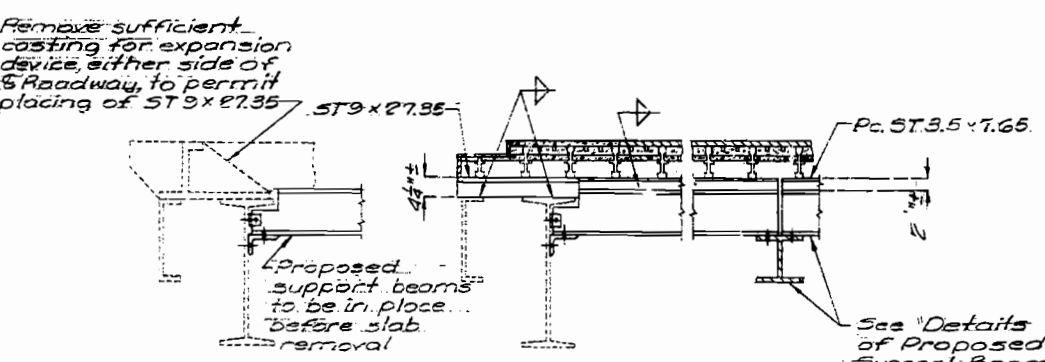
PART SECTION D-D PROPOSED
DETAILS AT PIERS NO. 10 & 11



PART SECTION D-D PRESENT
DETAILS AT EAST ABUTMENT - PIER NO. 12

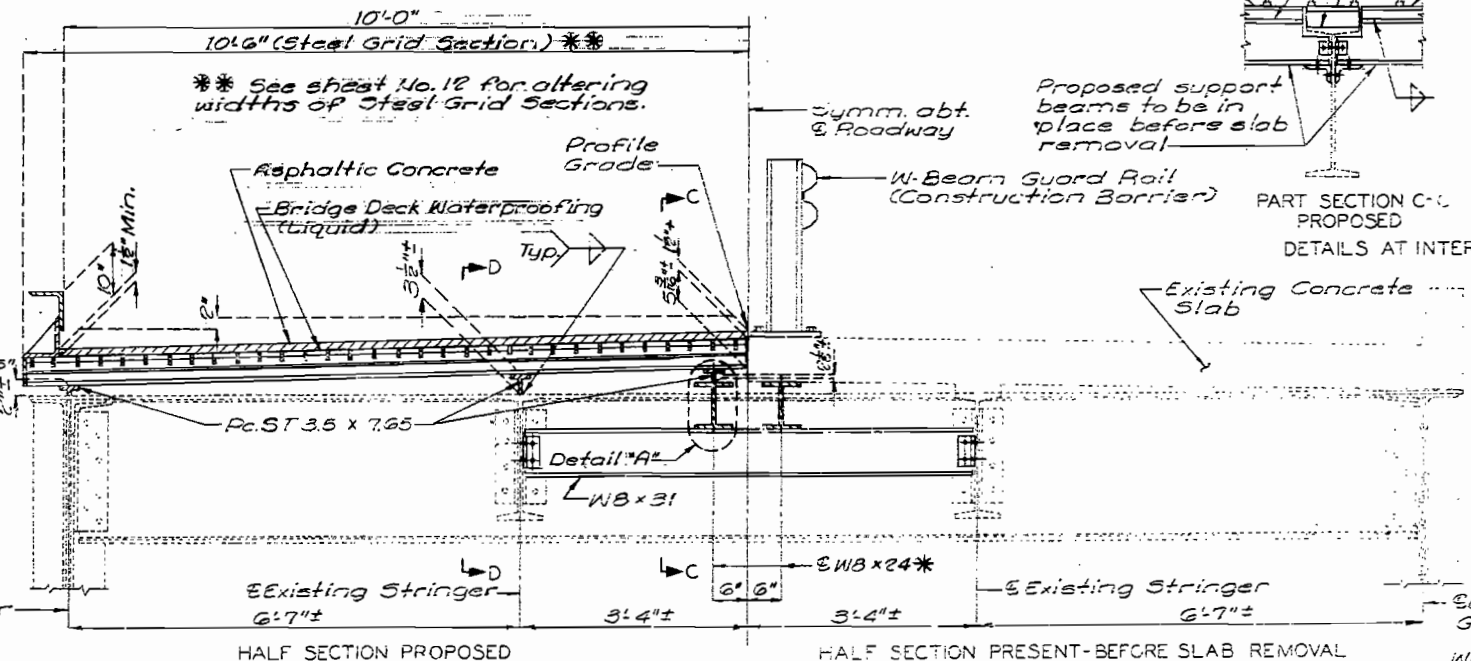


PART SECTION D-D PROPOSED
DETAILS AT EAST ABUTMENT - PIER NO. 12



PART SECTION C-C PRESENT
(BEFORE SLAB REMOVAL)

PART SECTION C-C PROPOSED



HALF SECTION PROPOSED

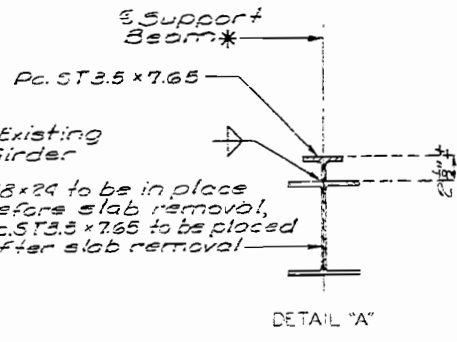
HALF SECTION PRESENT-BEFORE SLAB REMOVAL

SECTION NEAR FLOOR BEAM AND PROPOSED SUPPORT BEAM

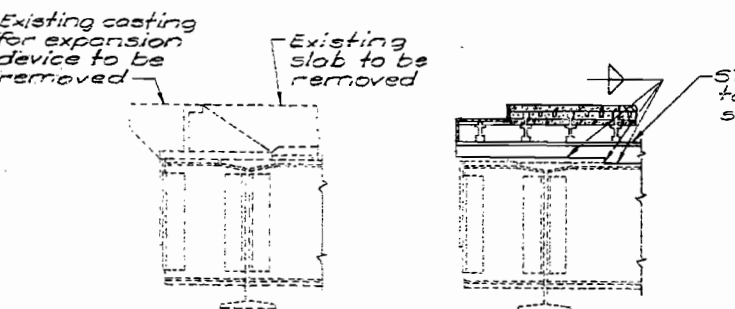
Note: Details for placing ST 3.5x7.65 on plate girders are similar to those shown for interior stringers. See sheet No. 12 for "Length of Weld on Plate Girders".

* One Support Beam (W8x24) may be installed after old slab is removed during "First Stage Removal". If Support Beam is installed after "First Stage Removal", shim plates 8"x2 1/2" (A8a) may be used between W8x31 and W8x24 for vertical alignment of support beams to achieve correct elevation of grid deck.

Support Beam under old slab not removed during "First Stage Removal" must be installed before any removal is begun.



DETAIL "A"



PART SECTION D-D PRESENT
DETAILS AT PIER NO. 5

PART SECTION D-D PROPOSED

DETAILS FOR PLATE GIRDER SPANS

DETAILED AUG. 1978
CHECKED OCT. 1978

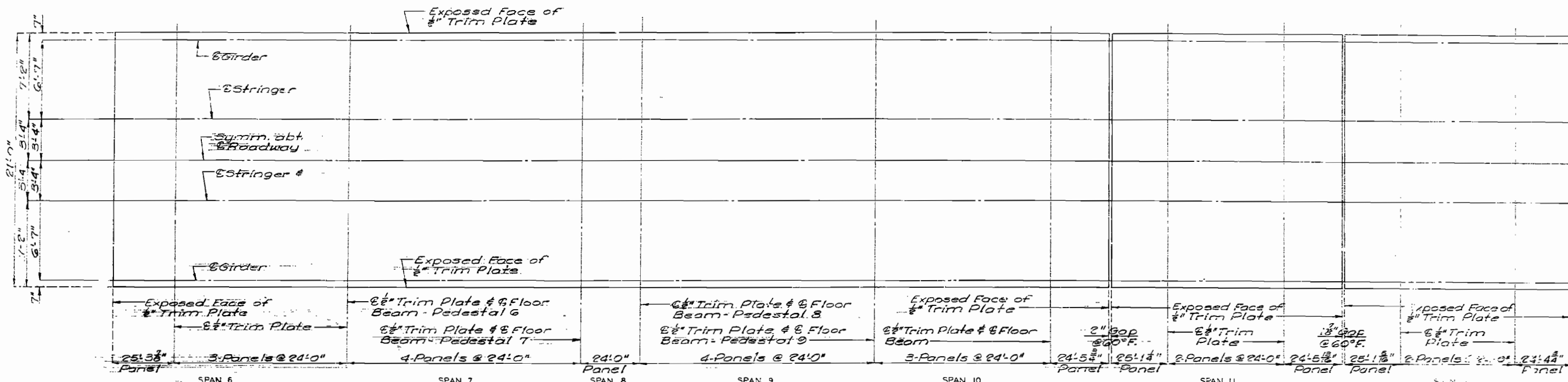
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 11 of 20. A Revised 12-18-81

PIKE COUNTY MISSOURI
PIKE COUNTY ILLINOIS

K-932R

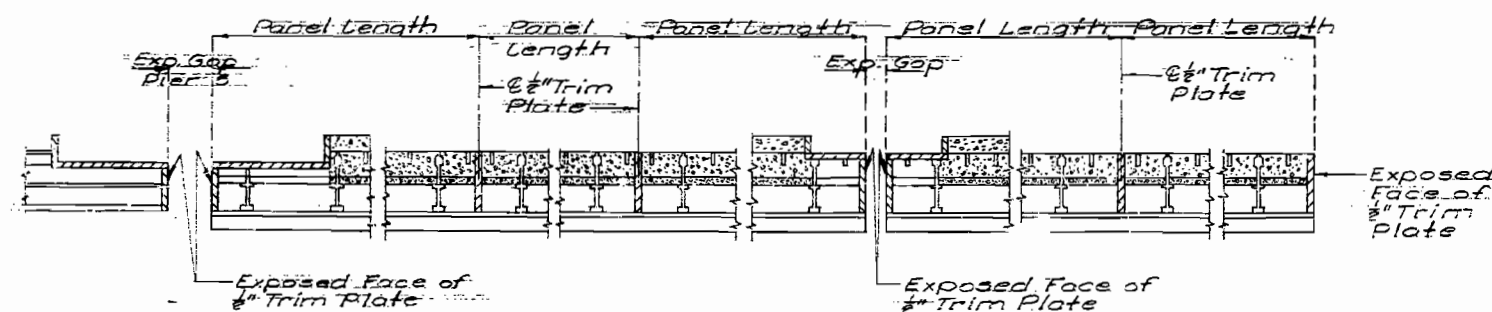
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	17	



PLAN OF GRID DECK ON PLATE GIRDER SPANS

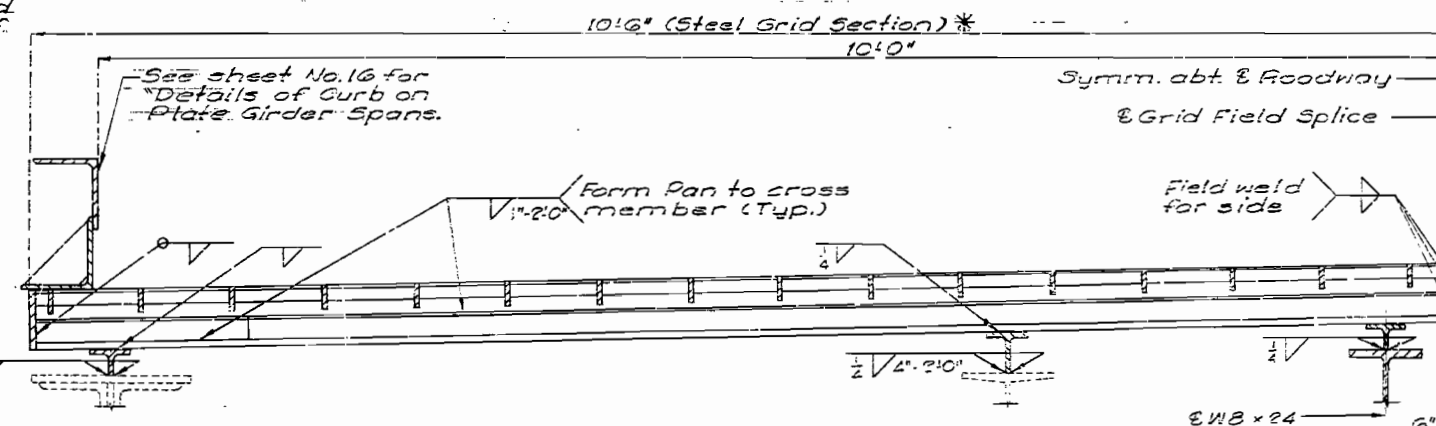
Note: Grid Panel lengths shown are based on lengths shown on original design plans and on a $\frac{1}{8}$ " @ 60°F expansion gap at Pier No. 5, 2" @ 60°F expansion gap at Pedestal No. 10, 1 1/2" @ 60°F expansion gap at Pedestal No. 11 and an expansion gap of 1 1/2" @ 60°F at the stream face of the East Abutment. Adjust the end grid panel lengths if gaps other than those shown are used.

* Width shown for Steel Grid Sections may be altered slightly (2" in either direction) to facilitate installation.

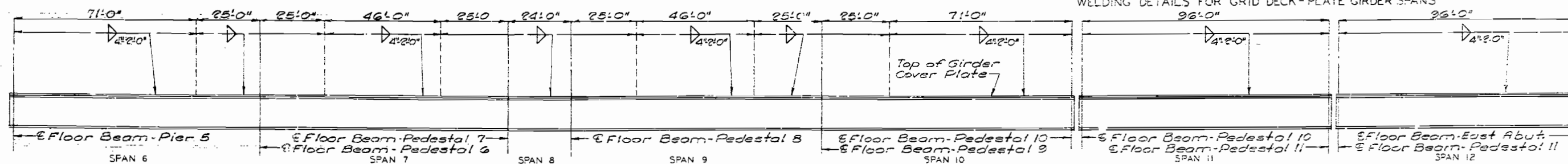


PART LONGITUDINAL SECTION SHOWING GRID PANEL LENGTH

Note: ST 3.5x7.65 to extend full length of plate girders, see sheet No. 11 for additional details of ST 3.5x7.65 on existing stringers and ST 3.5x7.65 on "Proposed Support Beam".



WELDING DETAILS FOR GRID DECK - PLATE GIRDER SPANS



LENGTH OF WELD ON PLATE GIRDERS (ST 3.5 x 7.65 TO GIRDER COVER PLATE)

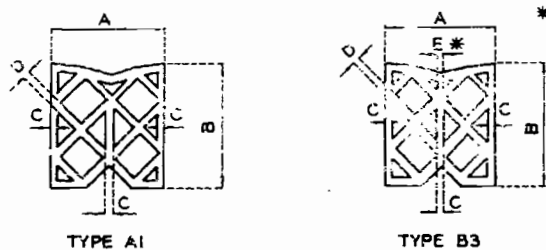
DETAILED AUG. 1978
CHECKED OCT. 1978

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

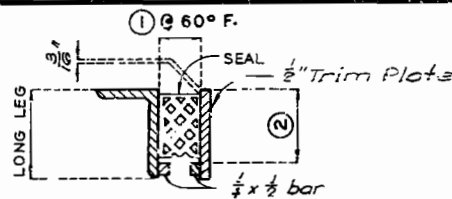
Sheet No. 12 of 20.

PIKE COUNTY MISSOURI
PIKE COUNTY ILLINOIS

K-932R



* OPTIONAL "C"



PART CROSS SECTION THRU EXPANSION JOINT

NOTES FOR PREFORMED COMPRESSION JOINT SEAL:

STRUCTURAL STEEL FOR EXPANSION DEVICE SHALL BE FABRICATED IN HALF ROADWAY WIDTHS. EXPANSION DEVICE SHALL BE BENT TO CONFORM TO CROWN AND GRADE OF ROADWAY.

NO. 5 BARS FOR EXPANSION DEVICE SHALL BE STRUCTURAL GRADE.

APPROVED STUD WELDED ANCHORS OR DEFORMED BAR ANCHORS (ASTM A496) MAY BE USED IN LIEU OF #5 BARS SHOWN. INSTALL SEAL IN ONE PIECE AFTER REPAIR OF DECK.

PLAN DIMENSIONS ARE BASED ON INSTALLATION AT 60°F EXPANSION JOINT WIDTH SHALL BE ADJUSTED DURING INSTALLATION FOR COMPLIANCE WITH TABLES. SEE SPECIAL PROVISIONS FOR THE REQUIREMENTS OF COMPRESSION JOINT SEAL.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		15	18	

TABLE OF TRANSVERSE SEAL TOLERANCES (INCHES)					
TYPE	"A" (WIDTH)	"B" (HEIGHT)	"C" (SHELL)	"D" (WEBS)	"E" (B3 ONLY) (SMALL WEBS)
AI OR B3	2.500 +0.250 -0.000	2.750 +0.125 -0.125	0.187 +0.046 -0.015	0.093 +0.031 -0.015	0.082 +0.031 -0.031
AI OR B3	3.000 +0.250 -0.000	3.406 +0.187 -0.187	0.187 +0.046 -0.015	0.125 +0.046 -0.015	0.075 +0.046 -0.031
AI OR B3	3.500 +0.250 -0.000	3.500 +0.187 -0.187	0.187 +0.046 -0.015	0.125 +0.046 -0.015	0.097 +0.046 -0.031
AI OR B3	4.000 +0.312 -0.000	4.718 +0.250 -0.250	0.250 +0.046 -0.031	0.235 +0.046 -0.015	0.111 +0.046 -0.031

TABLE OF TRANSVERSE SEALS & ARMOR ANGLES					
TYPE	GROOVE SIZE AT 60°F		SEAL SIZE		ANGLE SIZE
	①	②	WIDTH	HEIGHT	
AI OR B3	1-5/8"	4"	2-1/2"	2-3/4"	5 x 3 x 3/8
AI OR B3	1-7/8"	4-7/8"	3"	3-13/32"	6 x 3-1/2 x 3/8
AI OR B3	2-1/4"	5-1/8"	3-1/2"	3-1/2"	6 x 3-1/2 x 3/8
AI OR B3	2-5/8"	6-3/8"	4"	4-23/32"	8 x 4 x 7/16

AT EAST & WEST ABUTMENTS

TABLE "GROOVE SIZE" ① (INSTALLATION DIMENSIONS)								
TEMP. (°F.)	CONCRETE STRUCTURES				STEEL STRUCTURES			
	2 1/2"	3"	3 1/2"	4"	2 1/2"	3"	3 1/2"	4"
-10°	-	-	-	-	2-1/8"	2-5/8"	3"	3-3/8"
0°	2-1/8"	2-5/8"	3"	3-3/8"	2"	2-1/2"	2-7/8"	3-1/4"
+20°	1-7/8"	2-1/4"	2-3/4"	3-1/8"	1-7/8"	2-1/4"	2-5/8"	3"
+40°	1-3/4"	2-1/8"	2-1/2"	2-7/8"	1-3/4"	2-1/8"	2-1/2"	2-7/8"
+60°	1-5/8"	1-7/8"	2-1/4"	2-5/8"	1-5/8"	1-7/8"	2-1/4"	2-5/8"
+80°	1-3/8"	1-3/4"	2"	2-1/4"	1-3/8"	1-3/4"	2"	2-1/4"
+100°	1-1/4"	1-1/2"	1-3/4"	2"	1-1/4"	1-5/8"	1-7/8"	2-1/8"
+110°	1-1/8"	1-3/8"	1-5/8"	1-7/8"	1-1/4"	1-1/2"	1-3/4"	2"
+120°	-	-	-	-	1-1/8"	1-3/8"	1-5/8"	1-7/8"

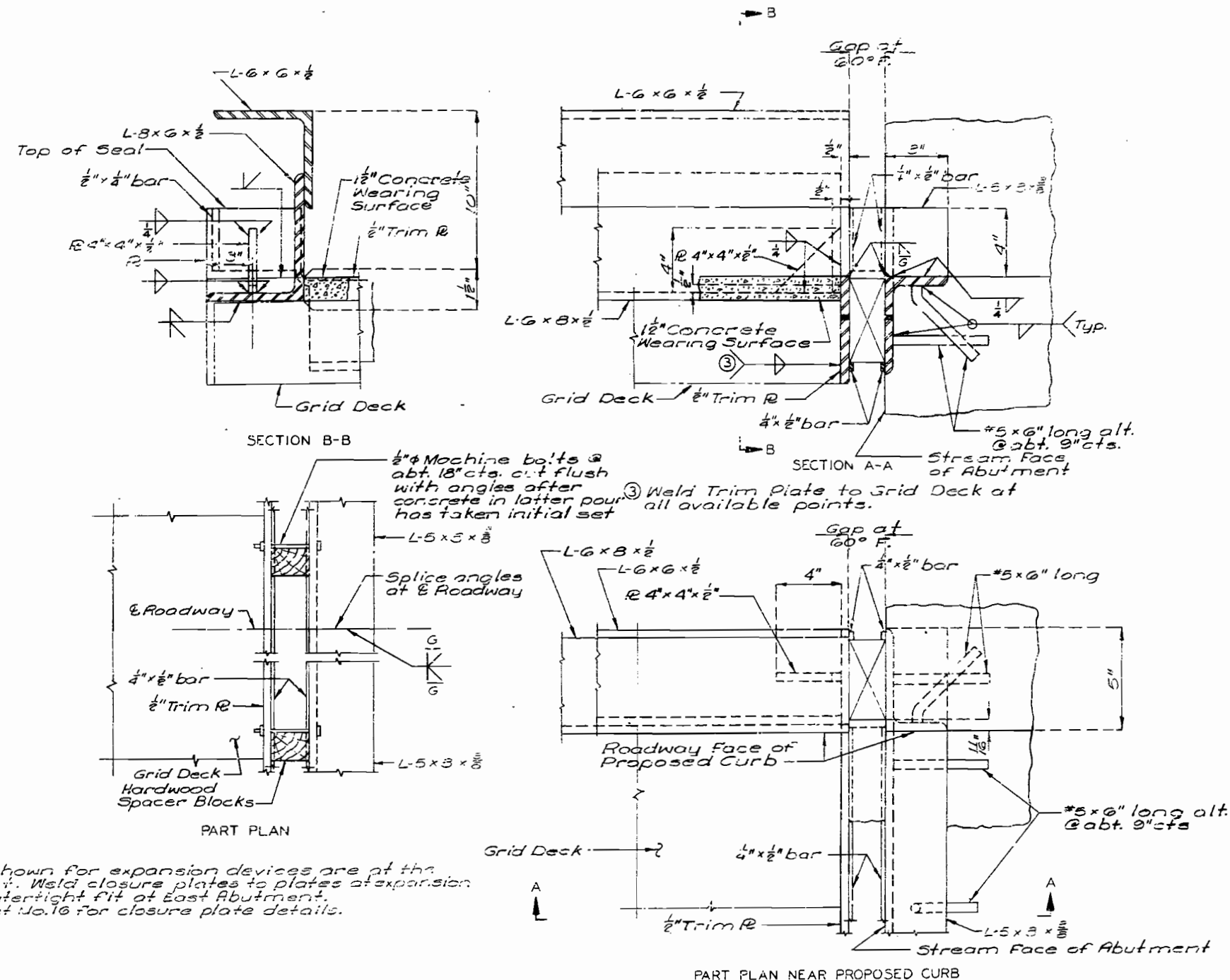
TABLE OF LONGITUDINAL SEALS				
TYPE	GROOVE SIZE AT 80°F.		SEAL SIZE	
	WIDTH	HEIGHT	WIDTH	HEIGHT
AI OR B3	1-5/16"	2-3/4"	2"	2-1/16"

ARMOR ANGLES FOR LONGITUDINAL SEALS WILL NOT BE USED UNLESS SPECIFIED.

TABLE OF LONGITUDINAL SEAL TOLERANCES (INCHES)				
TYPE	"A" (WIDTH)	"B" (HEIGHT)	"C" (SHELL)	"D" (WEBS)
AI OR B3	2.000 +0.187 -0.000	2.0625 +0.125 -0.125	0.125 +0.031 -0.015	0.094 +0.031 -0.015

DETAILED SEPT. 1978
CHECKED OCT. 1978

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



Note: Details shown for expansion devices are at the West Abutment. Weld closure plates to plates at expansion devices for a watertight fit at East Abutment. See sheet No. 16 for closure plate details.

DETAILS OF PREFORMED COMPRESSION JOINT SEAL AT EAST AND WEST ABUTMENTS

Sheet No. 13 of 20

PIKE COUNTY MISSOURI
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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	19	

GENERAL NOTES:

THE EXPANSION JOINT SEAL SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS SHOWN ON THE SHOP DRAWINGS AND IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

THE NUTS ON THE ANCHOR STUDS SHALL BE TIGHTENED TO THE FOOT POUNDS "G" SPECIFIED IN THE TABLE OF DIMENSIONS. RETIGHTEN TO "G" FOOT POUNDS A MINIMUM OF 30 MINUTES AFTER INITIAL TIGHTENING. THE WELDED ANCHOR STUDS SHALL BE THE REDUCED BASE TYPE.

MATERIAL FOR THE ARMORED JOINT SHALL BE A36 STRUCTURAL GRADE STEEL. NO. 4 BARS FOR ANCHORS SHALL BE STRUCTURAL GRADE STEEL. APPROVED STUD WELDED ANCHORS OR DEFORMED BAR ANCHORS (ASTM A496) MAY BE USED IN LIEU OF NO. 4 BARS SHOWN. ARMOR SHALL BE FABRICATED IN HALF ROADWAY WIDTH SECTIONS AND WELDED TOGETHER IN FIELD.

SEE SPECIAL PROVISIONS FOR PAINTING.

PLAN DIMENSIONS ARE BASED ON INSTALLATION AT 60°F. THE EXPANSION GAP AND OTHER DIMENSIONS SHALL BE ADJUSTED DURING INSTALLATION FOR COMPLIANCE WITH ANY TEMPERATURE CHANGE. THE STEEL FOR THE ARMORED JOINT WILL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR STEEL GRID FLOOR (CONCRETE FILLED).

FURNISHING AND INSTALLING THE ELASTOMERIC EXPANSION JOINT SEAL WILL BE PAID FOR AT THE CONTRACT BID PRICE PER LINEAR FOOT.

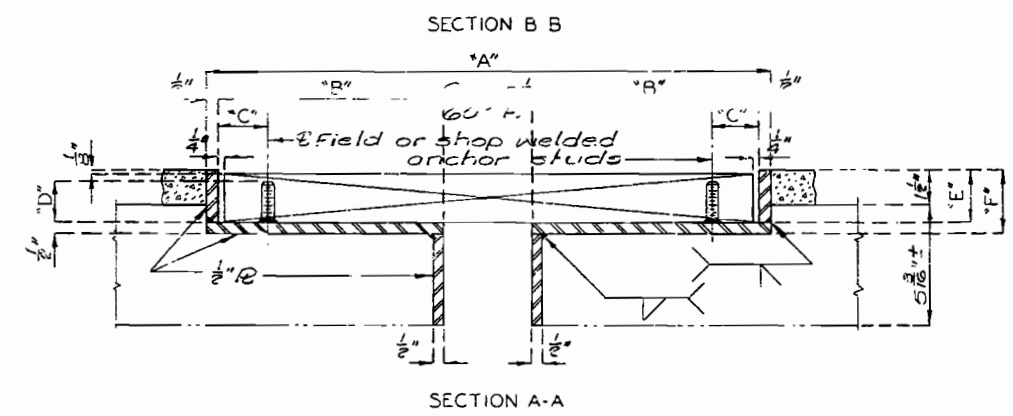
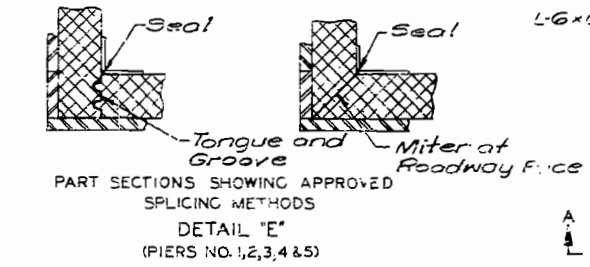
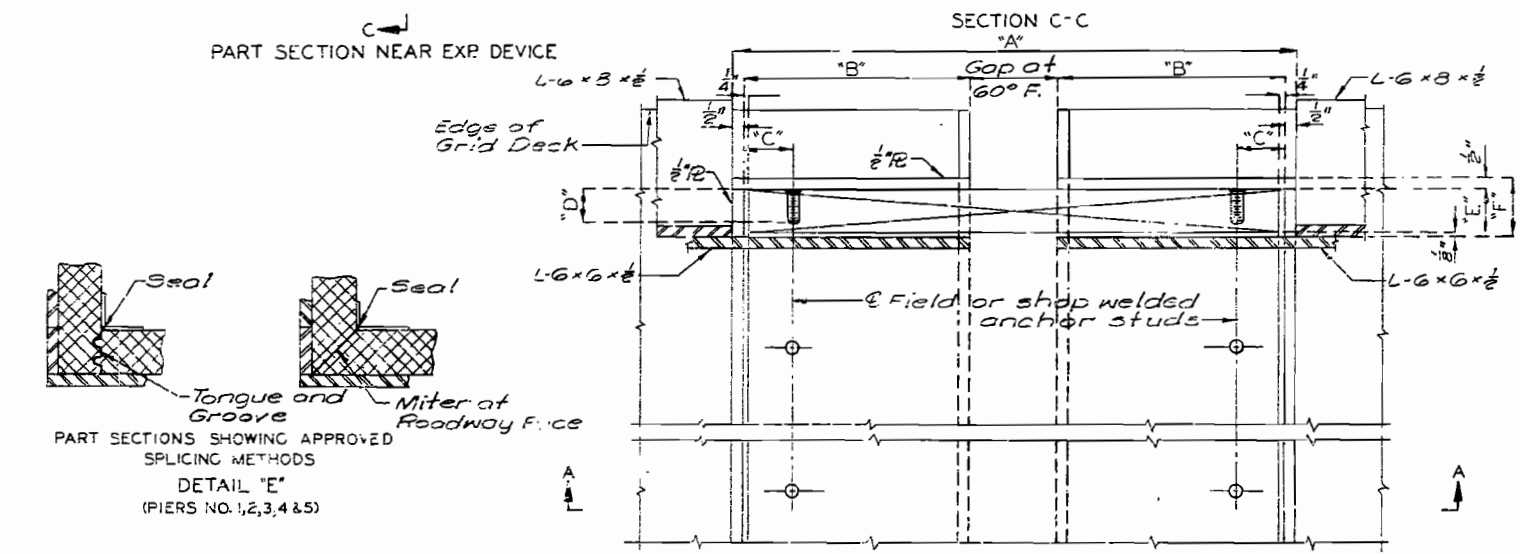
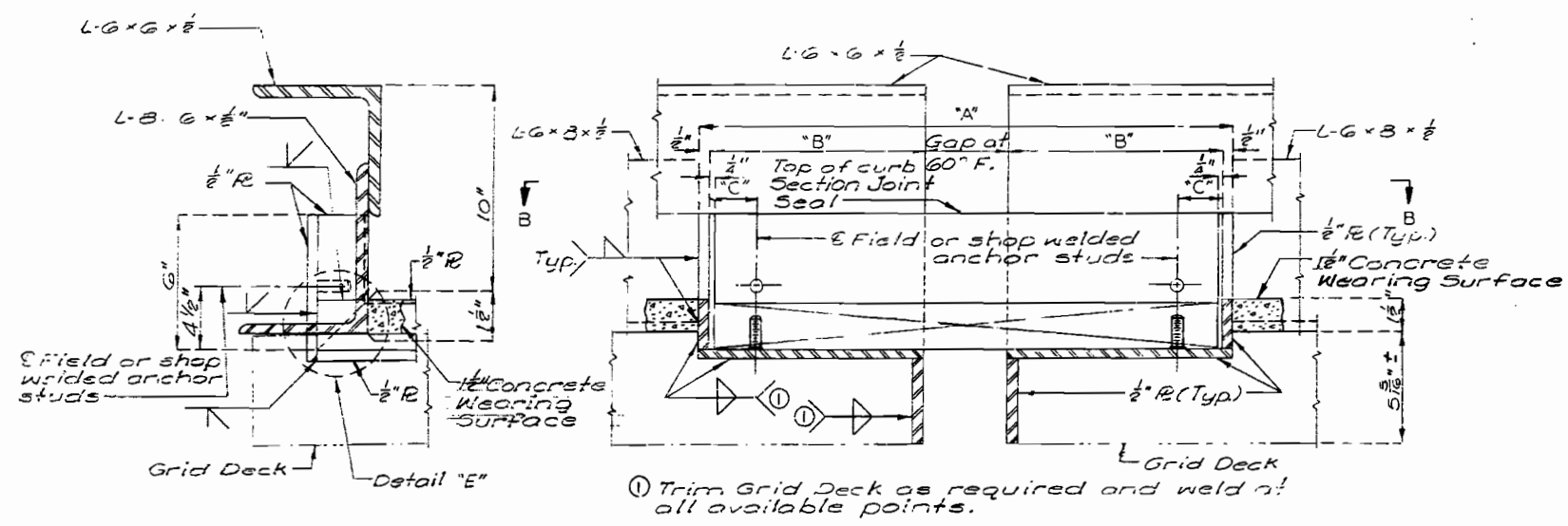


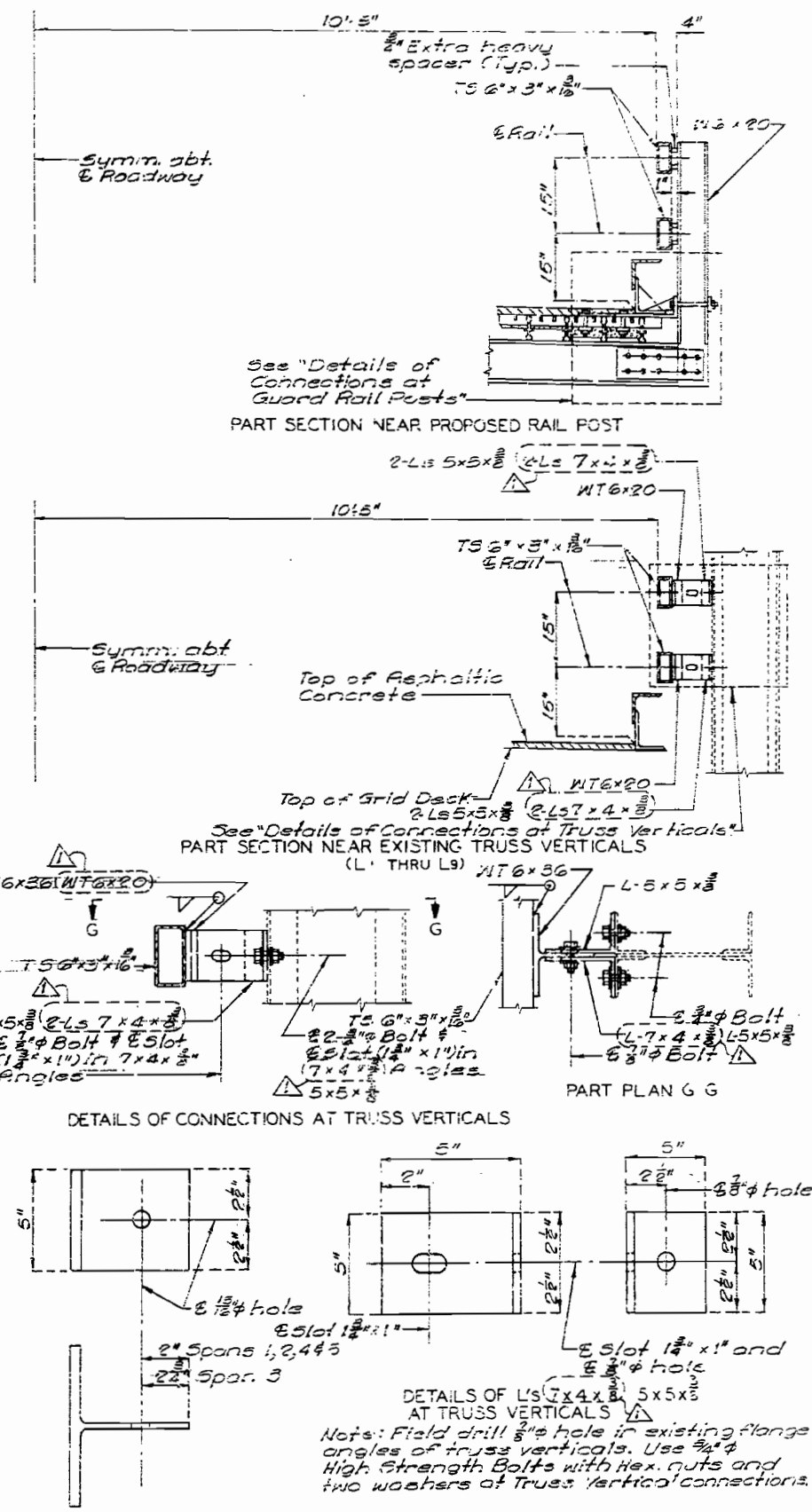
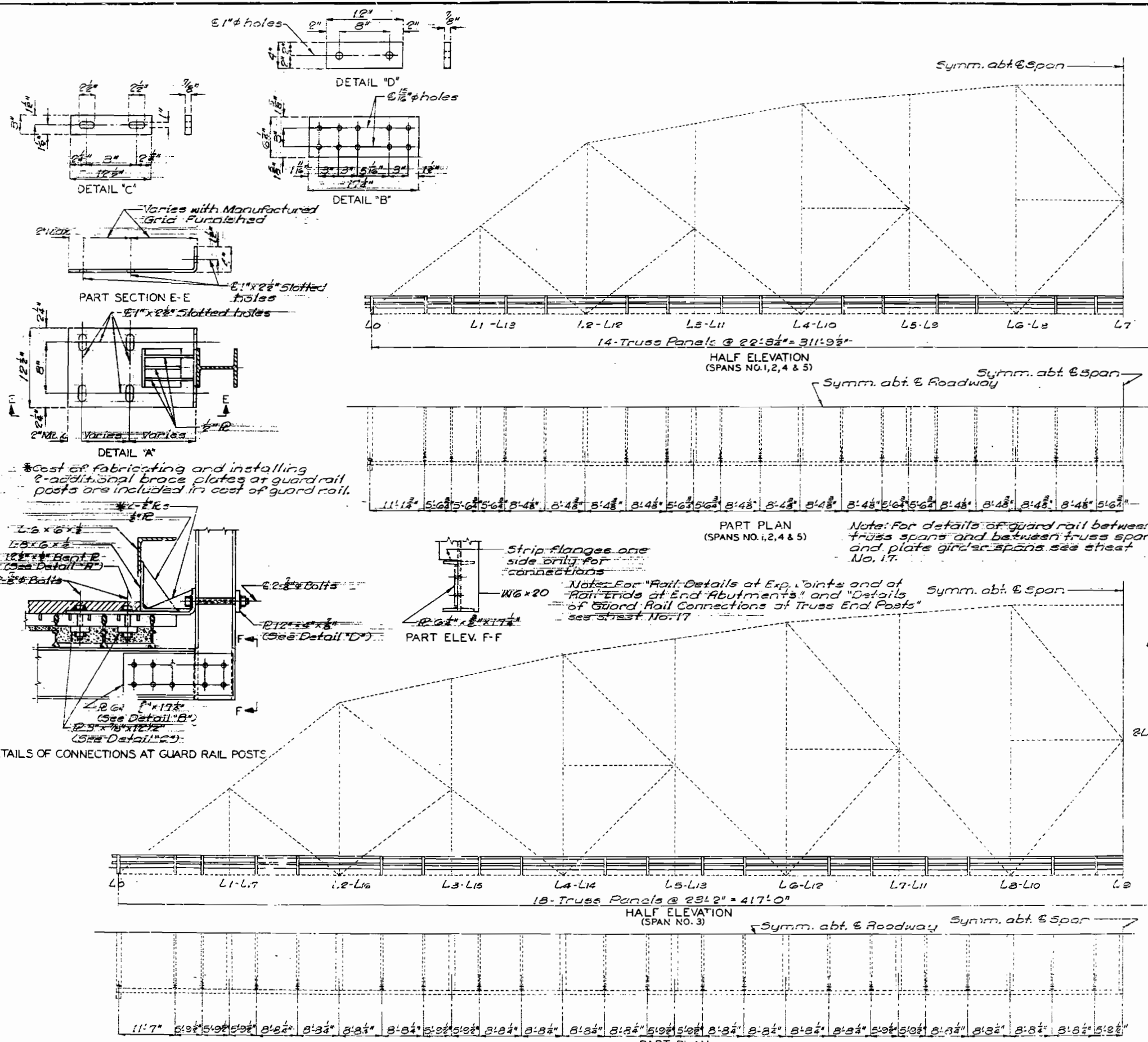
TABLE OF DIMENSIONS									
LOCATION	ACCEPTABLE ALTERNATE TYPES	EXP. GAP AT 60°	"A" AT 60°	"B"	"C"	"D"	"E"	"F"	ANCHOR STUDS SIZE "G"
PIERS NO. 1, 2, 3, 4	Transflex 400 A	3 3/8"	24 3/8"	3 1/8"	2 1/8"	1 1/8"	2 3/16"	2 3/16"	3/4" 35
PIERS NO. 3 & 5	Transflex 650	4 1/2"	23 3/4"	1 5/8"	2 3/8"	2"	3 3/16"	3 1/16"	7/8" 100
PED. NO. 10	DelastiFlex LM300	2"	12 3/8"	4 1/16"	2 3/16"	1"	2"	2 1/8"	1/2" 45
	Grn-Strip CCL 3111	2 1/2"	11 1/2"	4"	1 3/4"	1 1/2"	1 1/2"	2 1/4"	5/8" 25
	On-Flex 45	2"	11 1/2"	4 1/4"	1 5/8"	2 3/8"	2 3/16"	3 1/16"	1/2" 65
PED. NO. 11	DelastiFlex LM200	1 1/2"	11 1/8"	4 1/16"	2 3/16"	1"	2"	2 1/8"	1/2" 45
	Grn-Strip 21N	2 1/2"	11 1/2"	4"	1 3/4"	1 1/2"	1 1/2"	2 1/4"	5/8" 25
	On-Flex 25	1 1/2"	11"	4 1/4"	1 5/8"	1 1/2"	1 1/8"	2 3/16"	1/2" 65

NOTE: All dimensions are at right angles. Expansion gap and dimension "A" shall be increased "H" for each 10° fall in temperature and decreased "H" for each 10° rise in temperature.

DIMENSION "H"	
LOCATION	"H"
Piers No. 1, 2 & 4	1/4"
Pier No. 3	3/16"
Pier No. 5	3/8"
Pedestal No. 10	1/2"
Pedestal No. 11	1/2"

Note: Details shown for expansion devices are for truss spans. Weld closure plates to plates at expansion devices for a watertight fit on plate girder spans. See sheet No. 16 for closure plate details.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	20	



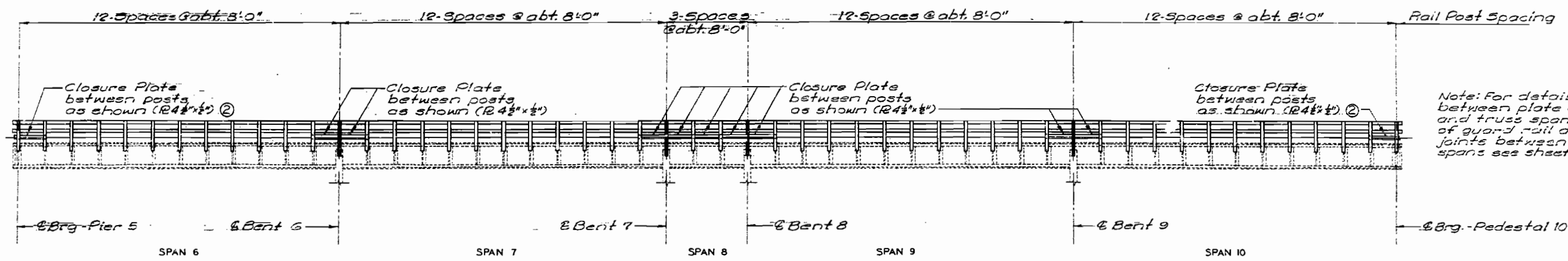
125

② Closure Plates are to be welded to plates for expansion devices to provide for a watertight fit. Weld closure plates to support angles and grid deck at all available points. See "Details of Connections at Bents" for typical location of Closure Plates.

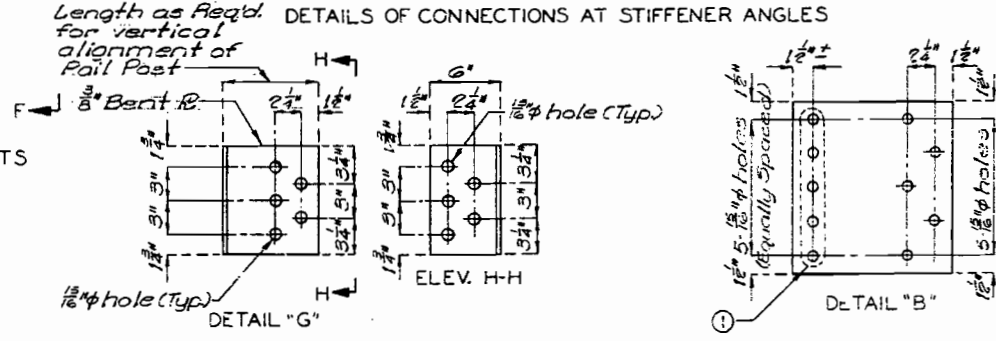
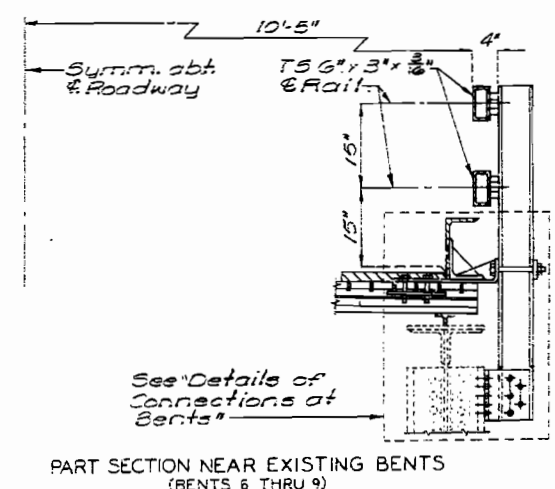
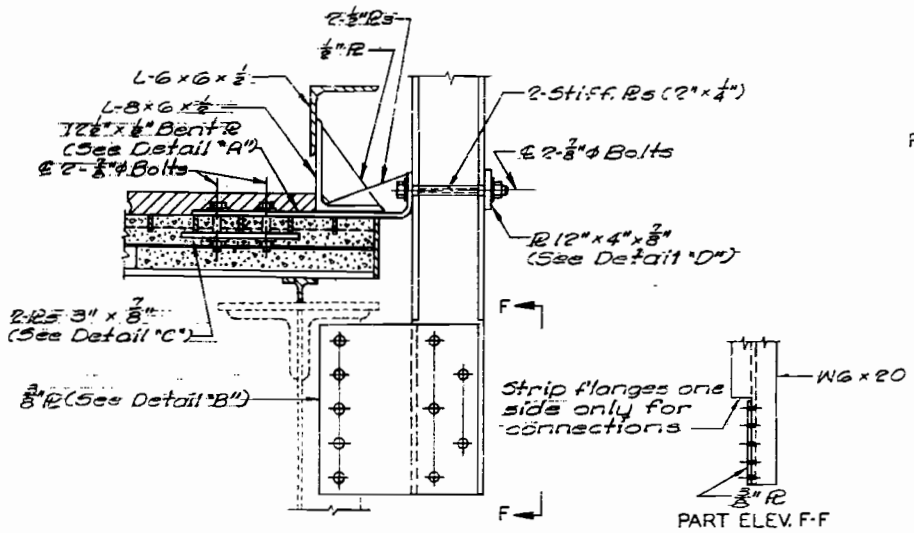
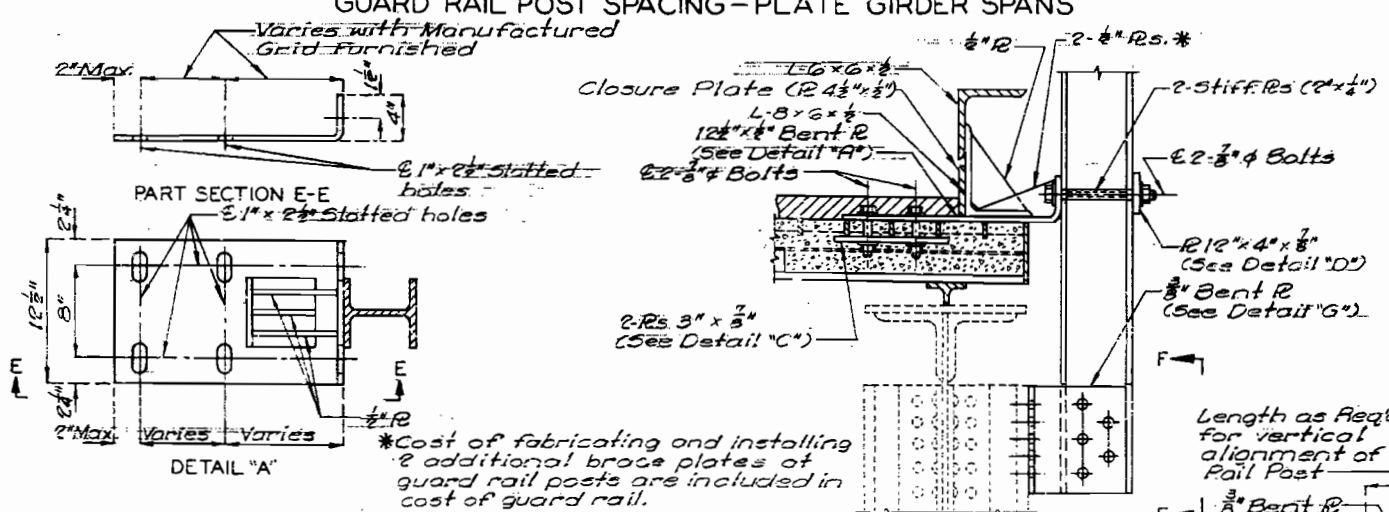
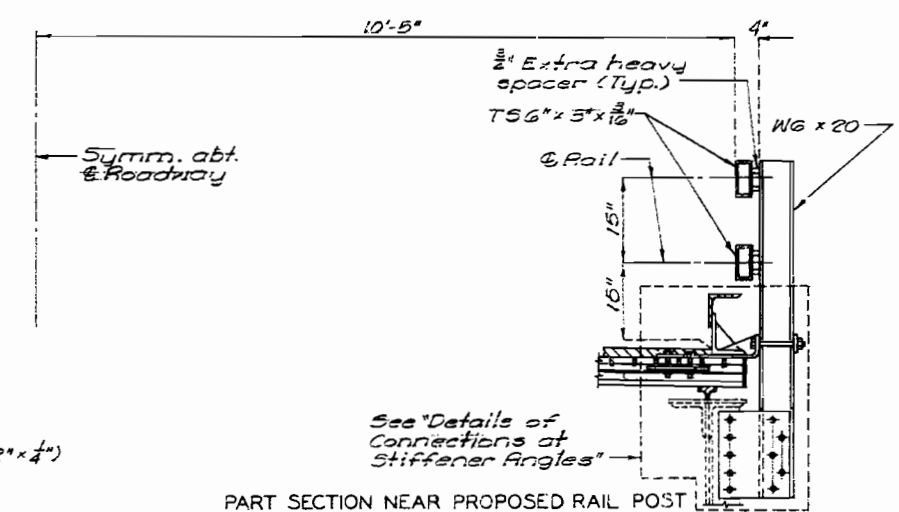
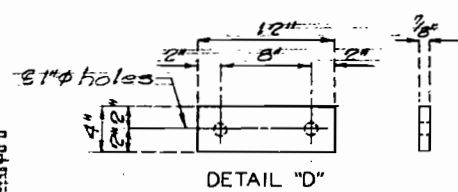
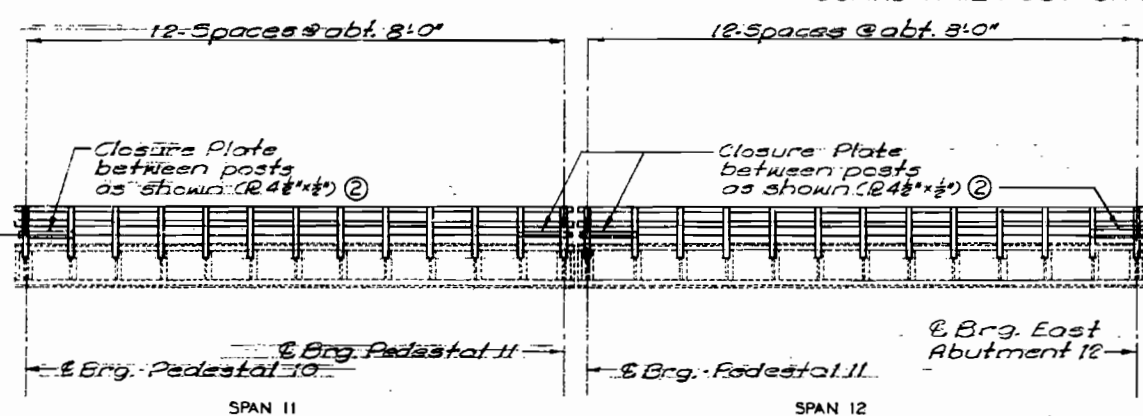
Notes: Center one 6" Support Angle (L-8x6x½) between connections for guard rail posts. See Part Section "A-A" on sheet No. 13 for details of 6" Support Angles. Top angle of curb to be fabricated in lengths of 12'-0"±.

Note: For "Rail Details at Exp. Joints and at Rail Ends at End Abutments" see sheet No. 17.

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5	MO.		18	21	



Note: For details of guard rail between plate girder spans and for details of guard rail at expansion joints between plate girder spans see sheet No. 17.



① Where rivets are encountered rivets are to be removed and existing rivet holes are to be field reamed to ½" and used for ½" High Strength Bolts. Spacing for staggered bolts to be the same as bolts in straight line (3" Max. - 2" Min.) Where rivet holes are not used hole spacing shall be 3".

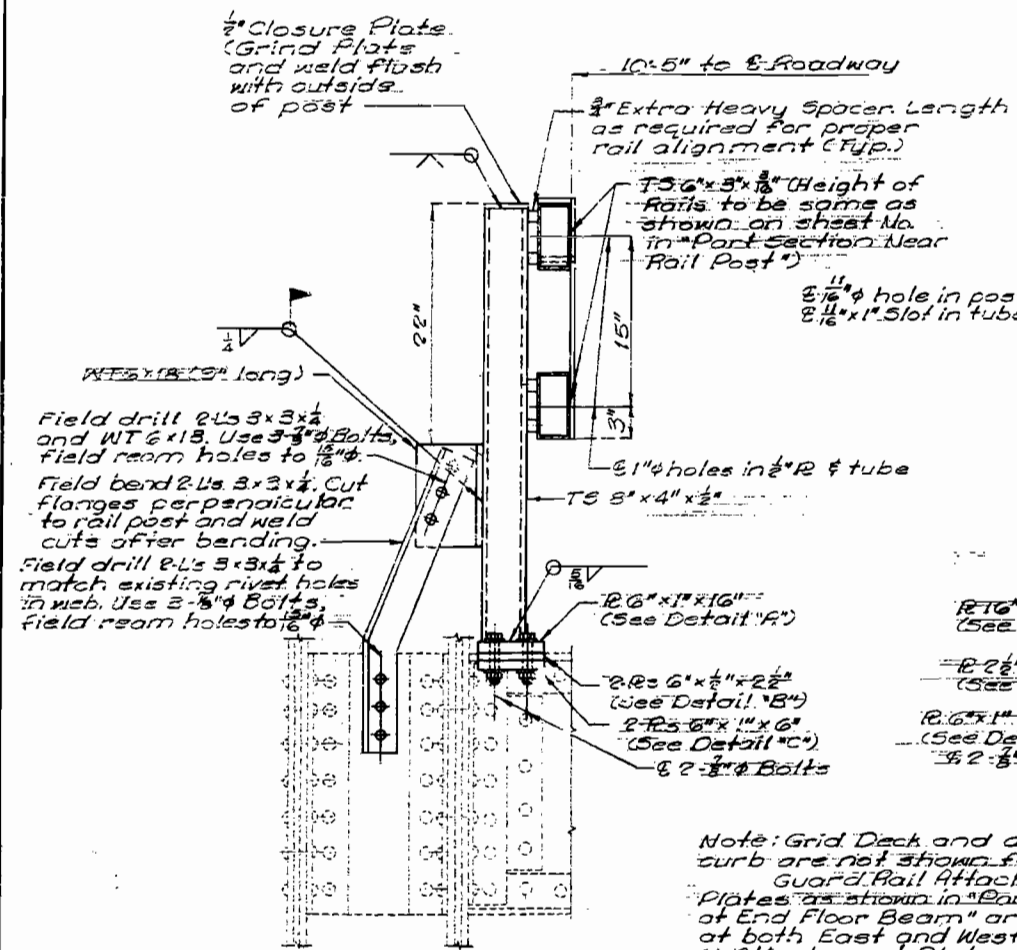
DETAILED F.E.C. 1980
CHECKED M.O.P. 1980

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

GUARD RAIL DETAILS PLATE GIRDER SPANS
Sheet No. 16 of 20.

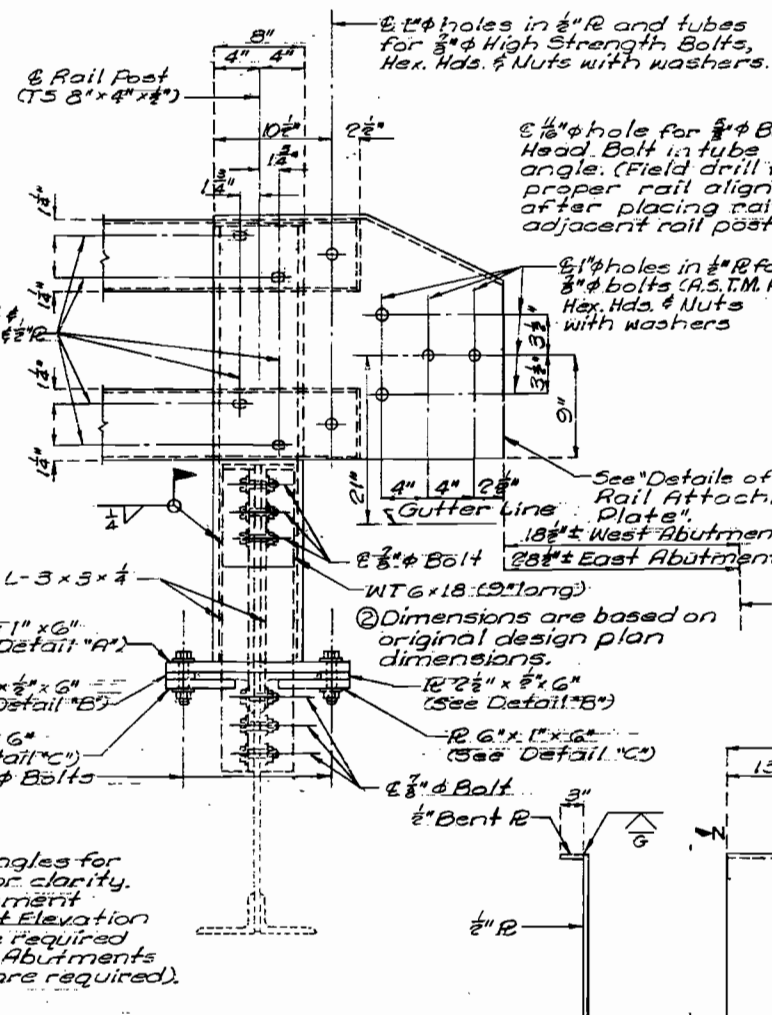
PIKE COUNTY MISSOURI
PIKE COUNTY ILLINOIS
K-932R

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		18	22	



PART SECTION NEAR END FLOOR BEAM

DETAILS OF GUARD RAIL POST AT END FLOOR BEAMS OF TRUSS SPANS



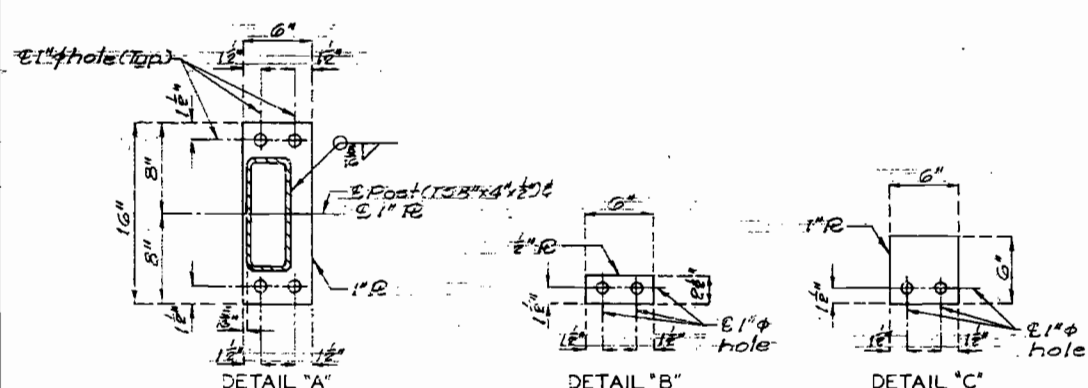
PART ELEVATION AT END FLOOR BEAM

ELEV. N-N
DETAILS OF GUARD RAIL ATTACHMENT PLATE

Note: Provide holes and slots in "Guard Rail Attachment Plate" as shown in "Part Elevation at End Floor Beam" before galvanizing.

GUARD RAIL NOTES:

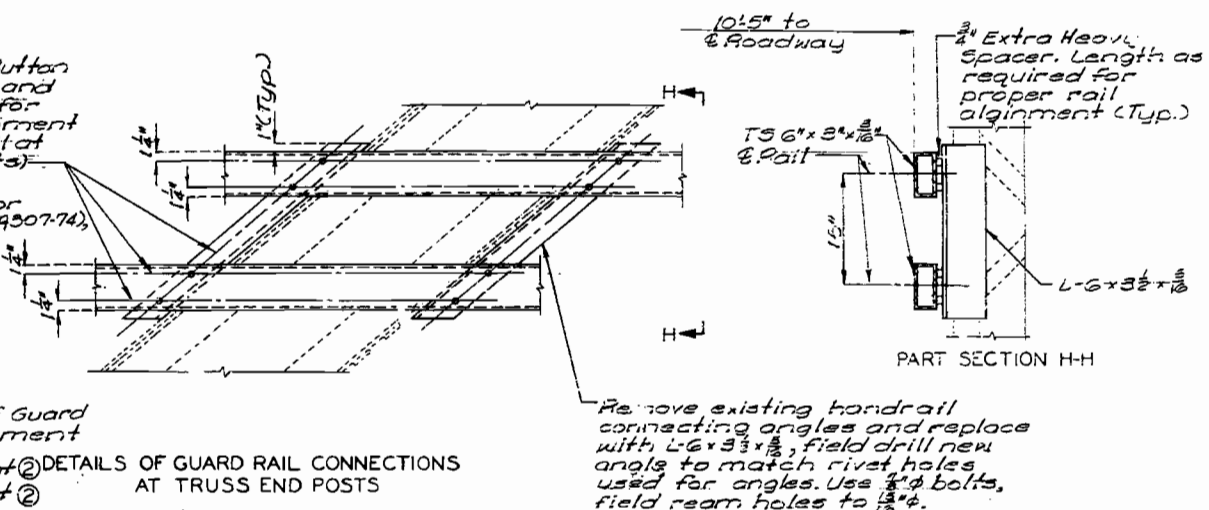
Note: Railings shall be fabricated in two or three panel lengths unless otherwise approved.
Rail posts, all steel connecting bolts, washers and connection plates shall be galvanized after fabrication. For protective coating and material requirement see section 1040 of standard specifications and "Painting in the Special Provisions."
Structural steel tube railing shall be galvanized same as steel rail post and conform to the requirement of ASTM designation A500 or A501.
Splice in rails shall be provided at about the 1/2 point between posts.
Fabrication of structural steel shall be in accordance with section 712 of standard specifications.
For rail post spacing and other connection details see sheets No. 15 and 16.



DETAIL "A"

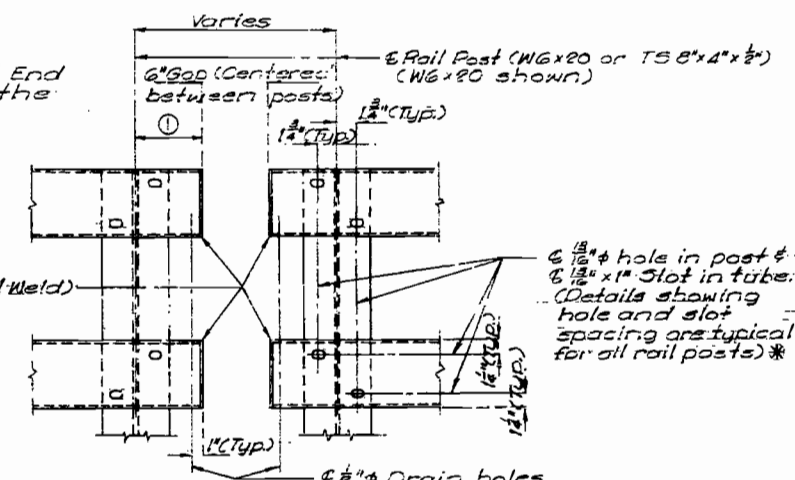
DETAIL "B"

DETAIL "C"



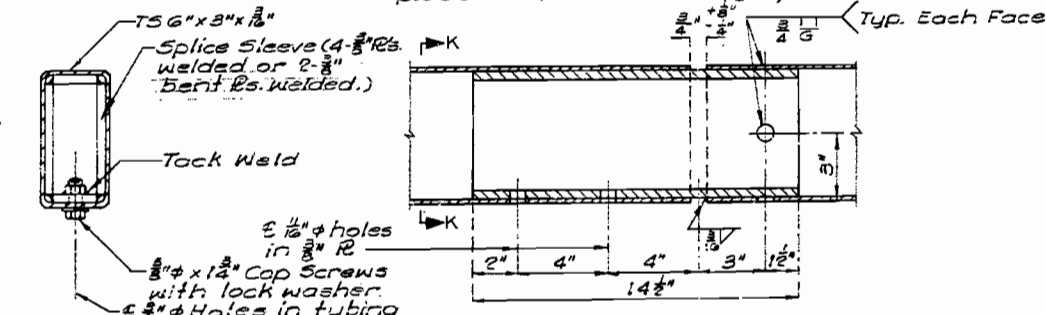
PART SECTION H-H

Remove existing handrail connecting angles and replace with L-6 x 3 x 1/2, field drill new angles to match rivet holes used for angles. Use 1/2 inch bolts, field ream holes to 1/2 inch.



RAIL DETAILS AT EXP. JOINTS AND AT RAIL ENDS AT END ABUTMENTS

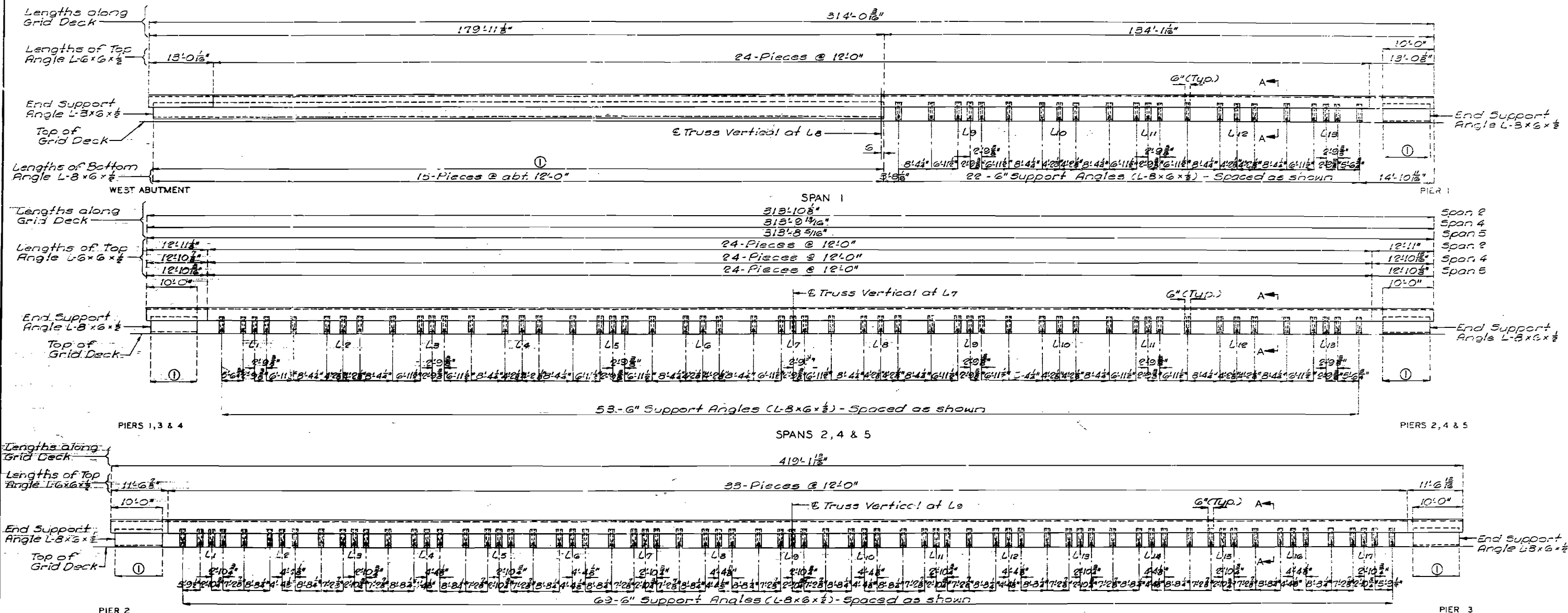
* Optional use of 3/4 inch studs to be fastened to TS 6 inch by 3 inch by 1/2 inch in place of 3/4 inch Button Head Bolts (shop or field applied) 1/2 inch Extra heavy spacer to be used in place of 3/4 inch Extra heavy spacer.



SECTION K-K

DETAIL OF RAIL SPLICE

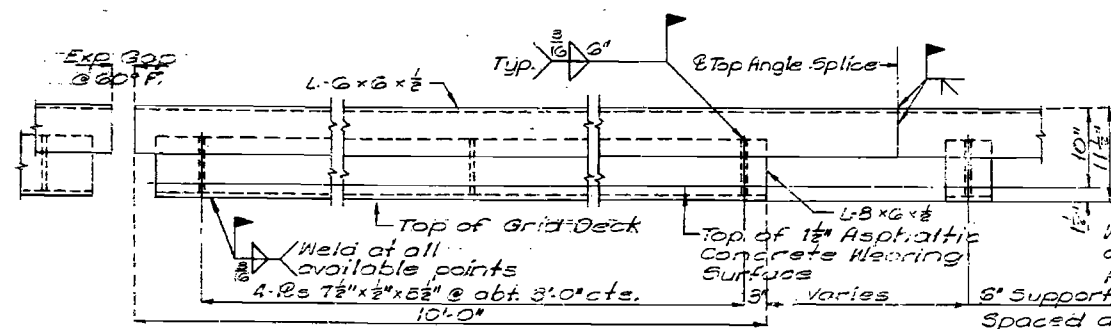
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	23	



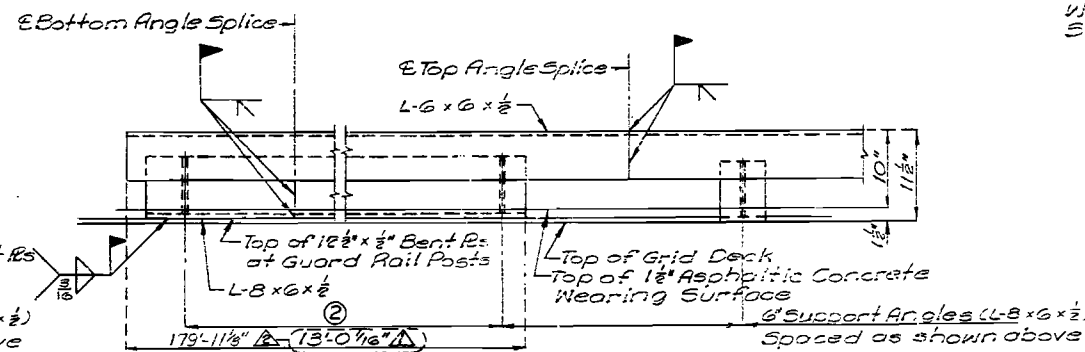
② Place Rs 7 1/2"x5 1/2"x1/2" at abt 3'-0" cts. near West Abutment and center 1-R 7 1/2"x5 1/2"x1/2" between each guard rail post, see Part Section "A-A" for welding of plates.
Place 3-Rs as shown in Detail "A" on sheet No. 17 at each guard rail post.
No. 16-A

① Length and details as required for expansion device. See sheets No. 13 and 14 for details of expansion devices.

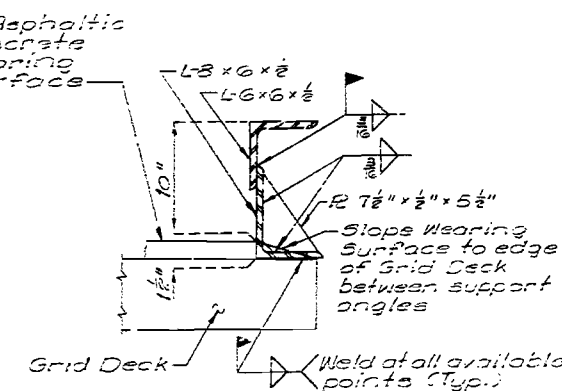
Note: Longitudinal dimensions shown are based on lengths shown on original design plans and on a 3/8" @ 60°F expansion gap at Piers No. 1, 2 & 4, 4/8" @ 60°F expansion gap at Piers No. 3 & 5, and on an expansion gap of 1 1/2" @ 60°F at the stream face of the West Abutment. Adjust the lengths of the end support angles if expansion gaps other than those shown are used.



PART ELEVATION OF CURB NEAR PIERS NO. 1, 2, 3, 4 & 5



PART ELEVATION OF CURB ON TRUSS SPANS



PART SECTION A-A

DETAILED MAR 1950
CHECKED Mar 1950

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

DETAILS OF CURB ON TRUSS SPANS

Sheet No. 13 of 20. Revised 4-15-82
Revised 12-15-81

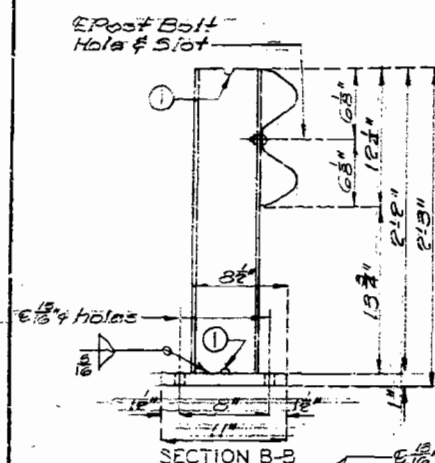
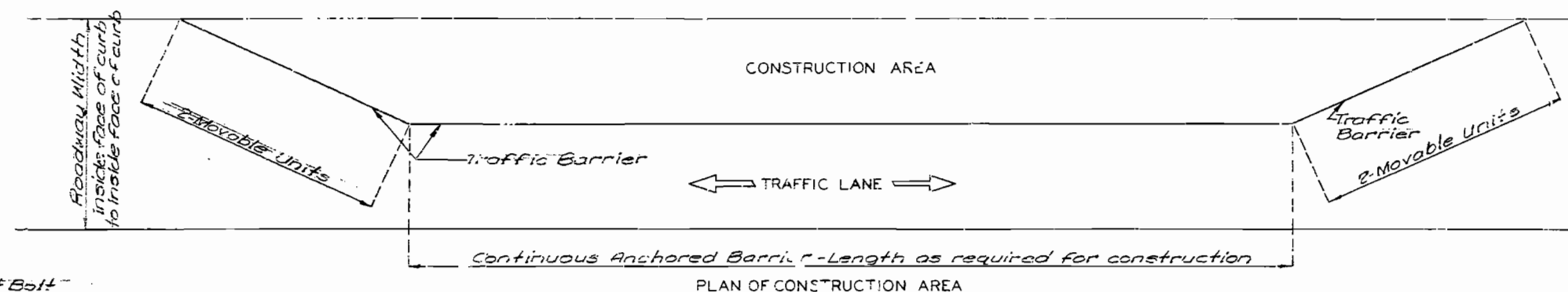
PIKE COUNTY MISSOURI
PIKE COUNTY ILLINOIS

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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	24	

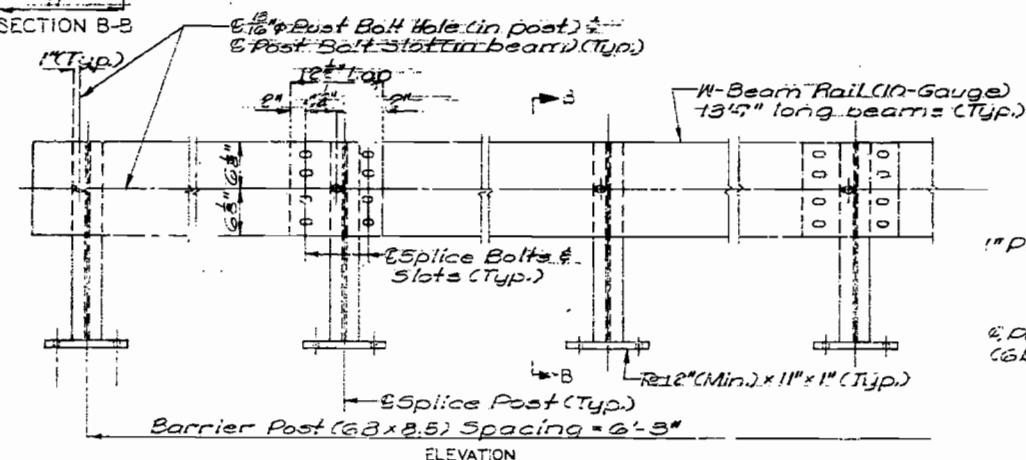
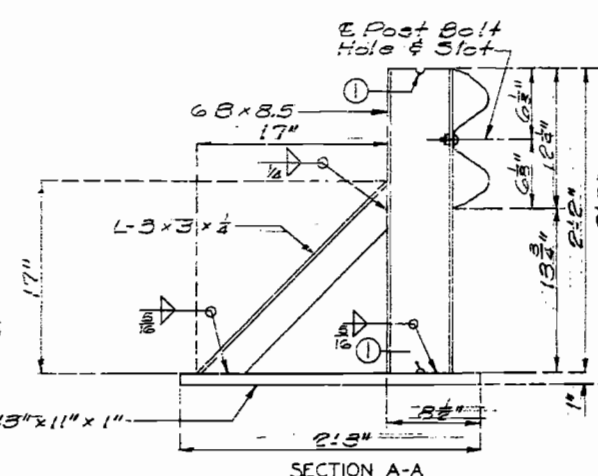
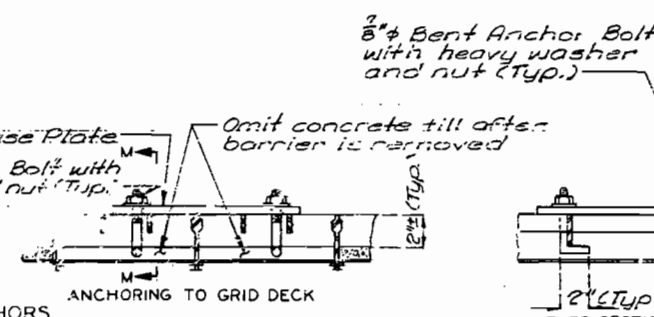
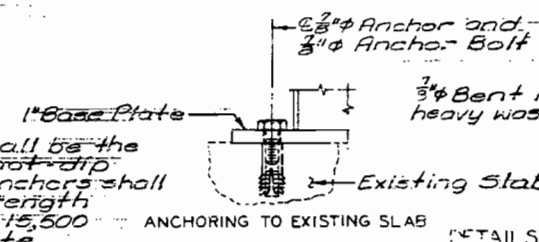
GENERAL NOTES

Painting or galvanizing temporary traffic barrier is not required. All posts, plates and angles to be A36 steel. See Special Provisions for maintaining traffic during construction.

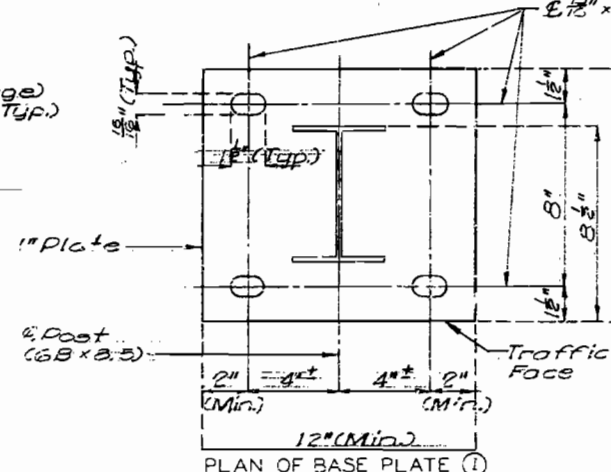


- Permissible semi-circular notches in ends of web centered on axis of post.

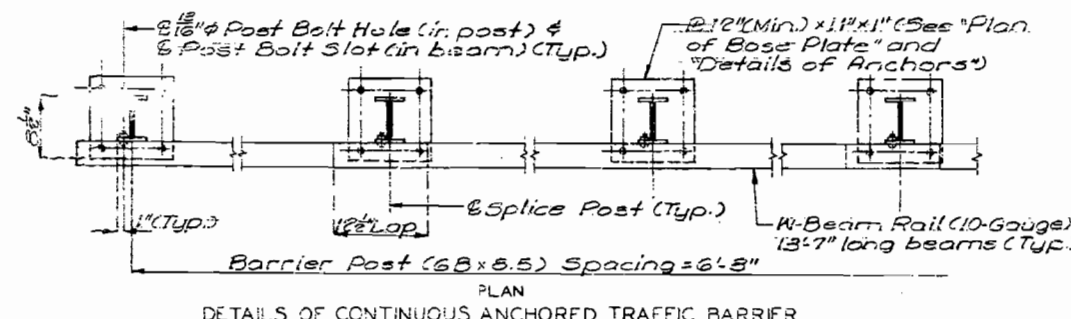
Note: Concrete Anchors shall be the cone expansion type for post and splice bolts. Concrete Anchors shall have a concrete pull-out strength (ultimate load) of at least 15,500 pounds in 3,000 psi concrete.



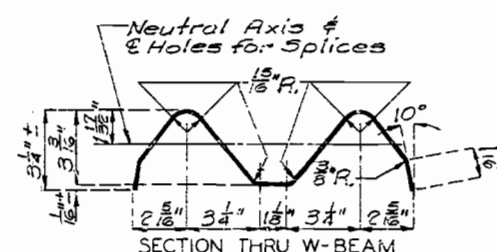
Note: Holes for Post and Splice Bolts shall be 3/4". Slots for Post and Splice Bolts shall be 3/4" x 2 1/2".



POST AND SPLICE BOLTS: Bolts shall be 3/4" x 2" Button Head (oval shoulder) galvanized Bolt with one galvanized flat washer.

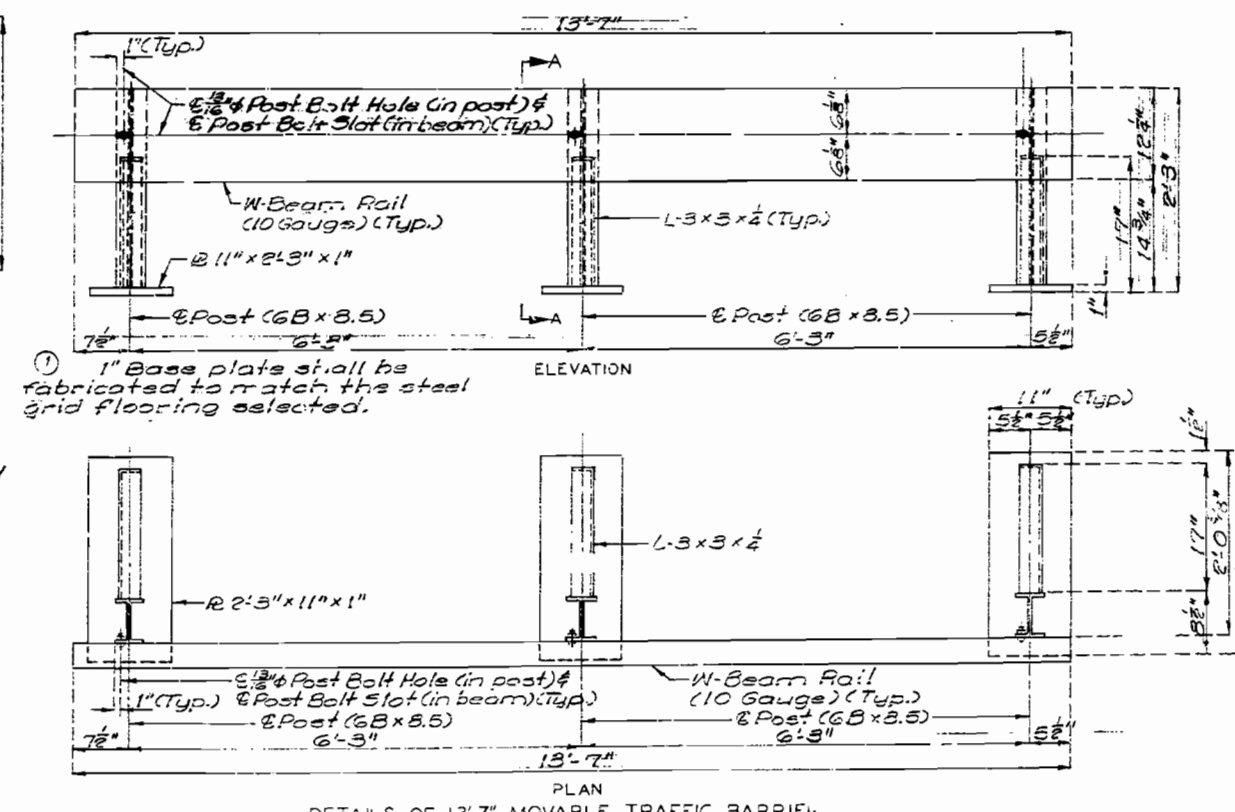


DETAILS OF CONTINUOUS ANCHORED TRAFFIC BARRIER



TEMPORARY TRAFFIC BARRIER FOR BRIDGE CONSTRUCTION

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



DETAILS OF 13-7" MOVABLE TRAFFIC BARRIER

DETAILED Nov. 1978
CHECKED Mar. 1980

Sheet No. 19 of 20.

PIKE COUNTY MISSOURI
PIKE COUNTY ILLINOIS

K-932R

A 17

STD. 90.6	REVISED
MAY 1974	OCT 1978



Sheet No. 20 of 20.

FED. ROAD DIST. NO.	STATE	FED. AID PRGJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	25	

90°

135°

STIRRUP HOOK DIMENSIONS				
GRADES 40-50-60 KSI				
BAR SIZE	D (IN.)	90° HOOK	135° HOOK	APPROX. H
		HOOK A OR G	HOOK A OR G	
#3	1-1/2"	4"	4"	2-1/2"
#4	2"	4-1/2"	4-1/2"	3"
#5	2-1/2"	6"	5-1/2"	3-3/4"
#6	4-1/2"	8"	7"	4-1/2"

NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.

180°

90°

SIZE OF 180° HOOKS (GRADE 40 KSI)

D = 5d 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	180° HOOKS				90° HOOKS
	GRADE 40		GRADE 60		ALL GRADES
	A OR G	J	A OR G	J	A OR G
#3	5"	2-3/4"	5"	3"	6"
#4	6"	3-1/2"	6"	4"	8"
#5	7"	4-1/2"	7"	5"	10"
#6	8"	5-1/4"	8"	6"	12"
#7	9"	6-1/4"	10"	7"	14"
#8	10"	7"	11"	8"	16"
#9	12"	8"	15"	11-1/4"	19"
#10	13"	9"	17"	12-3/4"	22"
#11	14"	10"	19"	14-1/4"	21-0"
#14	21-2"	20-1/2"	21-2"	20-1/2"	21-7"
#18	21-11"	21-3"	21-11"	21-3"	31-5"

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.

* A:1. HOOKS AND BENDS FOR SHAPE NO. 12 - GRADE 40 (ONLY) ARE BASED ON D = 5d.

SHAPE 50

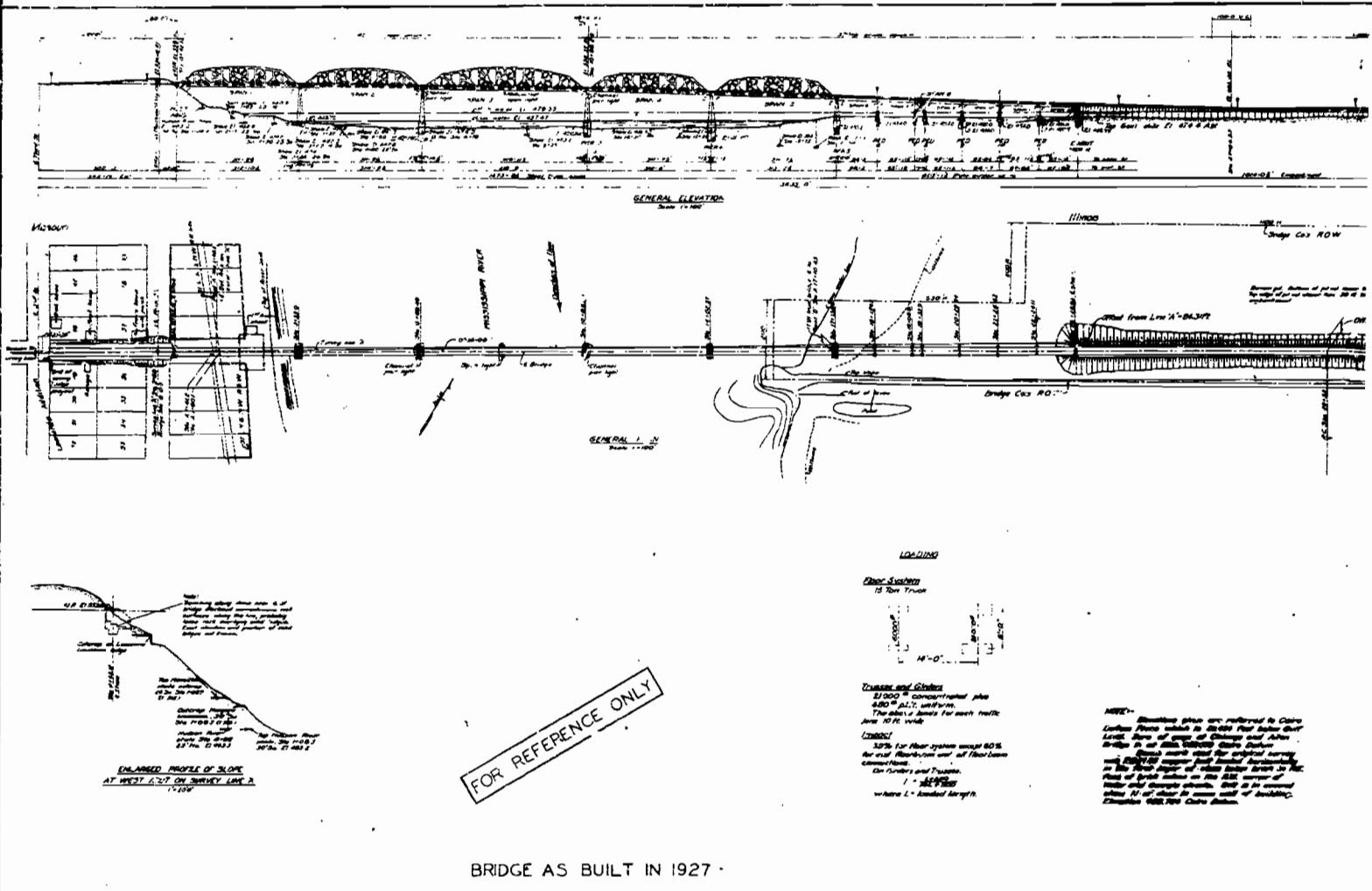
Note: Rad. is "B" for Shape 50 varies in equal increments between dimensions shown in Column "B". Rad. is proportional to bar lengths.

Note: Rad. is "B" for Shape 50 varies in equal increments between dimensions shown in Column "B". Rad. is proportional to bar lengths.

PIKE COUNTY MISSOURI	K-932R
PIKE COUNTY ILLINOIS	

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MO.		3	6	



ESTIMATED QUANTITIES				
ITEM	SUBSTR.	SUPERSTR.	TOTAL	
Removal of Existing Bridge Deck	Sq. Ft.	47,936	47,936	
Asphaltic Cement (Asphaltic Concrete)	Ton.	20.0	20.0	
Mineral Aggregate (Asphaltic Concrete) (Type A Mix)	Ton.	396	396	
Bridge Deck Winter Freezing (Liquid)	Sq. Ft.	5,143	5,143	
Class B1 Concrete - Substructure Repair (Columns)	Sq. Yd.	723.1	723.1	
Elastomeric Expansion Joint Seal (20 inches)	Lin. Ft.	20	20	
Elastomeric Expansion Joint Seal (30 inches)	Lin. Ft.	20	20	
Elastomeric Expansion Joint Seal (40 inches)	Lin. Ft.	20	20	
Elastomeric Expansion Joint Seal (60 inches)	Lin. Ft.	40	40	
Preformed Compression Expansion Joint Seal (22 inches)	Lin. Ft.	40	40	
Reinforcing Steel	Lb.	8,780	8,780	
Substructure Repair (Pier Caps)	Sq. Ft.	1755.2	1755.2	
See Special Provisions	Sq. Yd.	4.0	4.0	
Fabricated Structural Carbon Steel (Miscellaneous) See Special Provisions	Lb.	278,410	278,410	
Fabricated Structural Carbon Steel (Floor Beam Repair)	Lin. Ft.	82	82	
Fabricated Structural Low Alloy Steel (A514)	Lb.	2,370	2,370	
Temporary Construction Traffic Barrier	Linear Feet	1	1	
See Special Provisions	Linear Feet	1	1	
Painting (System B) Green	Sq. Yd.	1	1	
See Special Provisions	Sq. Yd.	1	1	
Steel Grid Floor (Half Concrete Filled)	Sq. Ft.	47,870	47,870	
Bridge Rail - 2 Tube Structural Steel	Lin. Ft.	4560	4,560	
Protective Coating For Concrete Bridge	Linear Feet	1	1	

GENERAL NOTES:

Design Loading:
Grid Deck (Half Concrete Filled) - H20-44

Design Unit Stresses:
Class B1 Concrete (substructure repair) $f_c = 1,600$ psi
Class B1 Concrete (Grid Deck) $f_c = 1,600$ psi
Reinforcing Steel (Grade 60) $f_y = 60,000$ psi
Structural Carbon Steel $f_s = 20,000$ psi
Structural Carbon Steel (A514) Bearing Collar Plates only $f_s = 55,000$ psi

Traffic Maintained:
Traffic over structure was maintained during construction. (See Special Provisions)

Navigation and Clearance Lights:
All navigation and clearance lighting was kept in operation during all construction.

Reinforcing Steel:
Minimum clearance to reinforcing steel was 1 1/2" unless otherwise shown.

Structural Steel:
Structural Steel Was A36 except as noted.

Old and New Work:
Outline of old work was indicated by light dashed lines. Heavy lines indicate new work. Bars bonded in old concrete not removed were clearly stripped and embedded into new concrete where possible. If length is available, old bars do extend into new concrete at least 40 diameters for smooth bars and 30 diameters for deformed bars.

Profile Grade:
No "Profile Grade Elevation" are given. A smooth traffic surface was obtained, top of expansion devices conform to crown and slope of roadway surface.

Minimum Vertical Clearance:
The final minimum vertical clearance from the top of the "Asphalt Concrete Wearing Surface" to the bottom of the lowest overhead horizontal truss member is 15'-6"

Painting: Shop Nons; Field, System B Green. See Special Provisions.

Dimensions:
Contractor measured all dimensions in the field before ordering new steel.

PLANS FOR REDECKING AND REPAIR

BRIDGE OVER MISSISSIPPI RIVER

ROUTE 54
AT LOUISIANA, MISSOURI

PROJECT NO. B4F-54-4(12) STA. 0+42.12 E BRG

JOB NO. 3-P-54-135 RTE 54
PIKE COUNTY MISSOURI
PIKE COUNTY ILLINOIS
DATE 6-12-81

DESIGNED OCT. 1978
DETAILED NOV. 1978
CHECKED NOV. 1978

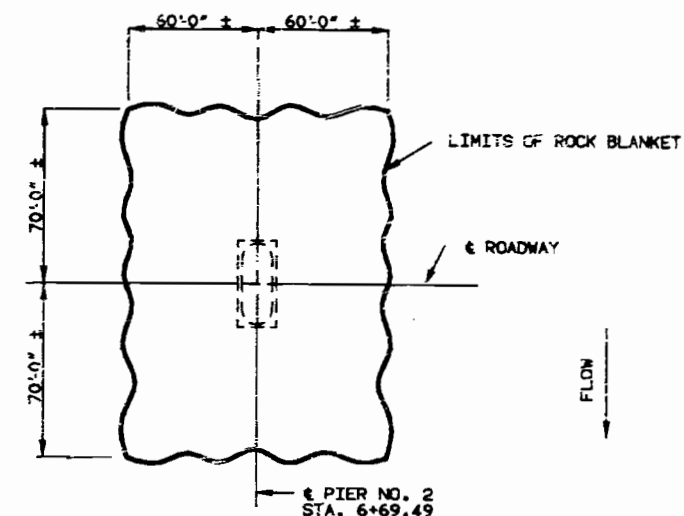
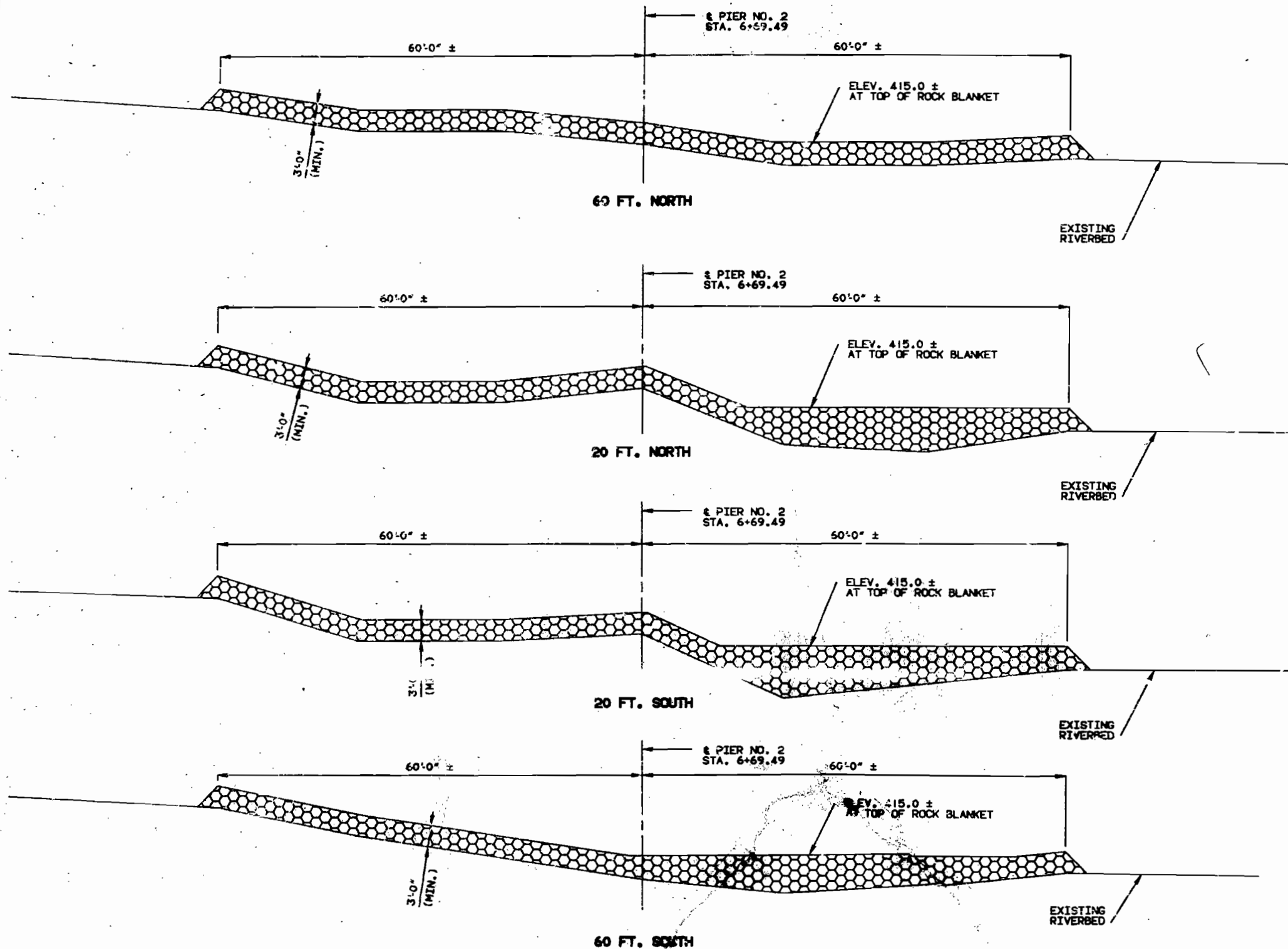
Note: This drawing is not to scale. Refer dimensions.

Sheet No. 11 of 20.

STD.
STD.
K-932 R

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE NO.	J3P0433	SHEET NO.
DIST NO.	PROJECT NO.	3
3	COUNTY PIKE	ROUTE 54



PLAN - PIER NO. 2

NOTES:

ESTIMATED QUANTITY FOR TYPE 2 ROCK BLANKET IS 2340 CU. YD.
RIVERBED PROFILE TAKEN FROM SURVEY DATED 11-13-91.

NATURAL CHANGES IN THE EXISTING CHANNEL MAY HAVE OCCURRED DURING THE LAPSED TIME AND COULD RESULT IN AN OVERRUN OR UNDERCUT OF CONTRACT QUANTITIES.

ROCK BLANKET SHALL BE PLACED A MINIMUM OF 3'-0" THICK AND AT LEAST TO ELEV. 415.0 ±.

CARE SHALL BE EXERCISED TO INSURE THAT PIER 2 IS NOT DAMAGED WHILE WORK IS BEING PERFORMED AROUND IT.

BENCH MARK U.S.C. & G.S. DATUM

CHISLED "++" ON TOP OF WEST BRIDGE ABUTMENT OF BRIDGE NO. K-932R
23' LT. OF RTE. 54 CENTERLINE - ELEV. = 533.78

BRIDGE OVER MISSISSIPPI RIVER

STATE ROAD U.S. ROUTE 54
AT LOUISIANA

PROJECT NO.
JOB NO. J3P0433

STA. 6+69.49± & 10+88.24±
RTE. 54

PIKE

COUNTY

K-932R

DESIGNED JULY 1992
DETAILED JULY 1992
CHECKED JULY 1992

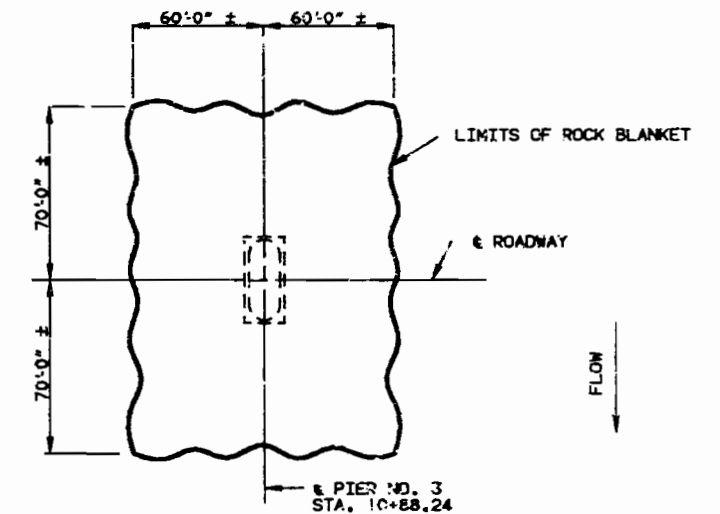
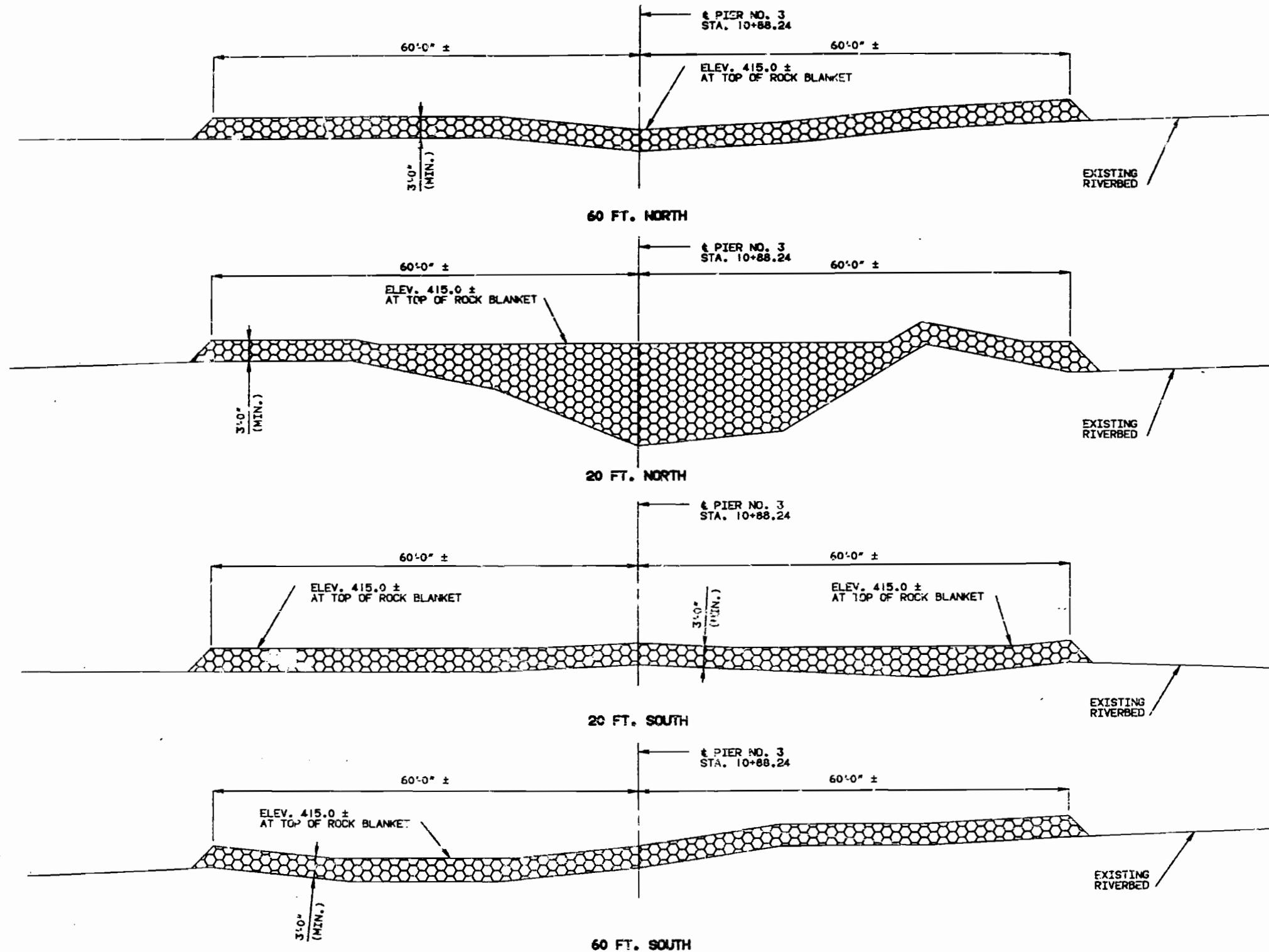
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SHEET NO. 1 OF 2.

DATE:

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE MO.	JOB NO. J3P0433	SHEET NO. 4
DIST NO. 3	PROJECT NO.	ROUTE 54
	COUNTY PIKE	



PLAN - PIER NO. 3

NOTES:

- ESTIMATED QUANTITY FOR TYPE 2 ROCK BLANKET IS 2670 CU. YD.
- RIVERBED PROFILE TAKEN FROM SURVEY DATED 11-13-91.
- NATURAL CHANGES IN THE EXISTING CHANNEL MAY HAVE OCCURED DURING THE LAPSED TIME AND COULD RESULT IN AN OVERRUN OR UNDERRUN OF CONTRACT QUANTITIES.
- ROCK BLANKET SHALL BE PLACED A MINIMUM OF 3'-0" THICK AND AT LEAST TO ELEV. 415.0 ±.
- CARE SHALL BE EXERCISED TO INSURE THAT PIER 3 IS NOT DAMAGED WHILE WORK IS BEING PERFORMED AROUND IT.

BENCH MARK U.S.C. & G.S. DATUM

CHISLED "X" ON TOP OF WEST BRIDGE ABUTMENT OF BRIDGE NO. K-932R
23' LT. OF RTE. 54 CENTERLINE - ELEV. = 533.78

BRIDGE OVER MISSISSIPPI RIVER

STATE ROAD U.S. ROUTE 54
AT LOUISIANA

PROJECT NO.
JOB NO. J3P0433

STA. 6+69.49± & 10+88.24±
RTE. 54

PIKE

COUNTY

K-932R

DESIGNED JULY 1992
DETAILED JULY 1992
CHECKED JULY 1992

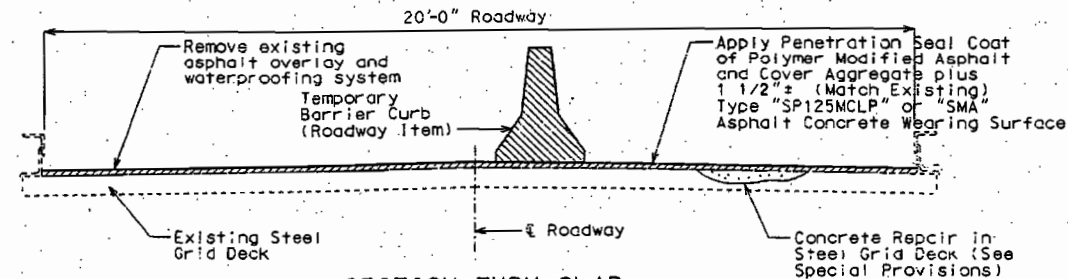
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS.

SHEET NO. 2 OF 2.

DATE:

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

State	Proj. No.	Sheet No.
MO		51
SEC/SUR 18	TWP 54N RGE 1W	



SECTION THRU SLAB

Note: Chip vertically first 1/2" of all concrete repair. Hydrablastering allowed by Special Provisions

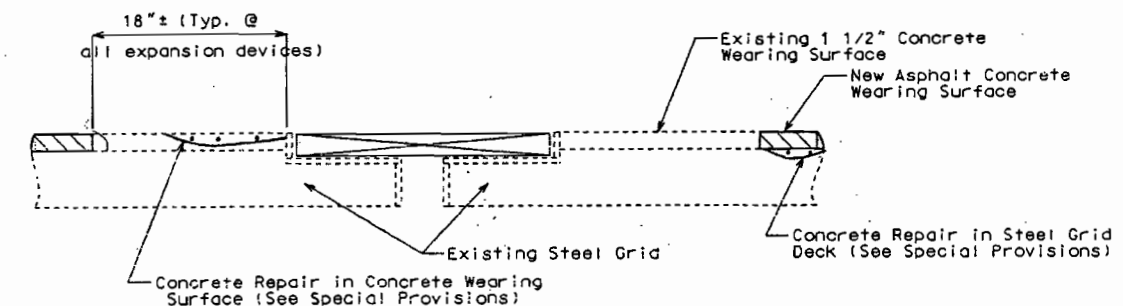
GENERAL NOTES:

- OLD WORK:**
Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.
- MAINTAIN TRAFFIC:**
Maintain one lane of traffic on structure during construction. (See Road Plans)
- VERIFY DIMENSIONS:**
Contractor shall verify all dimensions in field before ordering new steel.
- PLAN DIMENSIONS:**
Plan dimensions are based on installation at 60° F. The expansion gap and other dimensions shall be adjusted during installation for compliance with any temperature change.
- Note: Roadway surfacing adjacent to bridge ends to match bridge overlay.

ESTIMATED QUANTITIES		
ITEM		TOTAL
Asphalt Removal (Bridges)	sq. ft.	46,321
Alternate Asphaltic Concrete Wearing Surface (Bridge)	sq. yd.	5143
Polymer Modified Asphalt (Seal Coat)	gal.	1833
Cover Aggregate	ton	64
Concrete Repair in Steel Grid Deck	sq. ft.	100
Concrete Repair in Concrete Wearing Surface	sq. ft.	150
Strip Seal Expansion Joint System (4 in.)	lin. ft.	62
Strip Seal Expansion Joint System (5 in.)	lin. ft.	21
Modification of Existing Expansion Joint	lin. ft.	34

Estimated Quantities for Alternate Asphaltic Concrete Wearing Surface				
Type of Wearing Surface	Asphaltic Cement (tons)	Mineral Aggregate (tons)	SMA Fibers (pounds)	Mix Used (✓)
SP125MCLP	24.5	398	----	
Limestone Porphyry SMA Mix	26.2	392	2660	

MoDOT construction personnel shall complete column labeled "Mix Used (✓)".
Type PG70-22 performance graded asphalt binder is required in the asphaltic concrete mix for the bridge deck overlay.
The polymer modified asphalt shall be applied at the rate of 0.35 gal. per sq. yd..
The cover aggregate shall be applied at a rate of 0.0125 tons per sq. yd..



PART LONGITUDINAL SECTION SHOWING CONCRETE REPAIR AT EXPANSION DEVICES
(Elastomeric expansion device shown, other expansion devices similar.)



REPAIRS TO:
BRIDGE OVER MISSISSIPPI RIVER

AT LOUISIANA, MISSOURI
PROJECT NO. STA. 0+42.12± (MATCH EXISTING)
JOB NO. J3M0006 RTE. 54

PIKE COUNTY MISSOURI
PIKE COUNTY ILLINOIS

STD.
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STD.
STD.
K09323

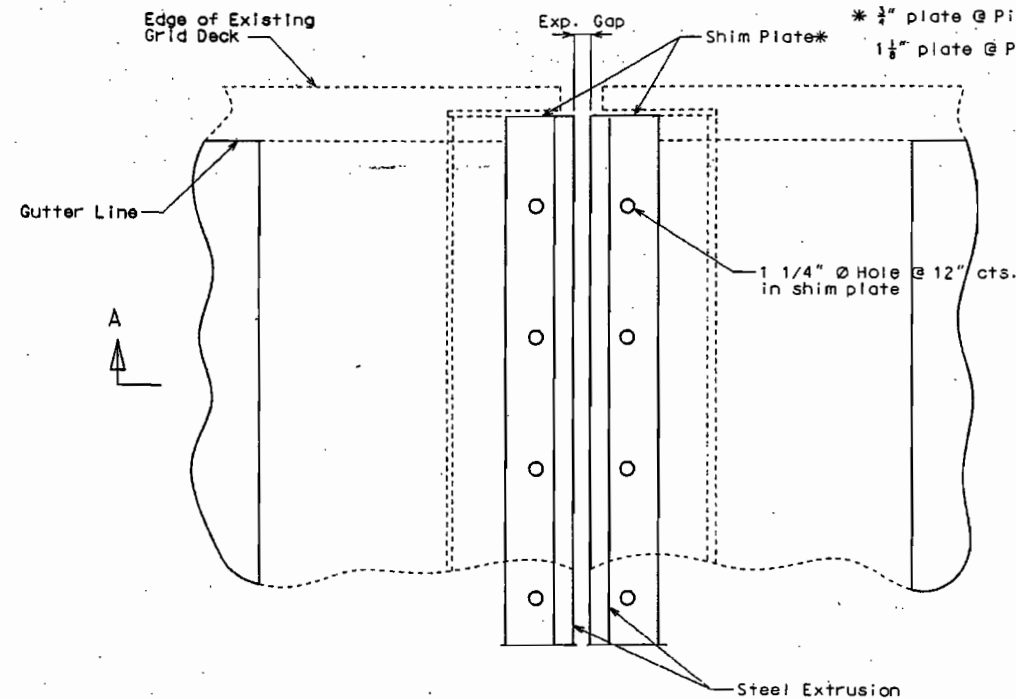
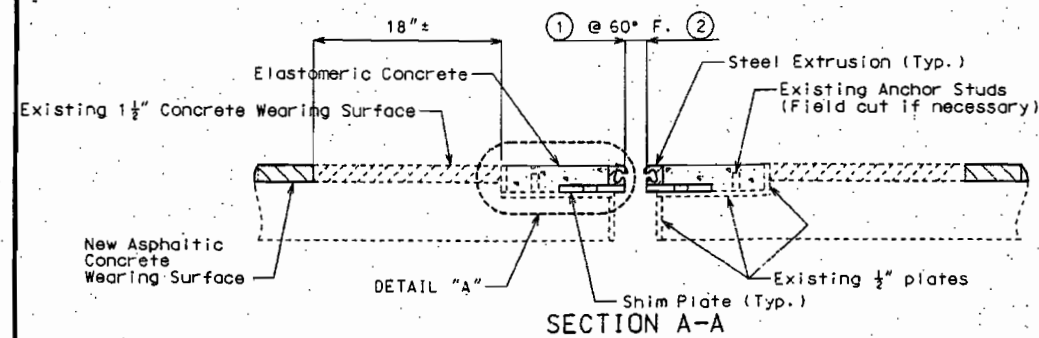
Designed Dec. 1998
Detailed Dec. 1998
Checked Dec. 1998

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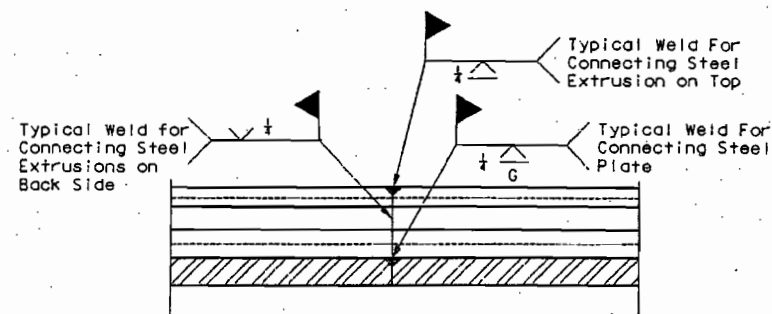
Sheet No. 1 of 2.

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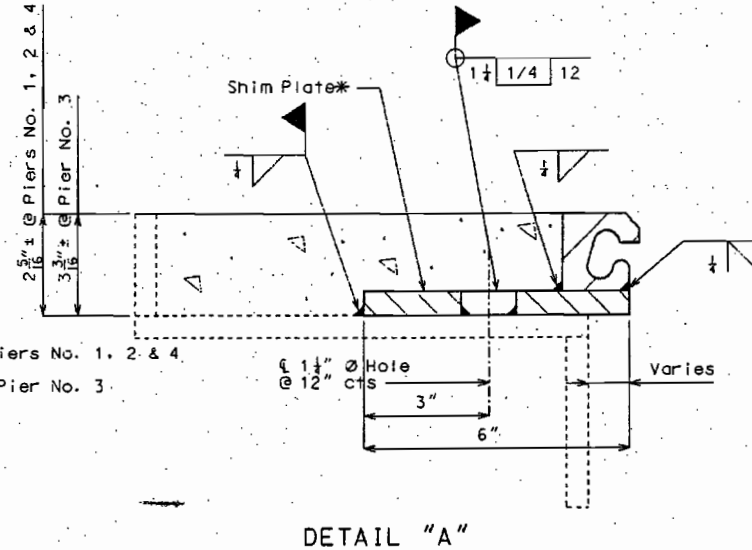
State	Proj. No.	Sheet No.
MO		B 2



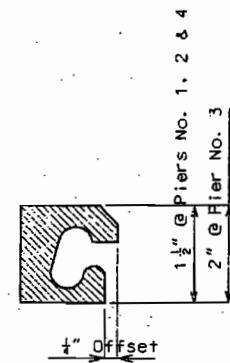
Note: Extend steel shim plate and extrusion to existing vertical steel armor in curb.



DETAIL OF EXTRUSION & SHIM PLATE SPLICE



Note: Center the new expansion gap on the existing joint opening.



DETAIL OF STEEL EXTRUSIONS

NOTE:

The expansion device shall be fabricated and installed in accordance with the recommendations of the manufacturer, and as set forth in the Special Provisions.

The contractor must verify all dimensions prior to fabrication.

All welds shall conform to Section 712 of the Standard Specifications.

Splices of steel extrusion shall develop full strength.

All steel shall be ASTM A709 Grade 36, except steel extrusions shall be ASTM A709 Grade 50W or Grade 36.

Neoprene Strip Seal shall meet ASTM D-2628.

Payment for steel extrusions, steel shim plates and neoprene strip seal shall be made under the contract unit price for Strip Seal Expansion Joint System.

Structural steel for the expansion joint system shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum) or galvanized in accordance with ASTM A123. The interior portion of the extrusion which will be in contact with the gland shall not be coated.

Payment for furnishing, coating or galvanizing and placing shim plates and extrusions shall be included in the contract unit price for Strip Seal Expansion Joint System.

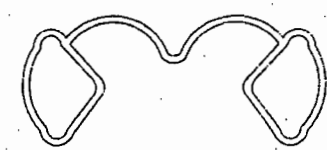
Gap for new strip seal expansion device must be less than the existing joint opening.

Payment for removal of existing expansion device and preparation for installation of new expansion device shall be included in the contract unit price for Modification of Existing Expansion Joint. (See Special Provisions)

- ① 2" for Piers No. 1, 2 & 4
2 1/4" for Pier No. 3

Note: Dimension ② shall be increased ** for each 10° fall in temperature and decreased ** for each 10° rise in temperature at installation.

** = 1/4" for Piers No. 1, 2 & 4
5/16" for Pier No. 3



STRIP SEAL GLAND
MOVEMENT RATING
4" (PIERS NO. 1, 2 & 4)
5" (PIER NO. 3)

Note: Strip Seal Gland shall be continuous. Field splicing shall not be allowed.



DETAILS OF STRIP SEAL EXPANSION JOINT SYSTEM AT PIERS 1, 2, 3 & 4

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

Sheet No. 2 of 2.

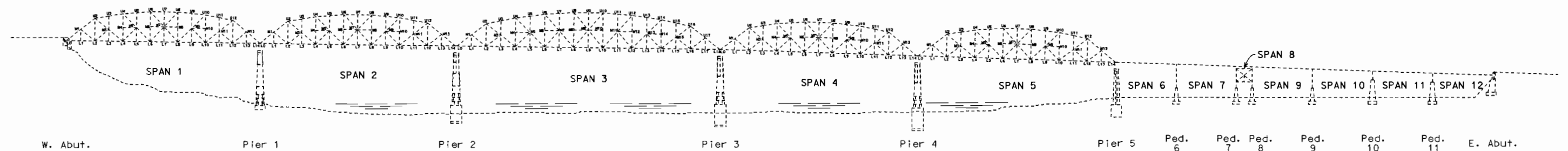
PIKE COUNTY MISSOURI
PIKE COUNTY ILLINOIS

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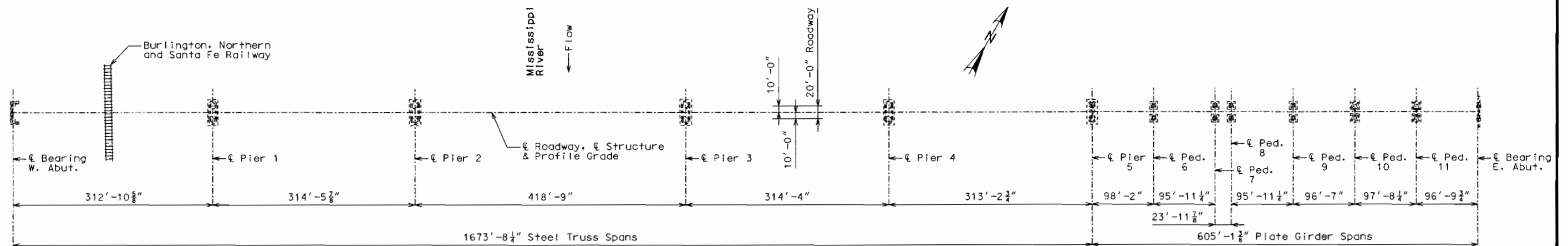
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MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION
REHABILITATE AND OVERCOAT
U.I.P. EXISTING (314', 314', 417', 314', 314') THRU TRUSS SPANS AND
(96'-96'-24'-96'-96', 96', 96') NON-REDUNDANT PLATE GIRDER SPANS

State	Proj. No.	Sheet No.
MO		B1
SEC/SUR 18	TWP 54N RGE 1W	



GENERAL ELEVATION

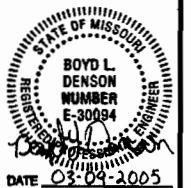


PLAN

Note:

For General Notes, see Sheet No. 2.

For Estimated Quantities, see Sheet No. 3.



DATE 03-04-2005

REPAIRS TO:
BRIDGE OVER MISSISSIPPI RIVER & BNSF RAILWAY

AT LOUISIANA, MISSOURI

PROJECT NO.

JOB NO. J3P0673

STA. 0+42.12± (Match Ex1st.)

RTE. 54

Designed June 2004
Detailed Nov. 2004
Checked Jan. 2005

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

Sheet No. 1 of 19

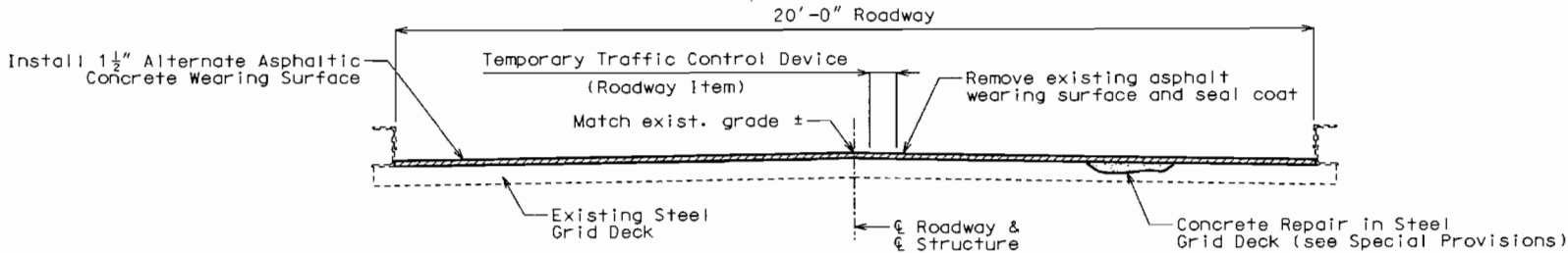
PIKE COUNTY

Date: 3/1/05

STD. 902.15
K09324

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State	Proj. No.	Sheet No.
MO		B2



General Notes:

Design Specifications:

2002 - AASHTO 17th Edition
Load Factor Design
Seismic Performance Category A
Bridge Deck Rating = 7

Design Loading:

H15 (1926); H20-44 (1978 Filled Grid Deck & New Bearings)
No Future Wearing Surface

Design Unit Stresses:

Class B-1 Concrete $f'_c = 4,000$ psi
Structural Carbon Steel (ASTM A709 Grade 36) $f_y = 36,000$ psi
Structural Steel (ASTM A709 Grade 50) (Bearing extensions and rocker plates) $f_y = 50,000$ psi

Reinforcing Steel:

Minimum clearance to reinforcing steel shall be 1-1/2", unless otherwise shown.

Verify Dimensions:

Contractor shall verify all dimensions in field before ordering new material.

Traffic Control:

Traffic over structure to be maintained during construction.

See roadway plans for traffic control during construction.

Maintain Grade:

In order to maintain grade and a minimum thickness of overlay as shown on plans it may be necessary to use additional quantities of overlay at various locations throughout the structure. The cost of furnishing and installing the overlay will be considered completely covered in the contract unit price, including all additional labor, materials or equipment for variations in thickness of overlay.

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.

Fabricated Steel Connections:

Field connections shall be made with 3/4" diameter high strength bolts and 13/16" diameter holes, except as noted.

Structural Steel Protective Coatings:

Protective Coating: Recoat all existing ungalvanized steel including bearings, exposed grid beams, grid form pans, and curbs with 3 coat system of calcium sulfonate. Calcium sulfonate three coat system shall be in accordance with Sec 1081.

Surface Preparation:

Truss spans: Except for the grid form pans, surface preparation of all existing ungalvanized steel located in the splash zone shall be in accordance with Sec 1081 for "Recoating of Structural Steel (System G)" except that blast cleaning to SSPC-SP6 instead of SSPC-SP10 shall be performed on all exposed and accessible surfaces. Surface preparation of grid form pans and all existing steel above the splash zone shall be in accordance with Sec 1081 for "Overcoating of Structural Steel (Calcium Sulfonate System)".

Plate Girder Spans Adjacent to Joints: Except for the grid form pans, surface preparation of all existing ungalvanized steel located in the splash zone and within fifteen feet adjacent to expansion joints shall be in accordance with Sec 1081 for "Recoating of Structural Steel (System G)" except that blast cleaning to SSPC-SP6 instead of SSPC-SP10 shall be performed on all exposed and accessible surfaces. Surface preparation of grid form pans shall be in accordance with Sec 1081 for "Overcoating of Structural Steel (Calcium Sulfonate System)".

Plate Girder Spans: Surface preparation of curbs, exterior face of exterior girders and bottom surface of bottom flange of exterior girders outside of the fifteen feet adjacent to expansion joints shall be in accordance with Sec 1081 for "Recoating of Structural Steel (System G)" except that blast cleaning to SSPC-SP6 instead of SSPC-SP10 shall be performed on all exposed and accessible surfaces. Surface preparation of all other ungalvanized steel in this region shall be in accordance with Sec 1081 for "Overcoating of Structural Steel (Calcium Sulfonate System)".

Surface Preparation (cont.):

The cost of surface preparation will be considered completely covered by the contract lump sum price for "Surface Preparation for Overcoating Structural Steel".

The splash zone is defined as the entire superstructure including the bearings up to ten feet above the top of the bridge deck surface.

Chlorides shall be removed from the surfaces of all structural steel. (See Special Provisions)

Loose and detached panels under the grid deck shall be removed. This work will be considered completely covered by the contract lump sum price for "Surface Preparation for Overcoating Structural Steel".

Damaged overhead signs attached to portals shall be straightened if necessary and missing letters replaced with similar letters. Dedication plaques on end posts shall be removed and reattached after surface of end posts have been repainted. This work will be considered completely covered by the contract lump sum price for "Surface Preparation for Overcoating Structural Steel".

Rust Penetrating Sealer: The rust penetrating sealer shall be applied to the surfaces of all bearings, overlapping steel plates, pin connections, pin and hanger connections and other locations where rust bleeding, pack rust and layered rust is occurring. The cost of the rust penetrating sealer will be considered completely covered by the contract lump sum price for "Calcium Sulfonate Rust Penetrating Sealer".

Prime Coat: The cost of the prime coat will be considered completely covered by the contract lump sum price for "Calcium Sulfonate Primer".

Prime Coat (New Steel): The cost of the prime coat shall be included in the contract unit price of the fabricated structural steel. Tint of the prime coat for System G shall be similar to the color of the field coat to be used.

Top Coat: The color of the topcoat shall be Gray (Federal Standard #26373). The cost of the topcoat will be considered completely covered by the contract lump sum price for "Calcium Sulfonate Topcoat".

The Calcium Sulfonate topcoat shall be applied to the System G prime coat for new steel. The cost of the topcoat will be considered completely covered by the contract lump sum price for "Calcium Sulfonate Topcoat".

Maintenance of Bridge Deck Surface:

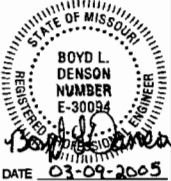
The contractor shall install a temporary bituminous wedge at all expansion joints in accordance with section 622.10.3.3 after the existing asphalt wearing surface has been removed and prior to the re-opening of the bridge to traffic. The wedge shall stay in place and be maintained until the time the bridge is closed to place the new asphalt wearing surface. The contractor shall also perform all maintenance on the bridge deck during the project duration, including installation and maintenance of temporary striping. Cost for maintenance on the bridge deck, placing and removing temporary wedges and providing temporary marking will be considered completely covered in the contract unit price of other items.

Miscellaneous:

Outline of old work is indicated by dashed lines. Heavy lines indicate new work.

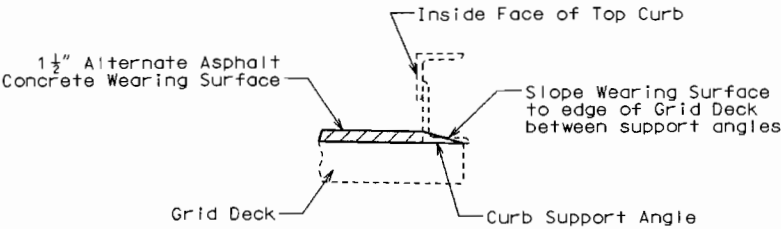
"Sec" refers to the sections in the standard and supplemental specifications unless specified otherwise.

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.



Estimated Quantities		
Item		Total
Removal of Asphalt Wearing Surface	sq. foot	44,874
Removal of Existing Expansion Joints & Adjacent Concrete	linear foot	40
Removal of Existing Expansion Joint Seal or Sealant	linear foot	100
Alternate Asphaltic Concrete Wearing Surface (Bridge)	sq. yard	4,986
Seal Coat, Grade A	sq. yard	4,986
Polymer Concrete	cu. foot	10
Clearance Gauge	lump sum	1
Substructure Repair (Formed)	sq. foot	150
Substructure Repair (Unformed)	sq. foot	250
Concrete Repair in Steel Grid Deck	sq. foot	150
Removal of Deteriorated Concrete Wearing Surface	sq. foot	50
Protective Coating - Concrete Bents and Piers (Urethane)	lump sum	1
Surface Preparation for Overcoating Structural Steel	lump sum	1
Calcium Sulfonate Rust Penetrating Sealer	lump sum	1
Calcium Sulfonate Primer	lump sum	1
Calcium Sulfonate Topcoat	lump sum	1
Removal of Construction Clip Angles	each	456
Remove and Replace Hanger Strap	each	74
Remove and Replace Gusset Plate	each	30
Remove and Replace Sway Bracing	each	4
Remove and Replace Tie Plate	each	900
Replace Lateral Bracing	each	1
Rivet Removal and Replacement	each	100
Remove and Replace Floor Beam Flange Angle	each	14
Remove and Replace Stiffener	each	41
Remove and Replace Guardrail Attachment	each	4
Removal of Existing Bearings and Anchor Bolts	each	12
Modification to Existing Rocker Bearings	each	8
Steel Armor Repair	linear foot	10
Laminated Neoprene Bearing Pad Assembly	each	12
Strip Seal Expansion Joint System	linear foot	40
Strip Seal	linear foot	60
Silicone Expansion Joint Sealant	linear foot	40
Navigation Lighting System	lump sum	1

ESTIMATE JACKING DEADLOAD PER BEARING		
Location	Load (kips)	
Pier 1 - Truss Span 1	276	
Pier 2 - Truss Span 2	276	
Pier 4 - Truss Span 4	276	
Pier 5 - Truss Span 5	276	
Pier 5 - Plate Girder Span 6	60	
Pedestal 10 - Plate Girder Span 10	60	
Pedestal 10 - Plate Girder Span 11	75	
Pedestal 11 - Plate Girder Span 11 & 12	75	
East Abutment - Plate Girder Span 12	75	



SECTION THRU CURB ON TRUSS SPANS

Alternate Asphaltic Concrete Wearing Surface	
Type of Wearing Surface with Asphalt Binder Type	Mix Used (✓)
SP125BSM Mix with PG 70-22	
SP125CLP Mix with PG 70-22	

MoDOT construction personnel shall complete column labeled "Mix Used (✓)".

Notes:

The contractor shall select one of the alternate asphaltic concrete wearing surfaces listed in the table. The mixture shall be in accordance with Sec 403 and produced in accordance with Sec 404.

The area of the asphaltic concrete wearing surface will be measured and computed to the nearest square yard. This area will be measured transversely from inside curb face to inside curb face and longitudinally from end of grid deck at west abutment to end of grid deck at east abutment excluding all deck joints and adjacent concrete wearing surface.

Cost of additional asphaltic concrete wearing surface required under top curb angles and between curb support angles to the outside of the grid deck will be considered completely covered by the contract unit price for Alternate Asphaltic Concrete Wearing Surface (Bridge).

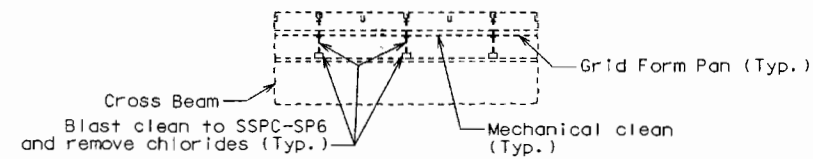
The area of the removal of asphalt wearing surface will be measured and computed to the nearest square foot. This area will be measured transversely from inside curb face to inside curb face and longitudinally from end of grid deck at west abutment to end of grid deck at east abutment excluding all deck joints and adjacent concrete wearing surface.

Cost of additional removal of asphalt wearing surface required under top curb angles and between curb support angles to the outside of the grid deck will be considered completely covered by the contract unit price for Removal of Asphalt Wearing Surface.

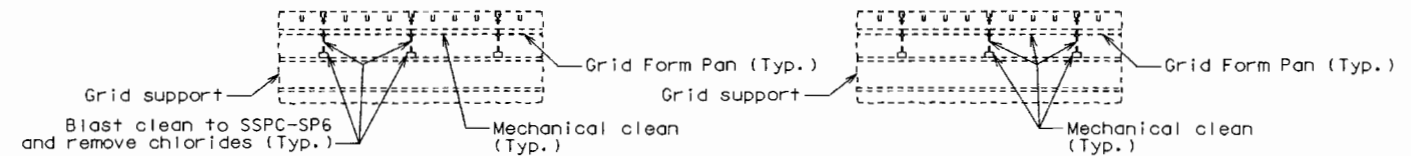
The cost of removing seal coat will be considered completely covered by the contract unit price for Removal of Asphalt Wearing Surface.



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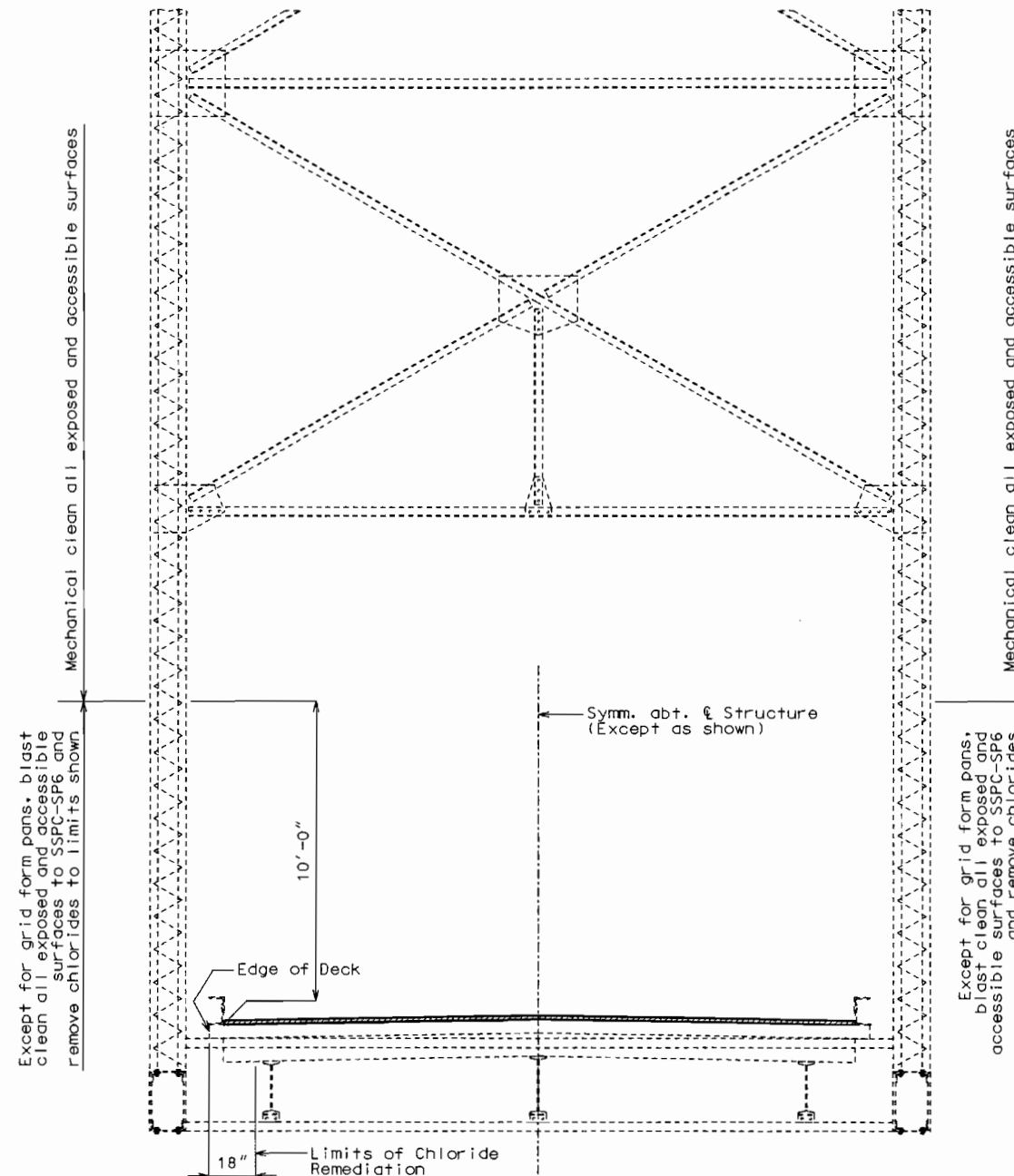


PART SECTION THRU GRID DECK
IN TRUSS SPANS



PART SECTION THRU GRID DECK
IN PLATE GIRDER SPANS
WITHIN 15' OF EXP. JOINT

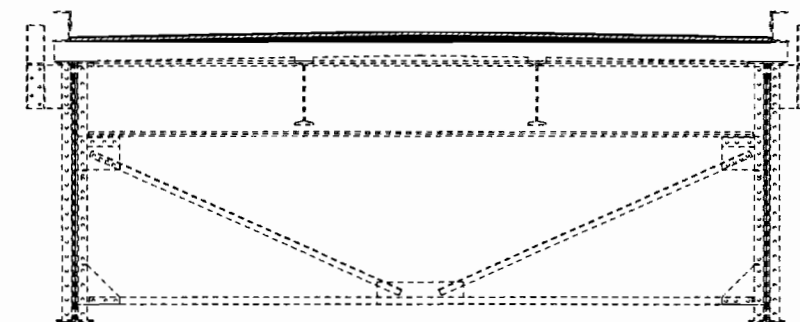
PART SECTION THRU GRID DECK
IN PLATE GIRDER SPANS
OUTSIDE 15' OF EXP. JOINT



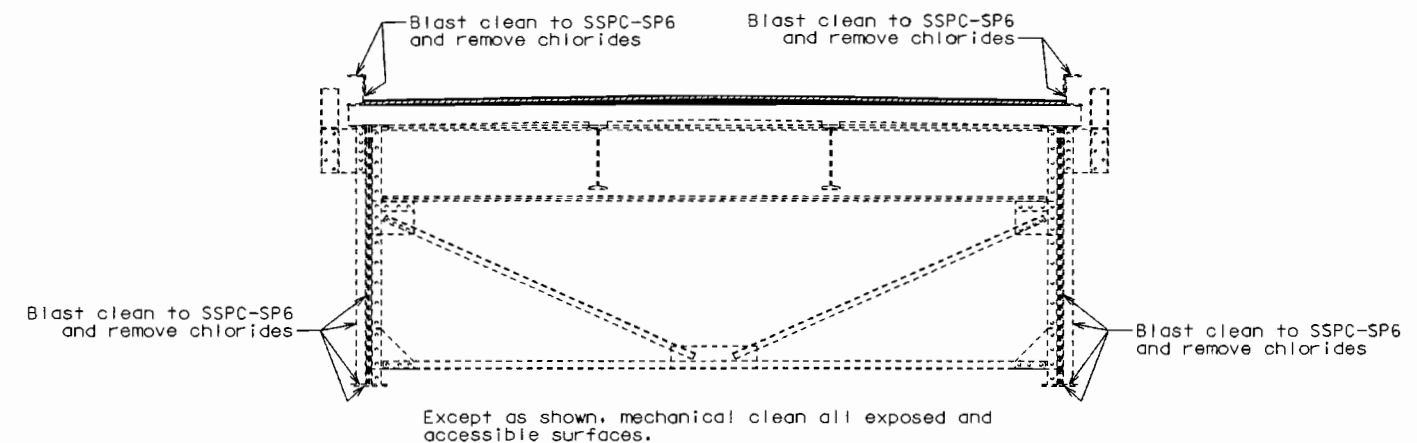
OUTSIDE 15' ADJACENT
TO EXPANSION JOINT

WITHIN 15' ADJACENT
TO EXPANSION JOINT

PART SECTION THRU TRUSS SPAN



PART SECTION THRU PLATE GIRDER SPAN
WITHIN 15' ADJACENT TO EXPANSION JOINTS



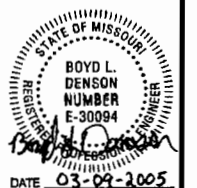
PART SECTION THRU PLATE GIRDER SPAN
OUTSIDE 15' ADJACENT TO EXPANSION JOINTS

DETAILS SHOWING SURFACE PREPARATION LIMITS

Detailed Mar. 2005
Checked Mar. 2005

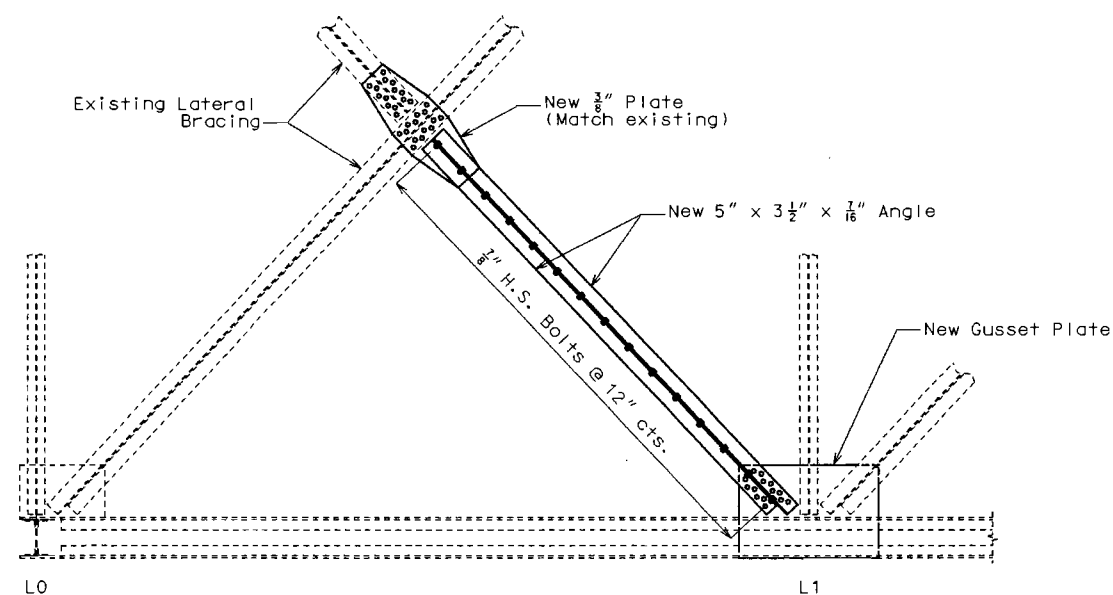
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 4 of 19



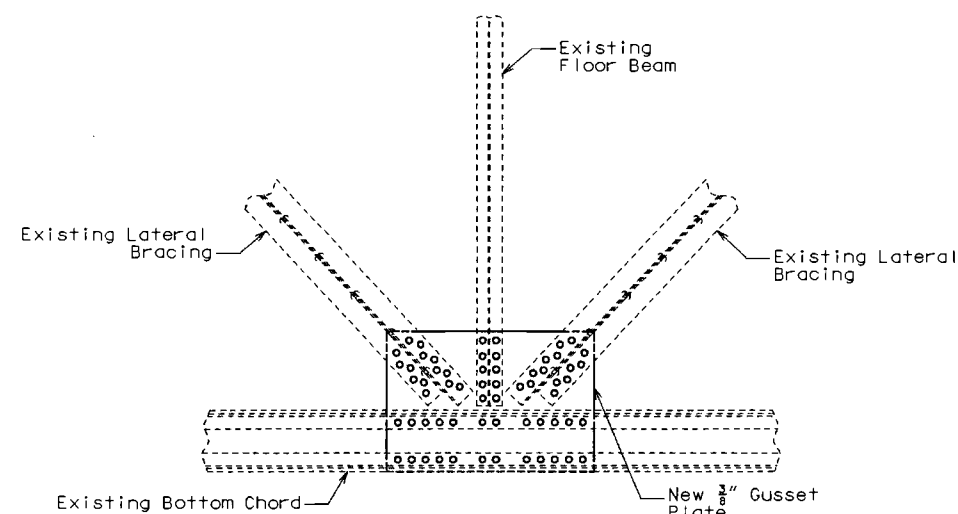
PIKE COUNTY K09324

State	Proj. No.	Sheet No.
MO		B5



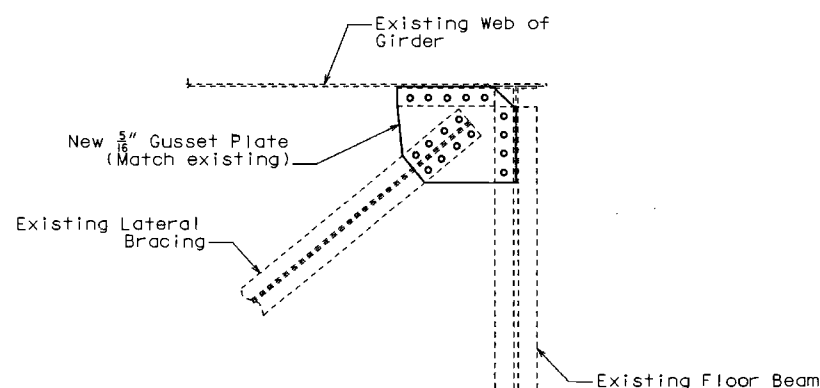
**PART PLAN OF LATERAL BRACING REPLACEMENT
ADJACENT TO L1 AT SPAN 2**

Note: Match existing hole locations in existing lateral bracing and gusset plates. Replace rivets with H.S. bolts. See Special Provisions for Rivet Replacement except that cost of work and material to complete this item including the new 3/8" plate will be considered completely covered by the contract unit price for Replace Lateral Bracing. (Typ.)



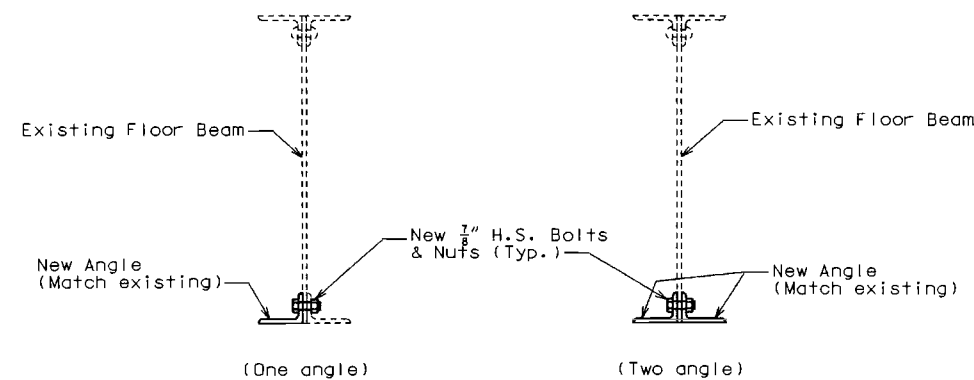
**PART PLAN OF LATERAL BRACING SHOWING
GUSSET PLATE REPLACEMENT IN TRUSS SPANS**

Note: Match existing hole locations in existing bottom chord, lateral bracing and floor beam. Replace rivets with H.S. bolts. See Special Provisions for Rivet Replacement except that cost of work and material to complete this item will be considered completely covered by the contract unit price for Remove and Replace Gusset Plate. (Typ.)



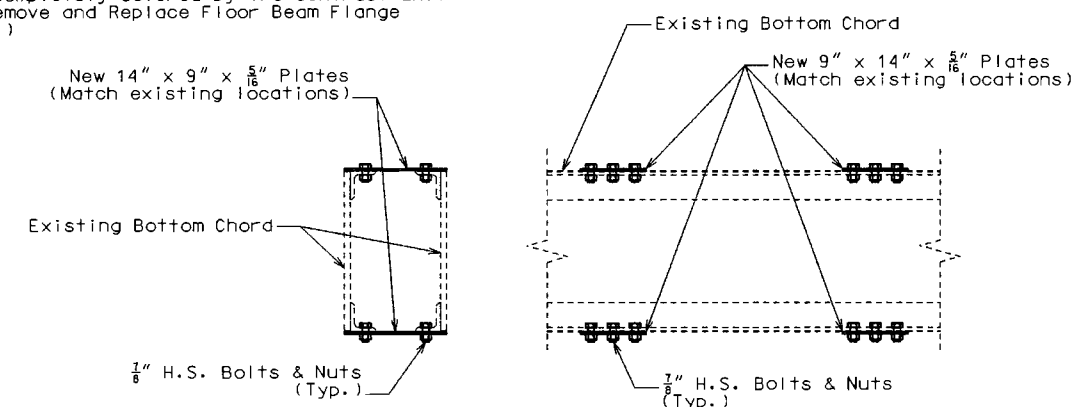
**PLAN VIEW OF LATERAL BRACING SHOWING
GUSSET REPLACEMENT IN PLATE GIRDER SPANS**

Note: Match existing hole locations in existing floor beam and lateral bracing. Replace rivets with H.S. bolts. See Special Provisions for Rivet Replacement except that cost of work and material to complete this item will be considered completely covered by the contract unit price for Remove and Replace Gusset Plate. (Typ.)



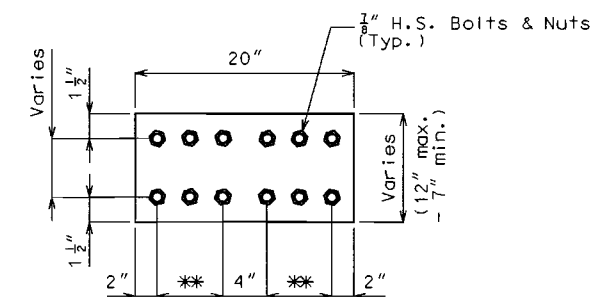
**DETAILS SHOWING FLOOR BEAM
BOTTOM ANGLE REPLACEMENT**

Note: Match existing hole locations in existing floor beam. Replace rivets with H.S. bolts. See Special Provisions for Rivet Replacement except that cost of work and material to complete this item will be considered completely covered by the contract unit price for Remove and Replace Floor Beam Flange Angle. (Typ.)



**PART ELEVATION SHOWING
TIE PLATE REPLACEMENT**

Note: Match existing hole locations in existing bottom chord. Replace rivets with H.S. bolts. See Special Provisions for Rivet Replacement except that cost of work and material to complete this item will be considered completely covered by the contract unit price for Remove and Replace Tie Plate. (Typ.)



**DETAIL OF SPLICE PLATE FOR
PARTIAL LATERAL BRACING REPLACEMENT**

** 2 Spaces @ 3"

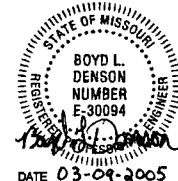
DETAILS OF STRUCTURAL STEEL REPAIR

Detailed Jan. 2005
Checked Jan. 2005

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

Sheet No. 5 of 19

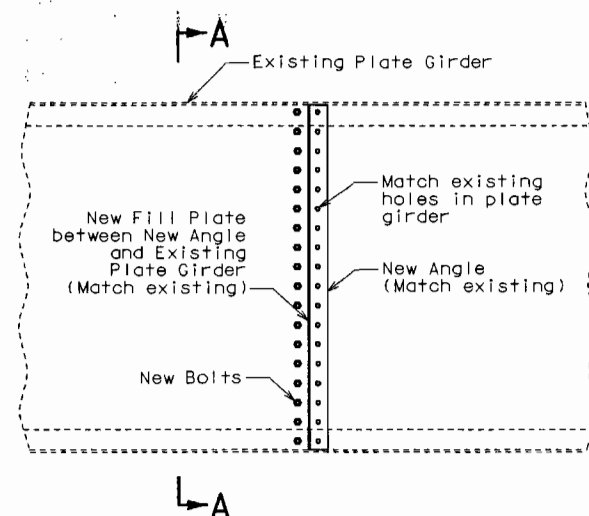
PIKE COUNTY K09324



DATE 03-09-2005

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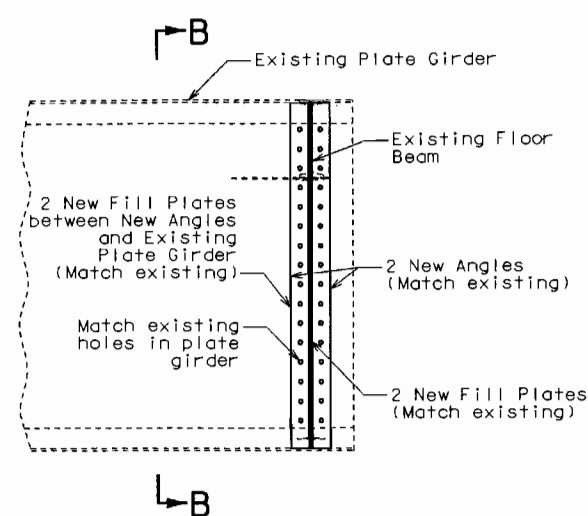
State	Proj. No.	Sheet No.
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PART ELEVATION SHOWING EXTERIOR WEB STIFFENER REPLACEMENT IN PLATE GIRDER SPANS BETWEEN BENTS

Note: Both angles and fill plates shall be removed, only one new angle and fill plate shall be installed.

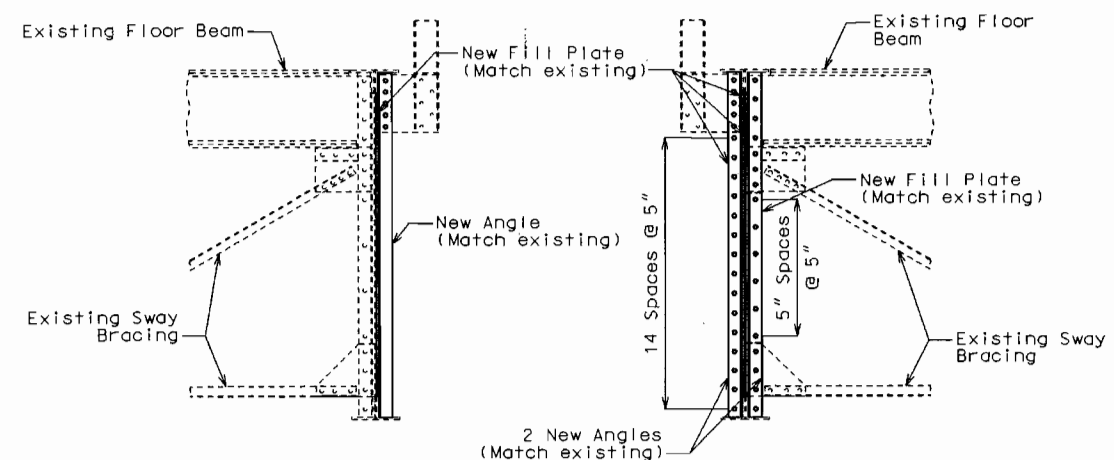
After angle removal, H.S. bolts shall be installed in existing holes. See Special Provisions for Rivet Replacement except that cost of work and material to complete this item will be considered completely covered by the contract unit price for Remove and Replace Stiffener. (Typ.)



PART ELEVATION SHOWING THE TWO BEARING STIFFENER REPLACEMENTS IN PLATE GIRDER SPANS @ PIER 5, PEDESTAL 10 & 11 AND E. ABUTMENT

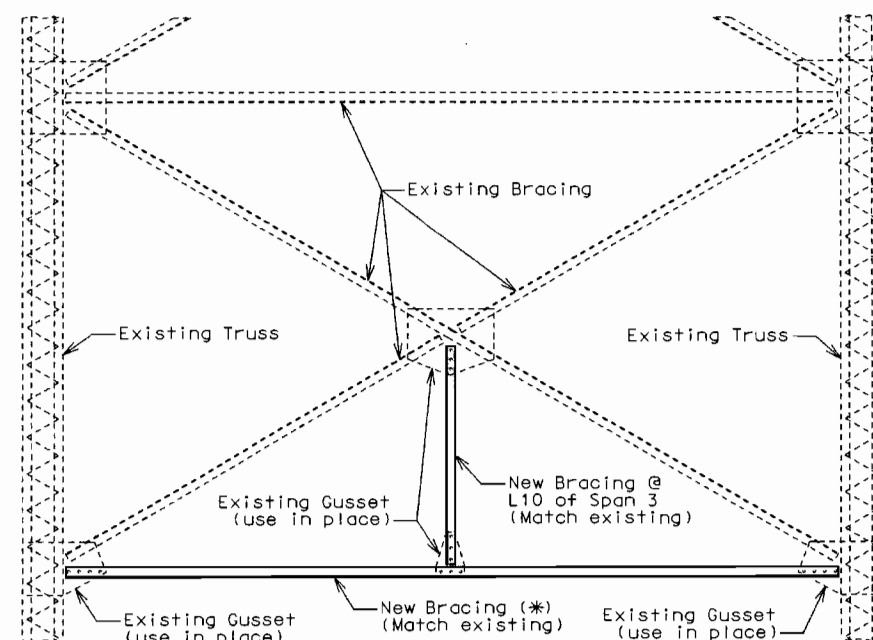
Note: Match existing hole locations in existing plate girder, floor beam, bracing and guardrail post attachment angles. Replace rivets with H.S. bolts. See Special Provisions for Rivet Replacement except that cost of work and material to complete this item will be considered completely covered by the contract unit price for Remove and Replace Stiffener. (Typ.)

Cost of removing and replacing two angles, the fill plate between the two angles and the fill plate between the angles and the existing girder including all work and material to complete this item will be considered completely covered by the contract unit price for Remove and Replace Stiffener.



SECTION A-A

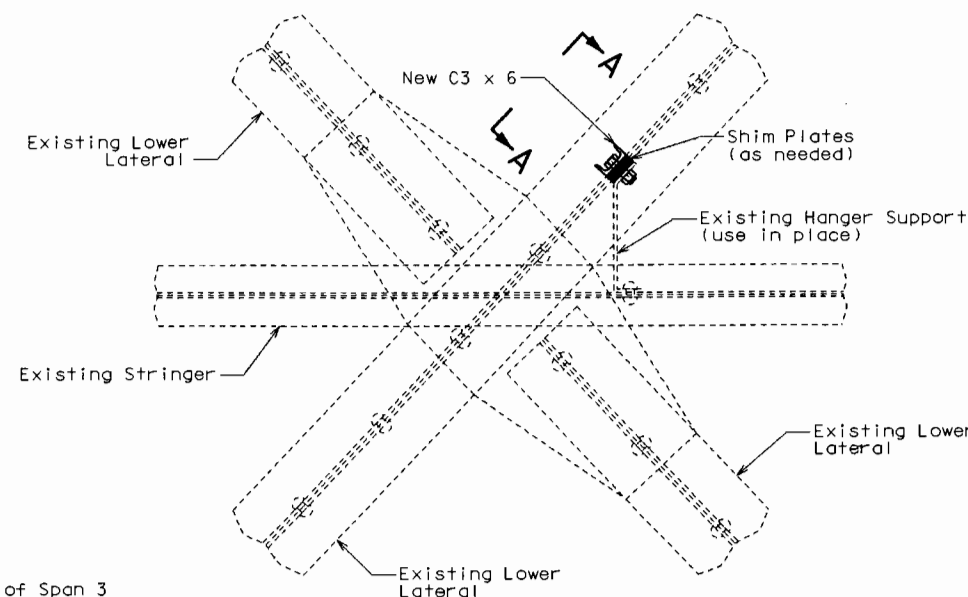
SECTION B-B



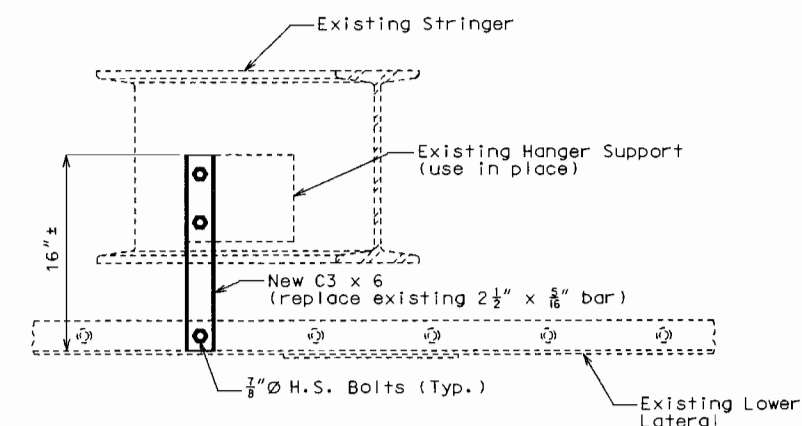
DETAIL SHOWING DAMAGED SWAY BRACING MEMBER REPLACEMENT IN TRUSS SPANS

Note: Match existing hole locations in existing gusset plates. Replace rivets with H.S. bolts. See Special Provisions for Rivet Replacement except that cost of work and material to complete this item will be considered completely covered by the contract unit price for Remove and Replace Sway Bracing. (Typ.)

- * 1 angle @ L6 of Span 3
- 1 angle @ L10 of Span 3
- 2 angles @ L8 of Span 5
- 1 angle @ L10 of Span 5

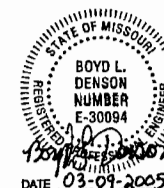


PART PLAN SHOWING LOWER LATERAL HANGER STRAP REPLACEMENT



ELEVATION A-A

Note: Match existing hole locations in existing hanger support and lower lateral. Replace rivets with H.S. bolts. See Special Provisions for Rivet Replacement except that cost of work and material to complete this item will be considered completely covered by the contract unit price for Remove and Replace Hanger Strap. (Typ.)

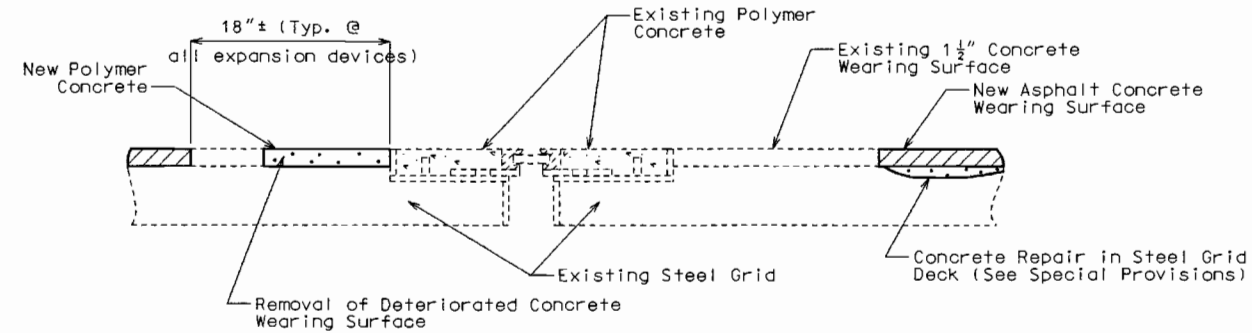


Notes:

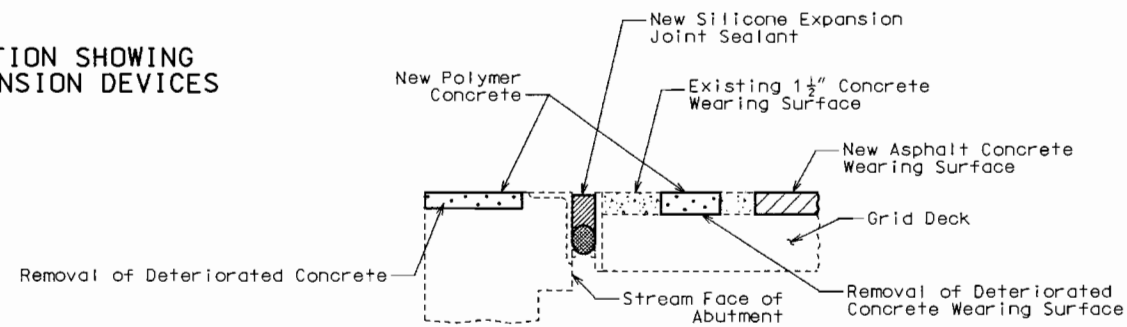
Removal of deteriorated concrete at the top of abutment shall be included in the Removal of Deteriorated Concrete Wearing Surface.

Removal requirements for the removal of deteriorated concrete wearing surface shall be in accordance with Concrete Removal in Sec 704. The cost to remove and dispose deteriorated concrete will be considered completely covered by the contract unit price for Removal of Deteriorated Concrete Wearing Surface.

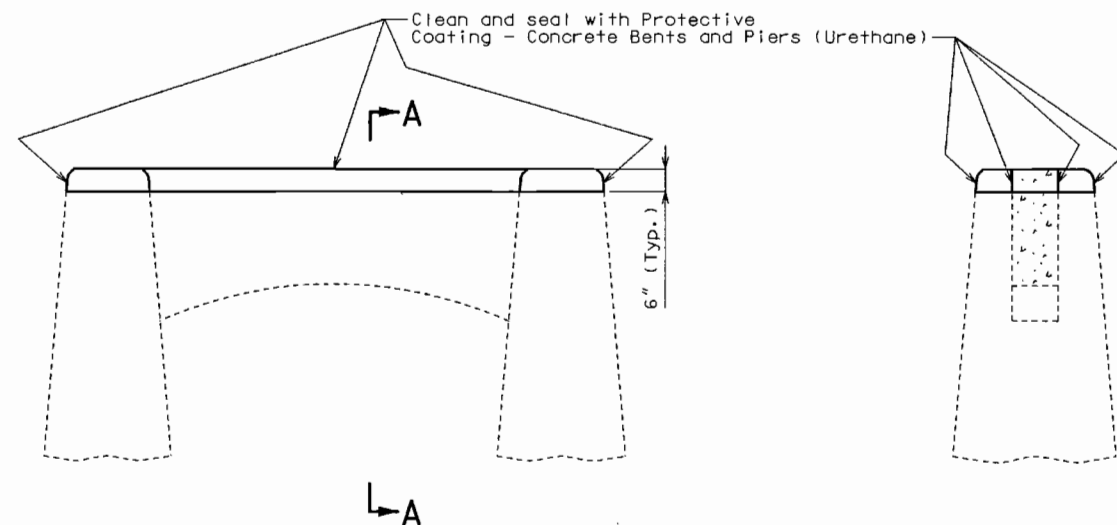
Polymer concrete shall be in accordance with Sec 623.



PART LONGITUDINAL SECTION SHOWING CONCRETE REPAIR AT EXPANSION DEVICES



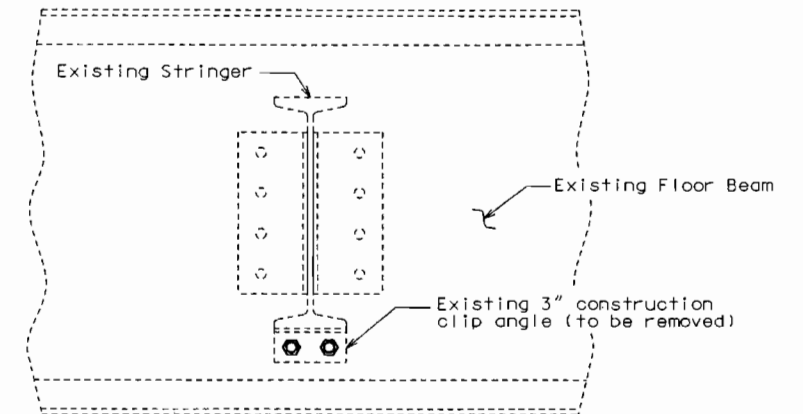
PART LONGITUDINAL SECTION SHOWING CONCRETE REPAIR @ ABUTMENTS



ELEVATION - PEDESTALS 10 & 11

SECTION A-A

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DETAIL SHOWING REMOVAL OF EXISTING CONSTRUCTION CLIP ANGLES

Notes:

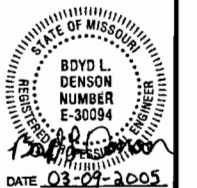
All 456-construction clip angles shall be removed at 237 locations with 219 pairs of back-to-back angles sharing two bolts.

After angle removal, H.S. Bolts shall be installed in existing holes. See Special Provisions for Rivet Replacement except that cost of work and material to complete this item will be considered completely covered by the contract unit price for Removal of Construction Clip Angles. (Typ.)

Detailed Jan. 2005
Checked Jan. 2005

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

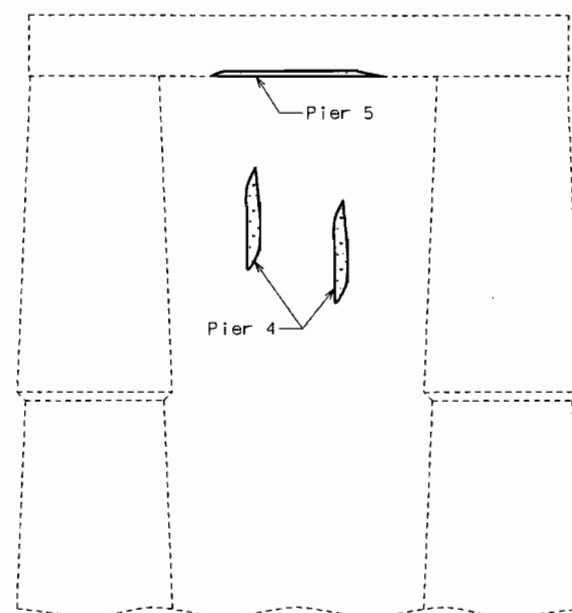
Sheet No. 7 of 19



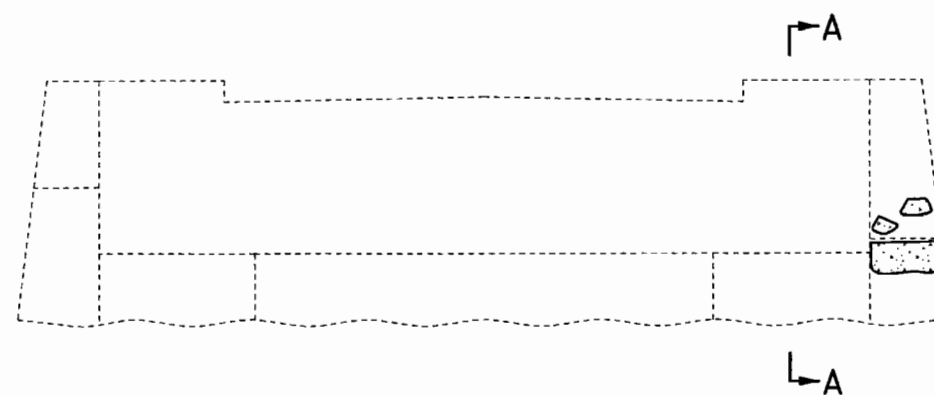
PIKE COUNTY K09324

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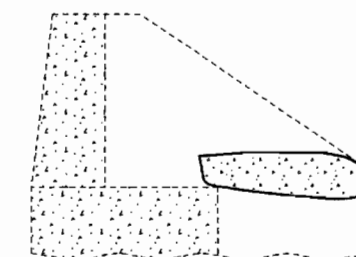
State	Proj. No.	Sheet No.
MO		88



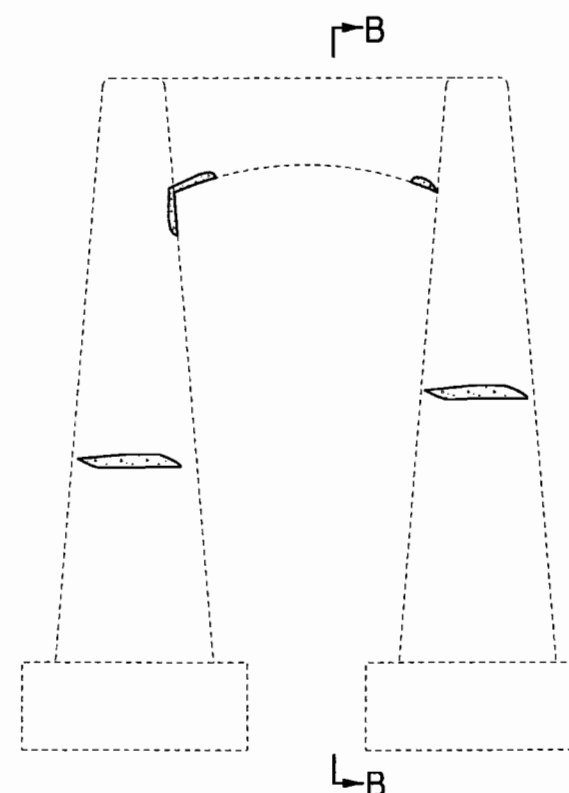
PART ELEVATION - PIERS 4 & 5



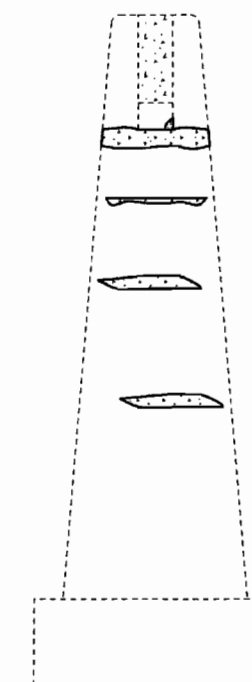
PART ELEVATION - WEST ABUTMENT



SECTION A-A



ELEVATION - PEDESTAL 10



SECTION B-B

DETAILS SHOWING LOCATIONS OF SUBSTRUCTURE REPAIR (UNFORMED)

Detailed Dec. 2004
Checked Jan. 2005

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

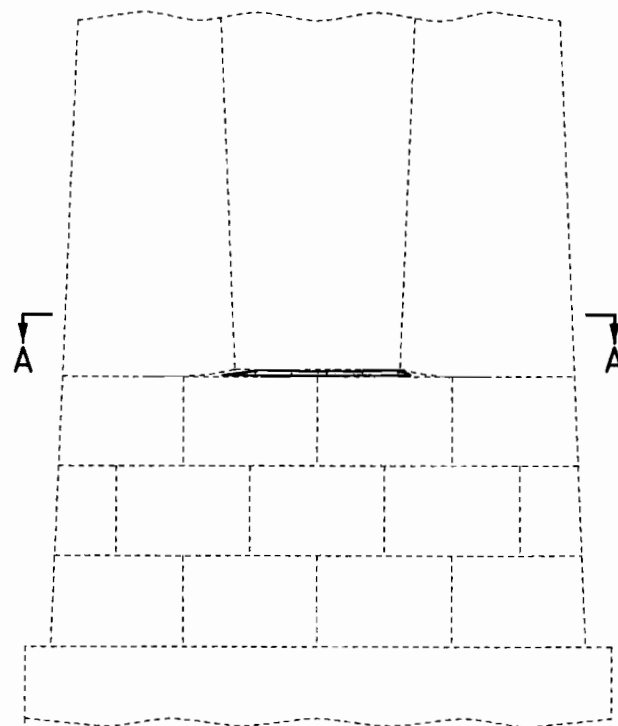
Sheet No. 8 of 19



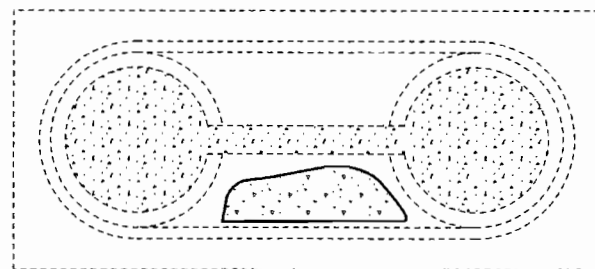
PIKE COUNTY K09324

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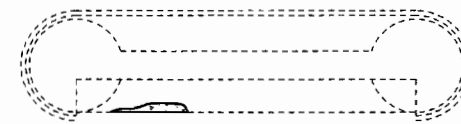
State	Proj. No.	Sheet No.
MO		89



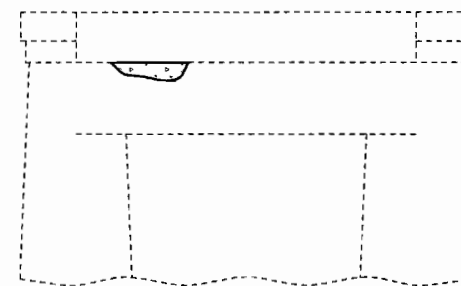
PART ELEVATION - PIERS 2 & 4



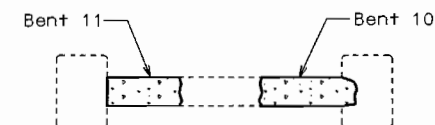
SECTION A-A



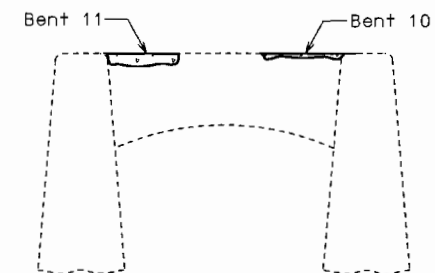
PART PLAN - PIER 5



PART ELEVATION - PIER 5



PART PLAN - PEDESTALS 10 & 11



PART ELEVATION - PEDESTALS 10 & 11

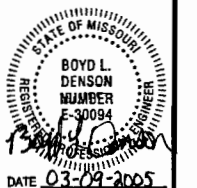
DETAILS SHOWING LOCATIONS OF SUBSTRUCTURE REPAIR (FORMED)

Detailed Dec. 2004
Checked Jan. 2005

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

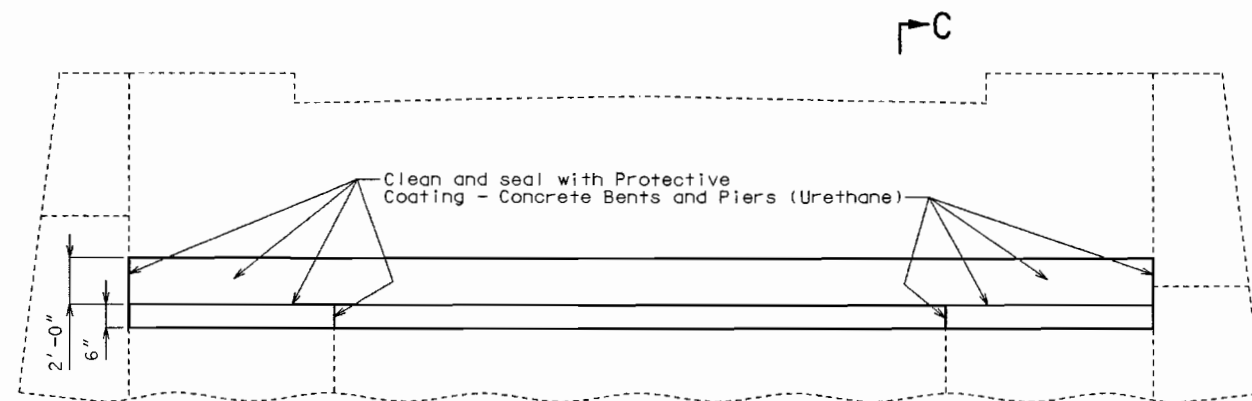
Sheet No. 9 of 19

PIKE COUNTY K09324

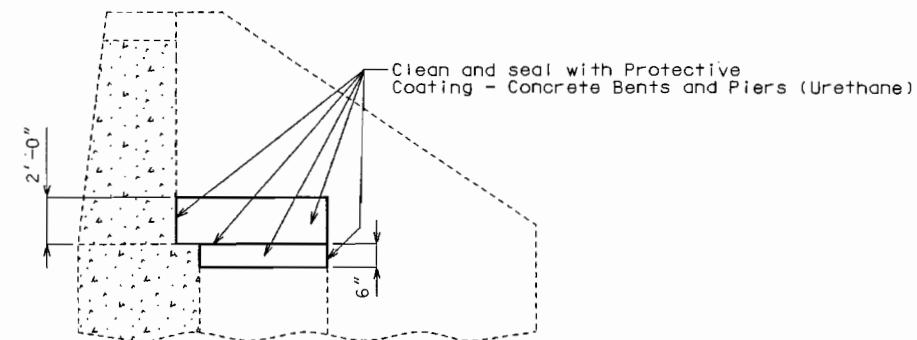


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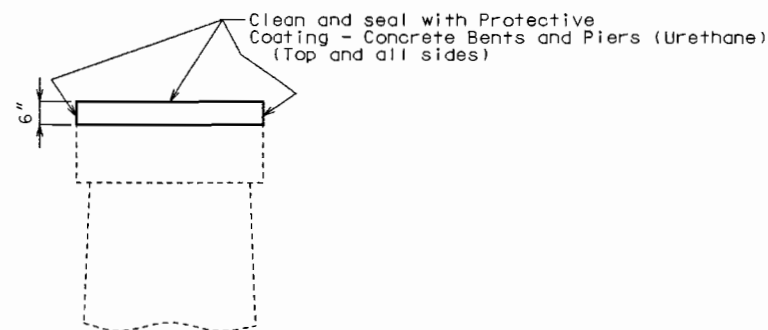
State	Proj. No.	Sheet No.
MO		810



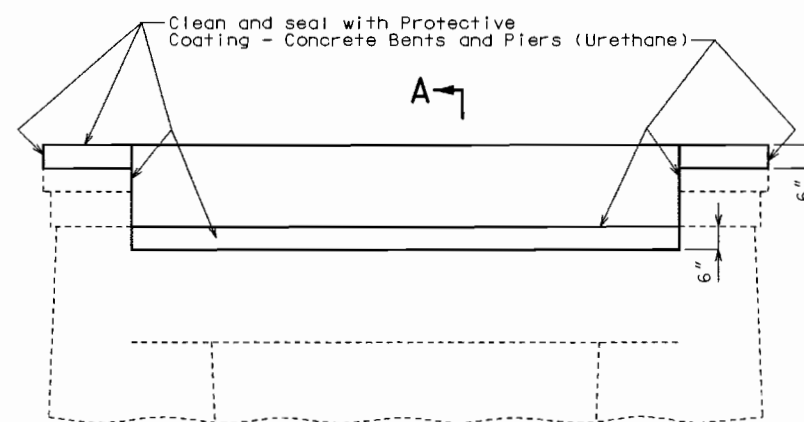
PART ELEVATION OF WEST ABUTMENT



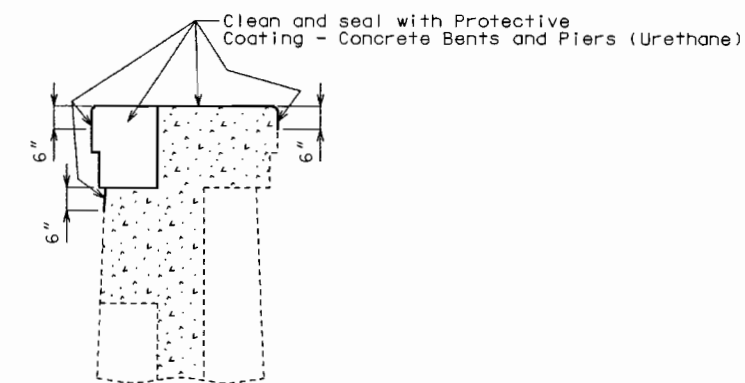
SECTION C-C



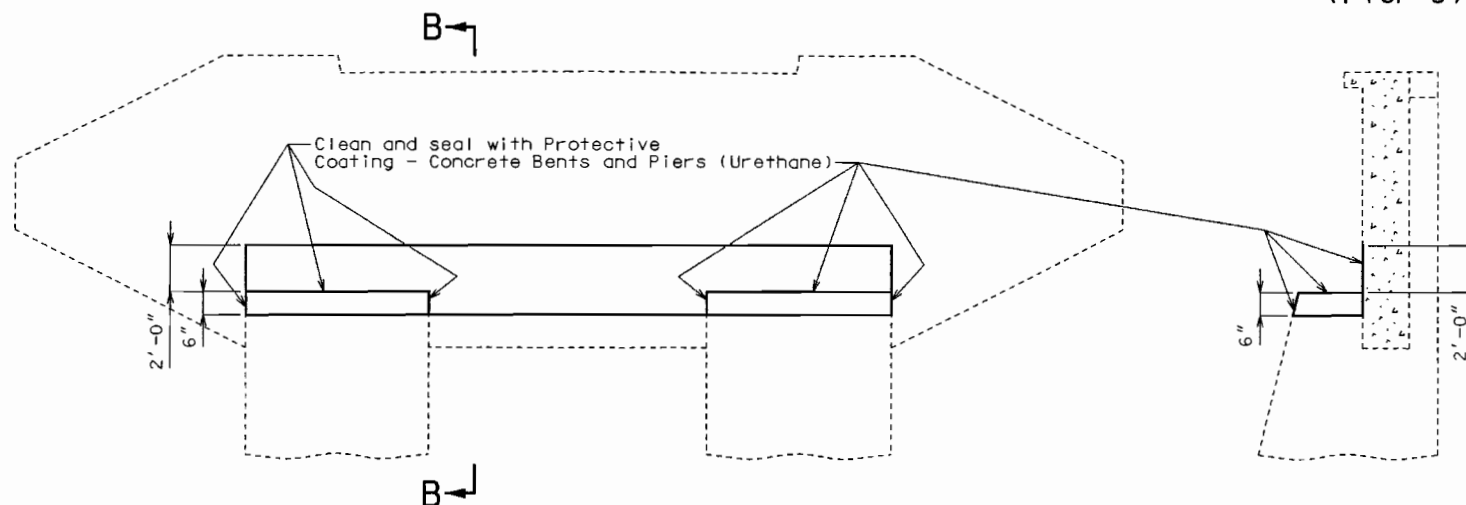
PART ELEVATION OF EXISTING BEAM CAP
(Piers 1, 2, 3 & 4)



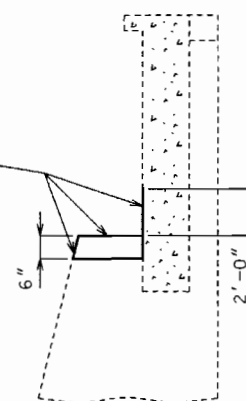
PART ELEVATION OF EXISTING BEAM CAP
(Pier 5)



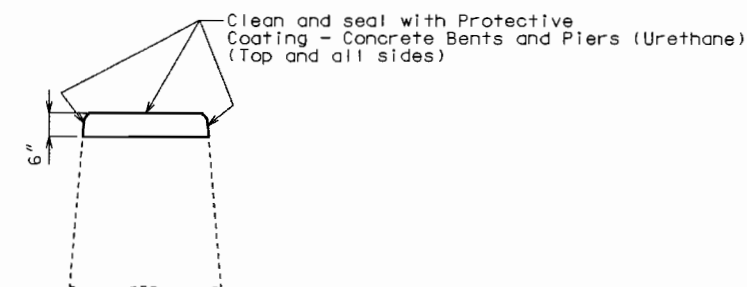
SECTION A-A



PART ELEVATION OF EAST ABUTMENT



SECTION B-B



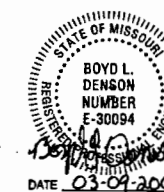
PART ELEVATION OF EXISTING PEDESTAL
(Pedestals 6, 7, 8 & 9)

DETAILS OF PROTECTIVE COATING - CONCRETE BENTS AND PIERS (URETHANE)

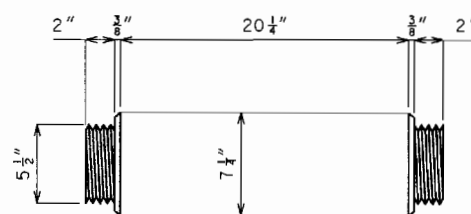
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 10 of 19

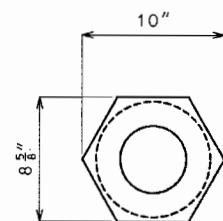
PIKE COUNTY K09324



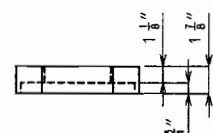
State	Proj. No.	Sheet No.
MO		311



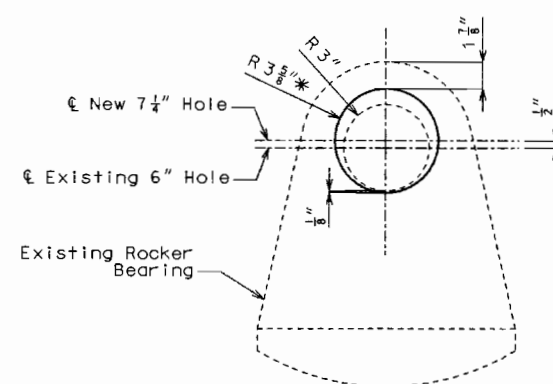
PLAN OF 7 1/4" Ø PIN (A108 GRADE 1018)



ELEVATION OF NUT

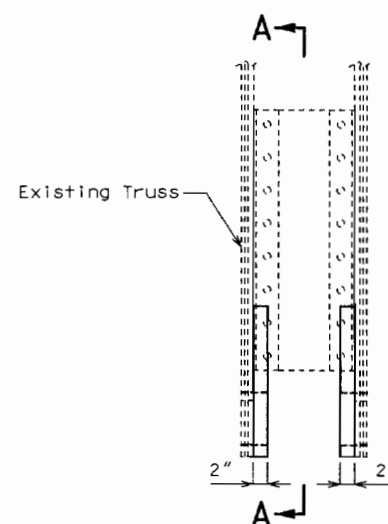


PLAN OF NUT



DETAIL OF ROCKER BEARING SHOWING NEW HOLE LOCATION TO BE BORED

* +1/50" (Tolerance for pin placement)



ELEVATION LOOKING AT END OF TRUSS SHOWING NEW 2" PLATE INSTALLATION

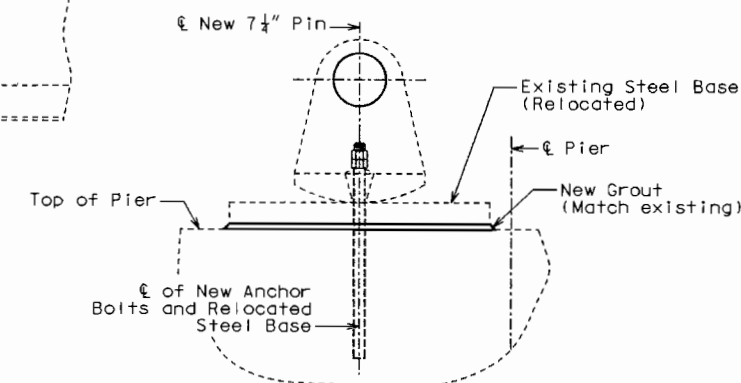
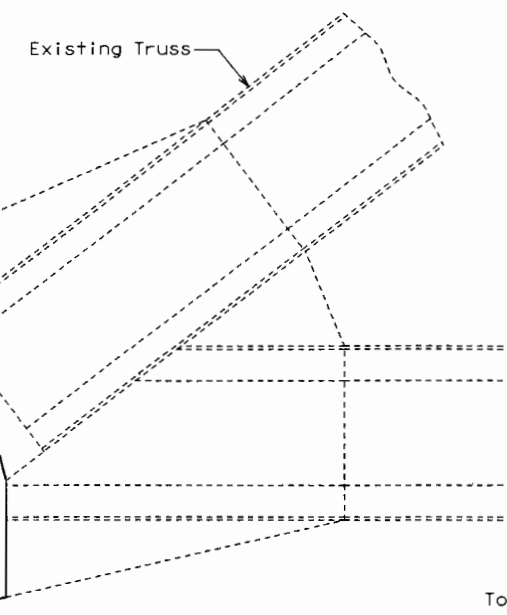
Plate to be installed to this location to provide ample bolting of 2" plate

New 2" plate (ASTM A709 Grade 50)

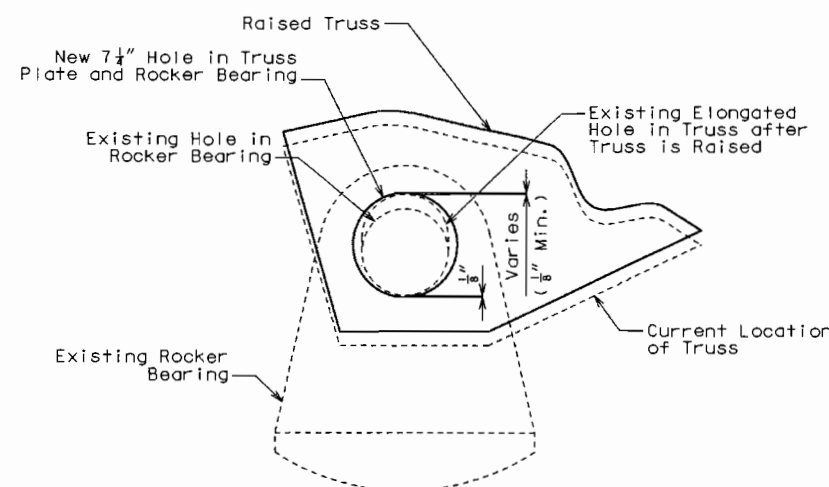
New 7 1/4" hole

Existing Elongated Hole

SECTION A-A



DETAIL SHOWING RESETTNG OF ROCKER BEARING AT PIERS 1 AND 5



DETAIL OF ROCKER BEARING AND TRUSS SHOWING NEW HOLE LOCATION TO BE BORED

Prior to boring new 7 1/4" holes, truss shall be raised so that the bottom of elongated hole in the truss shall be at the same elevation of the bottom of the hole in the rocker bearing.

Notes: Match existing hole locations in existing truss plates. Replace rivets with H.S. bolts. See Special Provisions for Rivet Replacement except that cost of work and material to complete this item will be considered completely covered by the contract unit price for Modification to Existing Rocker Bearings. (Typ.)

Plate to be field measured before ordering any material.

Holes in 2" plate shall be field drilled and new pin hole shall be bored after plate installation.

Anchor bolts shall be 1-1/2" Ø ASTM A709 Grade 50W steel swedge bolts and shall extend 15" into concrete with ASTM A194-2, 2H or ASTM A563 - C, C3, D, DH, DH3 heavy hex nuts. Actual manufacturer's certified mill test reports (chemical and mechanical) shall be provided. Furnish one 4" Ø pin, AISI C1042, with 2 heavy hexagon pin nuts.

All structural steel for the anchor bolts and heavy hexagon nuts shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum).

Existing anchor bolts shall be removed 1" from the surface of the concrete and filled with a qualified special mortar.

℄ of bolt shall line up with ℄ of pin on installation at 60°F. The ℄ of the bolt shall be located towards the ℄ of Pier at a 1/4" per 10° fall in temperature at installation and shall be located away from the ℄ of Pier at a 1/4" per 10° rise in temperature at installation.

The steel base at Pier 1 shall be relocated as close as possible to the adjacent base casting.

If necessary for proper alignment on new anchor bolt, a 1 1/2" hole shall be drilled through the existing steel base as well as the concrete and the existing hole in the steel base shall be filled with a qualified special mortar.

The cost of removing existing anchor bolts, furnishing and installing new anchor bolts and resetting and relocating existing rocker and steel base, will be considered completely covered by the contract unit price for Modification of Existing Rocker Bearing.

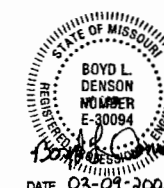
DETAILS OF ROCKER BEARING MODIFICATION AT PIERS 1, 2, 4 & 5

Detailed Jan. 2005
Checked Jan. 2005

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

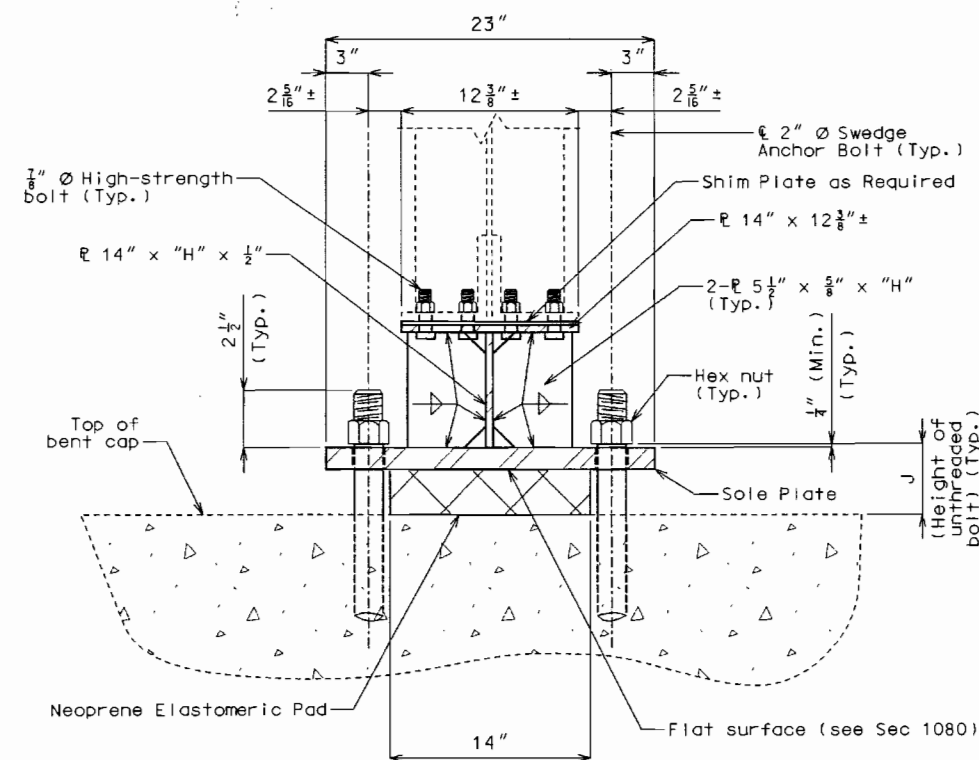
Sheet No. 11 of 19

PIKE COUNTY K09324

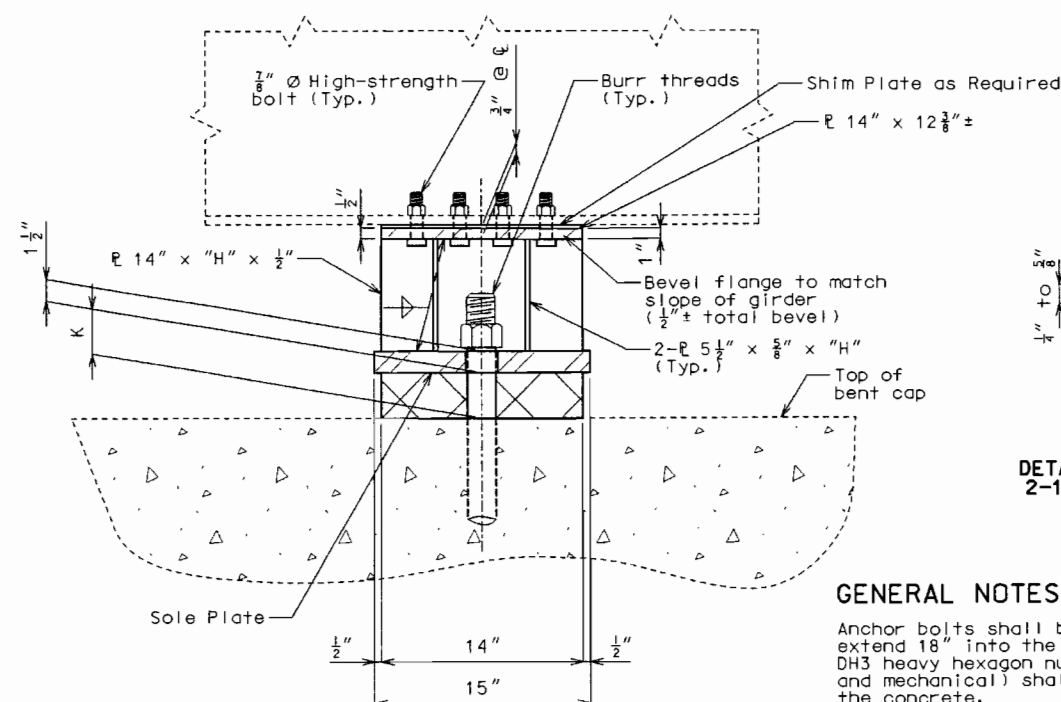


DATE 03-09-2005

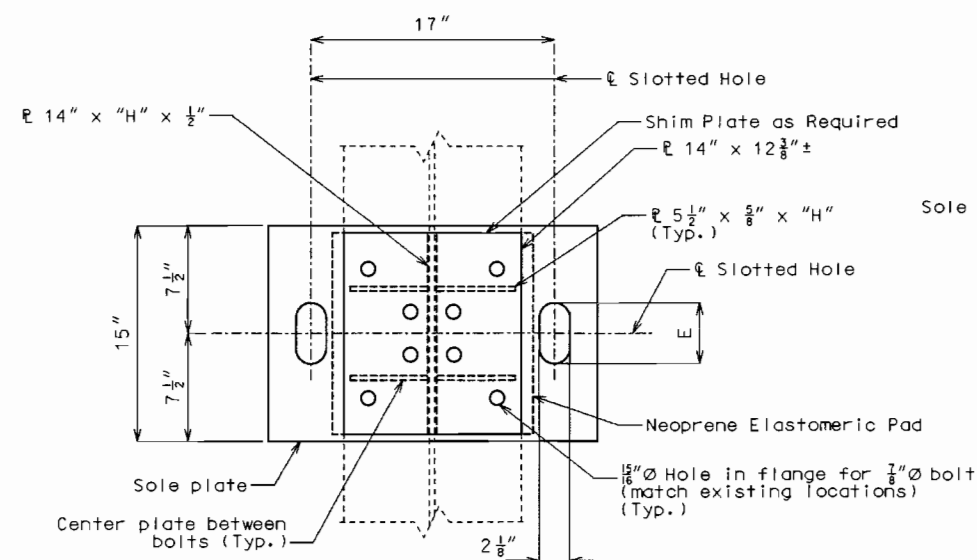
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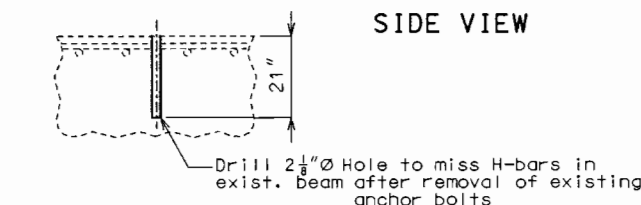
END VIEW



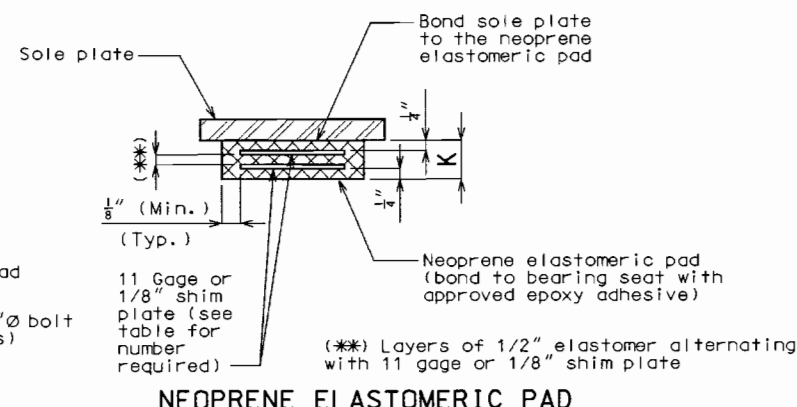
SIDE VIEW



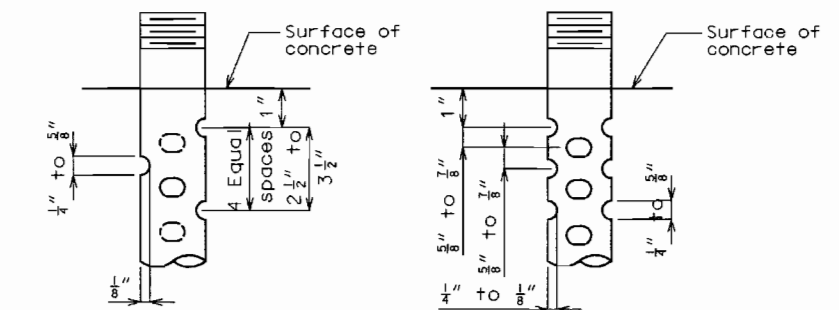
PART PLAN VIEW



DETAIL OF ANCHOR BOLT WELL



NEOPRENE ELASTOMERIC PAD



DETAIL FOR 3/4" Ø THRU 2-1/2" Ø ANCHOR BOLTS
OPTIONAL DETAIL FOR 1-3/8" Ø THRU 2-1/2" Ø ANCHOR BOLTS
SWEDGE ANCHOR BOLT DETAILS

GENERAL NOTES:

Anchor bolts shall be 2" Ø ASTM A709 Grade 50W steel swaged bolts and shall extend 18" into the concrete with ASTM A194 - 2, 2H or ASTM A563 - C, C3, D, DH, DH3 heavy hexagon 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 bolts and heavy hexagon nuts shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum).

Neoprene Elastomeric Pads shall be 60 Durometer.

Structural steel for sole plate and bearing extension shall be ASTM A709 Grade 50 and shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum).

Laminated Neoprene Bearing Pad Assembly shall be in accordance with Sec 716.

Existing anchor bolts shall be removed before new anchor bolts are installed.

Cost of removing existing bearings and anchor bolts will be considered completely covered by contract unit price for Removal of Existing Bearings and Anchor Bolts per each.

The sole plate and extension shall be furnished with the bearing.

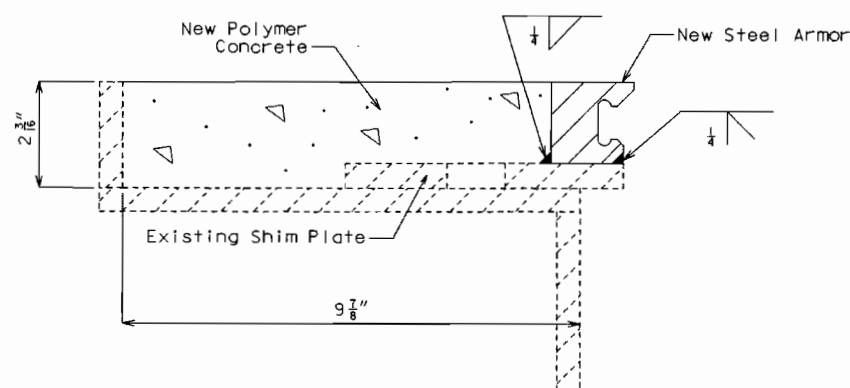
The cost of bearing extension, anchor bolts and sole plate will be considered completely covered by the contract unit price for Laminated Neoprene Bearing Pad Assembly.

TABLE OF BEARING DIMENSIONS						
LOCATION	E	H	J	K	NUMBER OF SHIM PLATES(*)	NUMBER REQUIRED
Pier 5	5 1/2"	4 15/16"	7 3/8"	5 5/8"	9	2
Pedestal 10 Left	5 1/2"	5 11/16"	7 3/8"	5 5/8"	9	2
Pedestal 10 Right	4 1/4"	7 1/16"	4 7/8"	3 3/8"	5	2
Pedestal 11 Left	2 1/8"	8 13/16"	4 1/4"	2 1/2"	4	2
Pedestal 11 Right	4 1/4"	7 1/16"	4 7/8"	3 3/8"	5	2
East Abutment	2 1/8"	8 13/16"	4 1/4"	2 1/2"	4	2
TOTAL BEARINGS						12

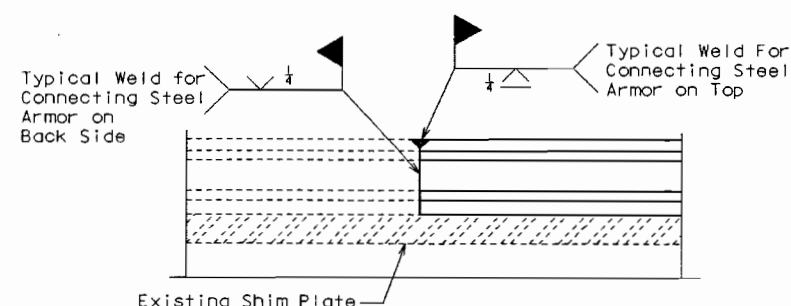
(*) The required shim plate shall be placed between layers of elastomer and molded together to form an integral unit.

DETAILS OF LAMINATED NEOPRENE BEARING PAD ASSEMBLY AND BEARING EXTENSION

State	Proj. No.	Sheet No.
MO		813

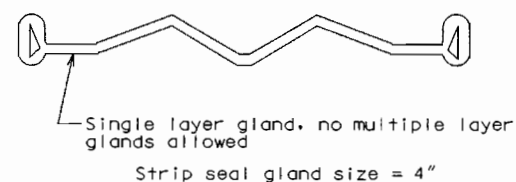


DETAIL "A"

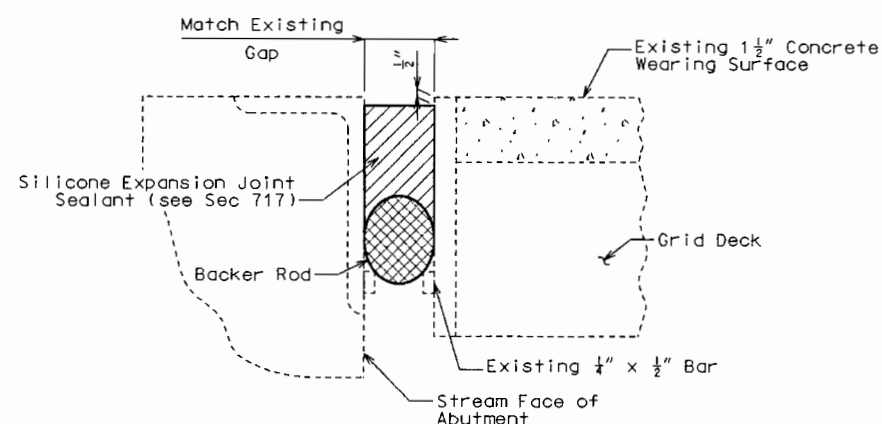


DETAIL OF ARMOR SPLICE

Note: For notes on welding, see Sheet No. 14.



DETAIL OF GLAND
AT PIERS 1, 2 & 4

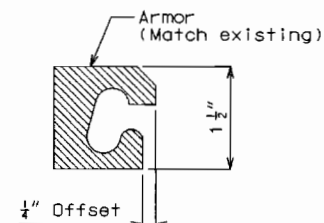


SECTION THRU JOINT SEALANT REPLACEMENT
@ WEST AND EAST ABUTMENTS

Notes:

Cost of removal will be considered completely covered by the contract unit price for Removal of Existing Expansion Joint Seal or Sealant.

Payment for furnishing and installing the expansion joint will be considered completely covered by the contract unit price for Silicone Expansion Joint Sealant.



DETAIL OF PARTIAL STEEL
ARMOR AT PIER 2

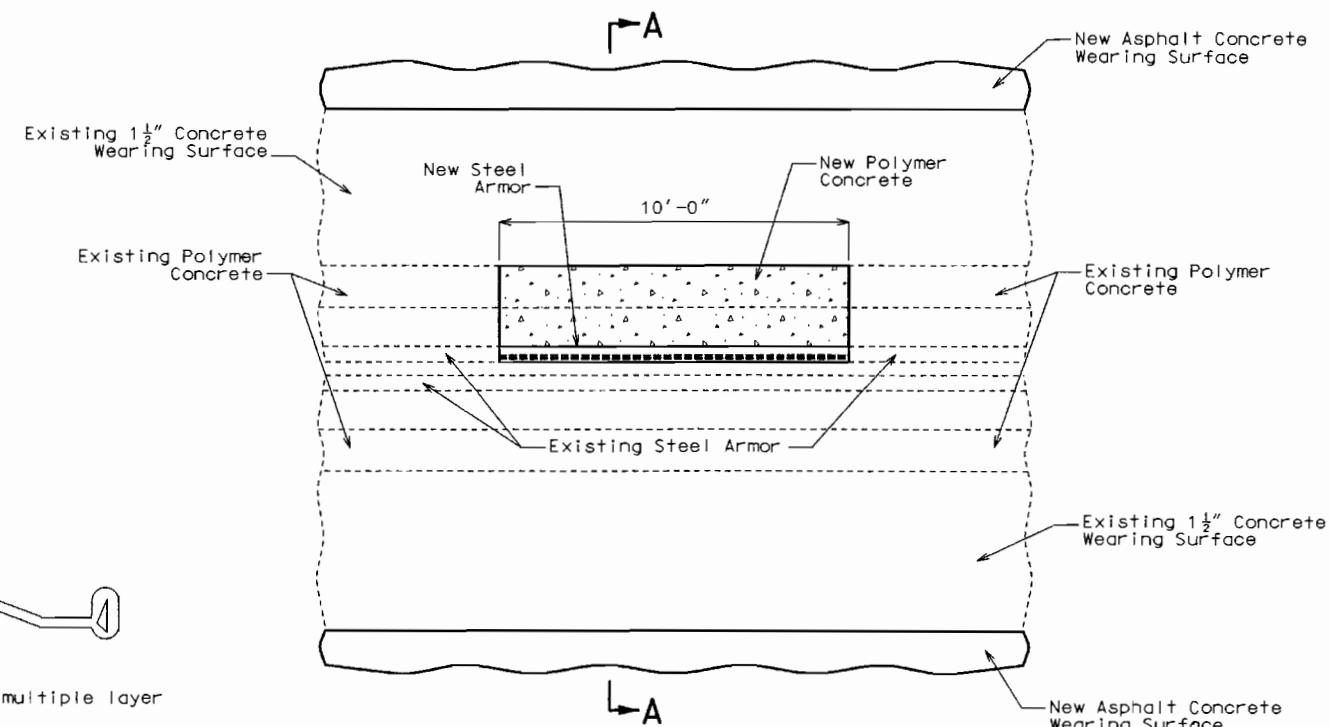
Notes:

Cost of removal of existing strip seal gland at Piers 1, 2 & 4 will be considered completely covered by the contract unit price for Removal of Existing Expansion Joint Seal or Sealant.

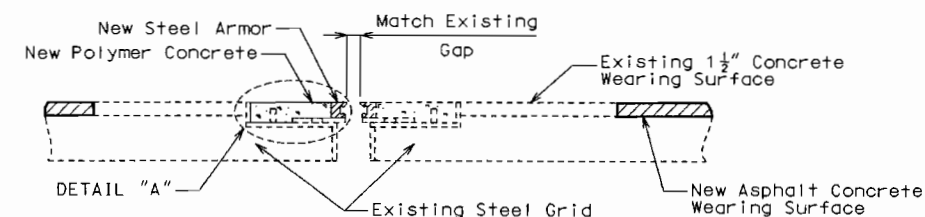
Payment for furnishing and installing the new strip seal gland at Piers 1, 2 & 4 will be considered completely covered by the contract unit price for Strip Seal.

Debris shall be removed from the existing strip seal gland at Pier 3 and the gap in the flat plate expansion device at Pier 5 and these expansion devices cleaned to the satisfaction of the engineer.

The cost of cleaning the expansion devices at Pier 3 and Pier 5 shall be considered completely covered by the contract unit price of other items.



DETAIL SHOWING STEEL ARMOR
REPLACEMENT @ PIER 2



SECTION A-A

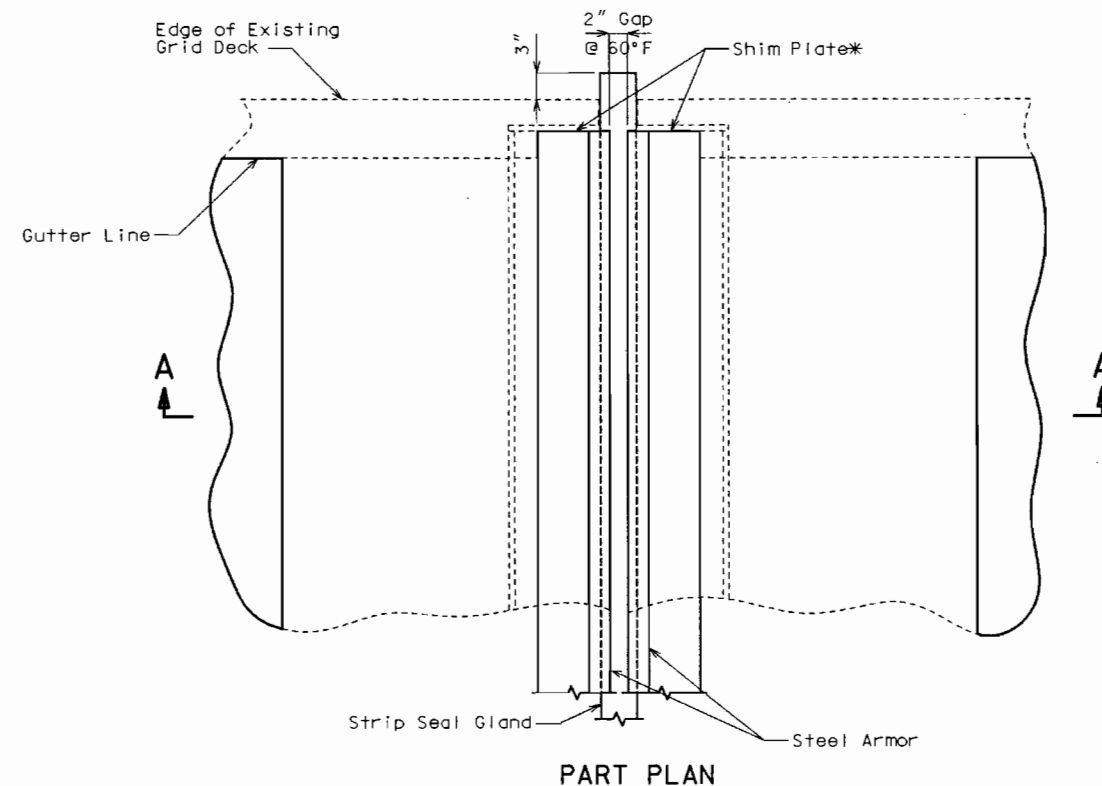
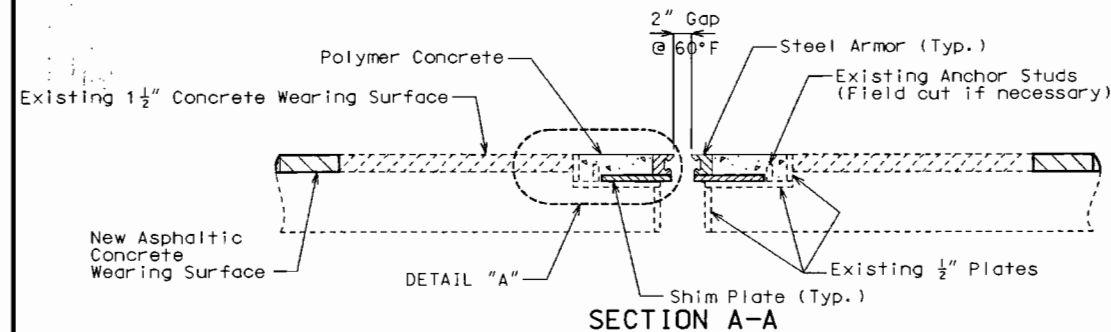
Note: For structural steel requirements for steel armor, see Sheet No. 14.

Payment for removal and replacing of steel armor and removal of adjacent polymer concrete will be considered completely covered by the contract unit price for Steel Armor Repair.

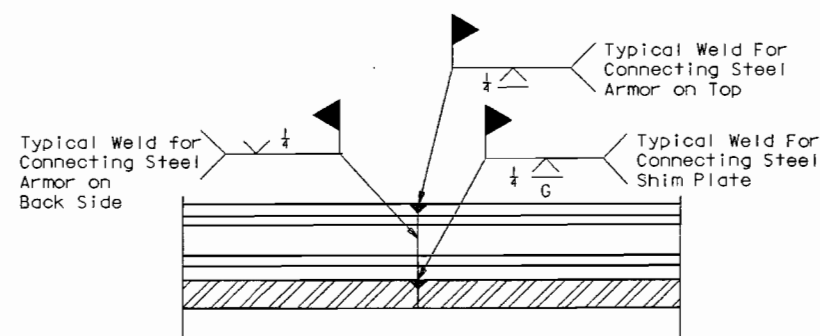
Polymer concrete shall be in accordance with Sec 623.



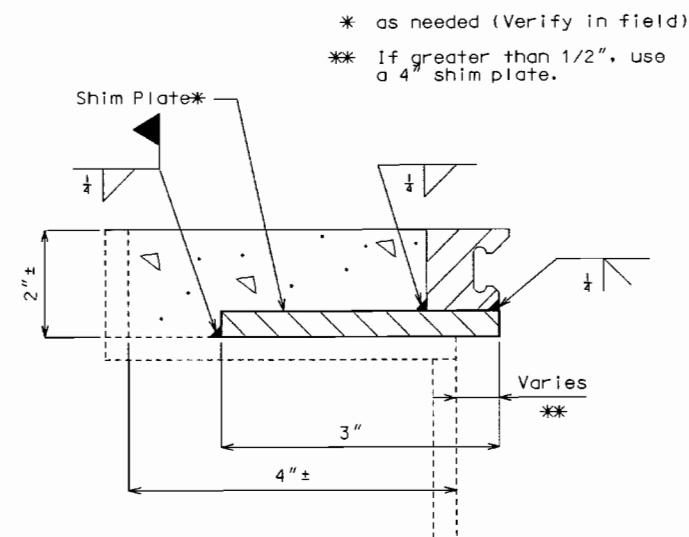
State	Proj. No.	Sheet No.
MO		814



Note: Extend steel shim plate and armor to existing vertical steel armor in curb.

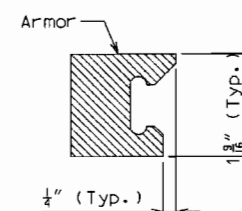


DETAIL OF ARMOR & SHIM PLATE SPLICE

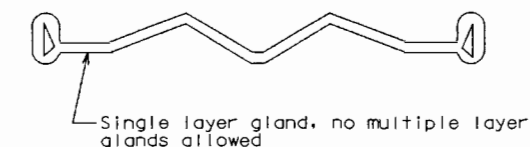


DETAIL "A"

Note: Center the new expansion gap on the existing joint opening.



DETAIL OF STEEL ARMOR AT PEDESTALS 10 & 11



Strip seal gland size = 4" at Pedestal 10
Strip seal gland size = 3" at Pedestal 11

DETAIL OF GLAND AT PEDESTALS 10 & 11

NOTES:

Expansion joint system shall be fabricated in one section, except for stage construction and when the length is over 50 feet. A complete joint penetration groove welded splice shall be required. Welds shall be ground flush to provide a smooth surface. The expansion joint system shall be fabricated and installed to the crown and grade of the roadway.

The strip seal gland shall be installed in joints in one continuous piece without field splices.

Structural steel for the expansion joint system shall be ASTM A709 Grade 36 except the steel armor may be ASTM A709 Grade 50W. Strip seal expansion joint system shall be in accordance with Sec 717.

Structural steel for the expansion joint system shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum) or galvanized in accordance with ASTM A123.

Plan dimensions are based on installation at 60°F. The expansion gap and other dimensions shall be increased or decreased 3/16" for each 10° rise or fall in temperature at installation at Pedestal No. 10 and by increased or decreased 1/16" for each 10°F rise or fall in temperature at installation at Pedestal No. 11.

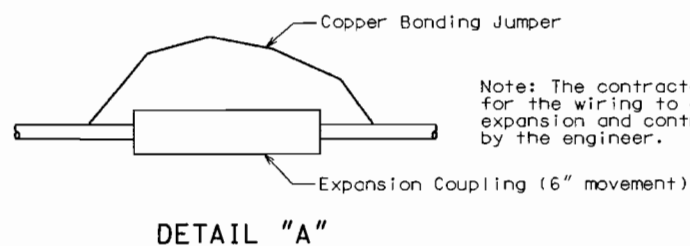
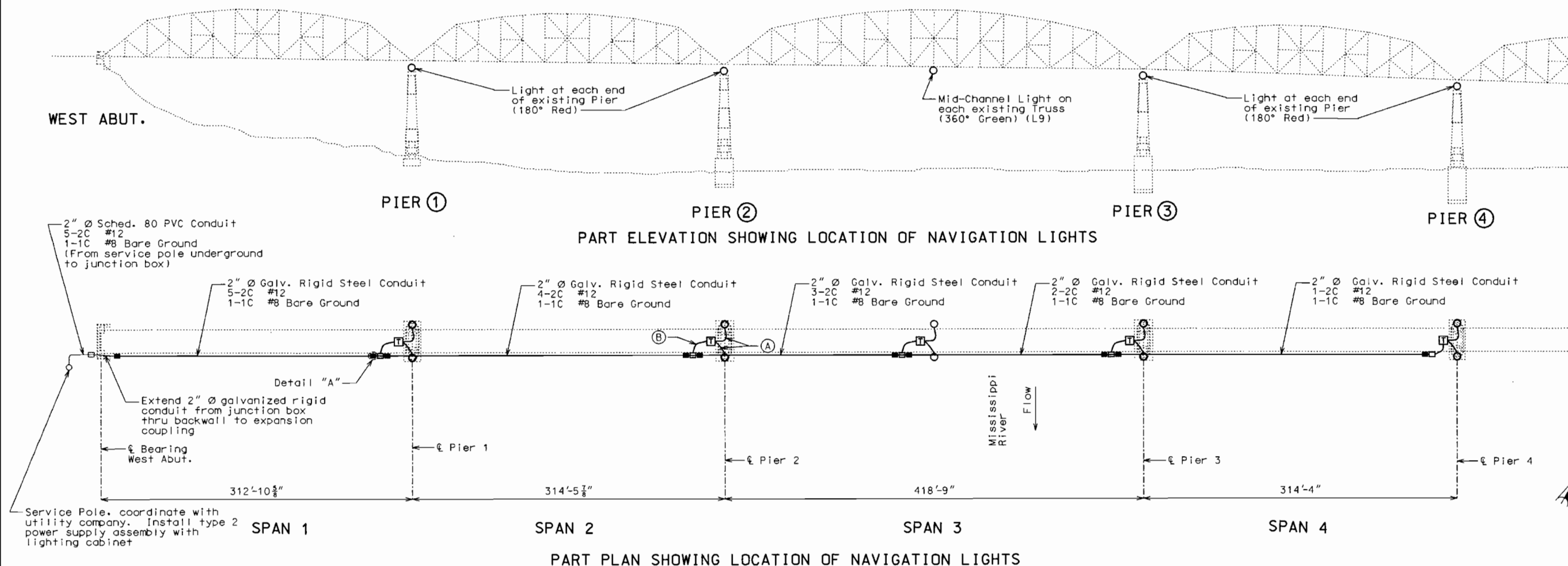
The contractor shall verify all dimensions prior to fabrication.

All welds shall be in accordance with Sec 712.

Polymer concrete shall be in accordance with Sec 623.

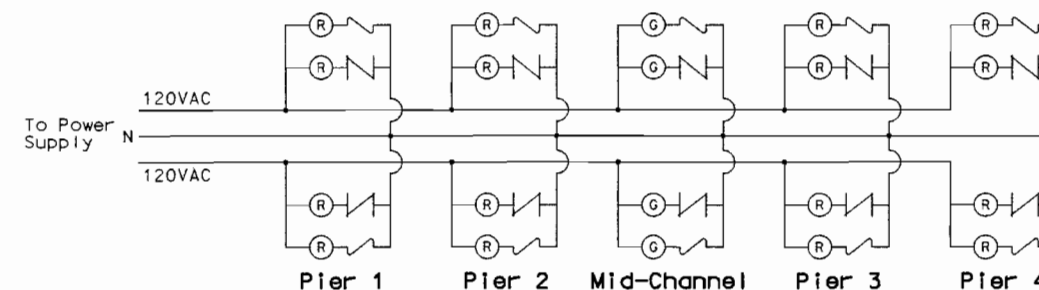
Payment for furnishing, coating or galvanizing and installing the structural steel for the expansion joint will be considered completely covered by the contract unit price for Strip Seal Expansion Joint System.

Payment for removal of existing expansion device, including removal of adjacent asphalt, and preparation for installation of new expansion device shall be included in the contract unit price for Removal of Existing Expansion Joint and Adjacent Concrete



Note: The contractor shall make provisions for the wiring to accommodate thermal expansion and contraction as approved by the engineer.

- LEGEND**
- New Light Assembly
 - Terminal Box
 - Expansion Coupling
 - Junction Box
 - (A) 1" Ø Liquid Tight Flexible Metallic Conduit 1-1C #12 1-1C #8 Bare Ground
 - (B) 1" Ø Liquid Tight Flexible Metallic Conduit 1-2C #12 1-1C #8 Bare Ground



Notes:
Two circuits at 120 volts are required. One circuit serves the north side navigation lights and the other serves the south side navigation lights.

NAVIGATION LIGHTING SYSTEM REPLACEMENT

Detailed Dec. 2004
Checked Jan. 2005

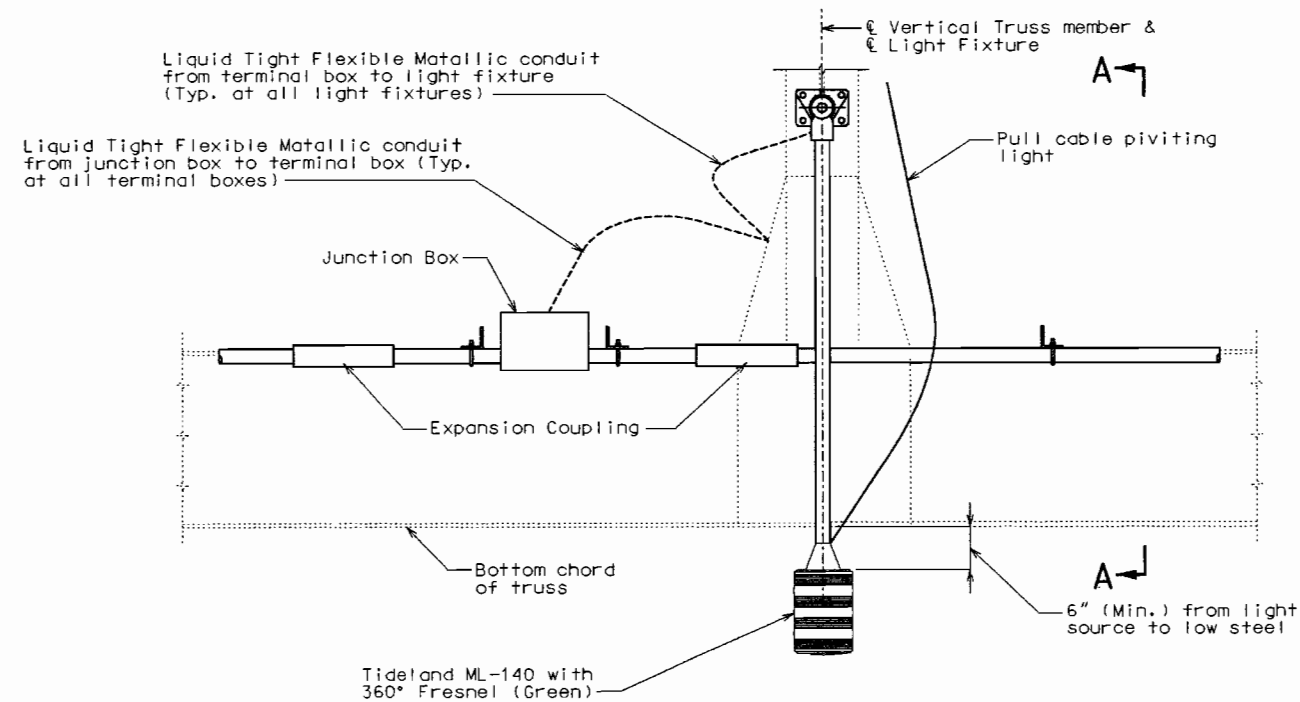
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 16 of 19

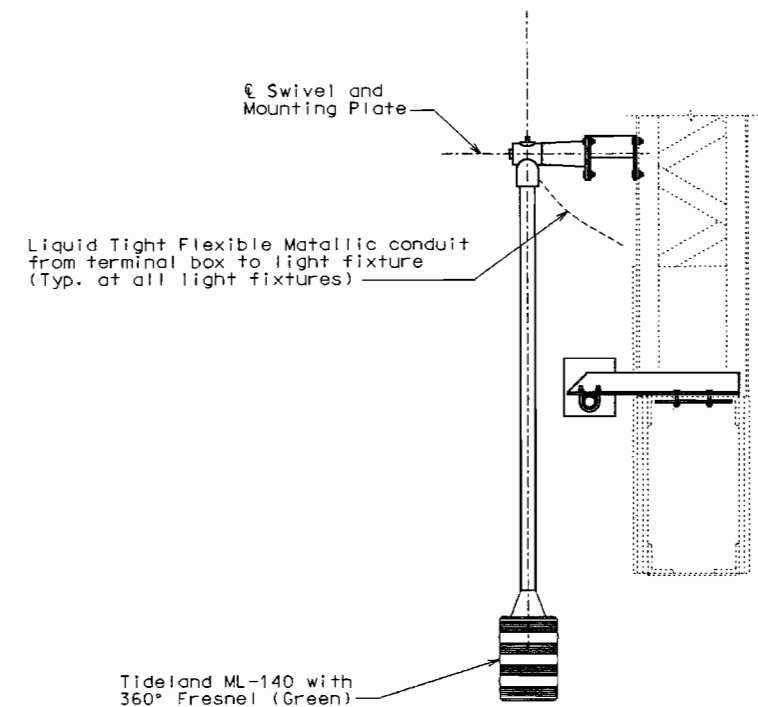
PIKE COUNTY K09324



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NAVIGATION LIGHT DETAIL AT MID-CHANNEL
(SPAN 3) (L9)



SECTION A-A

Notes:
Minimize length of flexible conduit as approved by the engineer.

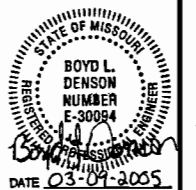
DETAILS OF NAVIGATION LIGHTING SYSTEM REPLACEMENT

Detailed Jan. 2005
Checked Jan. 2005

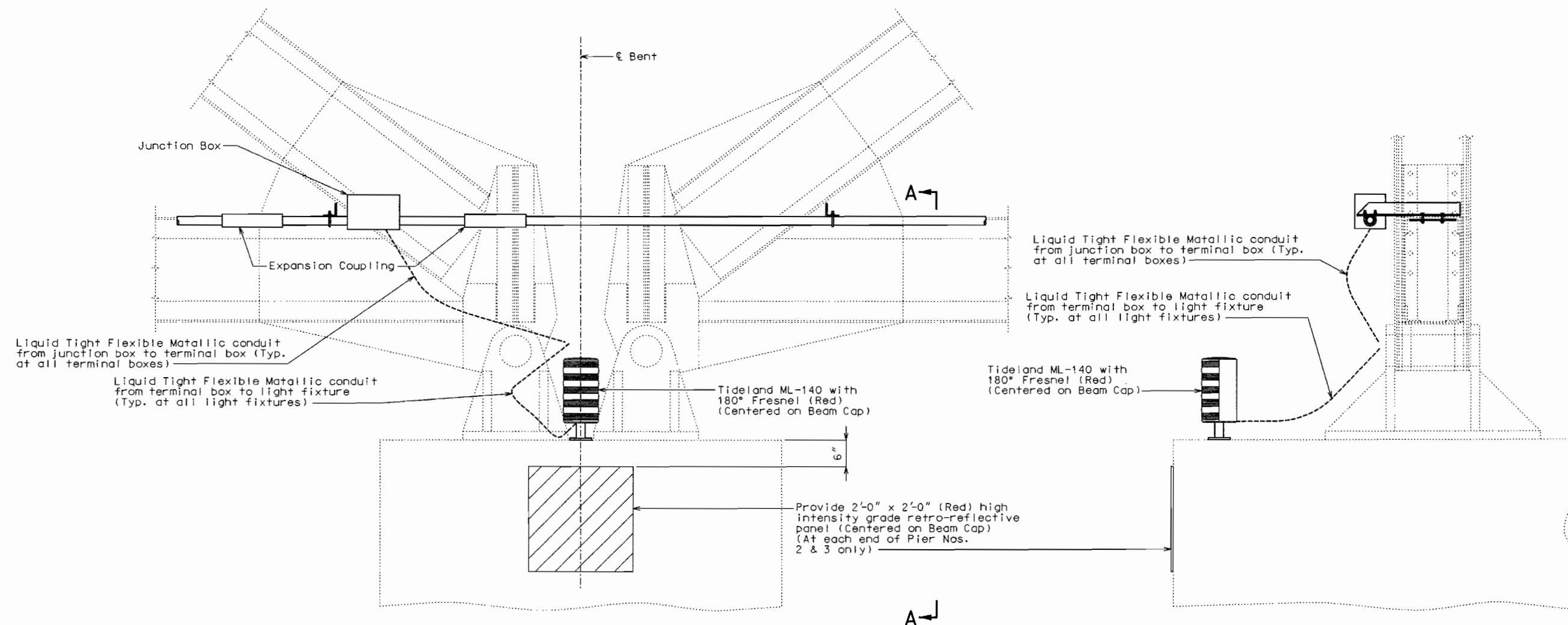
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 17 of 19

PIKE COUNTY K09324



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SECTION A-A

NAVIGATION LIGHT DETAIL AT TOP OF
PIERS 1, 2, 3, AND 4

Notes:

MoDOT Type 3 retroreflective sheeting on an aluminum flat sheet in accordance with Sec. 1042. For mounting use $\frac{3}{8}$ " ϕ stainless steel studs, washers and nut with resin anchor systems. Space aluminum flat plate away from existing concrete with $\frac{3}{8}$ " stainless steel spacers. Minimize length of flexible conduit as approved by the engineer.

The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

Cost of furnishing and installing the resin anchor system complete-in-place will be considered completely covered by the contract unit price for Navigation Lighting System.

DETAILS OF NAVIGATION LIGHTING SYSTEM REPLACEMENT

Detailed Jan. 2005
Checked Jan. 2005

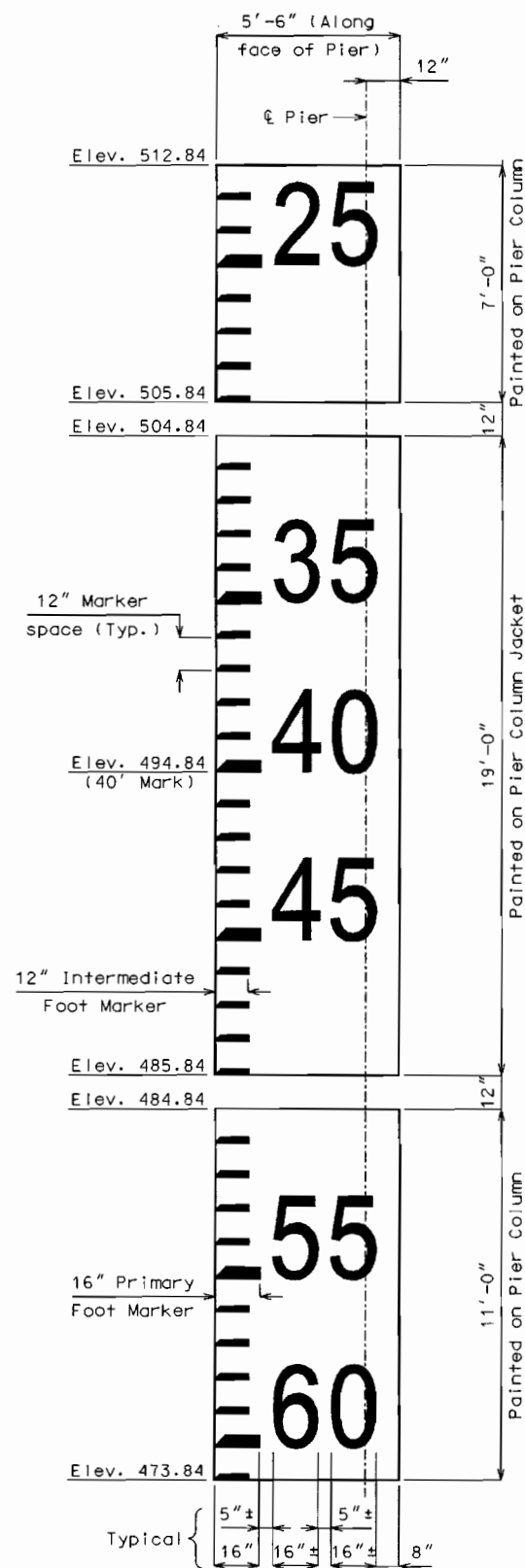
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Sheet No. 18 of 19

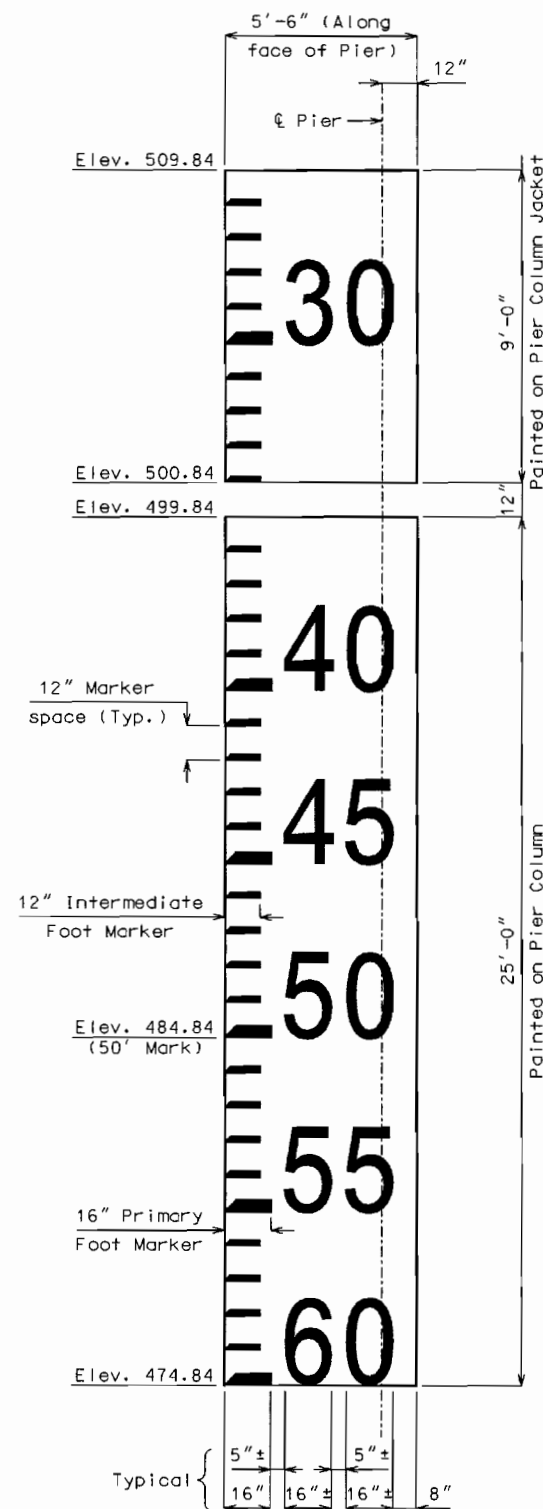


PIKE COUNTY K09324

State	Proj. No.	Sheet No.
MO		819

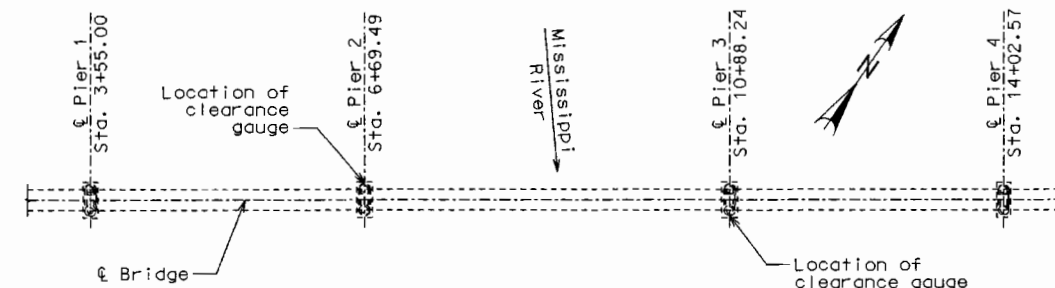


CLEARANCE GAUGE
(Upstream Side of Pier 2)



CLEARANCE GAUGE
(Downstream Side of Pier 3)

DETAILS OF CLEARANCE GAUGE



CLEARANCE GAUGE LOCATION SKETCH
(2 Clearance gauges total)

Clearance Gauge Notes:

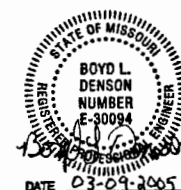
Dimensions shown are for clearance to low steel 9'-0" West of & of Pier 3 (Face of footing). Dimensions shall be adjusted as necessary to achieve that result.

Gauge shall be painted on upstream nose of Pier 2 and downstream nose of Pier 3.

See Special Provisions for paint requirements.

Numeral type shall conform with that published in Federal Highway Administration "Standard Alphabets for Highway Signs and Pavement Markings", 1977 edition. Series E numerals, 30" in height, shall be used. Stroke width of numerals and primary foot markers shall be 4".

Primary foot markers shall be spaced at 5'-0" intervals. Intermediate foot markers shall be spaced at 12" intervals between primary foot markers. Intermediate foot markers shall have a stroke width of 1/2 that noted for primary markers.



DATE 03-09-2005

PIKE COUNTY K09324

Detailed Nov. 2004
Checked Jan. 2005

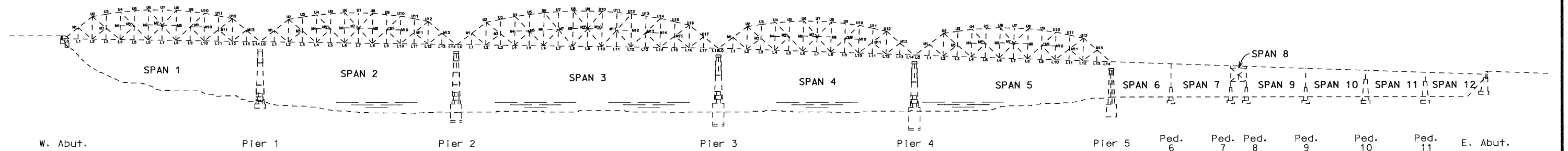
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Sheet No. 19 of 19

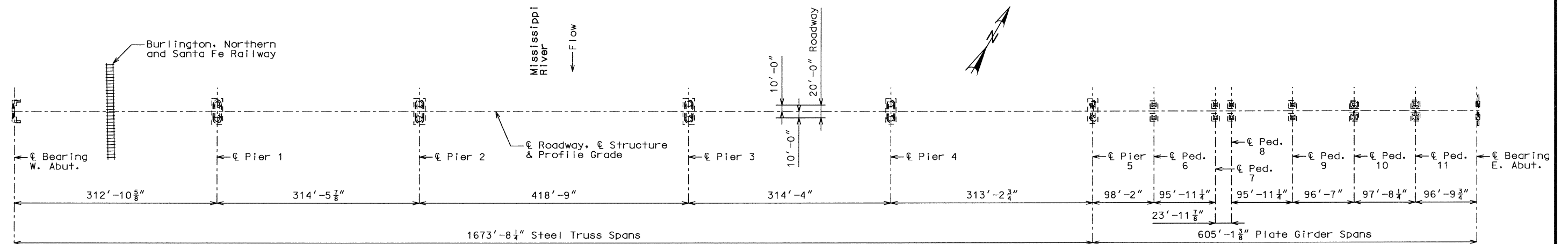
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MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION
REHABILITATE AND OVERCOAT
U.I.P. EXISTING (314', 314', 417', 314', 314') THRU TRUSS SPANS AND
(96'-96'-24'-96'-96', 96', 96') NON-REDUNDANT PLATE GIRDER SPANS

State	JOB NO. J3P0673	Sheet No.
MO	ID NO. 050422-301	B1
SEC/SUR 18	TWP 54N RGE 1W	



GENERAL ELEVATION



PLAN

Note:

For General Notes, see Sheet No. 2.

For Estimated Quantities, see Sheet No. 3.

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.

Marc Rodenburg 7/21/06
 SIGNATURE DATE

**REPAIRS TO:
 BRIDGE OVER MISSISSIPPI RIVER & BNSF RAILWAY**

AT LOUISIANA, MISSOURI

PROJECT NO. FAF-54-4(43) STA. 0+42.12± (Match Exist.)

JOB NO. J3P0673

RTE. 54

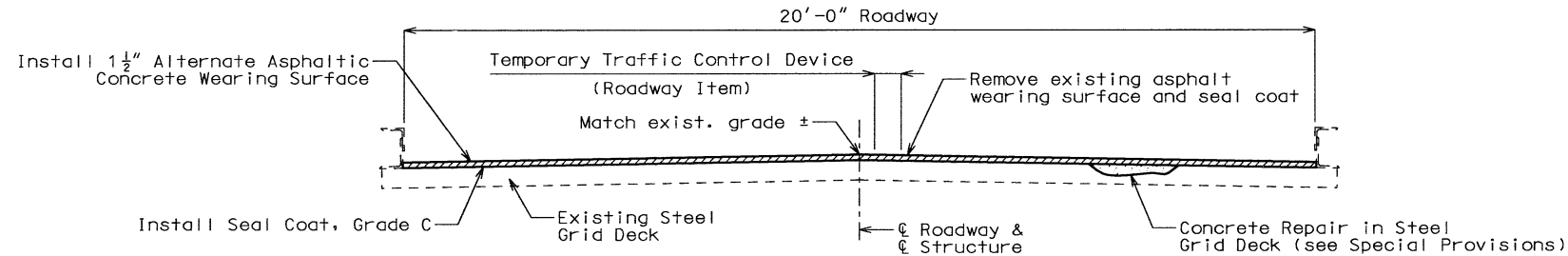
Designed June 2004
 Detailed Nov. 2004
 Checked Jan. 2005

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

PIKE COUNTY
 Date: 03/09/05

STD. 902.15
K09324

State	JOB NO. J3P0673	Sheet No.
MO	ID NO.050422-301	B2



General Notes:

Design Specifications:

2002 - AASHTO 17th Edition
Load Factor Design
Seismic Performance Category A
Bridge Deck Rating = 7

Design Loading:

H15 (1926); H20-44 (1978 Filled Grid Deck & New Bearings)
No Future Wearing Surface

Design Unit Stresses:

Class B-1 Concrete $f'c = 4,000$ psi
Structural Carbon Steel (ASTM A709 Grade 36) $f_y = 36,000$ psi
Structural Steel (ASTM A709 Grade 50) (Bearing extensions and rocker plates) $f_y = 50,000$ psi

Reinforcing Steel:

Minimum clearance to reinforcing steel shall be 1-1/2", unless otherwise shown.

Verify Dimensions:

Contractor shall verify all dimensions in field before ordering new material.

Traffic Control:

Traffic over structure to be maintained during construction.

See roadway plans for traffic control during construction.

Maintain Grade:

In order to maintain grade and a minimum thickness of overlay as shown on plans it may be necessary to use additional quantities of overlay at various locations throughout the structure. The cost of furnishing and installing the overlay will be considered completely covered in the contract unit price, including all additional labor, materials or equipment for variations in thickness of overlay.

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.

Fabricated Steel Connections:

Field connections shall be made with 3/4" diameter high strength bolts and 13/16" diameter holes, except as noted.

Structural Steel Protective Coatings:

Protective Coating: Recoat all existing ungalvanized steel including bearings, exposed grid beams, grid form pans, and curbs with 3 coat system of calcium sulfonate. Calcium sulfonate three coat system shall be in accordance with Sec 1081.

Surface Preparation:

Truss spans: Except for the grid form pans, surface preparation of all existing ungalvanized steel located in the splash zone shall be in accordance with Sec 1081 for "Recoating of Structural Steel (System G)" except that blast cleaning to SSPC-SP6 instead of SSPC-SP10 shall be performed on all exposed and accessible surfaces. Surface preparation of grid form pans and all existing steel above the splash zone shall be in accordance with Sec 1081 for "Overcoating of Structural Steel (Calcium Sulfonate System)".

Plate Girder Spans Adjacent to Joints: Except for the grid form pans, surface preparation of all existing ungalvanized steel located in the splash zone and within fifteen feet adjacent to expansion joints shall be in accordance with Sec 1081 for "Recoating of Structural Steel (System G)" except that blast cleaning to SSPC-SP6 instead of SSPC-SP10 shall be performed on all exposed and accessible surfaces. Surface preparation of grid form pans shall be in accordance with Sec 1081 for "Overcoating of Structural Steel (Calcium Sulfonate System)".

Plate Girder Spans: Surface preparation of curbs, exterior face of exterior girders and bottom surface of bottom flange of exterior girders outside of the fifteen feet adjacent to expansion joints shall be in accordance with Sec 1081 for "Recoating of Structural Steel (System G)" except that blast cleaning to SSPC-SP6 instead of SSPC-SP10 shall be performed on all exposed and accessible surfaces. Surface preparation of all other ungalvanized steel in this region shall be in accordance with Sec 1081 for "Overcoating of Structural Steel (Calcium Sulfonate System)".

SECTION THRU SLAB

Surface Preparation (cont.):

The cost of surface preparation will be considered completely covered by the contract lump sum price for "Surface Preparation for Overcoating Structural Steel".

The splash zone is defined as the entire superstructure including the bearings up to ten feet above the top of the bridge deck surface.

Chlorides shall be removed from the surfaces of all structural steel. (See Special Provisions)

Loose and detached panels under the grid deck shall be removed. This work will be considered completely covered by the contract lump sum price for "Surface Preparation for Overcoating Structural Steel".

Damaged overhead signs attached to portals shall be straightened if necessary and missing letters replaced with similar letters. Dedication plaques on end posts shall be removed and reattached after surface of end posts have been repainted. This work will be considered completely covered by the contract lump sum price for "Surface Preparation for Overcoating Structural Steel".

Rust Penetrating Sealer: The rust penetrating sealer shall be applied to the surfaces of all bearings, overlapping steel plates, pin connections, pin and hanger connections and other locations where rust bleeding, pack rust and layered rust is occurring. The cost of the rust penetrating sealer will be considered completely covered by the contract lump sum price for "Calcium Sulfonate Rust Penetrating Sealer".

Prime Coat: The cost of the prime coat will be considered completely covered by the contract lump sum price for "Calcium Sulfonate Primer".

New steel shall be coated with the prime coat and intermediate coat for System G in accordance with Sec 1081. The cost of the prime coat and intermediate coat for new steel shall be included in the contract unit price of the fabricated structural steel.

Top Coat: The color of the topcoat shall be Gray (Federal Standard #26373). The cost of the topcoat will be considered completely covered by the contract lump sum price for "Calcium Sulfonate Topcoat".

The Calcium Sulfonate topcoat shall be applied to the System G intermediate coat for new steel. The cost of the topcoat will be considered completely covered by the contract lump sum price for "Calcium Sulfonate Topcoat".

Maintenance of Bridge Deck Surface:

The contractor shall install a temporary bituminous wedge at all expansion joints in accordance with section 622.10.3.3 after the existing asphalt wearing surface has been removed and prior to the re-opening of the bridge to traffic. The wedge shall stay in place and be maintained until the time the bridge is closed to place the new asphalt wearing surface. The contractor shall also perform all maintenance on the bridge deck during the project duration, including installation and maintenance of temporary striping. Cost for maintenance on the bridge deck, placing and removing temporary wedges and providing temporary marking will be considered completely covered in the contract unit price of other items.

Miscellaneous:

Outline of old work is indicated by dashed lines. Heavy lines indicate new work.

"Sec" refers to the sections in the standard and supplemental specifications unless specified otherwise.

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.

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.

May Rodenbush 7/21/06
SIGNATURE DATE

PIKE COUNTY K09324

Final Quantities		
Item		Total
Removal of Asphalt Wearing Surface	sq. foot	44,874
Removal of Existing Expansion Joints & Adjacent Concrete	linear foot	40
Removal of Existing Expansion Joint Seal or Sealant	linear foot	100
Alternate Asphaltic Concrete Wearing Surface (Bridge)	sq. yard	4,986
Seal Coat, Grade C	sq. yard	4,986
Polymer Concrete	cu. foot	7
Clearance Gauge	lump sum	1
Substructure Repair (Formed)	sq. foot	87
Substructure Repair (Unformed)	sq. foot	382
Concrete Repair in Steel Grid Deck	sq. foot	75
Removal of Deteriorated Concrete Wearing Surface	sq. foot	54
Protective Coating - Concrete Bents and Piers (Urethane)	lump sum	1
Surface Preparation for Overcoating Structural Steel	lump sum	1
Calcium Sulfonate Rust Penetrating Sealer	lump sum	1
Calcium Sulfonate Primer	lump sum	1
Calcium Sulfonate Topcoat	lump sum	1
Removal of Construction Clip Angles	each	456
Remove and Replace Hanger Strap	each	74
Remove and Replace Gusset Plate	each	36
Remove and Replace Sway Bracing	each	4
Remove and Replace Tie Plate	each	900
Replace Lateral Bracing	each	1
Rivet Removal and Replacement	each	124
Remove and Replace Floor Beam Flange Angle	each	11
Remove and Replace Stiffener	each	41
Remove and Replace Guardrail Attachment	each	4
Removal of Existing Bearings and Anchor Bolts	each	12
Modification to Existing Rocker Bearings	each	8
Steel Armor Repair	linear foot	10
Laminated Neoprene Bearing Pad Assembly	each	12
Strip Seal Expansion Joint System	linear foot	40
Strip Seal	linear foot	60
Silicone Expansion Joint Sealant	linear foot	40
Navigation Lighting System	lump sum	1
Remove and Replace End of Lateral Bracing	each	7
Remove and Replace Lacing	lump sum	1
Remove and Replace Lower Sway Bracing	each	4
Grid Support	linear foot	54

1
Added

2
Added

3
Added

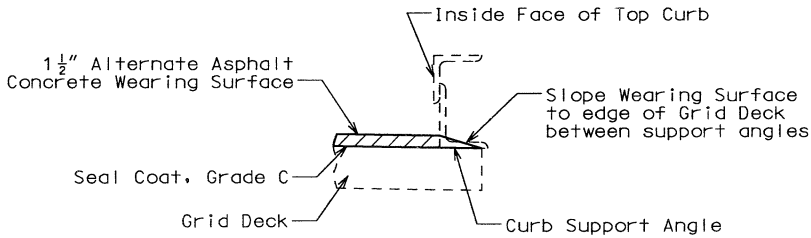
ESTIMATE JACKING DEADLOAD PER BEARING	
Location	Load (kips)
Pier 1 - Truss Span 1	276
Pier 2 - Truss Span 2	276
Pier 4 - Truss Span 4	276
Pier 5 - Truss Span 5	276
Pier 5 - Plate Girder Span 6	60
Pedestal 10 - Plate Girder Span 10	60
Pedestal 10 - Plate Girder Span 11	75
Pedestal 11 - Plate Girder Span 11 & 12	75
East Abutment - Plate Girder Span 12	75

FINAL PLANS

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May Rodenburg
SIGNATURE

7/21/06
DATE



SECTION THRU CURB

Alternate Asphaltic Concrete Wearing Surface	
Type of Wearing Surface with Asphalt Binder Type	Mix Used (✓)
SP125BSM Mix with PG 70-22	
SP125CLP Mix with PG 70-22	X

MoDOT construction personnel shall complete column labeled "Mix Used (✓)".

Notes:

The contractor shall select one of the alternate asphaltic concrete wearing surfaces listed in the table. The mixture shall be in accordance with Sec 403 and produced in accordance with Sec 404.

The area of the asphaltic concrete wearing surface will be measured and computed to the nearest square yard. This area will be measured transversely from inside curb face to inside curb face and longitudinally from end of grid deck at west abutment to end of grid deck at east abutment excluding all deck joints and adjacent concrete wearing surface.

Cost of additional asphaltic concrete wearing surface required under top curb angles and between curb support angles to the outside of the grid deck will be considered completely covered by the contract unit price for Alternate Asphaltic Concrete Wearing Surface (Bridge).

The area of the removal of asphalt wearing surface will be measured and computed to the nearest square foot. This area will be measured transversely from inside curb face to inside curb face and longitudinally from end of grid deck at west abutment to end of grid deck at east abutment excluding all deck joints and adjacent concrete wearing surface.

Cost of additional removal of asphalt wearing surface required under top curb angles and between curb support angles to the outside of the grid deck will be considered completely covered by the contract unit price for Removal of Asphalt Wearing Surface.

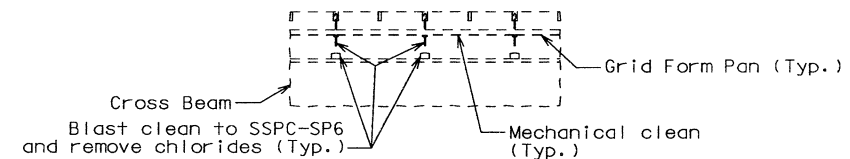
The cost of removing seal coat will be considered completely covered by the contract unit price for Removal of Asphalt Wearing Surface.

3 Revised 09/08/2005

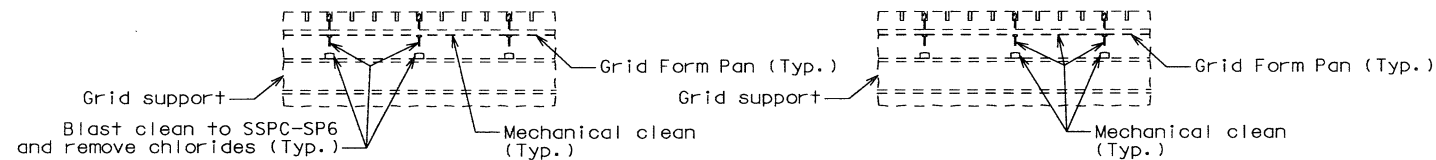
2 Revised 07/19/2005

1 Revised 07/07/2005

State	JOB NO. J3P0673	Sheet No.
MO	ID NO. 050422-301	B4

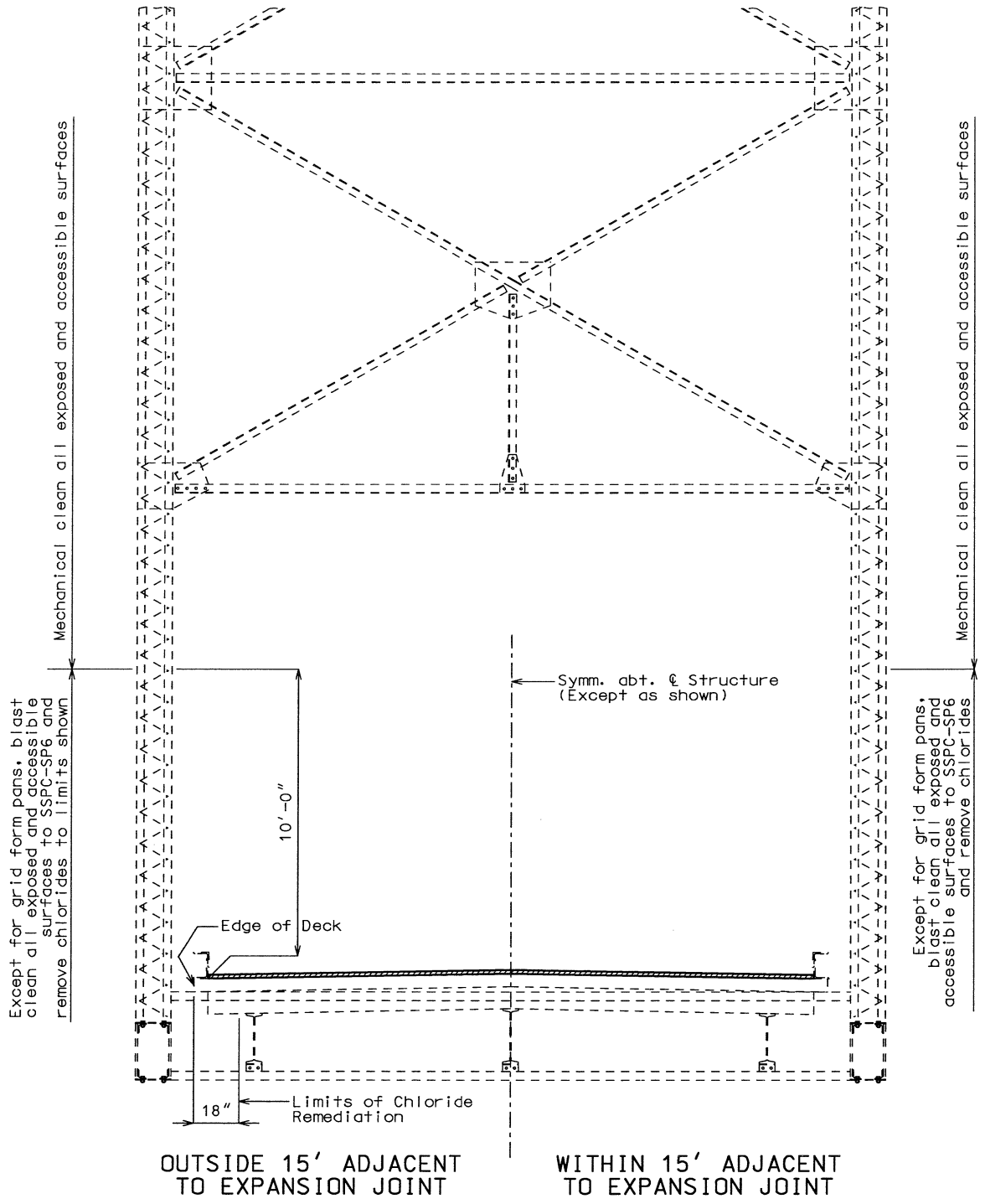


PART SECTION THRU GRID DECK
IN TRUSS SPANS

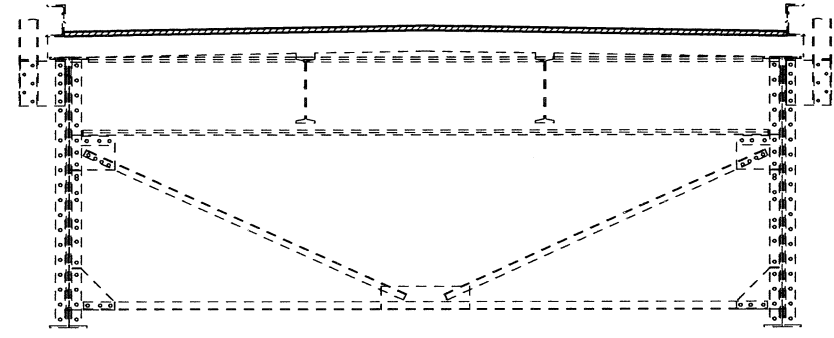


PART SECTION THRU GRID DECK
IN PLATE GIRDER SPANS
WITHIN 15' OF EXP. JOINT

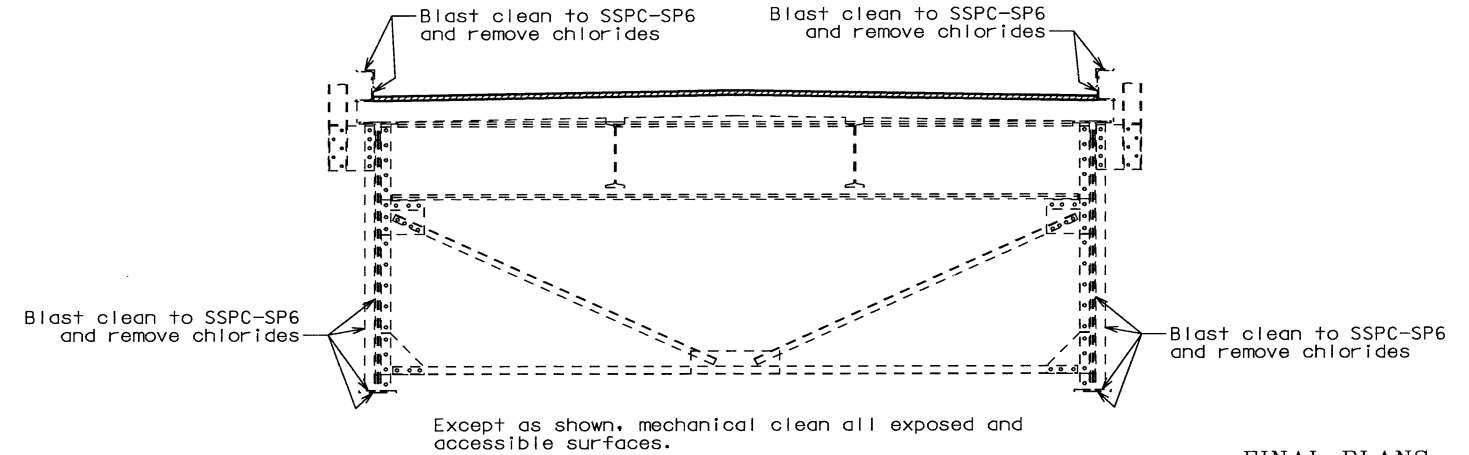
PART SECTION THRU GRID DECK
IN PLATE GIRDER SPANS
OUTSIDE 15' OF EXP. JOINT



PART SECTION THRU TRUSS SPAN



PART SECTION THRU PLATE GIRDER SPAN
WITHIN 15' ADJACENT TO EXPANSION JOINTS



PART SECTION THRU PLATE GIRDER SPAN
OUTSIDE 15' ADJACENT TO EXPANSION JOINTS

DETAILS SHOWING SURFACE PREPARATION LIMITS

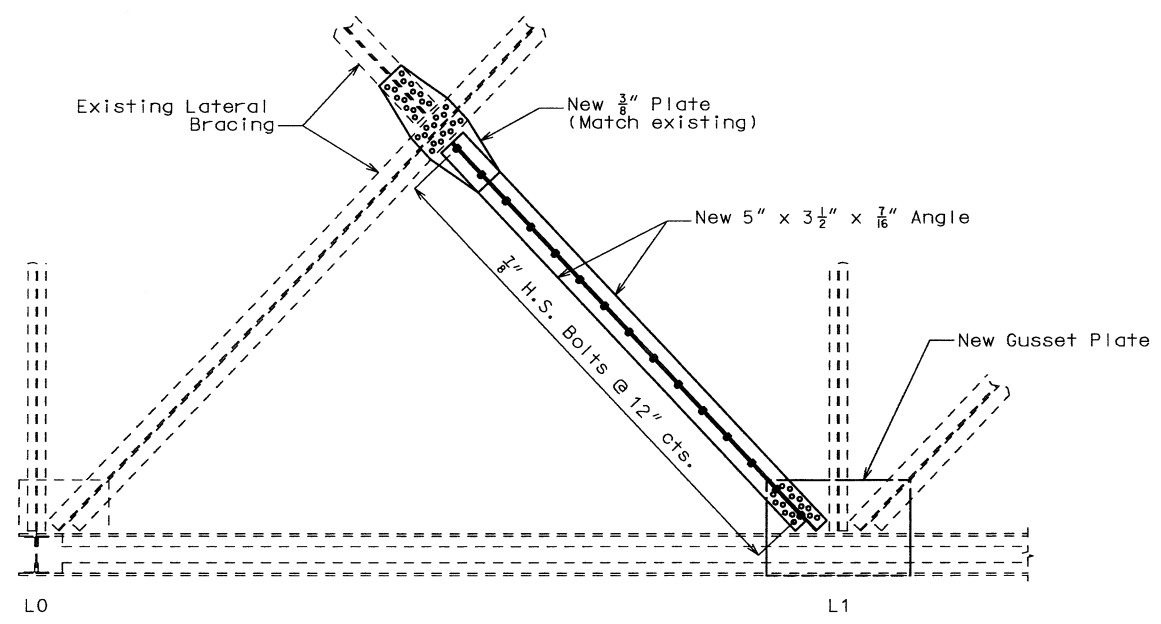
FINAL PLANS

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Mary Ruder 7/21/06
SIGNATURE DATE

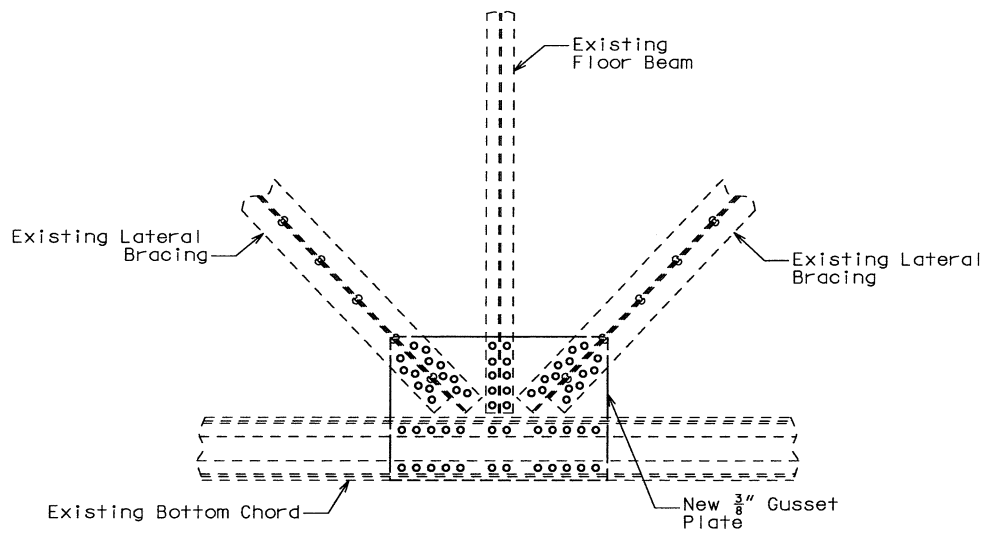
PIKE COUNTY K09324

State	JOB NO. J3P0673	Sheet No.
MO	ID NO. 050422-301	B5



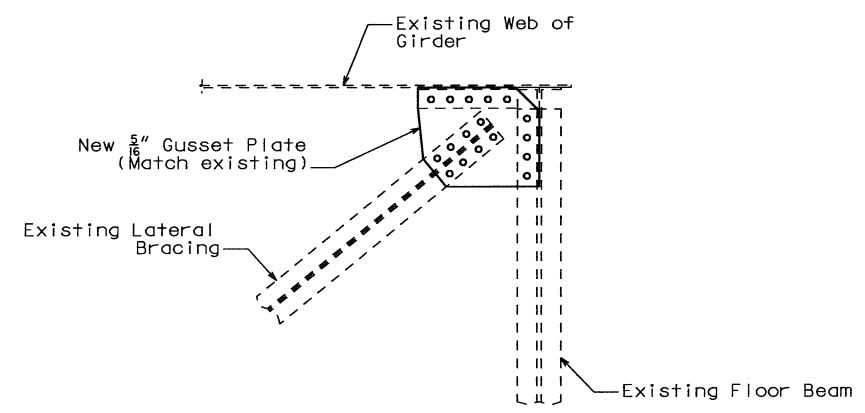
PART PLAN OF LATERAL BRACING REPLACEMENT
ADJACENT TO L1 AT SPAN 2

Note: Match existing hole locations in existing lateral bracing and gusset plates. Replace rivets with H.S. bolts. See Special Provisions for Rivet Replacement except that cost of work and material to complete this item including the new 3/8" plate will be considered completely covered by the contract unit price for Replace Lateral Bracing. (Typ.)



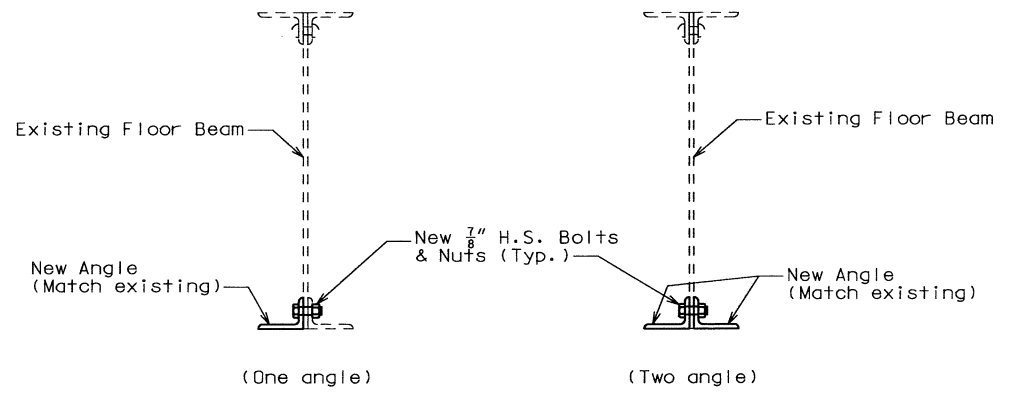
PART PLAN OF LATERAL BRACING SHOWING
GUSSET PLATE REPLACEMENT IN TRUSS SPANS

Note: Match existing hole locations in existing bottom chord, lateral bracing and floor beam. Replace rivets with H.S. bolts. See Special Provisions for Rivet Replacement except that cost of work and material to complete this item will be considered completely covered by the contract unit price for Remove and Replace Gusset Plate. (Typ.)



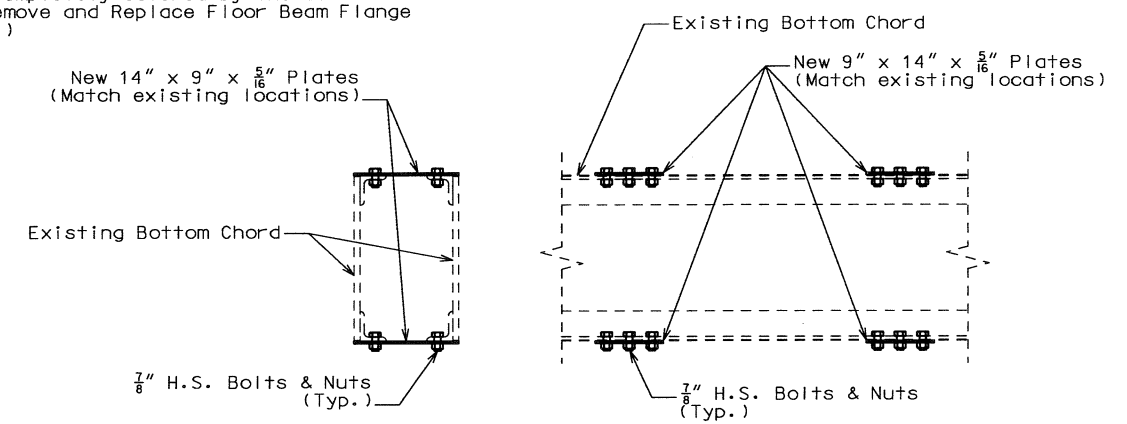
PLAN VIEW OF LATERAL BRACING SHOWING
GUSSET REPLACEMENT IN PLATE GIRDER SPANS

Note: Match existing hole locations in existing floor beam and lateral bracing. Replace rivets with H.S. bolts. See Special Provisions for Rivet Replacement except that cost of work and material to complete this item will be considered completely covered by the contract unit price for Remove and Replace Gusset Plate. (Typ.)



DETAILS SHOWING FLOOR BEAM
BOTTOM ANGLE REPLACEMENT

Note: Match existing hole locations in existing floor beam. Replace rivets with H.S. bolts. See Special Provisions for Rivet Replacement except that cost of work and material to complete this item will be considered completely covered by the contract unit price for Remove and Replace Floor Beam Flange Angle. (Typ.)



PART ELEVATION SHOWING
TIE PLATE REPLACEMENT

Note: Match existing hole locations in existing bottom chord. Replace rivets with H.S. bolts. See Special Provisions for Rivet Replacement except that cost of work and material to complete this item will be considered completely covered by the contract unit price for Remove and Replace Tie Plate. (Typ.)

FINAL PLANS

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Mary Roderick
 SIGNATURE

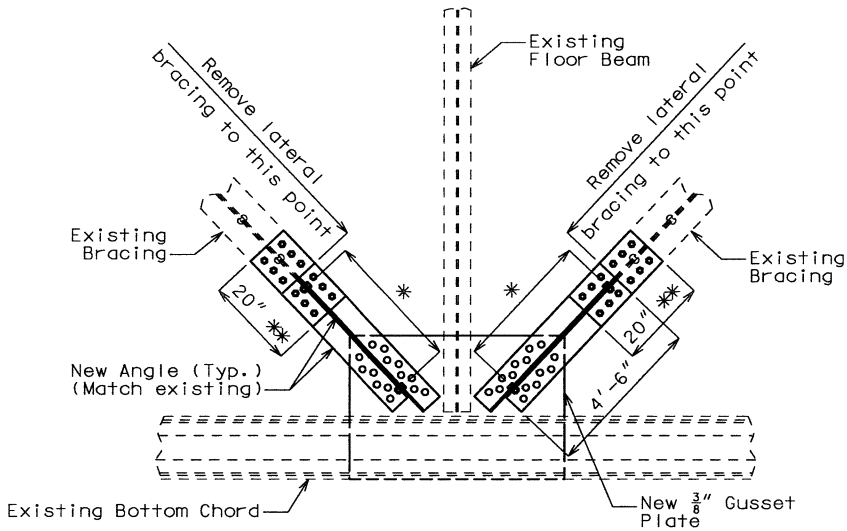
7/21/06
 DATE

DETAILS OF STRUCTURAL STEEL REPAIR

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

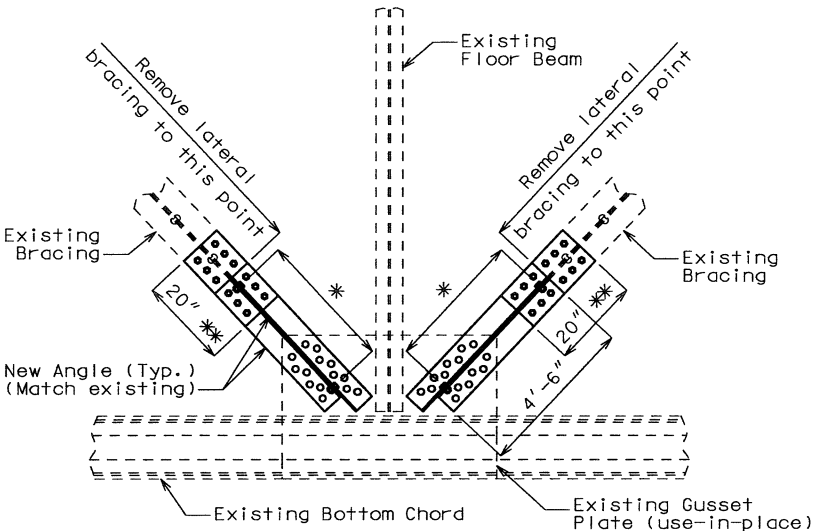
PIKE COUNTY K09324

Detailed Jan. 2005
Checked Jan. 2005



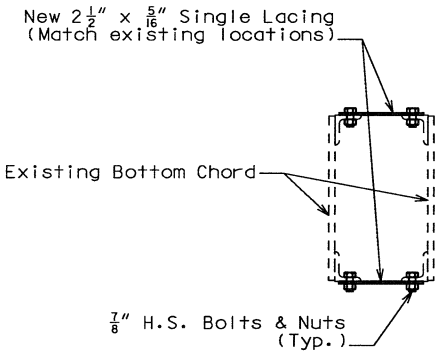
PART PLAN OF LATERAL BRACING SHOWING
PARTIAL LATERAL BRACING REPLACEMENT
AT NEW GUSSET PLATE LOCATION

Note: Match existing hole locations of the existing removed gusset plate. Replace rivets with H.S. bolts. See Special Provisions for Rivet Replacement except that cost of work and material to complete this item will be considered completely covered by the contract unit price for Remove and Replace End of Lateral Bracing. (Typ.)



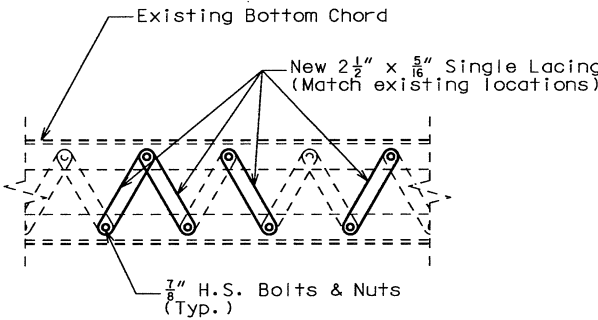
PART PLAN OF LATERAL BRACING SHOWING
PARTIAL LATERAL BRACING REPLACEMENT

Note: Match existing hole locations in existing gusset plate. Replace rivets with H.S. bolts. See Special Provisions for Rivet Replacement except that cost of work and material to complete this item will be considered completely covered by the contract unit price for Remove and Replace End of Lateral Bracing. (Typ.)



SECTION THRU
BOTTOM CHORD

Note: Match existing hole locations in existing bottom chord. Replace rivets with H.S. bolts. See Special Provisions for Rivet Replacement except that cost of work and material to complete this item will be considered completely covered by the contract unit price for Remove and Replace Lacing. (Typ.)



PART PLAN SHOWING
LACING REPLACEMENT

Notes:

* $\frac{7}{8}$ " H.S. Bolts @ 5" cts.

** Splice Plate

For detail of gusset plate replacement, see Sheet No. 5.

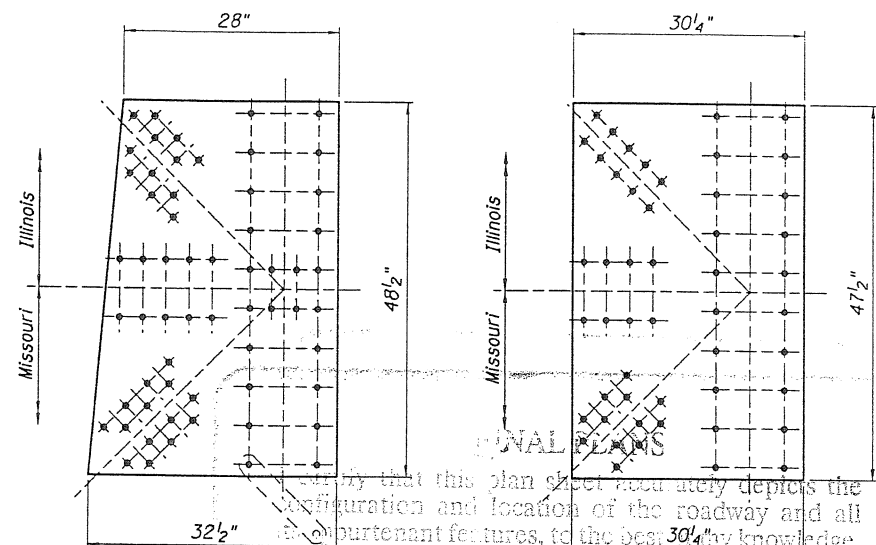
For detail of splice plate for partial lateral bracing replacement, see Sheet No. 5.

FINAL PLANS

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Max Rodenbeck 7/21/06
SIGNATURE DATE

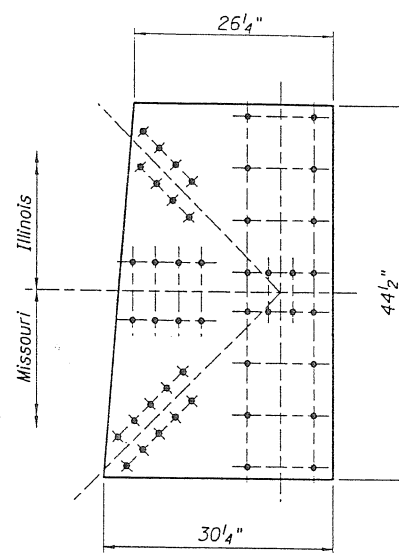
DETAILS OF STRUCTURAL STEEL REPAIR



TYPE 'A' construction of this project. I and my staff have observed the contractor's construction and I disclaim responsibility for the design of this project.

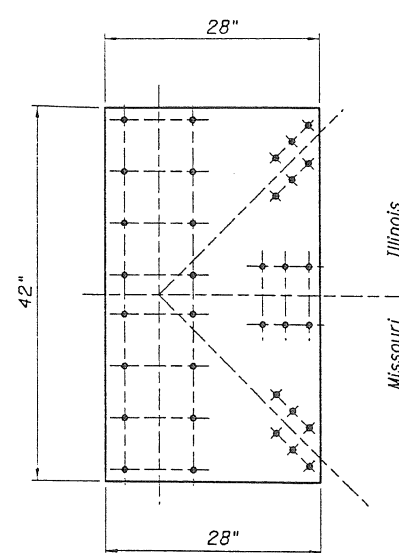
LOCATIONS:
 SPAN 1 - L1 Rt. Shown
 SPAN 1 - L1 Lt. Opposite Hand
 SPAN 2 - L1 Rt.
 SPAN 4 - L1 Lt. Opposite Hand
 SPAN 4 - L1 Rt.

May Ruben
 Signature Date 7/21/06



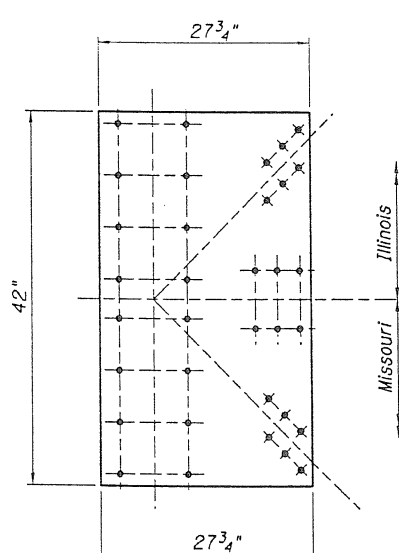
TYPE 'C'
 Total Required = 2

LOCATIONS:
 SPAN 1 - L3 Rt. Shown
 SPAN 1 - L3 Lt. Opposite Hand



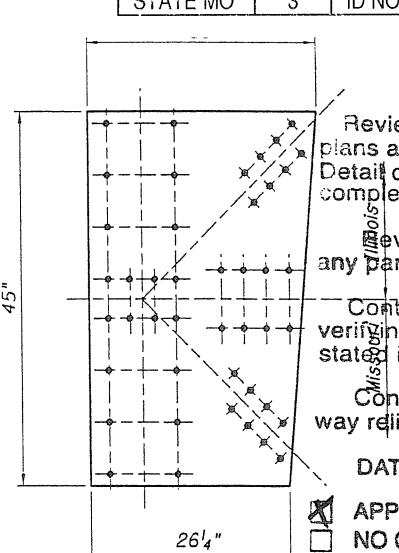
TYPE 'D'
 Total Required = 1

LOCATIONS:
 SPAN 1 - L4 Lt. Shown



TYPE 'E'
 Total Required = 1

LOCATIONS:
 SPAN 1 - L8 Lt. Shown



TYPE 'F'
 Total Required = 3

LOCATIONS:
 SPAN 1 - L11 Lt. Shown
 SPAN 1 - L11 Rt. Opposite Hand
 SPAN 2 - L11 Rt. Opposite Hand

Reviewed for general conformity with plans and specifications. Detail dimensions and quantities not completely checked.
 Review is not intended to coordinate any party or miscellaneous item.
 Contractor is solely responsible for verifying field measurements when stated in plans and/or specifications.
 Contractor's responsibility is in no way relieved by this review.

DATE 8-18-05

- ☒ APPROVED DESIGN FEATURES
☐ NO CORRECTIONS NOTED
☐ CORRECTIONS NOTED
☐ FOR FILES AND DISTRIBUTION
 MoDOT - BRIDGES

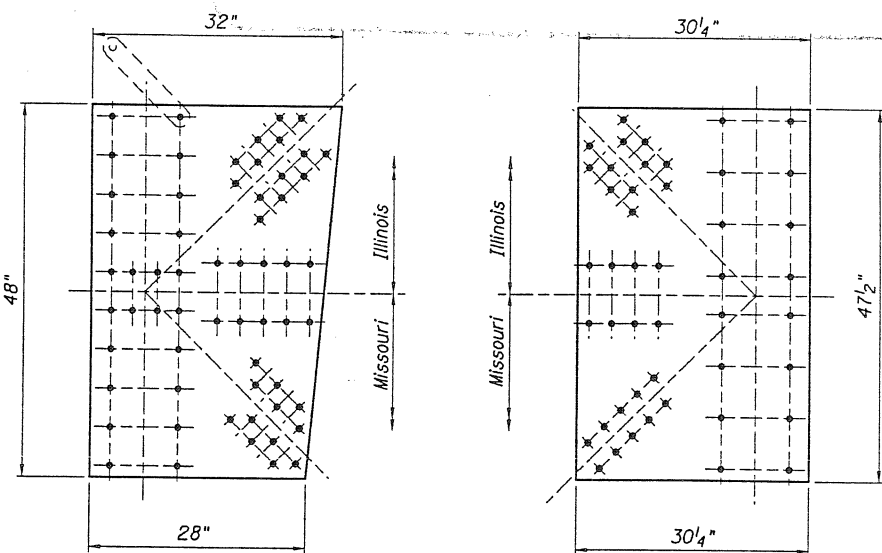
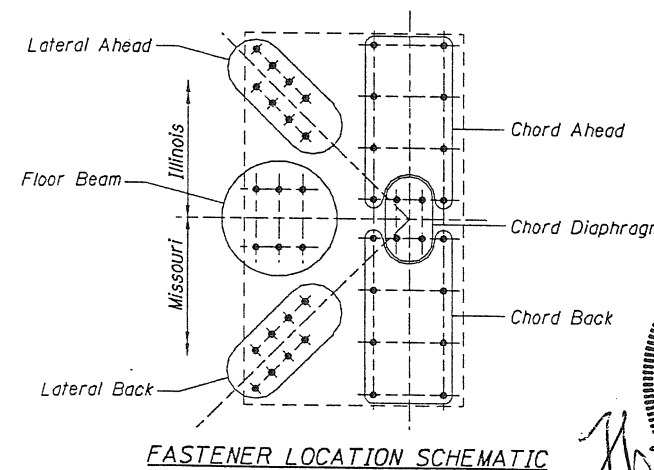
FASTENER REQUIREMENTS - (NUMBER and LENGTH)

Gusset Type	Number Required	Chord Back		Chord Diaphragm		Chord Ahead		Lateral Back		Floor Beam		Lateral Ahead		Bolts Thru Lacing	
		Number	Length	Number	Length	Number	Length	Number	Length	Number	Length	Number	Length	Number	Length
TYPE 'A'	5	9	2 1/8"	4	2 1/8"	10	2 1/8"	14	2 1/8"	10	2 1/4"	12	2 1/8"	1	2 1/2"
TYPE 'B'	2	8	2 1/8"	4	2 1/8"	8	2 1/8"	12	2 1/8"	8	2 1/4"	10	2 1/8"	-	-
TYPE 'C'	2	8	2 1/8"	4	2 1/8"	8	2 1/8"	10	2 1/8"	8	2 1/4"	8	2 1/8"	-	-
TYPE 'D'	1	6	2 1/8"	4	2 1/8"	6	2 1/8"	6	2 1/8"	6	2 1/4"	6	2 1/8"	-	-
TYPE 'E'	1	6	2 1/8"	4	2 1/8"	6	2 1/8"	6	2 1/8"	6	2 1/4"	6	2 1/8"	-	-
TYPE 'F'	3	8	2 1/8"	4	2 1/8"	8	2 1/8"	8	2 1/8"	8	2 1/4"	8	2 1/8"	-	-
TYPE 'G'	8	10	2 1/8"	4	2 1/8"	9	2 1/8"	12	2 1/8"	10	2 1/4"	14	2 1/8"	1	2 1/2"
TYPE 'H'	3	6	2 1/8"	4	2 1/8"	6	2 1/8"	10	2 1/8"	8	2 1/4"	12	2 1/8"	-	-
TYPE 'I'	1	8	2 1/8"	4	2 1/8"	8	2 1/8"	8	2 1/8"	6	2 1/4"	8	2 1/8"	-	-

(Each Bolt Shall Include 1 Round Washer and 1 Nut)

FASTENER SUMMARY

Bolt Length	Number Required
2 1/8"	1111
2 1/4"	228
2 1/2"	13
Total	1352

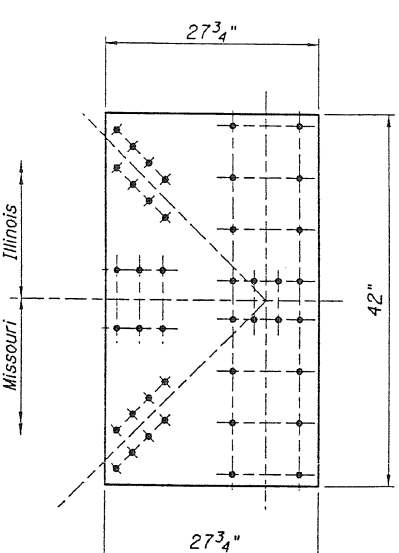


TYPE 'G'
 Total Required = 8

LOCATIONS:
 SPAN 1 - L13 Lt. Shown
 SPAN 1 - L13 Rt. Opposite Hand
 SPAN 2 - L13 Lt.
 SPAN 2 - L13 Rt. Opposite Hand
 SPAN 4 - L13 Lt.
 SPAN 4 - L13 Rt. Opposite Hand
 SPAN 5 - L13 Lt.
 SPAN 5 - L13 Rt. Opposite Hand

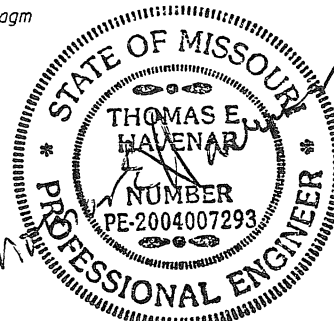
TYPE 'H'
 Total Required = 3

LOCATIONS:
 SPAN 2 - L12 Rt. Shown
 SPAN 4 - L12 Rt.
 SPAN 4 - L12 Lt. Opposite Hand



TYPE 'I'
 Total Required = 1

LOCATIONS:
 SPAN 4 - L6 Rt. Shown



All Gusset Plates are 3/8" thick.
 All Holes are 15/16" for 1/2" Dia. A325 Bolts.
 Field Locate all Holes.

REPLACEMENT GUSSETS - SPANS 1,2,4 & 5
 U.S. ROUTE 54 over MISSISSIPPI RIVER
 PIKE COUNTY, MISSOURI
 PROJECT NO. F.A.S.-54-4(43)
 JOB NO. J3P0673
 BRIDGE NO. K09324

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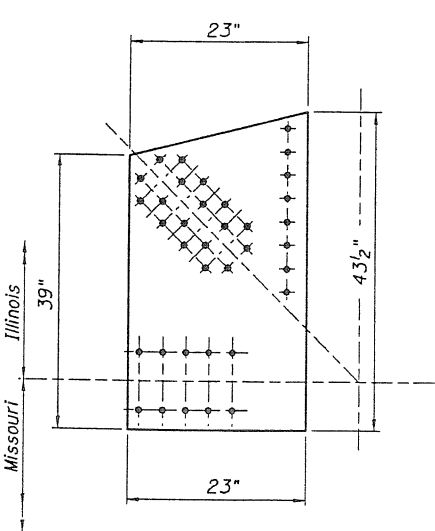
JOB NO.

05S2064

DATE

08/15/05

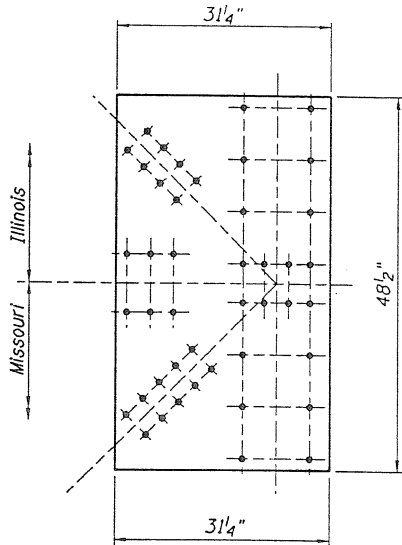
8/15/05



TYPE 'J'
Total Required = 2

LOCATIONS:

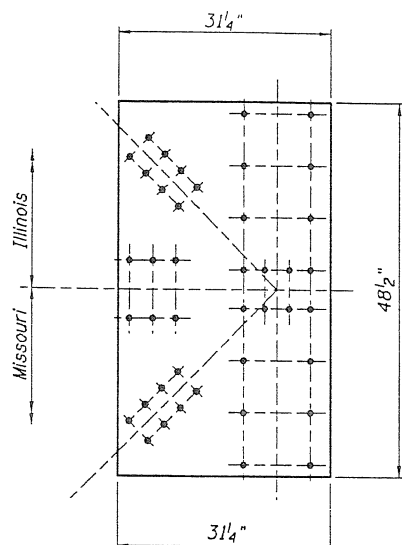
L0 Rt. Shown
L18 Rt. Opposite Hand



TYPE 'K'
Total Required = 1

LOCATIONS:

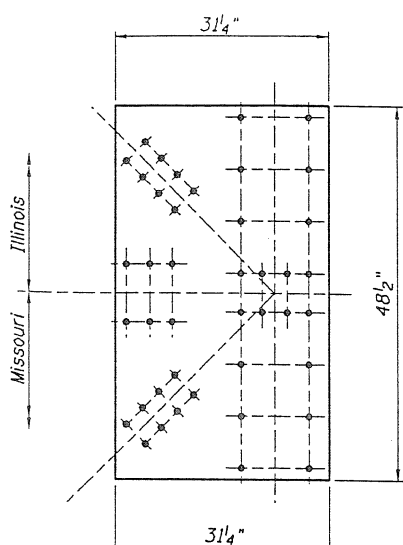
L7 Rt. Shown



TYPE 'L'
Total Required = 1

LOCATIONS:

L9 Rt. Shown



TYPE 'M'
Total Required = 1

LOCATIONS:

L10 Rt. Shown

Reviewed for general conformity to plans and specifications. Detail dimensions and quantities not completely checked.

Review is not intended to coordinate any party or miscellaneous item.

Contractor is solely responsible for verifying field measurements when so stated in plans and/or specifications

Contractors responsibility is in no way relieved by this review.

DATE 8-18-05

- ☒ APPROVED DESIGN FEATURES ONLY
☐ NO CORRECTIONS NOTED
☐ CORRECTIONS NOTED
☐ FOR FILES AND DISTRIBUTION
MoDOT - BRIDGES

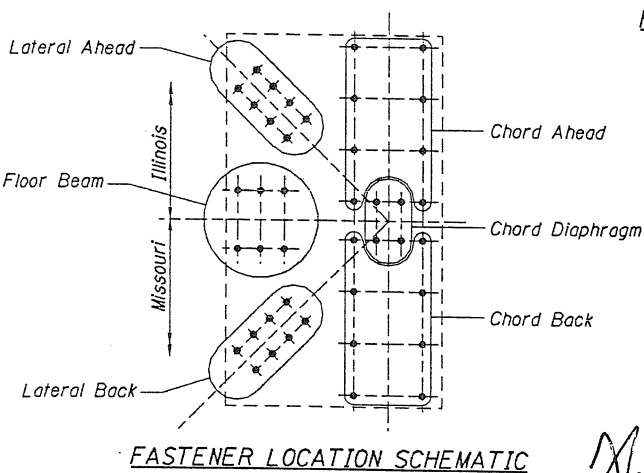
FASTENER REQUIREMENTS - (NUMBER and LENGTH)

Gusset Type	Number Required	Chord Back		Chord Diaphragm		Chord Ahead		Lateral Back		Floor Beam		Lateral Ahead		Bolts Thru Lacing	
		Number	Length	Number	Length	Number	Length	Number	Length	Number	Length	Number	Length	Number	Length
TYPE 'J'	2	-	-	-	-	8	2 1/8"	-	-	10	2 1/4"	18	2 1/8"	-	-
TYPE 'K'	1	8	2 1/8"	4	2 1/8"	8	2 1/8"	10	2 1/8"	6	2 1/4"	8	2 1/8"	-	-
TYPE 'L'	1	8	2 1/8"	4	2 1/8"	8	2 1/8"	8	2 1/8"	6	2 1/4"	8	2 1/8"	-	-
TYPE 'M'	1	8	2 1/8"	4	2 1/8"	8	2 1/8"	8	2 1/8"	6	2 1/4"	8	2 1/8"	-	-

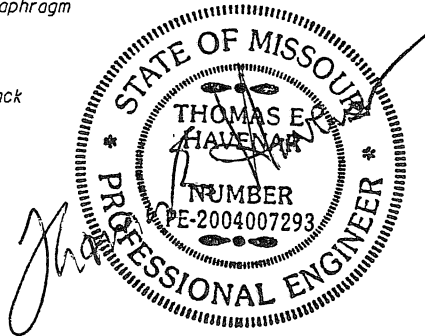
(Each Bolt Shall Include 1 Round Washer and 1 Nut)

FASTENER SUMMARY

Bolt Length	Number Required
2 1/8"	162
2 1/4"	38
Total	200



FASTENER LOCATION SCHEMATIC



All Gusset Plates are 3/8" thick.
All Holes are 5/16" for 3/8" Dia. A325 Bolts.
Field Locate all Holes.

REPLACEMENT GUSSETS - SPAN 3
U.S. ROUTE 54 over MISSISSIPPI RIVER
PIKE COUNTY, MISSOURI
PROJECT NO. F.A.S.-54-4(43)
JOB NO. J3P0673
BRIDGE NO. K09324

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JOB NO.

05S2064

DATE

08/15/05

FINAL PLANS

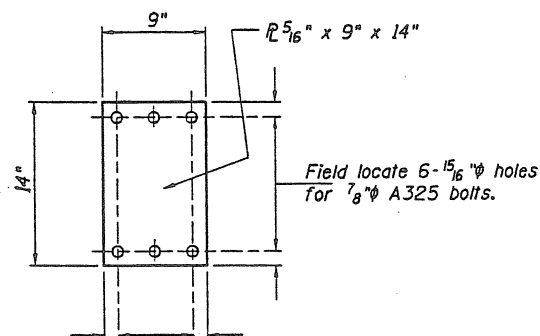
I certify that this plan sheet accurately depicts the configuration and location of the roadway and all its appurtenant features, to the best of my knowledge, as I and my staff have observed the contractor's construction of this project. I specifically disclaim any responsibility for the design of this 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.

Mary Rodenbarger

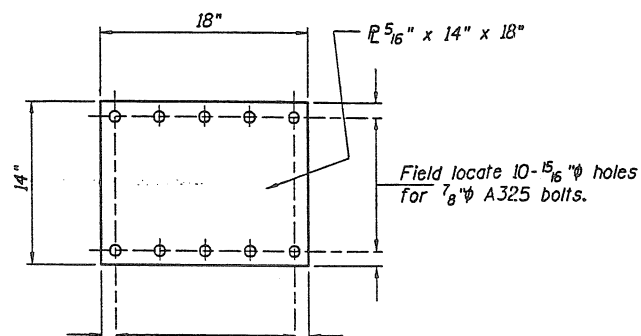
7/21/06

Date

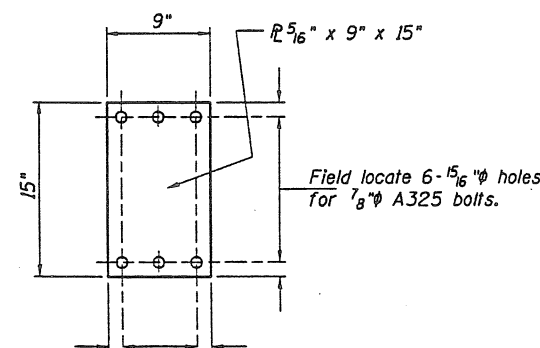
ROUTE 54	DIST	JOB NO. J3P0673	SHEET
STATE MO	3	ID NO. 050422-301	B9



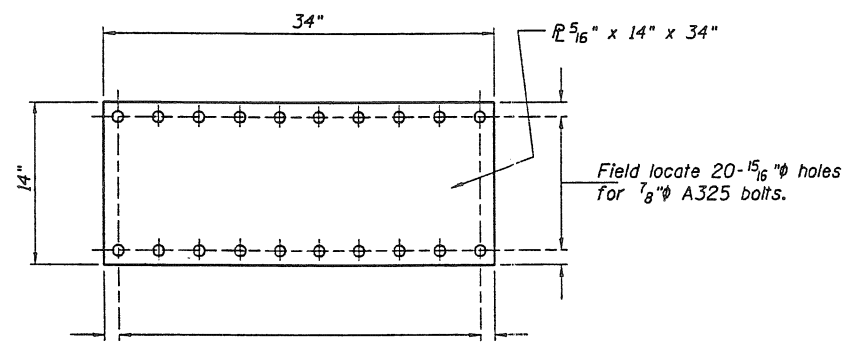
STAY PLATES
Spans 1, 2, 4 & 5
(462 Required)



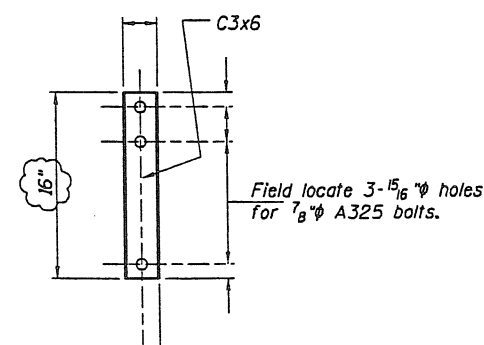
STAY PLATES
Spans 1 thru 5
(38 Required)



STAY PLATES
Span 3
(145 Required)



SPLICE PLATES
Spans 1 thru 5
(85 Required)



LATERAL BRACING HANGER STRAP
Spans 1 thru 5
(74 Required)

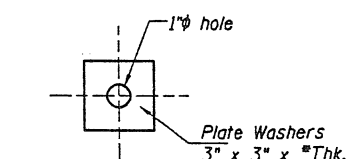


PLATE WASHER SHIMS

Provide:
80 ea. - 1/8" th.
160 ea. - 1/4" th.
160 ea. - 1/2" th.
160 ea. - 3/4" th.

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.

Mary Redenbaugh 7/21/06
Signature Date

Reviewed for general conformity to plans and specifications. Detail dimensions and quantities not completely checked.

Review is not intended to coordinate any party or miscellaneous item.

Contractor is solely responsible for verifying field measurements when so stated in plans and/or specifications.

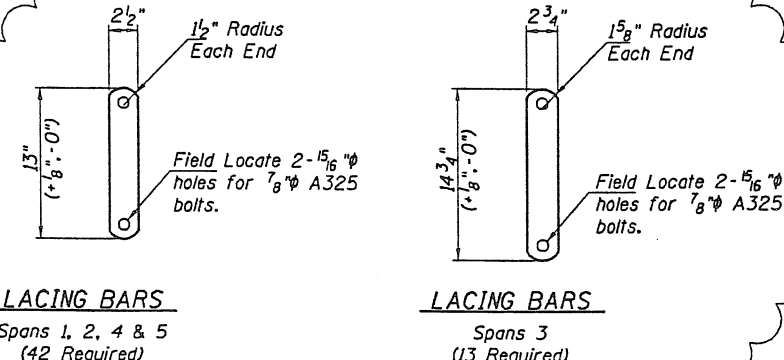
Contractors responsibility is in no way relieved by this review.

DATE 8-11-05

- ☒ APPROVED DESIGN FEATURES ONLY
- ☐ NO CORRECTIONS NOTED
- ☐ CORRECTIONS NOTED
- ☐ FOR FILES AND DISTRIBUTION
- MoDOT - BRIDGES



8/1/05



LACING BARS
Spans 1, 2, 4 & 5
(42 Required)

LACING BARS
Span 3
(13 Required)

REPLACEMENT COMPONENTS
U.S ROUTE 54 over MISSISSIPPI RIVER
PIKE COUNTY, MISSOURI
PROJECT NO. F.A.S.-54-4(43)
JOB NO. J3P0673
BRIDGE NO. K09324

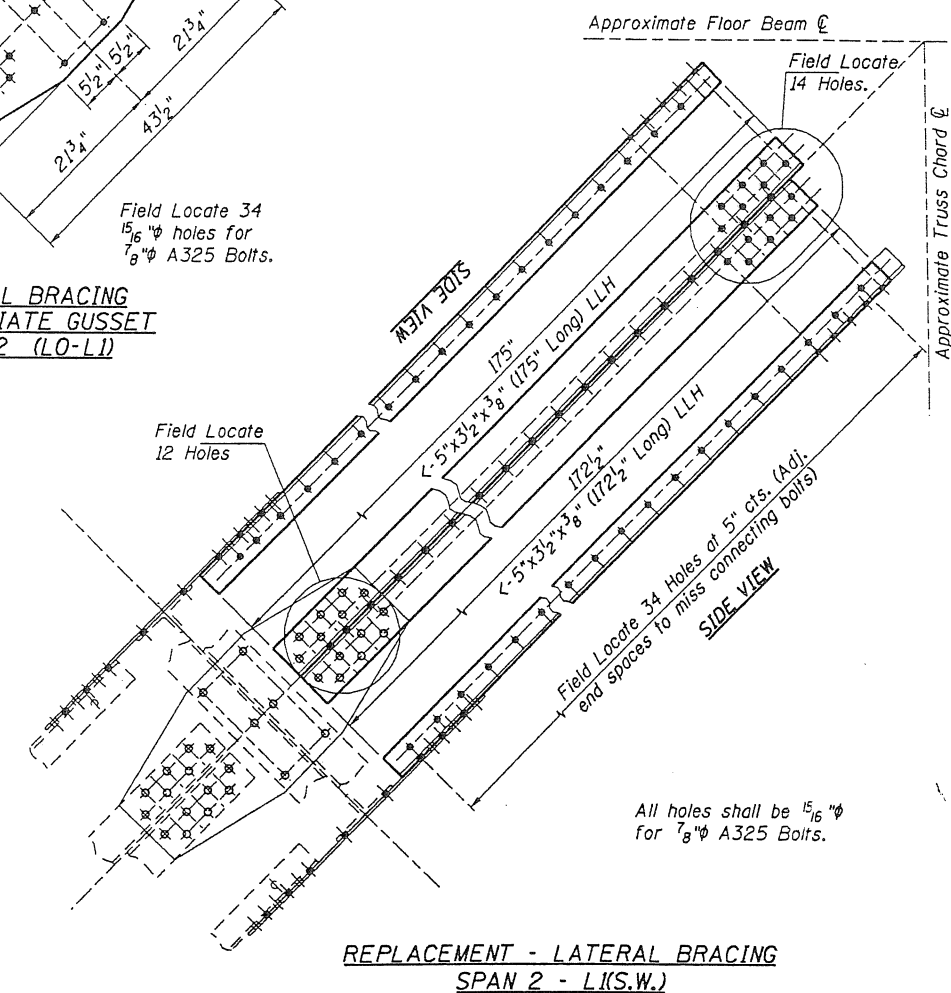
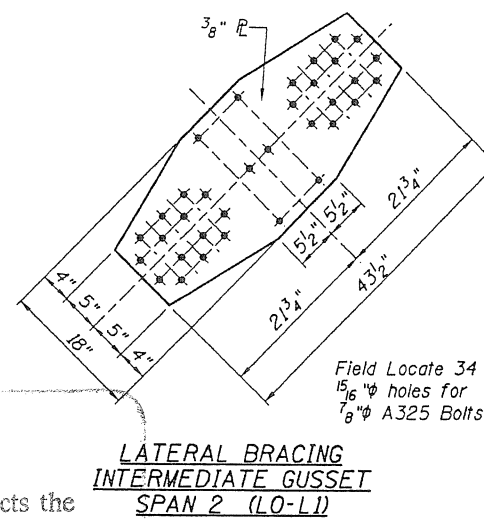
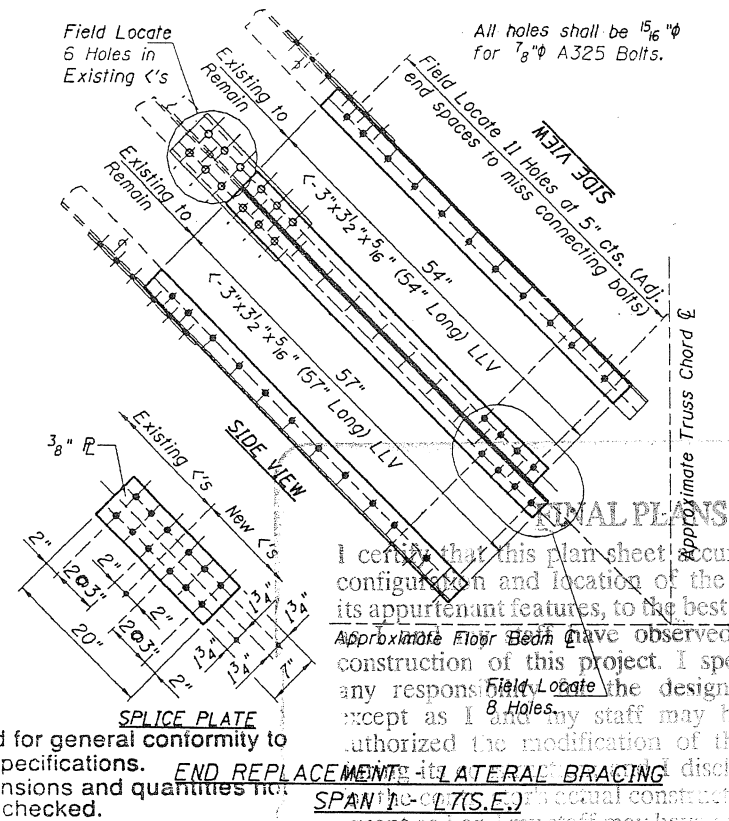
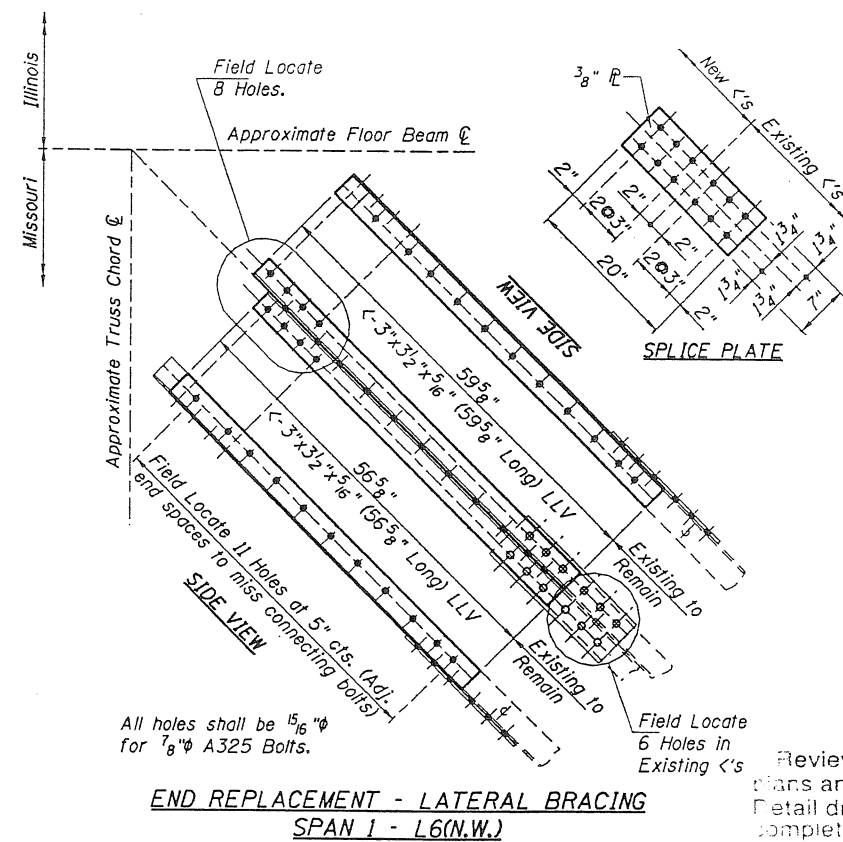
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05S2064
DATE
08/01/05

08/01/2005
105500550552064.dgn Outset Plotter.dgn

LAYOUT
DRAWN
REVIEWED
T.E.H. 07/14/05
RCD 07/14/05
T.E.H. 07/14/05



Reviewed for general conformity to plans and specifications. END REPL
Detail dimensions and quantities not completely checked.

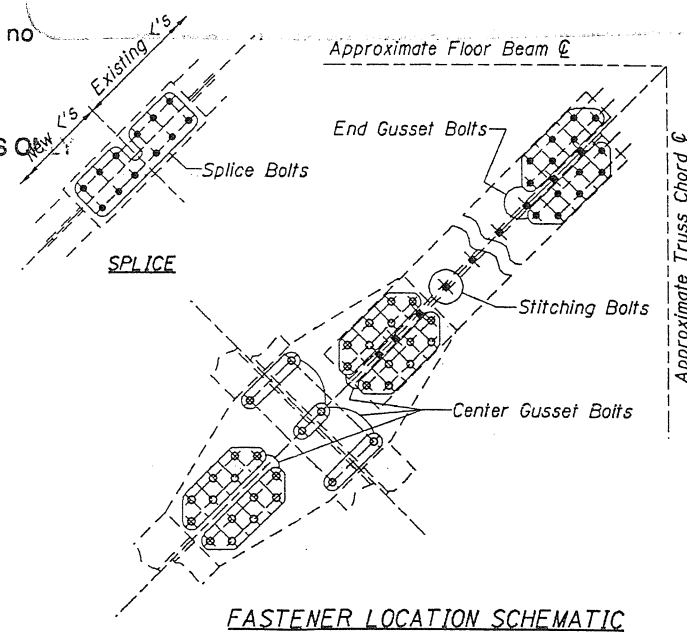
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DATE 8-18-05

- ☒ APPROVED DESIGN FEATURES OK
☐ NO CORRECTIONS NOTED
☐ CORRECTIONS NOTED
☐ FOR FILES AND DISTRIBUTION
MoDOT - BRIDGES



FASTENER LOCATION SCHEMATIC

FASTENER REQUIREMENTS - (NUMBER and LENGTH)

Location	Joint Number	Stitching Bolts		Splice Bolts		Center Gusset Bolts		End Gusset Bolts	
		Number	Length	Number	Length	Number	Length	Number	Length
Span 1	L6 (N.W.)	11	2"	12	2"	-	-	8	2"
Span 1	L7 (S.E.)	11	2"	12	2"	-	-	8	2"
Span 2	L1 (S.W.)	34	2½"	-	-	34	2½"	*	-
Span 5	L9 (S.E.)	11	2"	12	2"	-	-	8	2"

* Bolts counted with Lateral Bracing Gusset replacement.

FASTENER SUMMARY

Bolt Length	Number Required
2"	93
2½"	68
Total	161

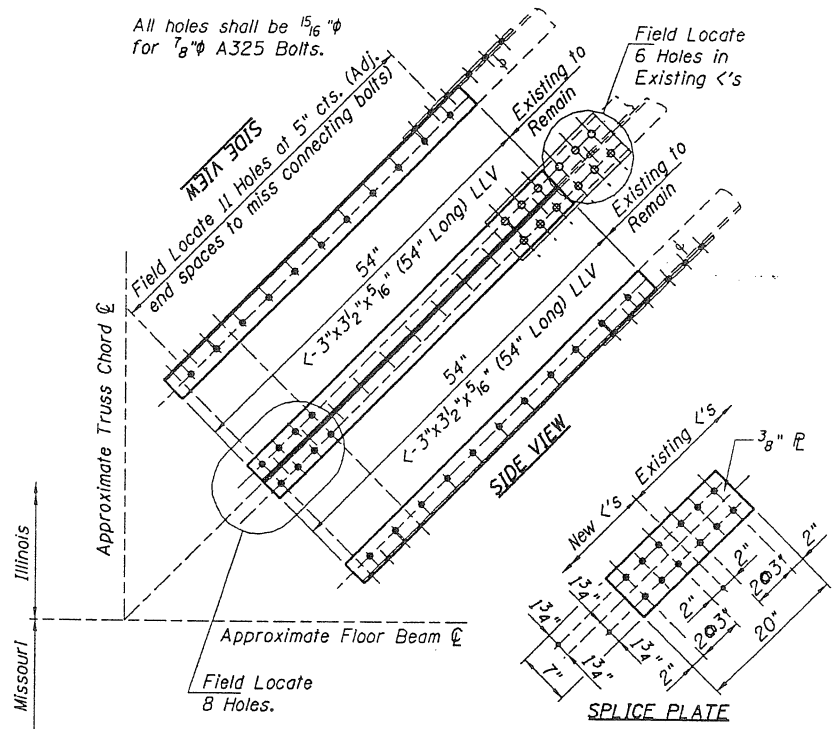
All Gusset Plates are $\frac{3}{8}$ " thick.

LATERAL BRACING REPAIRS SPANS 1,2 & 5
U.S ROUTE 54 over MISSISSIPPI RIVER
PIKE COUNTY, MISSOURI
PROJECT NO. F.A.S.-54-4(43)
JOB NO. J3P0673
BRIDGE NO. K09324

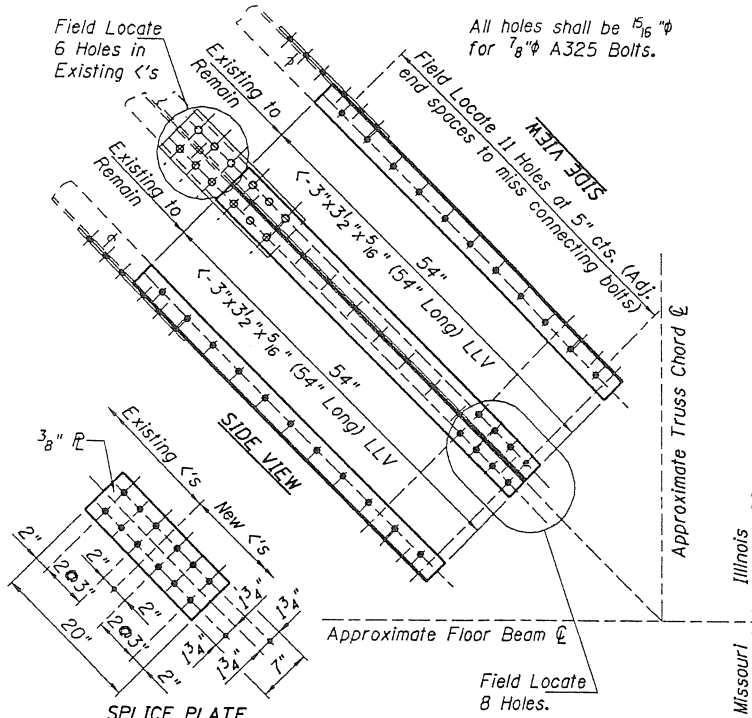
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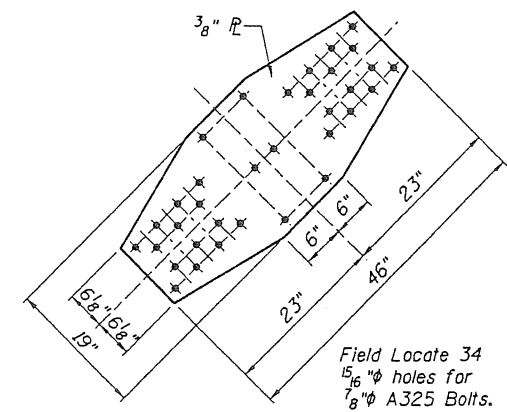
JOB NO.	05S2064
DATE	08/15/05



END REPLACEMENT - LATERAL BRACING
SPAN 3 - L9(N.E.)



END REPLACEMENT - LATERAL BRACING
SPAN 3 - L9(S.E.)



LATERAL BRACING
INTERMEDIATE GUSSET
SPAN 3 (L15-L16)

Reviewed for general conformity to plans and specifications. Detail dimensions and quantities not completely checked.

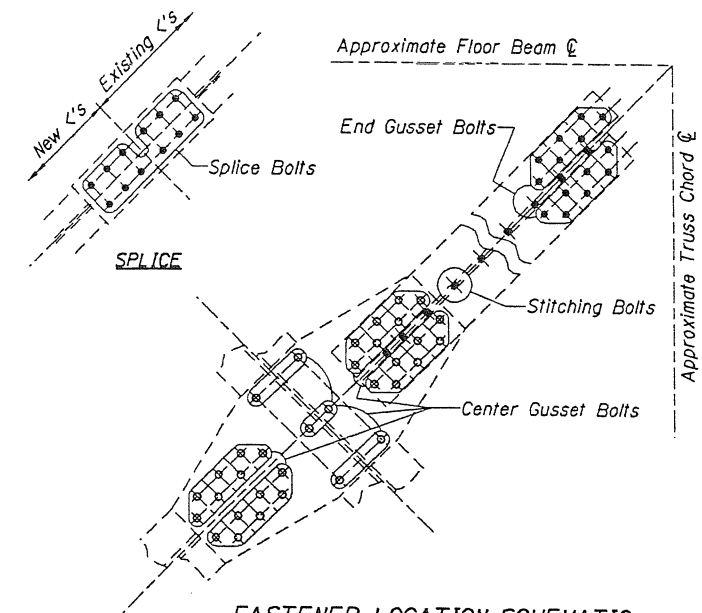
Review is not intended to coordinate any party or miscellaneous item.

Contractor is solely responsible for verifying field measurements when so stated in plans and/or specifications.

Contractors responsibility is in no way relieved by this review.

DATE 8-18-05

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 - ☐ NO CORRECTIONS NOTED
 - ☐ CORRECTIONS NOTED
 - ☐ FOR FILES AND DISTRIBUTION
- MoDOT - BRIDGES



FASTENER LOCATION SCHEMATIC

FASTENER REQUIREMENTS - (NUMBER and LENGTH)

Location	Joint Number	Stitching Bolts		Splice Bolts		Center Gusset Bolts		End Gusset Bolts	
		Number	Length	Number	Length	Number	Length	Number	Length
Span 3	L9 (N.E.)	11	2"	12	2"	-	-	8	2"
Span 3	L9 (S.E.)	11	2"	12	2"	-	-	-	-
Span 3	L15-L16	-	-	-	-	34	2 1/2"	-	-

FASTENER SUMMARY

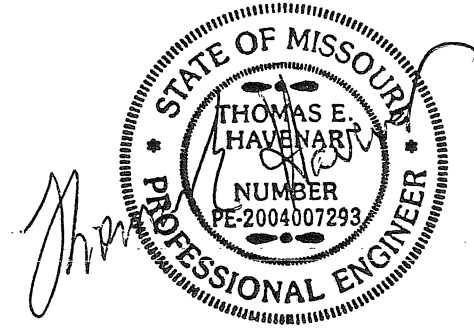
Bolt Length	Number Required
2"	54
2 1/2"	34
Total	88

(Each Bolt Shall Include 1 Round Washer and 1 Nut)
* Bolts counted with Lateral Bracing Gusset replacement.

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.

Man Rodenbaugh 7/21/06
Signature Date



All Gusset Plates are 3/8" thick.

LATERAL BRACING REPAIRS SPAN 3
U.S ROUTE 54 over MISSISSIPPI RIVER
PIKE COUNTY, MISSOURI
PROJECT NO. F.A.S.-54-4(43)
JOB NO. J3P0673
BRIDGE NO. K09324

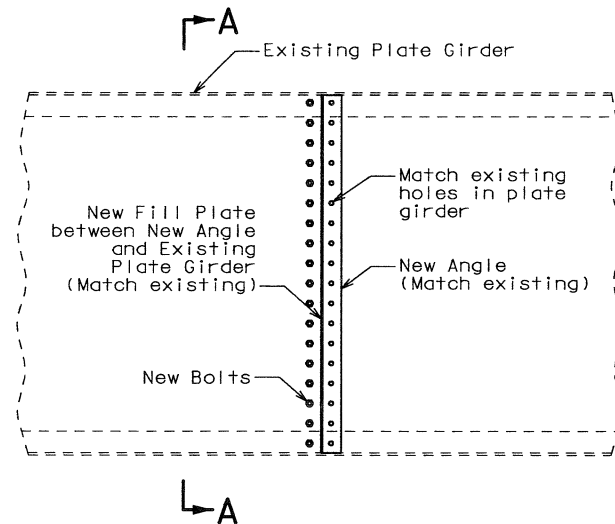
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JOB NO. 05S2064
DATE 08/15/05

08/15/2005
I:\05\05S2064\Adp\Nateral Bracing Span 3.dgn
T.E.H. 07/14/05
PRO 07/14/05
DRAWN T.E.H. 07/14/05
REVIEWED

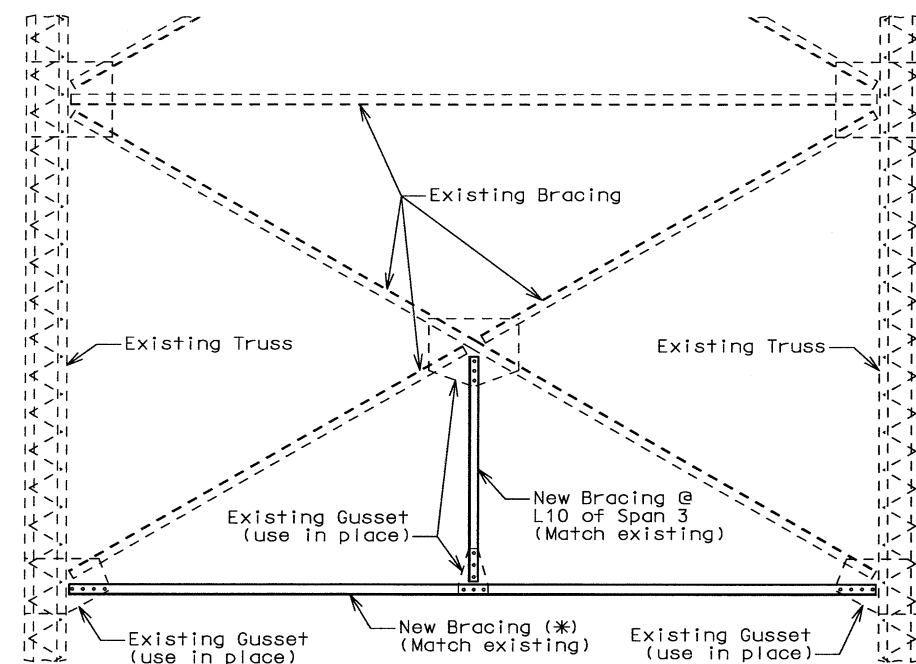
State	JOB NO. J3P0673	Sheet No.
MO	ID NO. 050422-301	B12



PART ELEVATION SHOWING EXTERIOR WEB STIFFENER REPLACEMENT IN PLATE GIRDER SPANS BETWEEN BENTS

Note: Both angles and fill plates shall be removed, only one new angle and fill plate shall be installed.

After angle removal, H.S. bolts shall be installed in existing holes. See Special Provisions for Rivet Replacement except that cost of work and material to complete this item will be considered completely covered by the contract unit price for Remove and Replace Stiffener. (Typ.)

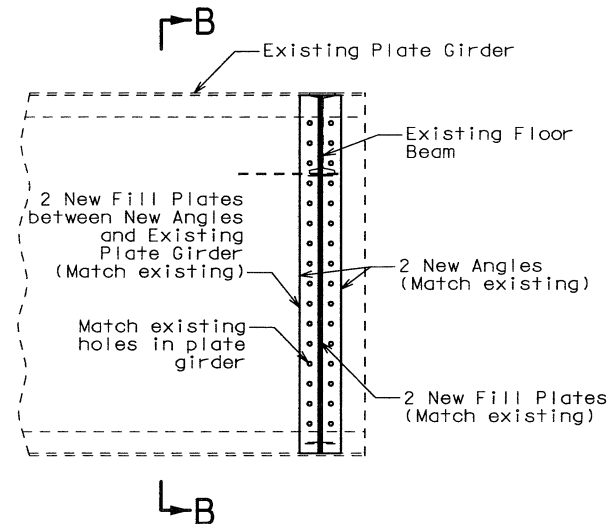


DETAIL SHOWING DAMAGED SWAY BRACING MEMBER REPLACEMENT IN TRUSS SPANS

Note: Match existing hole locations in existing gusset plates. Replace rivets with H.S. bolts. See Special Provisions for Rivet Replacement except that cost of work and material to complete this item will be considered completely covered by the contract unit price for Remove and Replace Sway Bracing. (Typ.)

- * 1 angle @ L6 of Span 3
- 1 angle @ L10 of Span 3
- 2 angles @ L8 of Span 5
- 1 angle @ L10 of Span 5

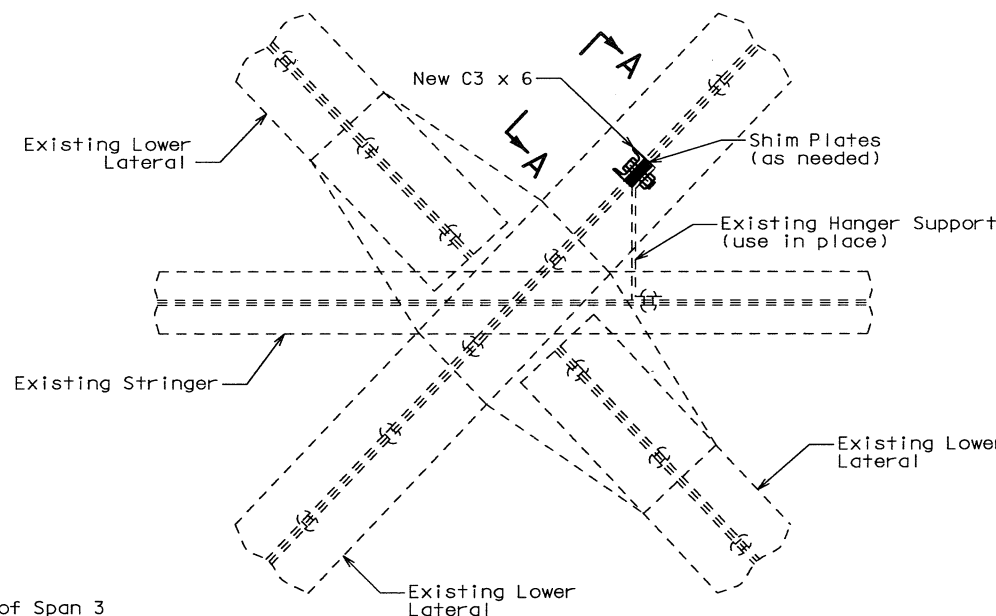
Note: This drawing is not to scale. Follow dimensions.



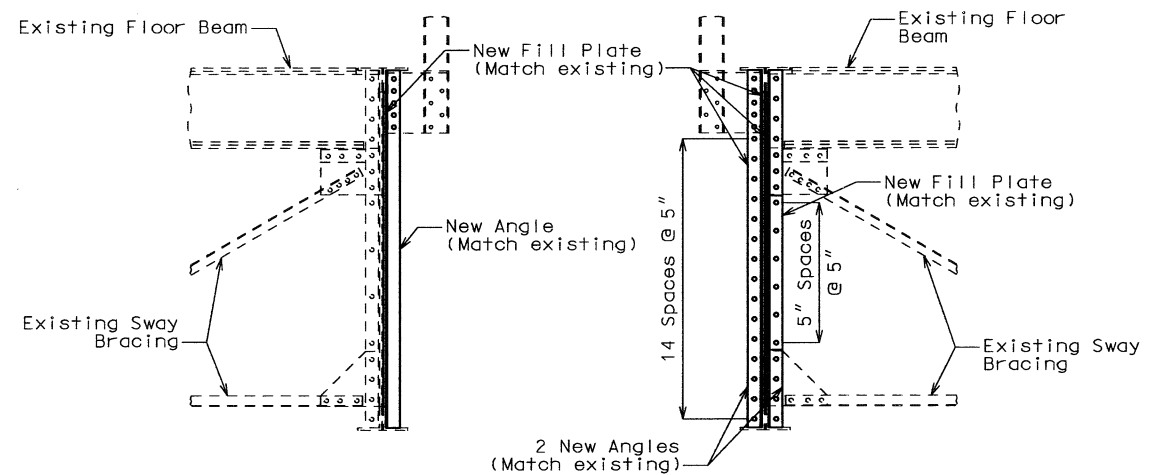
PART ELEVATION SHOWING THE TWO BEARING STIFFENER REPLACEMENTS IN PLATE GIRDER SPANS @ PIER 5, PEDESTAL 10 & 11 AND E. ABUTMENT

Note: Match existing hole locations in existing plate girder, floor beam, bracing and guardrail post attachment angles. Replace rivets with H.S. bolts. See Special Provisions for Rivet Replacement except that cost of work and material to complete this item will be considered completely covered by the contract unit price for Remove and Replace Stiffener. (Typ.)

Cost of removing and replacing two angles, the fill plate between the two angles and the fill plate between the angles and the existing girder including all work and material to complete this item will be considered completely covered by the contract unit price for Remove and Replace Stiffener.

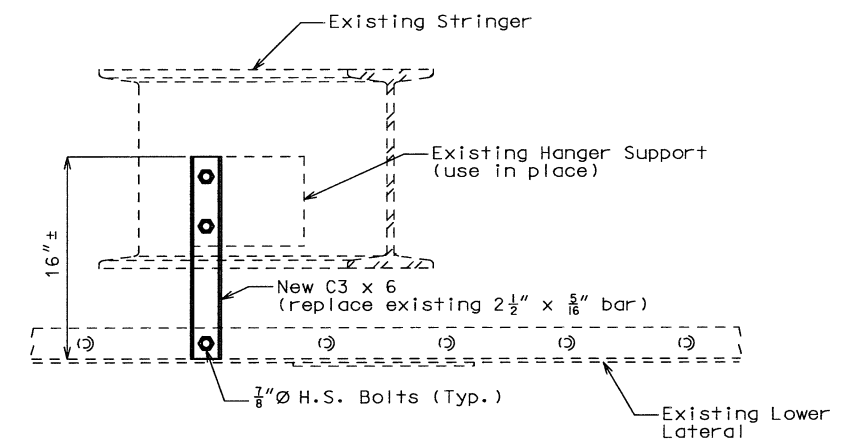


PART PLAN SHOWING LOWER LATERAL HANGER STRAP REPLACEMENT



SECTION A-A

SECTION B-B



ELEVATION A-A

Note: Match existing hole locations in existing hanger support and lower lateral. Replace rivets with H.S. bolts. See Special Provisions for Rivet Replacement except that cost of work and material to complete this item will be considered completely covered by the contract unit price for Remove and Replace Hanger Strap. (Typ.)

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.

Mary Rodenberry *7/21/06*
SIGNATURE DATE

PIKE COUNTY K09324

Reviewed for general conformity to plans and specifications. Detail dimensions and quantities not completely checked.

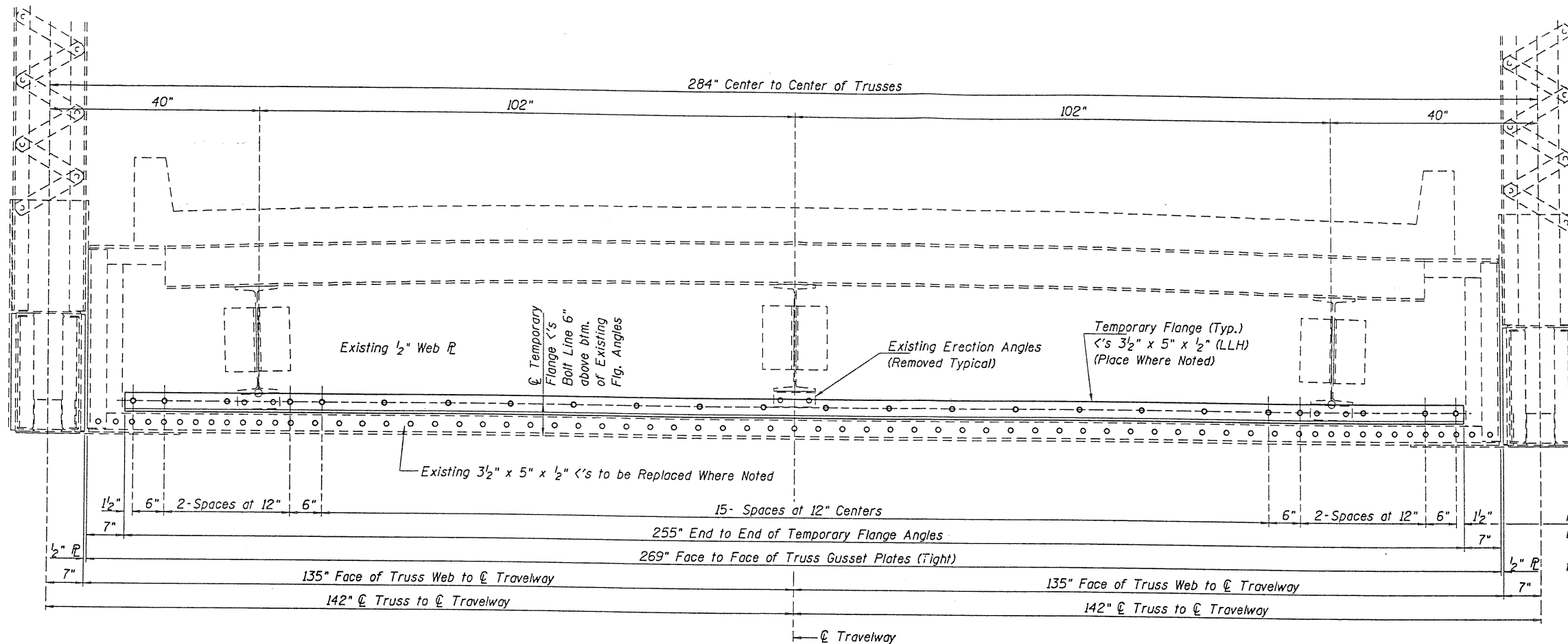
Review is not intended to coordinate any party or miscellaneous item.

Contractor is solely responsible for verifying field measurements when so stated in plans and/or specifications.

Contractors responsibility is in no way relieved by this review.

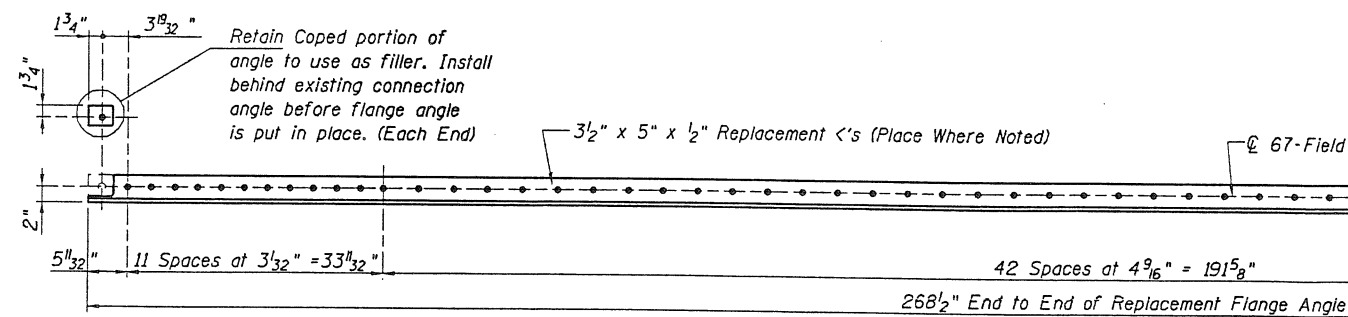
DATE 8-18-05

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☐ CORRECTIONS NOTED
☐ FOR FILES AND DISTRIBUTION
MoDOT - BRIDGES



Field Locate 24-15/16 inch Holes in Existing Floor Beam Web for 7/8 inch A-325 Bolts to Connect the Temporary Flange Angles.

BRIDGE SECTION
(Showing Temporary Flange Position and Approximate Hole Locations)



ELEVATION VIEW - REPLACEMENT FLOOR BEAM FLANGE ANGLE
(11 - Required See Table for Locations)

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 project during its construction, and I 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.

Mary Roderburg 7/21/06
Signature Date

All Holes are 15/16 inch for 7/8 inch A325 Bolts. Field Locate all Holes.

The temporary flange angles shall be installed with all bolts tightened to a snug tight condition before the existing flange angles can be removed.

The replacement floor beam flange angles shall be AASHTO M270, Grade 36 and conform to the Supplemental Requirements for Notch Toughness Zone 2.

LOCATION TABLE - REPLACEMENT FLOOR BEAM FLANGE ANGLES

Replacement Locations	L0	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15	L16	L17	L18	Bolts Req'd.
	Mo.	Il.	Mo.	Il.	Mo.	Il.	Mo.	Il.	Mo.	Il.	Mo.	Il.	Mo.	Il.	Mo.	Il.	Mo.	Il.	Mo.	Il.
Span 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	325 10
Span 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	65 2
Span 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Span 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Span 5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	65 2

Flange Fasteners Required 455 14

FASTENER SUMMARY

Bolt Length	Number Required	Fastener Use
3"	168	Temporary
2"	168	Web Filler
3"	455	Flange Conn.
3 3/4"	14	Flange Conn.
Total	805	

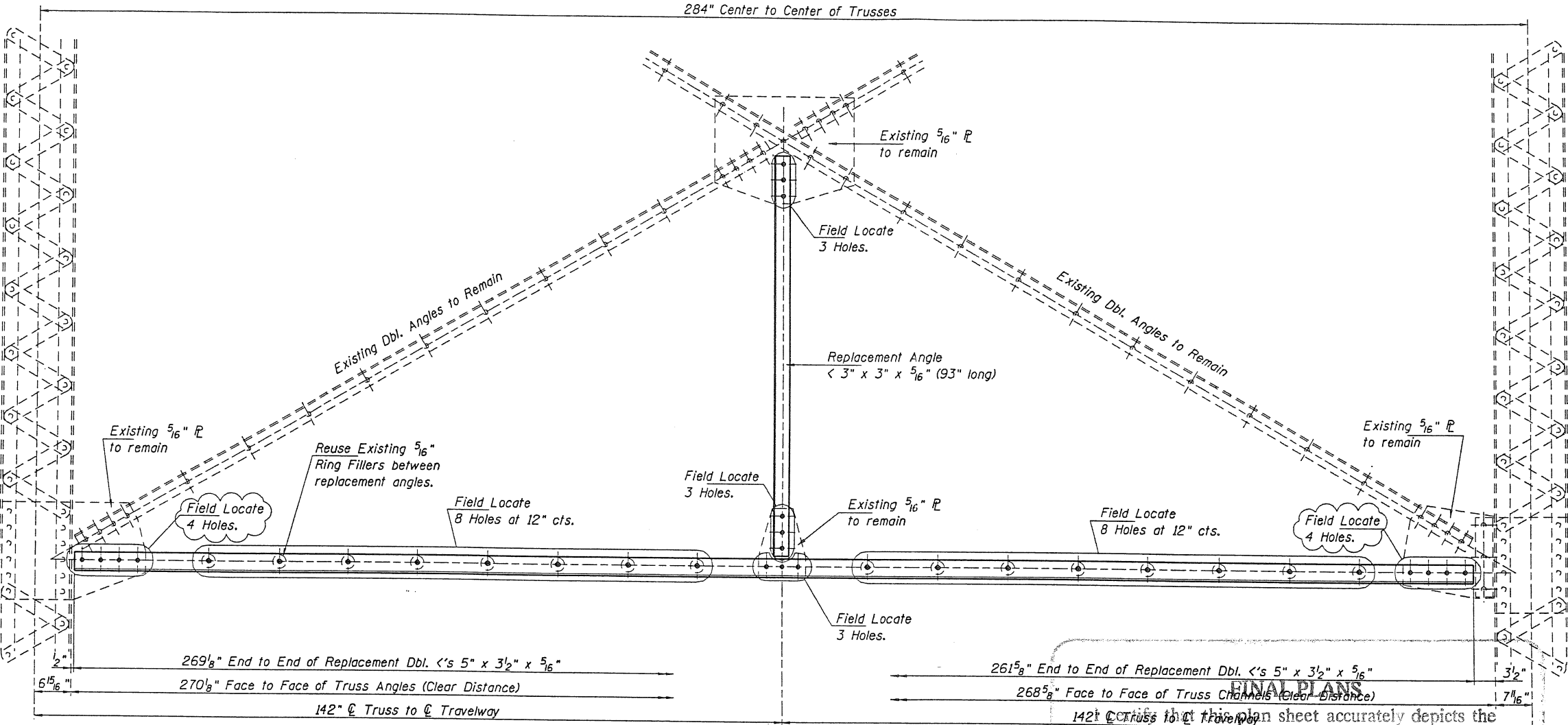
FLOOR BEAM FLANGE REPLACEMENT
U.S ROUTE 54 over MISSISSIPPI RIVER
PIKE COUNTY, MISSOURI
PROJECT NO. F.A.S.-54-4(43)
JOB NO. J3P0673
BRIDGE NO. K09324

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HANSON

JOB NO. 05S2064

DATE 08/15/05



HALF BRIDGE SECTION
(Spans 1,2,4 & 5)

PARTIAL ELEVATION - LOWER PORTAL FRAMING

I, Thomas E. Havenar, do hereby 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.

Signature: Thomas E. Havenar Date: 7/21/06

LOCATION TABLE - REPLACEMENTS for DAMAGED PORTAL ANGLES

Replacement Locations	L4		L6		L8		L10		L12		L14		Bolts Req'd.	
	Horiz. (2)	Vert. (1)	Horiz. (2)	Vert. (1)	Horiz. (2)	Vert. (1)	Horiz. (2)	Vert. (1)	Horiz. (2)	Vert. (1)	Horiz. (2)	Vert. (1)		
Span 1	-	-	-	-	-	-	-	-	-	-	-	-	2"	2 1/4"
Span 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Span 3	-	-	-	●	-	-	-	●	-	●	-	-	6	54
Span 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Span 5	-	-	-	-	-	●	●	-	●	-	-	-	-	54
Fasteners Required													6	108

FRAMING MEMBER SUMMARY

Member Size	Number Required	Span Location
<s-5" x 3 1/2" x 5/16" (269 5/8")	3	(5)
<s-5" x 3 1/2" x 5/16" (261 5/8")	2	(3)
<s-3" x 3" x 5/16" (93")	1	(3)
	-	-

FASTENER SUMMARY

Bolt Length	Number Required	Fastener Use
2"	6	Verticals
2 1/4"	108	Horizontals
-	-	-
-	-	-
Total	114	

Reviewed for general conformity to plans and specifications. Detail dimensions and quantities not completely checked.

Review is not intended to coordinate any party or miscellaneous item.

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Contractors responsibility is in no way relieved by this review.

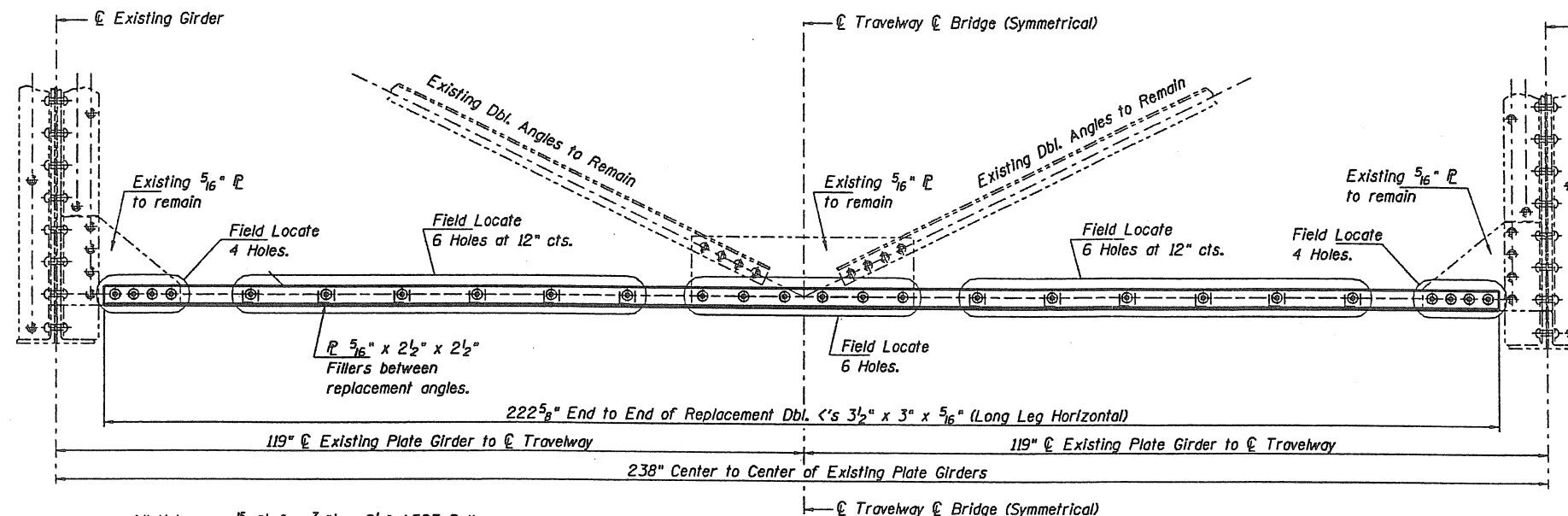
DATE 8-18-05

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☐ NO CORRECTIONS NOTED
☐ CORRECTIONS NOTED
☐ FOR FILES AND DISTRIBUTION
MoDOT - BRIDGES

STATE OF MISSOURI
THOMAS E. HAVENAR
PE-2004007293
PROFESSIONAL ENGINEER
8/15/05
All Holes are 1 5/16" for 7/8" A325 Bolts. Field Locate all Holes.

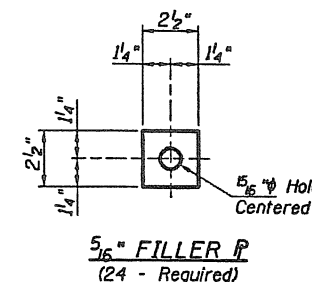
LOWER PORTAL DAMAGED MEMBER REPAIRS
U.S ROUTE 54 over MISSISSIPPI RIVER
PIKE COUNTY, MISSOURI
PROJECT NO. F.A.S.-54-4(43)
JOB NO. J3P0673
BRIDGE NO. K09324

08/15/2005
IN0510B5055206AdgnPartial Repairs.dgn
LAYOUT T.E.H. 07/14/05
DRAWN RCD 07/14/05
REVIEWED T.E.H. 07/14/05



All Holes are $\frac{5}{16}$ " ϕ for $\frac{7}{8}$ " ϕ x $2\frac{1}{4}$ " A325 Bolts.
Field Locate all Holes.

PARTIAL ELEVATION - LOWER CROSS FRAME MEMBERS AT BEARING LINES
(1 Location - Pier No. 11)



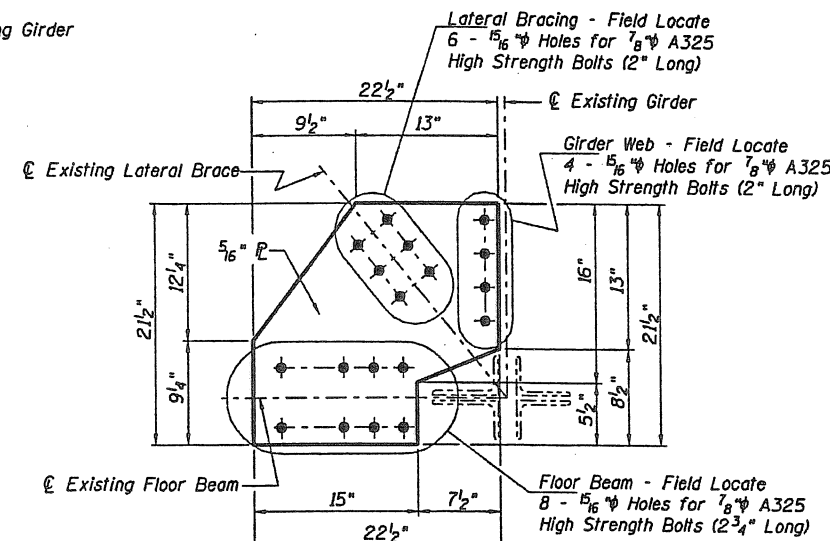
MEMBER SUMMARY

Member Size	Number Required	Location
\angle s- $3\frac{1}{2}$ " x 3" x $\frac{5}{16}$ " (222.5")	2	Pier 11 Span 11
\angle s- $3\frac{1}{2}$ " x 3" x $\frac{5}{16}$ " (222.5")	2	Pier 11 Span 12
\angle $\frac{5}{16}$ " x $2\frac{1}{2}$ " x $2\frac{1}{2}$ "	12	Pier 11 Span 11
\angle $\frac{5}{16}$ " x $2\frac{1}{2}$ " x $2\frac{1}{2}$ "	12	Pier 11 Span 12
\angle $\frac{5}{16}$ " x $2\frac{1}{2}$ " x $2\frac{1}{2}$ "	1	Pier 11 Span 11

FASTENER SUMMARY

Fastener Location	Bolts Per Location	Locations	Bolt Length	Number Required
Cross Frame	26	2	2 $\frac{1}{4}$ "	52
Girder Web	4	1	2"	4
Lat. Brace	6	1	2"	6
Floor Bm.	8	1	2 $\frac{3}{4}$ "	8
Total				70

LATERAL BRACING GUSSET PLATE
(1 Location - Pier 11 Span 11)



Reviewed for general conformity to plans and specifications.
Detail dimensions and quantities not completely checked.

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Contractors responsibility is in no way relieved by this review.

DATE 09/07/05

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☐ NO CORRECTIONS NOTED
☐ CORRECTIONS NOTED
☐ FOR FILES AND DISTRIBUTION
 MoDOT - BRIDGES

FINAL PLANS

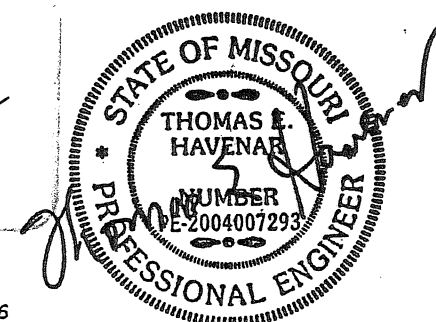
I certify that this plan sheet accurately depicts the configuration and location of the roadway and all its appurtenant features, to the best of my knowledge, as I and my staff have observed the contractor's construction of this project. I specifically disclaim any responsibility for the design of this 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.

Mary Radenberry 7/21/06
Signature Date

NOTES

All structural steel shall be AASHTO M270, Grade 36 (ASTM A709 Gr36)

All holes not otherwise specified may be field located.



9/1/05

CROSS FRAMES & LATERAL GUSSET-(SPANS 6-12)
 U.S. ROUTE 54 over MISSISSIPPI RIVER
 PIKE COUNTY, MISSOURI
 PROJECT NO. F.A.S.-54-4(43)
 JOB NO. J3P0673
 BRIDGE NO. K09324

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05S2064

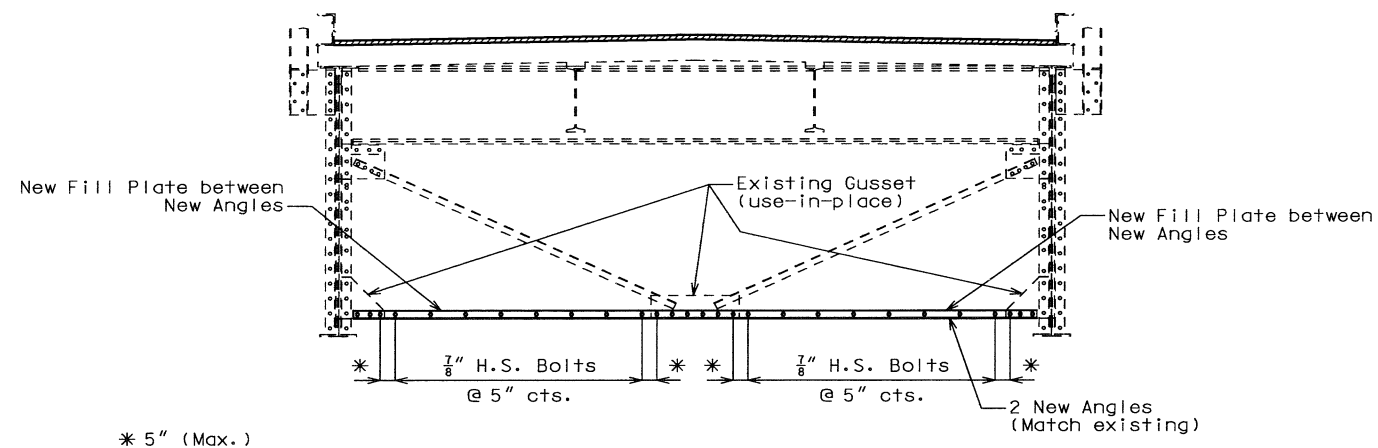
09/01/05

09/01/2005
 IN05J095055206-AvgmPlate-YT dgm

LAYOUT
 DRAWN
 REVIEWED
 T.E.H. 09/01/05
 R.H. 09/01/05
 T.E.H. 09/01/05

RECEIVED SEP 09 2005

State	JOB NO. J3P0673	Sheet No.
MO	ID NO. 050422-301	B18



DETAIL SHOWING LOWER SWAY BRACING
REPLACEMENT IN PLATE GIRDER SPANS

Note:

Match existing hole locations in existing gusset plates. Replace rivets with H.S. bolts. See Special Provisions for Rivet Replacement except that cost of work and material to complete this item will be considered completely covered by the contract unit price for Remove and Replace Lower Sway Bracing. (Typ.)

Cost of removing and replacing two angles and installing two fill plates between the two angles (one on each side of center gusset plate) including all work and material to complete this item will be considered completely covered by the contract unit price for Remove and Replace Lower Sway Bracing.

DETAILS OF STRUCTURAL STEEL REPAIR

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.

May Rodenburg 7/21/06
SIGNATURE DATE

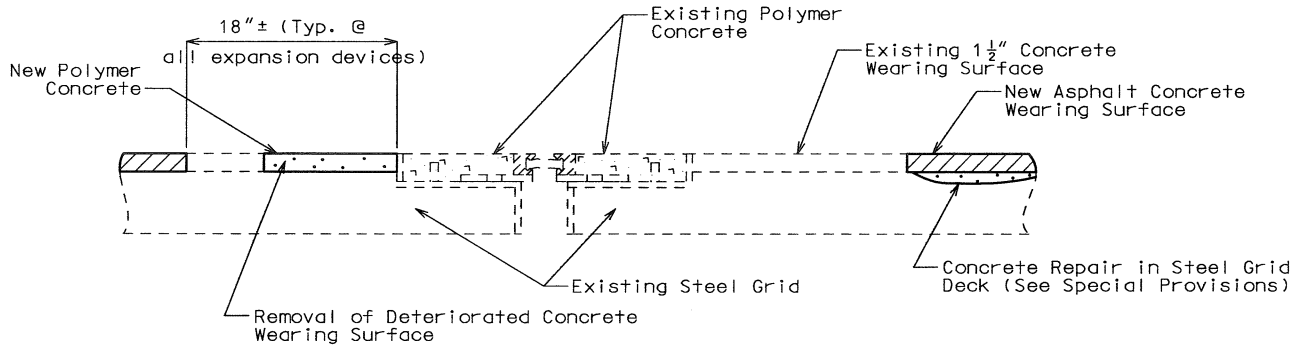
State	JOB NO. J3P0673	Sheet No.
MD	ID NO. 050422-301	B20

Notes:

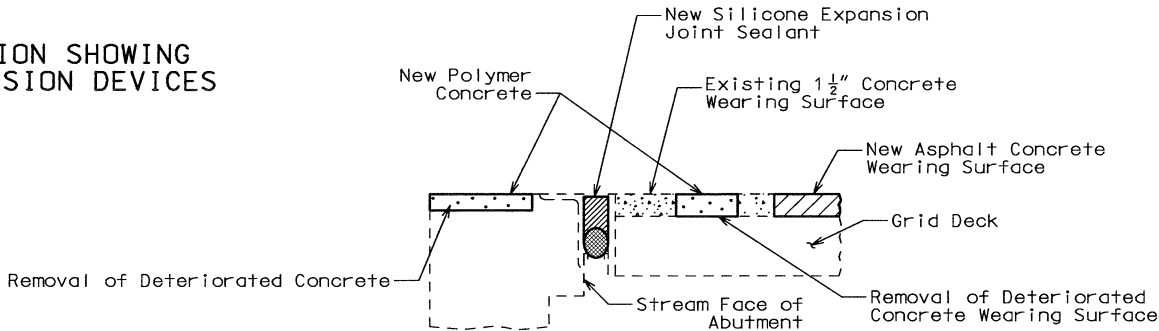
Removal of deteriorated concrete at the top of abutment shall be included in the Removal of Deteriorated Concrete Wearing Surface.

Removal requirements for the removal of deteriorated concrete wearing surface shall be in accordance with Concrete Removal in Sec 704. The cost to remove and dispose deteriorated concrete will be considered completely covered by the contract unit price for Removal of Deteriorated Concrete Wearing Surface.

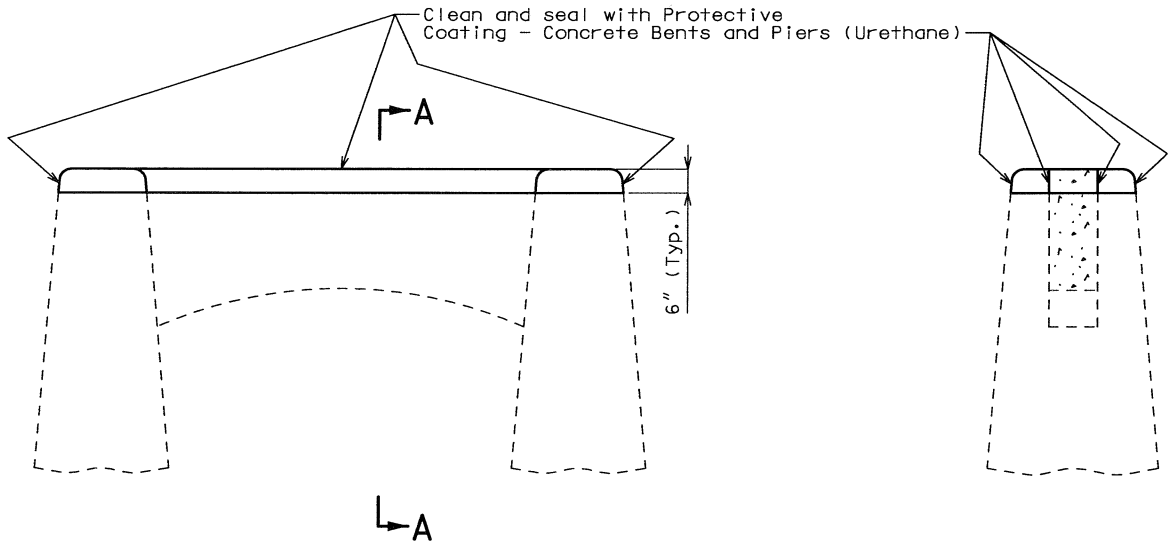
Polymer concrete shall be in accordance with Sec 623.



PART LONGITUDINAL SECTION SHOWING CONCRETE REPAIR AT EXPANSION DEVICES

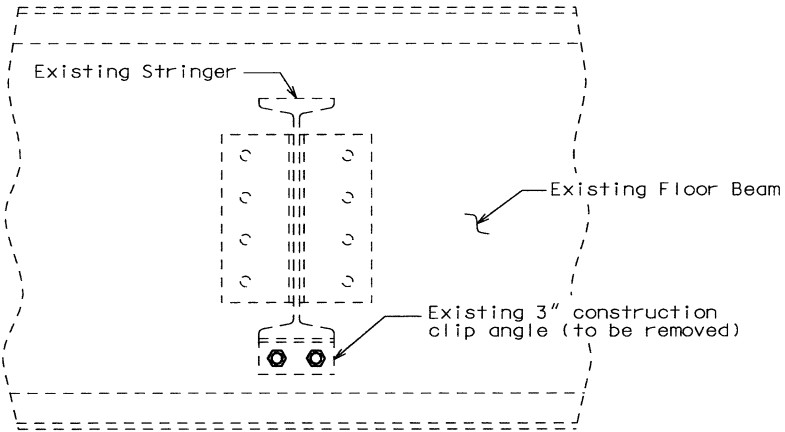


PART LONGITUDINAL SECTION SHOWING CONCRETE REPAIR @ ABUTMENTS



ELEVATION - PEDESTALS 10 & 11

SECTION A-A



DETAIL SHOWING REMOVAL OF EXISTING CONSTRUCTION CLIP ANGLES

Notes:

All 456-construction clip angles shall be removed at 237 locations with 219 pairs of back-to-back angles sharing two bolts.

After angle removal, H.S. Bolts shall be installed in existing holes. See Special Provisions for Rivet Replacement except that cost of work and material to complete this item will be considered completely covered by the contract unit price for Removal of Construction Clip Angles. (Typ.)

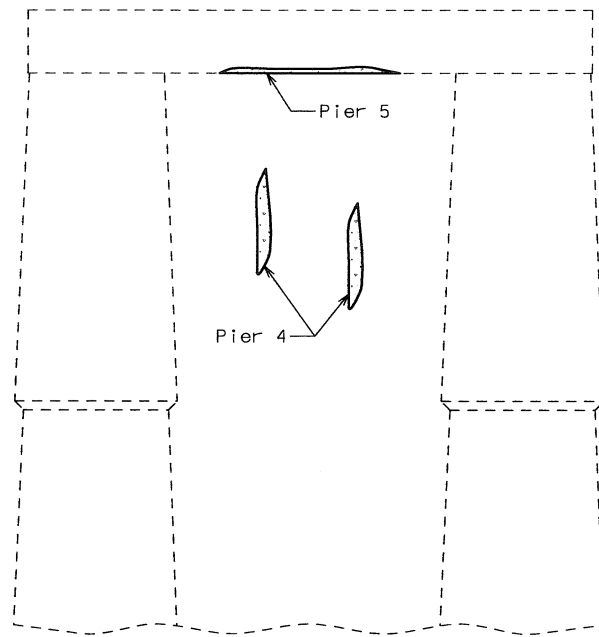
FINAL PLANS

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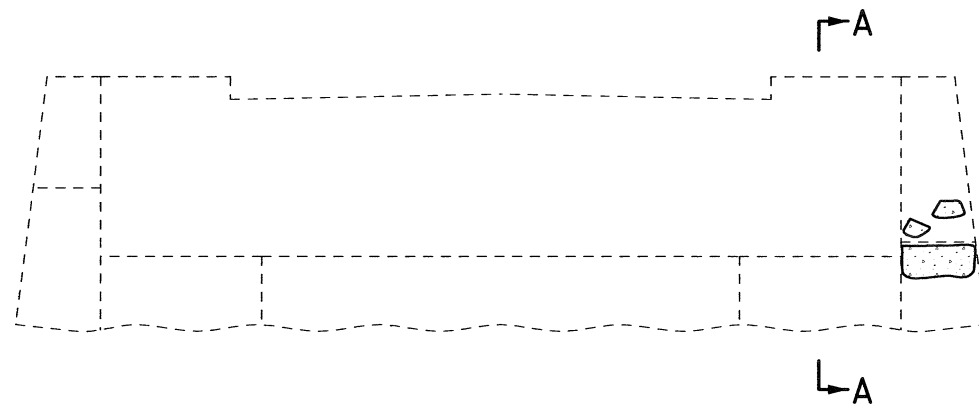
May Rodenbaugh
SIGNATURE

7/21/06
DATE

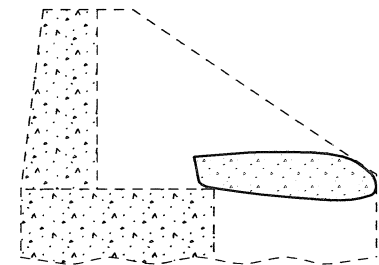
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MO	ID NO. 050422-301	B21



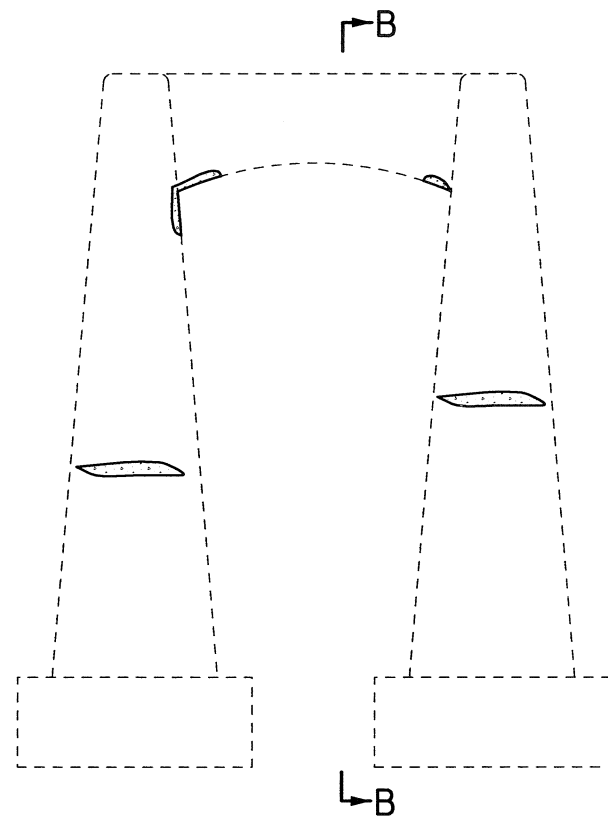
PART ELEVATION - PIERS 1, 2, 4 & 5



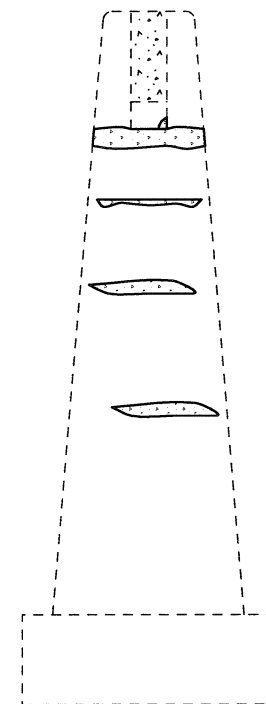
PART ELEVATION - WEST ABUTMENT



SECTION A-A



ELEVATION - PEDESTAL 10



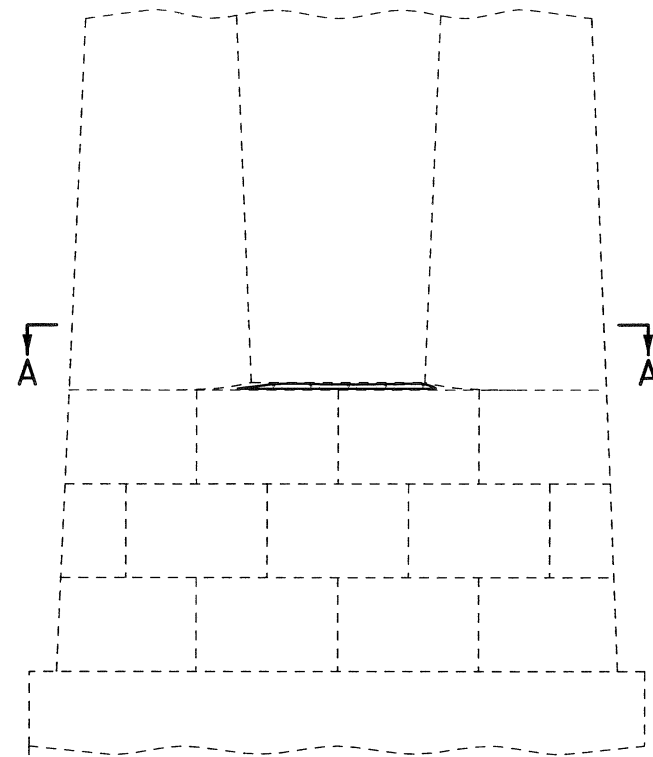
SECTION B-B

FINAL PLANS

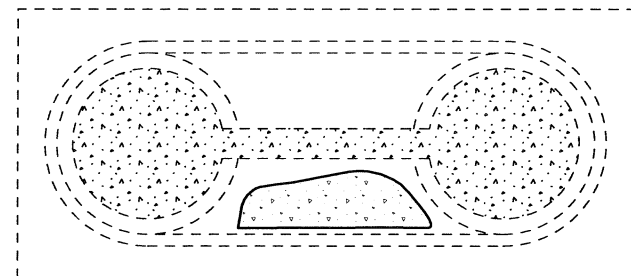
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Mary Rodenbang 7/21/06
SIGNATURE DATE

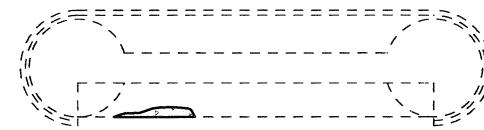
DETAILS SHOWING LOCATIONS OF SUBSTRUCTURE REPAIR (UNFORMED)



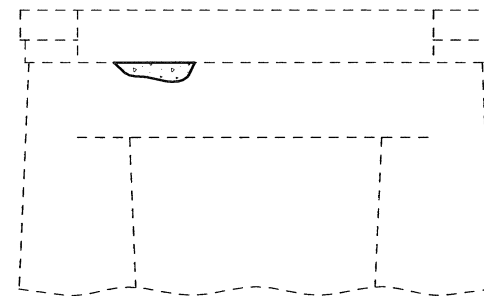
PART ELEVATION - PIERS 1, 2 & 4



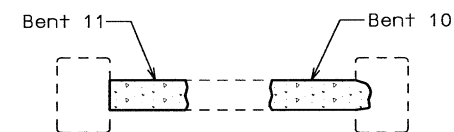
SECTION A-A



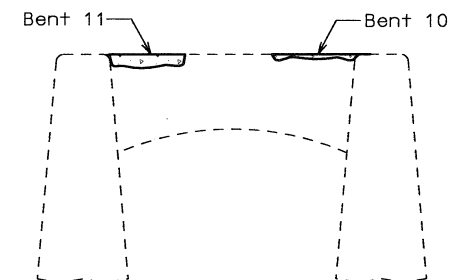
PART PLAN - PIER 5



PART ELEVATION - PIER 5



PART PLAN - PEDESTALS 10 & 11



PART ELEVATION - PEDESTALS 10 & 11

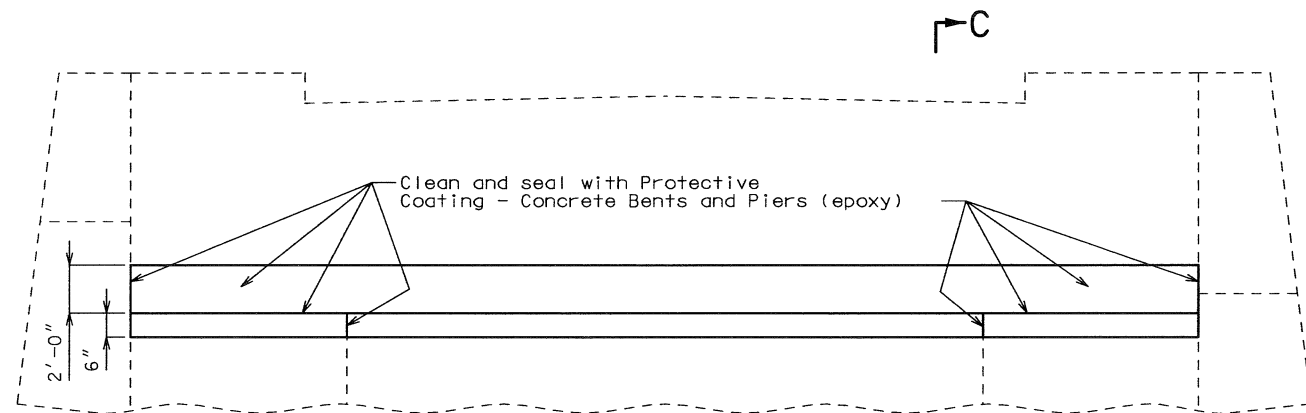
FINAL PLANS

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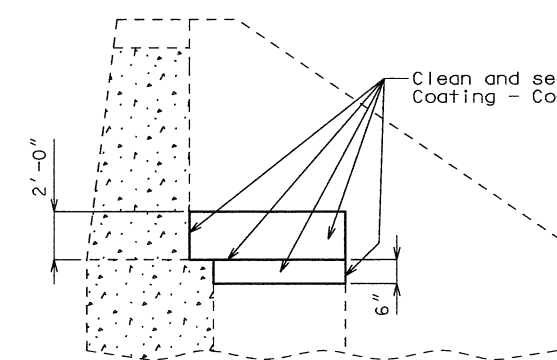
Mary Rodenbaugh 7/21/06
SIGNATURE DATE

DETAILS SHOWING LOCATIONS OF SUBSTRUCTURE REPAIR (FORMED)

State	JOB NO. J3P0673	Sheet No.
MO	ID NO. 050422-301	B23

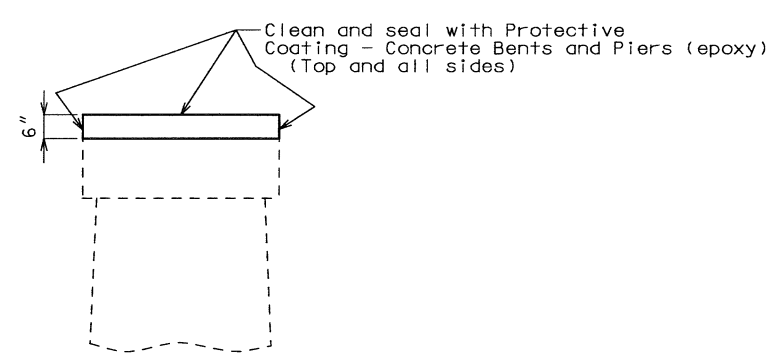


PART ELEVATION OF WEST ABUTMENT

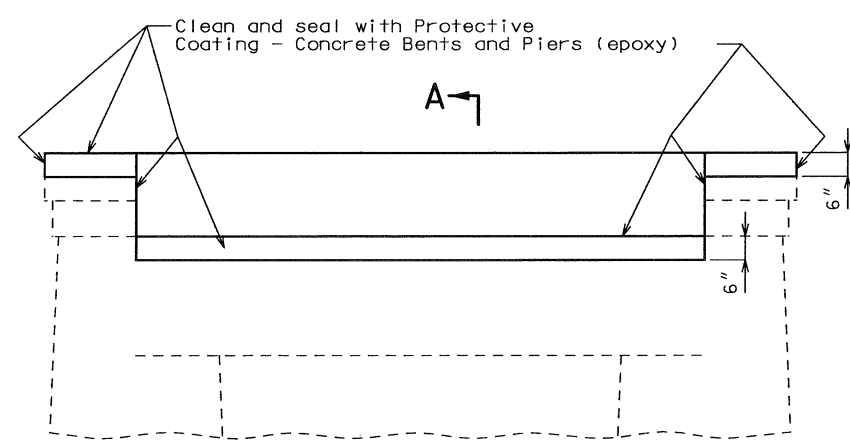


SECTION C-C

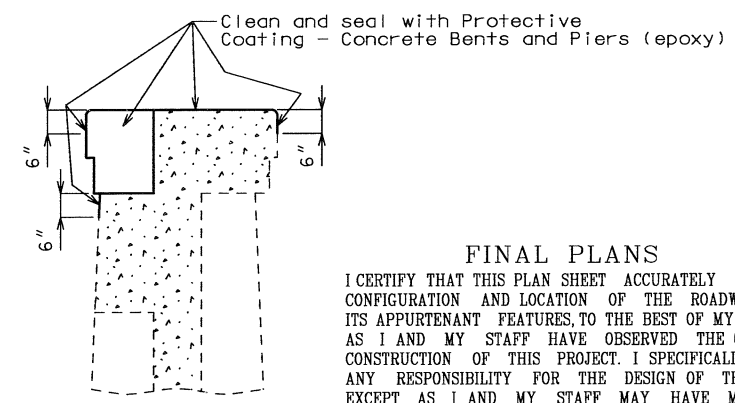
Note : Used two part epoxy primer and two part Envirolastic PA Polyaspartic protective coating.



PART ELEVATION OF EXISTING BEAM CAP
(Piers 1, 2, 3 & 4)

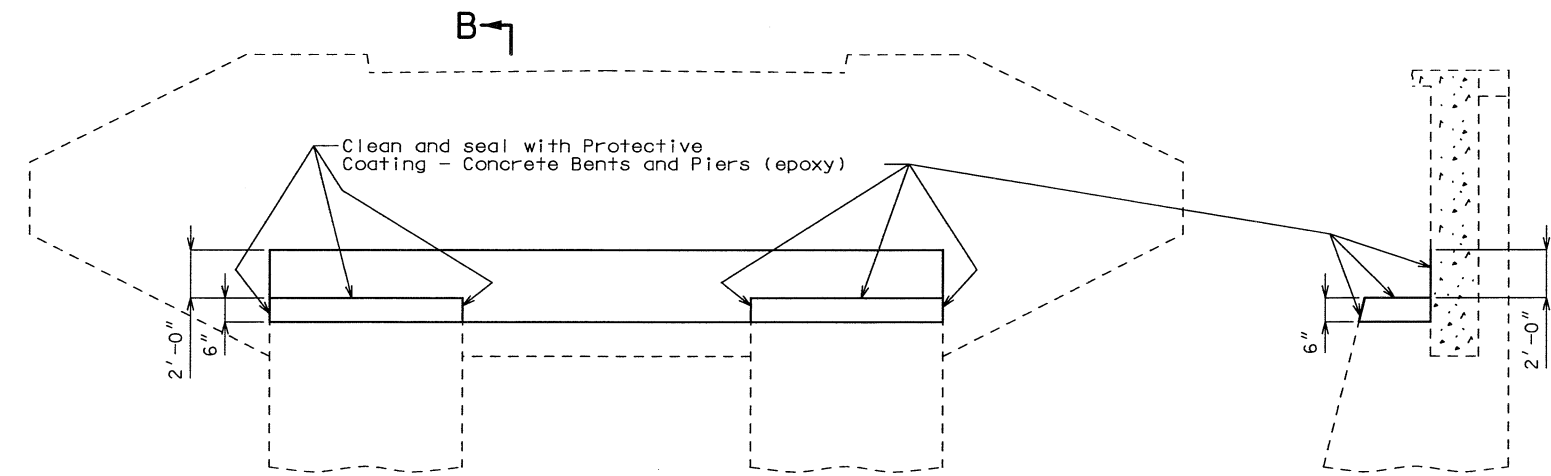


PART ELEVATION OF EXISTING BEAM CAP
(Pier 5)

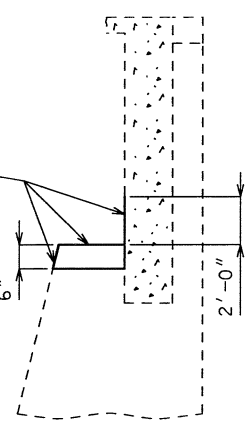


SECTION A-A

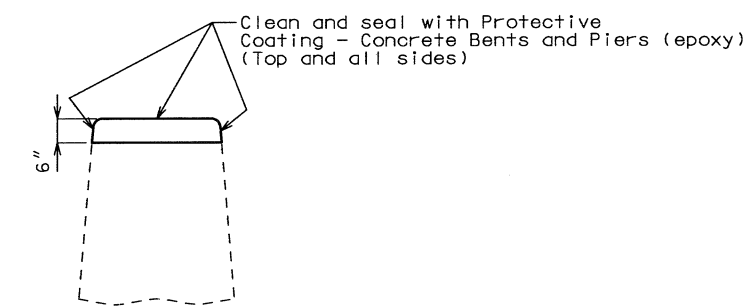
FINAL PLANS
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Mary Rodenbaugh 7/21/06
SIGNATURE DATE



PART ELEVATION OF EAST ABUTMENT



SECTION B-B



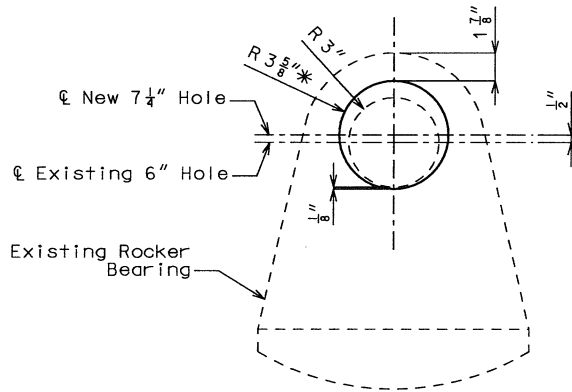
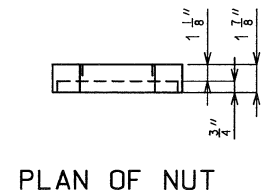
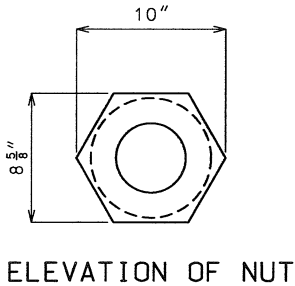
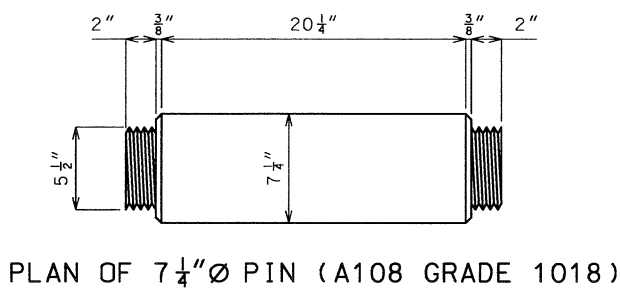
PART ELEVATION OF EXISTING PEDESTAL
(Pedestals 6, 7, 8 & 9)

DETAILS OF PROTECTIVE COATING - CONCRETE BENTS AND PIERS (EPOXY)

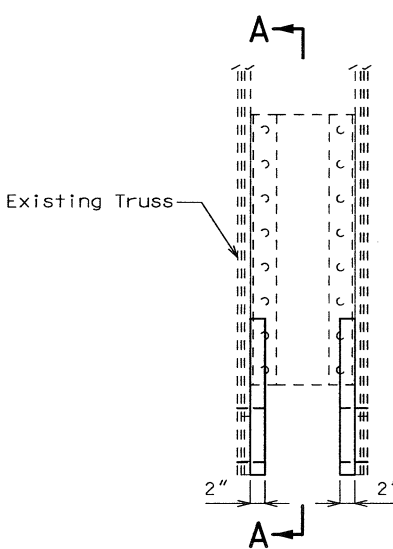
Note: This drawing is not to scale. Follow dimensions.

PIKE COUNTY **K09324**

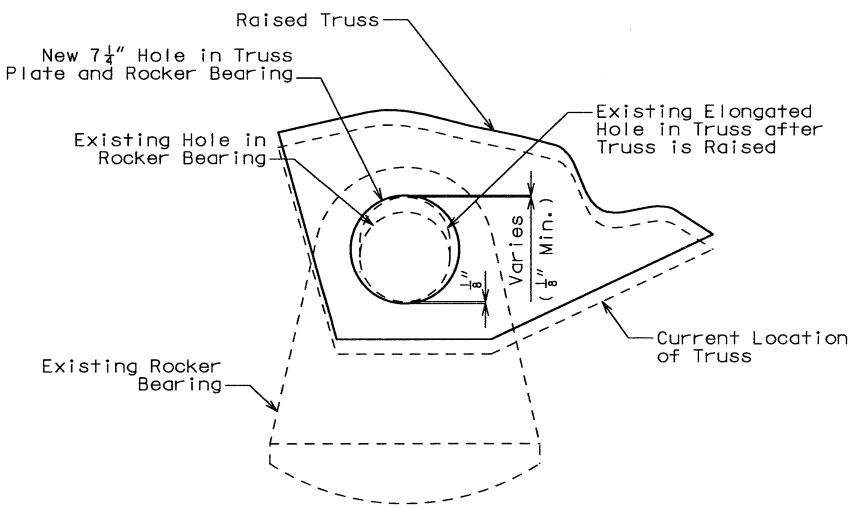
State	JOB NO. J3P0673	Sheet No.
MO	ID NO. 050422-301	B24



DETAIL OF ROCKER BEARING SHOWING NEW HOLE LOCATION TO BE BORED
* +1/50" (Tolerance for pin placement)

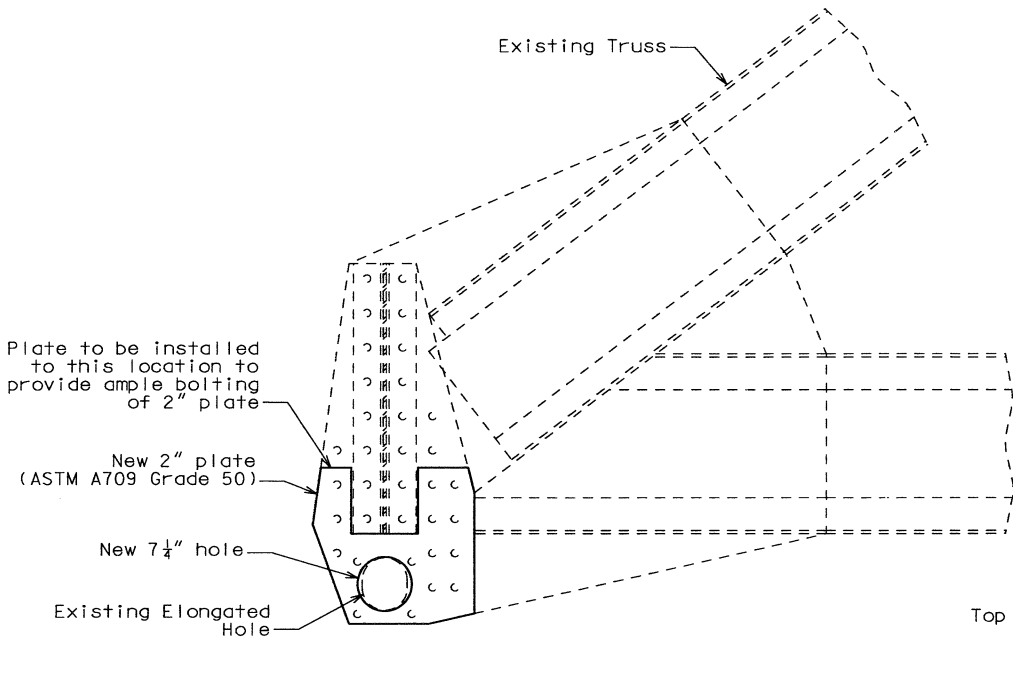


ELEVATION LOOKING AT END OF TRUSS SHOWING NEW 2" PLATE INSTALLATION

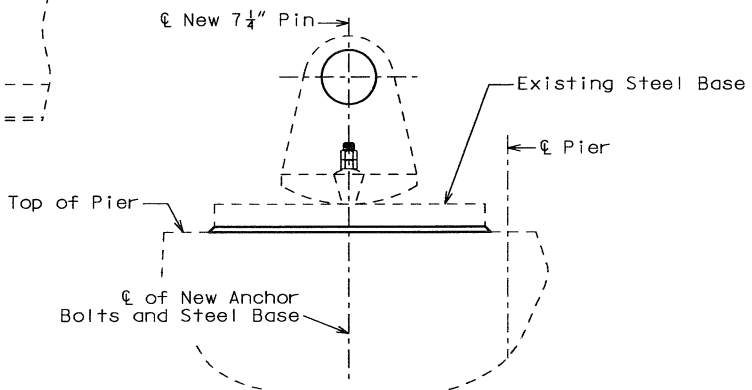


DETAIL OF ROCKER BEARING AND TRUSS SHOWING NEW HOLE LOCATION TO BE BORED

Prior to boring new 7 1/4" holes, truss shall be raised so that the bottom of elongated hole in the truss shall be at the same elevation of the bottom of the hole in the rocker bearing.



SECTION A-A



DETAIL SHOWING RESETTING OF ROCKER BEARING AT PIERS 1, 2, 4 & 5.

- Notes: Match existing hole locations in existing truss plates. Replace rivets with H.S. bolts. See Special Provisions for Rivet Replacement except that cost of work and material to complete this item will be considered completely covered by the contract unit price for Modification to Existing Rocker Bearings. (Typ.)
- Plate to be field measured before ordering any material.
- Holes in 2" plate shall be field drilled and new pin hole shall be bored after plate installation.
- Anchor bolts shall be 1-1/2" Ø ASTM A709 Grade 50W steel swedge bolts with ASTM A194-2, 2H or ASTM A563 - C, C3, D, DH, DH3 heavy hex nuts. Actual manufacturer's certified mill test reports (chemical and mechanical) shall be provided.
- All new structural steel including the anchor bolts and heavy hexagon nuts shall be coated in accordance with General Notes on Sheet No. 2.
- ℄ of bolt shall line up with ℄ of pin on installation at 60°F. The ℄ of the bolt shall be located towards the ℄ of Pier at a 1/4" per 10° fall in temperature at installation and shall be located away from the ℄ of Pier at a 1/4" per 10° rise in temperature at installation.
- The cost of removing existing anchor bolts, furnishing and installing new anchor bolts and resetting and relocating existing rocker , will be considered completely covered by the contract unit price for Modification of Existing Rocker Bearing.

FINAL PLANS

I certify that this plan sheet accurately depicts the configuration and location of the roadway and all appurtenant features, to the best of my knowledge, 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.

Mary Rodenberry 2/21/06
Signature
PIKE COUNTY K09324

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

PIN REPLACEMENT AND BEARING ADJUSTMENT PROCEDURE

1. Install the Jacking Saddle by removing 8 existing $\frac{7}{8}$ " ϕ rivets in each gusset in the locations shown. Ream the existing holes to $1\frac{1}{16}$ " ϕ and install 8-1" ϕ A490 bolts in each gusset.
2. Install 2-250 ton capacity locking collar jacks and all bearing and shim plates under each truss in the positions shown.
3. Raise each truss simultaneously enough to remove the rocker (approx. 1") and secure jacks with locking collars.
4. Thirteen existing rivets are to be removed in each gusset to accommodate the 2" supplemental pin plate. Remove the existing rivets in one gusset, field verify the hole locations, and field locate the holes in the supplemental pin plate.
5. Connect the supplemental pin plate to existing gussets by installing 8-7/8" ϕ A325 bolts and 5-7/8" ϕ A449 bolts with countersunk heads in the locations shown.
6. Repeat supplemental pin plate installation procedure on adjacent gusset.
7. Establish the center of the relocated rocker using temperature requirements on this Sheet.
8. Drill $1\frac{5}{8}$ " ϕ holes 18" deep into the existing pier seat, for the anchor bolts.
9. Apply grout under and relocate the existing bearing plate so that the existing anchor bolt holes properly align with the center of the holes drilled into the pier seat.
9. Replace the existing rocker in the proper alignment to be line bored.
10. Line bore a $\frac{7}{4}$ " ϕ (tolerance $\pm 1/50$ ") through existing gussets, existing pin plates, new pin plates, and existing rocker.
11. Install new $\frac{7}{4}$ " ϕ pin through gussets and pin plates.
12. Remove jacks, shim plates, bearing plates, and jacking saddles. Install 8- 1" ϕ A325 bolts in holes used for connection of the jacking saddles.

NOTES

The A490 bolts to be installed in the jacking saddles do not require full tightening to provide a slip critical connection. These connections were designed as bearing connections and according to Article 8.(c) of "The Specification for Structural Joints Using ASTM A325 or A490 Bolts" need only be tightened to a snug fit. The snug tight condition is defined by Article 712.7.2 of the Standard Specifications.

The center line of the anchor bolt shall line up with the center line of the new pin at a temperature of 60 degrees F. Adjust the location of the center line of the anchor bolts toward the center line of the pier $\frac{1}{4}$ " per 10 degree fall in temperature and away from the center line of pier $\frac{1}{4}$ " per 10 degree rise in temperature.

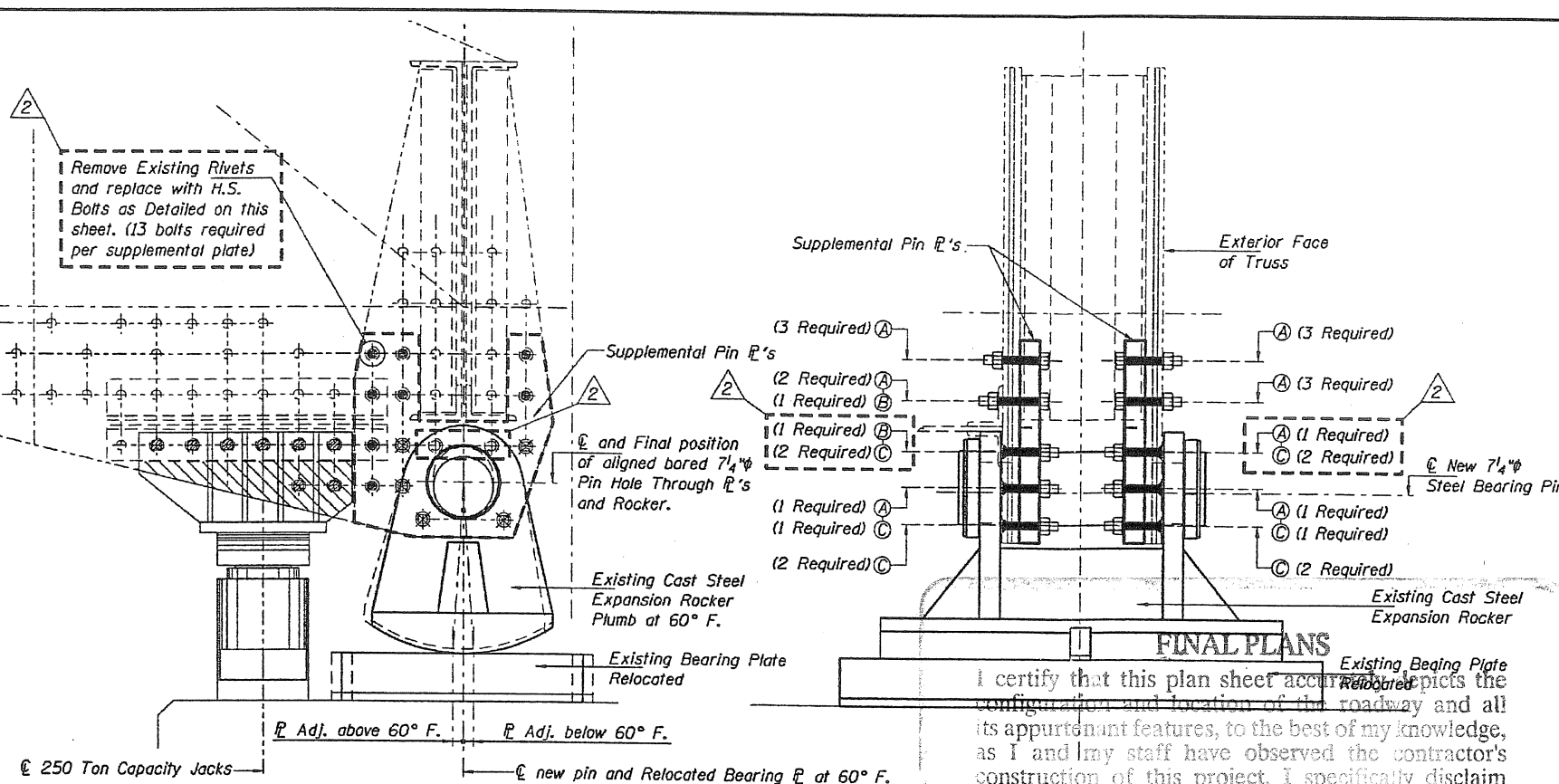
BEARING PIN REPLACEMENT - SPANS 1,2,4 & 5
U.S. ROUTE 54 over MISSISSIPPI RIVER
PIKE COUNTY, MISSOURI
PROJECT NO. F.A.S.-54-4(43)
JOB NO. J3P0673
BRIDGE NO. K09324

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JOB NO.
05S2064
DATE
09/13/05

Revised 11/23/05 T.E.H.



ELEVATION VIEW - PIN REPLACEMENT COMPONENTS

END VIEW - PIN REPLACEMENT COMPONENTS

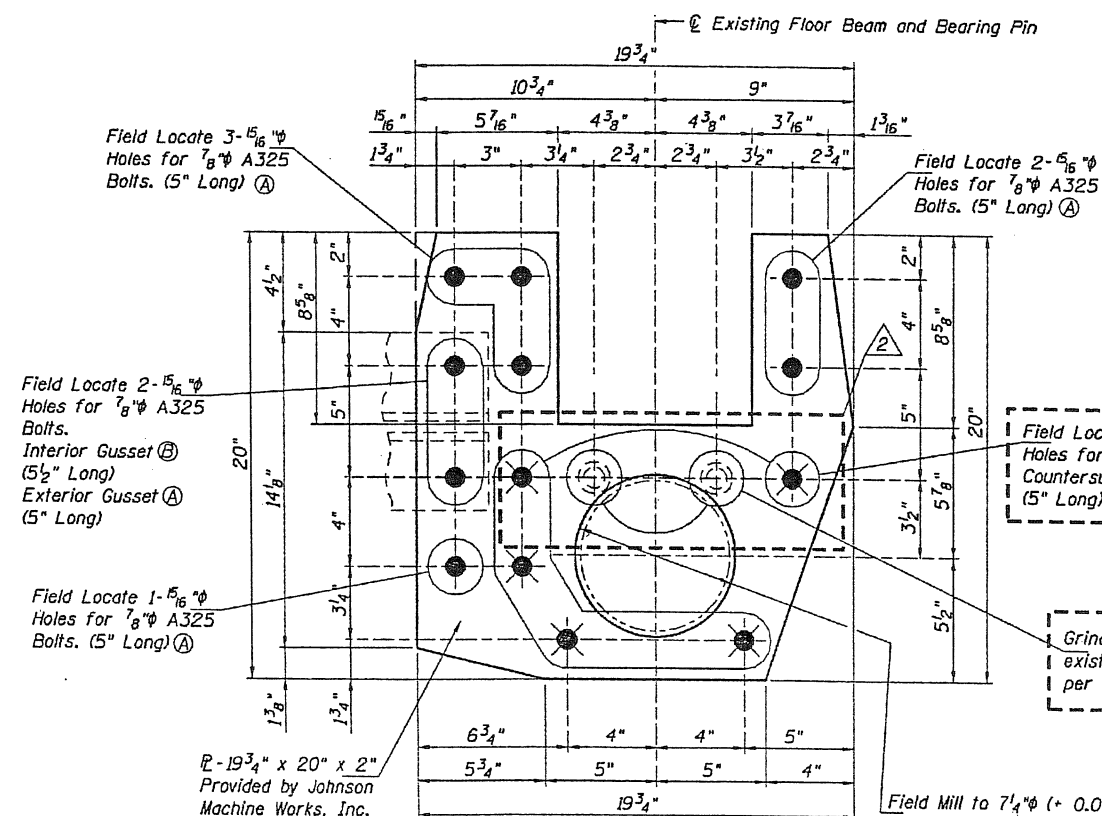
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Mary Roderburg 7/21/06

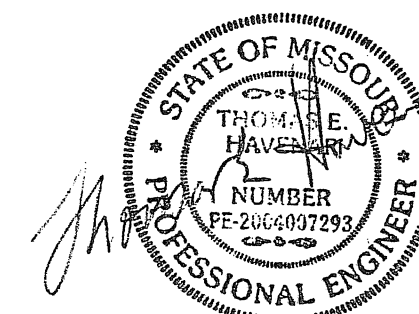
BOLT SUMMARY - SUPPLEMENTAL PIN PLATES

Location Identifier	Bolt Head	Bolt Type	Bolt Diameter	Hole Diameter	Bolt Length	Required per Brg.	Number of Brgs.	Total Required
A	Std.	A325	$\frac{7}{8}$ "	$1\frac{5}{16}$ "	5"	14	8	112
B	Std.	A325	$\frac{7}{8}$ "	$1\frac{5}{16}$ "	5 $\frac{1}{2}$ "	2	8	16
C	Ctsk.	A449	$\frac{7}{8}$ "	$1\frac{5}{16}$ "	5"	10	8	80

Countersunk (Ctsk.) Bolt Lengths include the head.

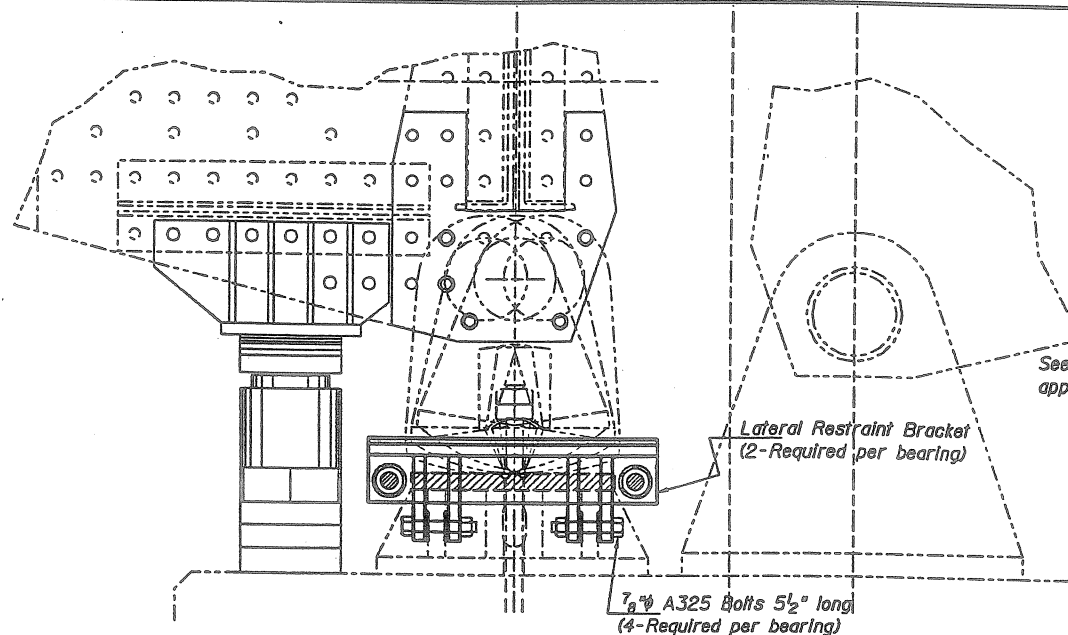


SUPPLEMENTAL PIN PLATES
(16-Plates Required)

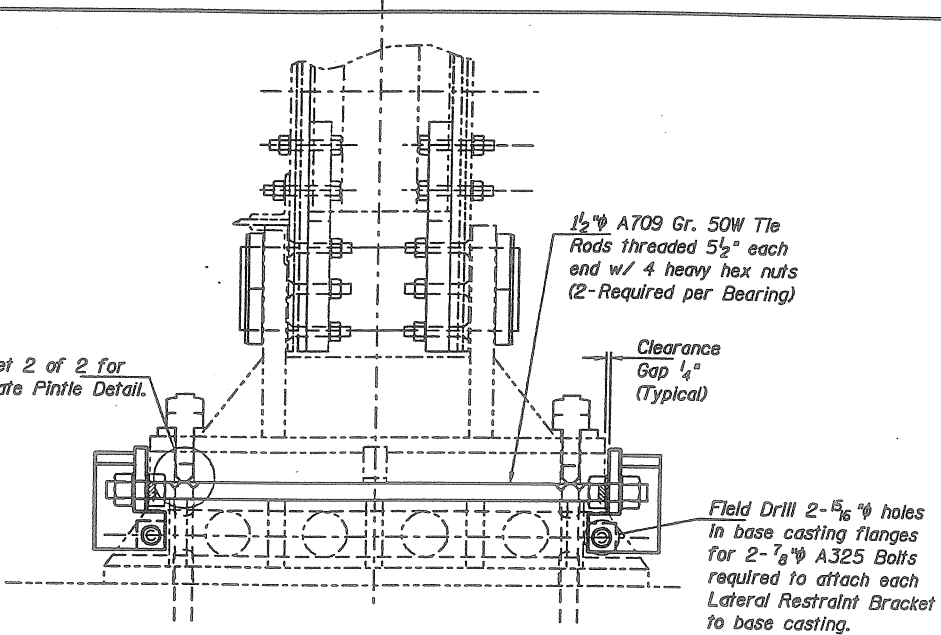


11/23/05

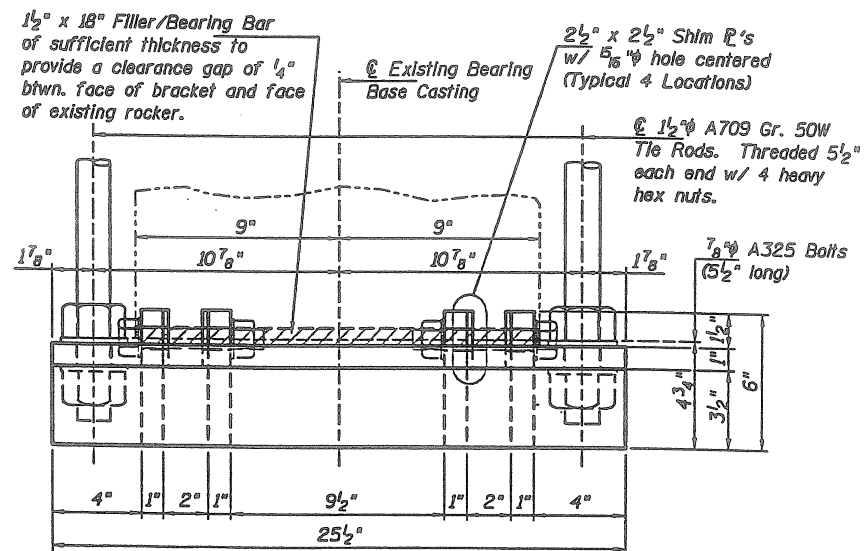
11/23/2005
N:\05\0505052064\pin\Truss - Span\Pin - Gusset.dgn
T.E.H. 9/13/05
Rog 9/13/05
T.E.H. 9/13/05



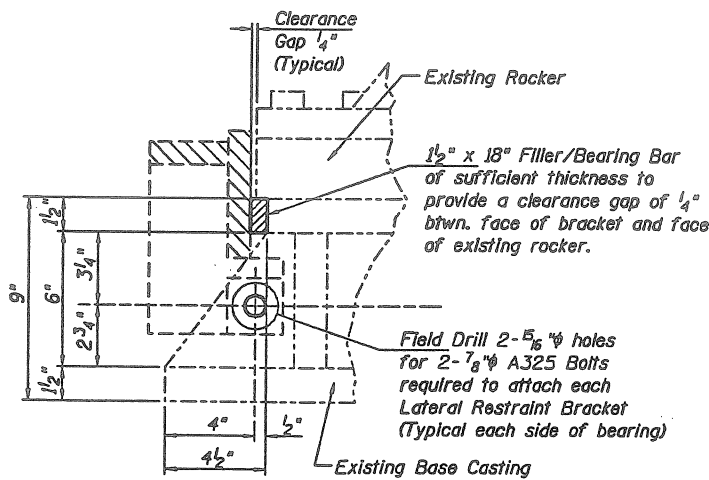
ELEVATION VIEW - BEARING RESTRAINT COMPONENTS



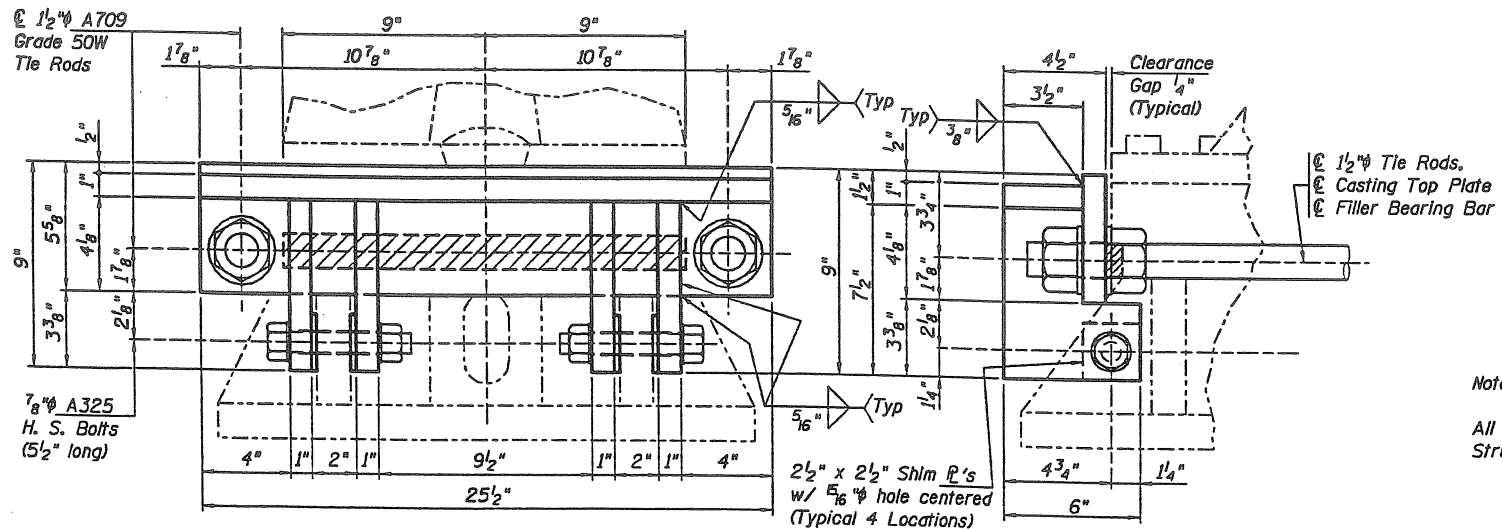
END VIEW - BEARING RESTRAINT COMPONENTS



PLAN VIEW - BEARING RESTRAINT BRACKET



SECTION ALONG C BEARING AND BASE CASTING



ELEVATION VIEW - BEARING RESTRAINT BRACKET

END VIEW - BEARING RESTRAINT BRACKET

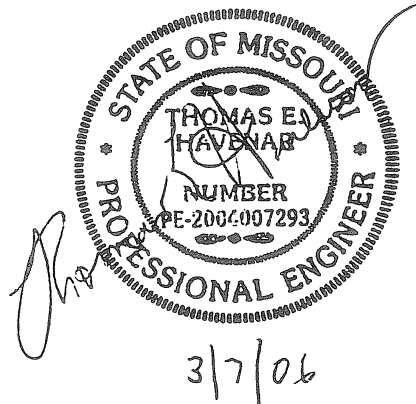
Notes:

All Plates shall conform to the requirements of A709 Gr. 50W Structural Steel unless otherwise noted.

FINAL PLANS

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Signature: Mary Reder Date: 7/21/06



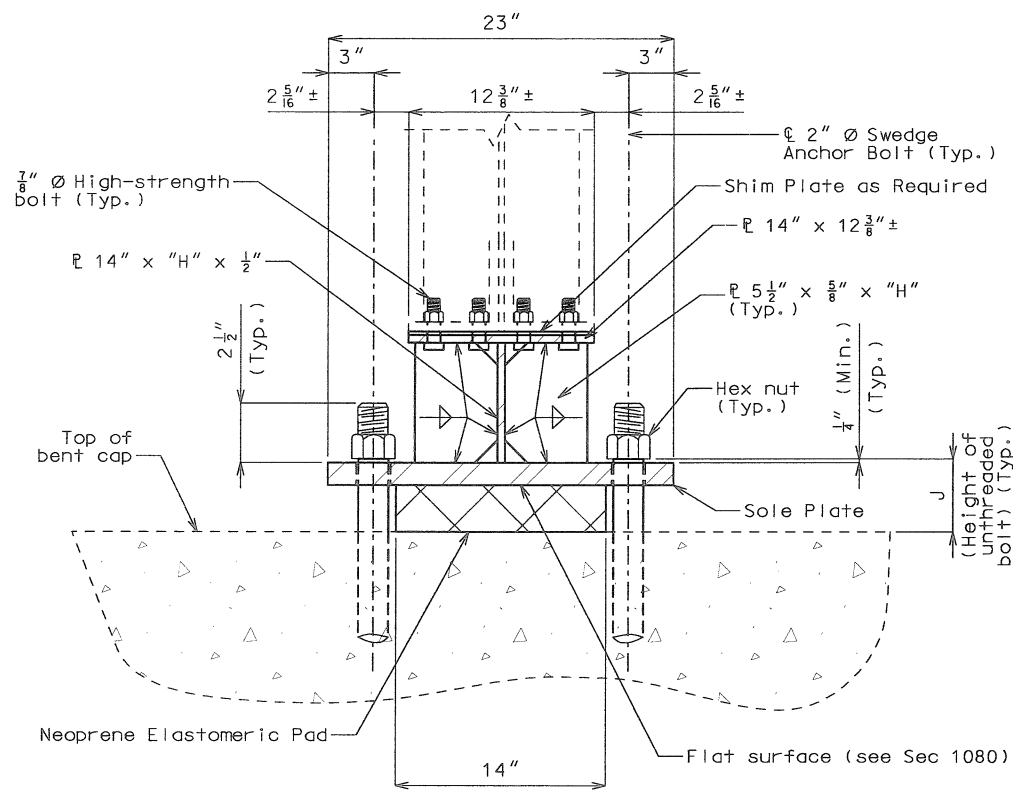
ANCHOR BOLT MODIFICATIONS PIER 2
U.S. ROUTE 54 over MISSISSIPPI RIVER
PIKE COUNTY, MISSOURI
PROJECT NO. F.A.S.-54-4(43)
JOB NO. J3P0673
BRIDGE NO. K09324

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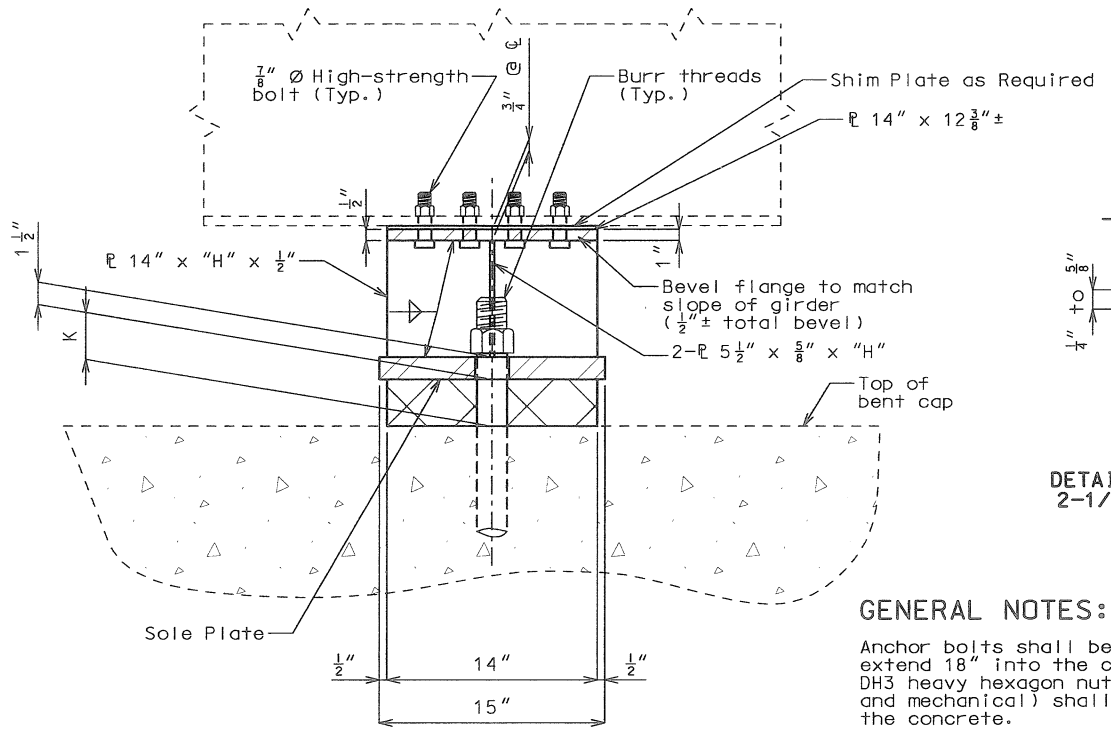


JOB NO. 05S2064
DATE 12/05/05

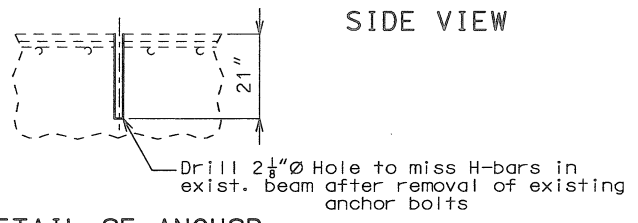
12/05/2005
H:\05-005\05S2064\Drawings\Bearing Restraints Final.dgn
LAYOUT T.E.H. 12/05/05
DRAWN Rod 12/05/05
REVIEWED T.E.H. 12/05/05



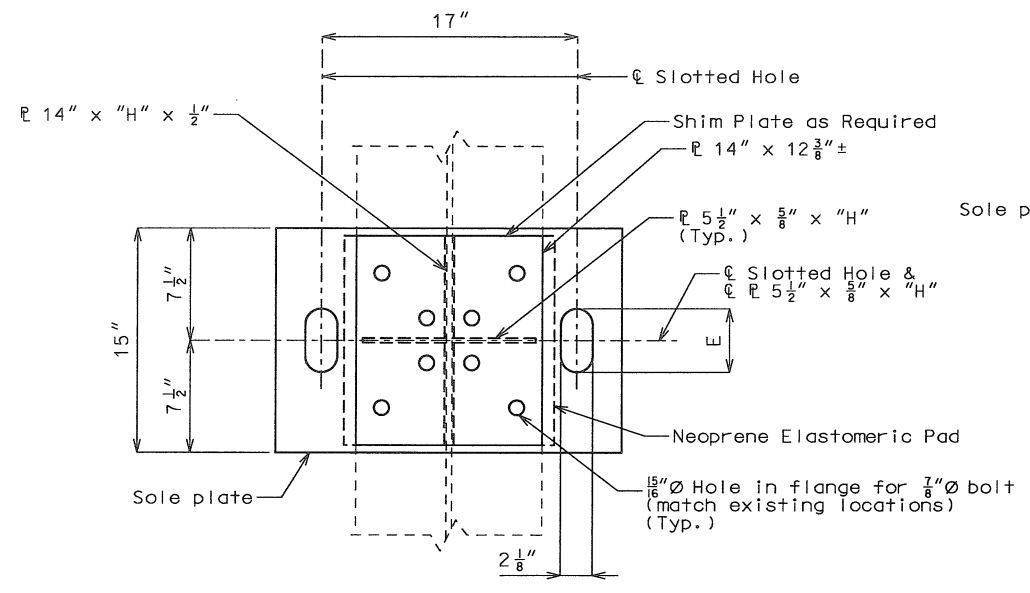
END VIEW



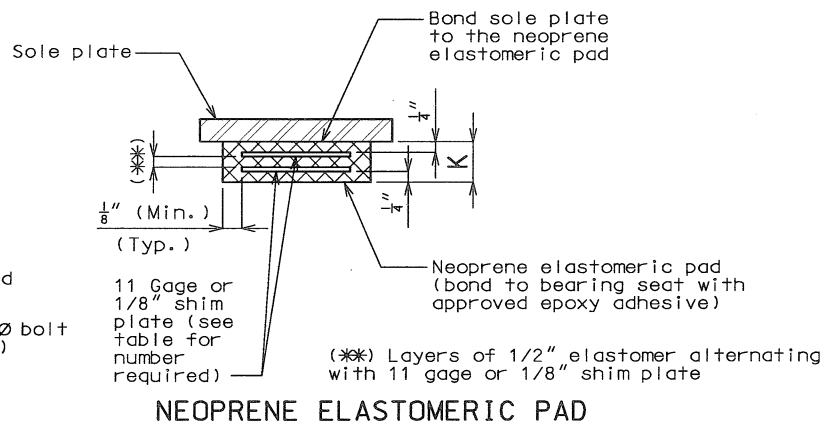
SIDE VIEW



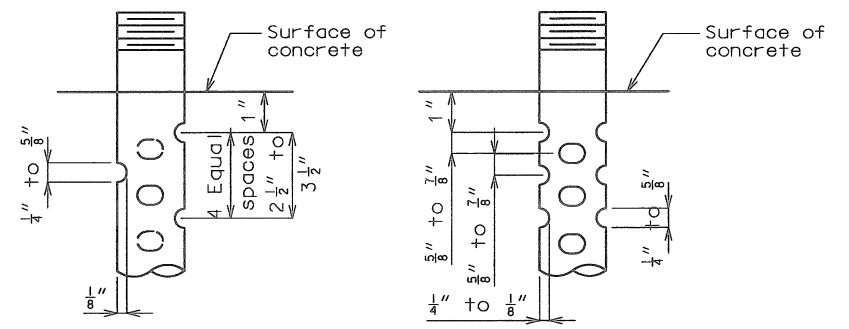
DETAIL OF ANCHOR BOLT WELL



PART PLAN VIEW



NEOPRENE ELASTOMERIC PAD



DETAIL FOR 3/4" Ø THRU 2-1/2" Ø ANCHOR BOLTS
OPTIONAL DETAIL FOR 1-3/8" Ø THRU 2-1/2" Ø ANCHOR BOLTS
SWEDGE ANCHOR BOLT DETAILS

GENERAL NOTES:

Anchor bolts shall be 2" Ø ASTM A709 Grade 50W steel swaged bolts and shall extend 18" into the concrete with ASTM A194 - 2, 2H or ASTM A563 - C, C3, D, DH, DH3 heavy hexagon 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 bolts and heavy hexagon nuts shall be coated in accordance with General Notes on Sheet No. 2.

Neoprene Elastomeric Pads shall be 60 Durometer.

Structural steel for sole plate and bearing extension shall be ASTM A709 Grade 50 and shall be coated in accordance with General Notes on Sheet No. 2.

Laminated Neoprene Bearing Pad Assembly shall be in accordance with Sec 716.

Existing anchor bolts shall be removed before new anchor bolts are installed.

Cost of removing existing bearings and anchor bolts will be considered completely covered by contract unit price for Removal of Existing Bearings and Anchor Bolts per each.

The sole plate and extension shall be furnished with the bearing.

The cost of bearing extension, anchor bolts and sole plate will be considered completely covered by the contract unit price for Laminated Neoprene Bearing Pad Assembly.

TABLE OF BEARING DIMENSIONS						
LOCATION	E	H	J	K	NUMBER OF SHIM PLATES(*)	NUMBER REQUIRED
Pier 5	5 1/2"	4 15/16"	7 3/8"	5 5/8"	9	2
Pedestal 10 Left	5 1/2"	5 11/16"	7 3/8"	5 5/8"	9	2
Pedestal 10 Right	4 1/4"	7 7/16"	4 7/8"	3 1/8"	5	2
Pedestal 11 Left	2 1/8"	8 13/16"	4 1/4"	2 1/2"	4	2
Pedestal 11 Right	4 1/4"	7 7/16"	4 7/8"	3 1/8"	5	2
East Abutment	2 1/8"	8 13/16"	4 1/4"	2 1/2"	4	2
TOTAL BEARINGS						12

(*) The required shim plate shall be placed between layers of elastomer and molderd together to form an integral unit.

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.

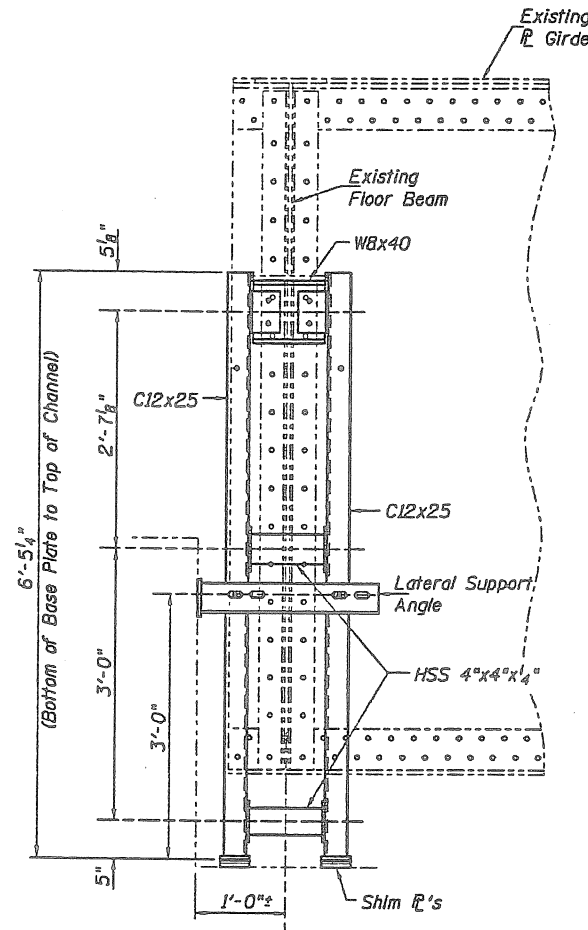
Max Rodenbaugh 7/21/06
SIGNATURE DATE

PIKE COUNTY K09324

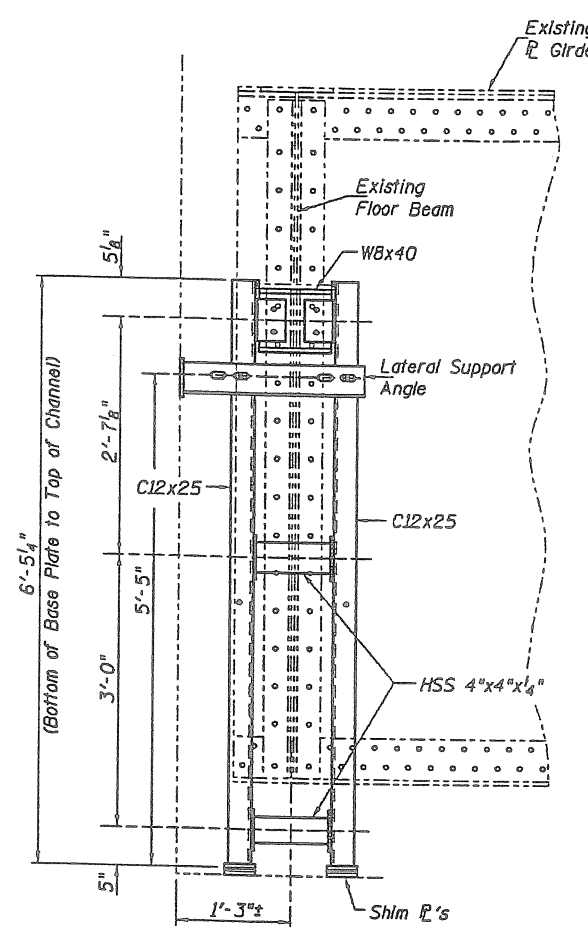
DETAILS OF LAMINATED NEOPRENE BEARING PAD ASSEMBLY AND BEARING EXTENSION

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

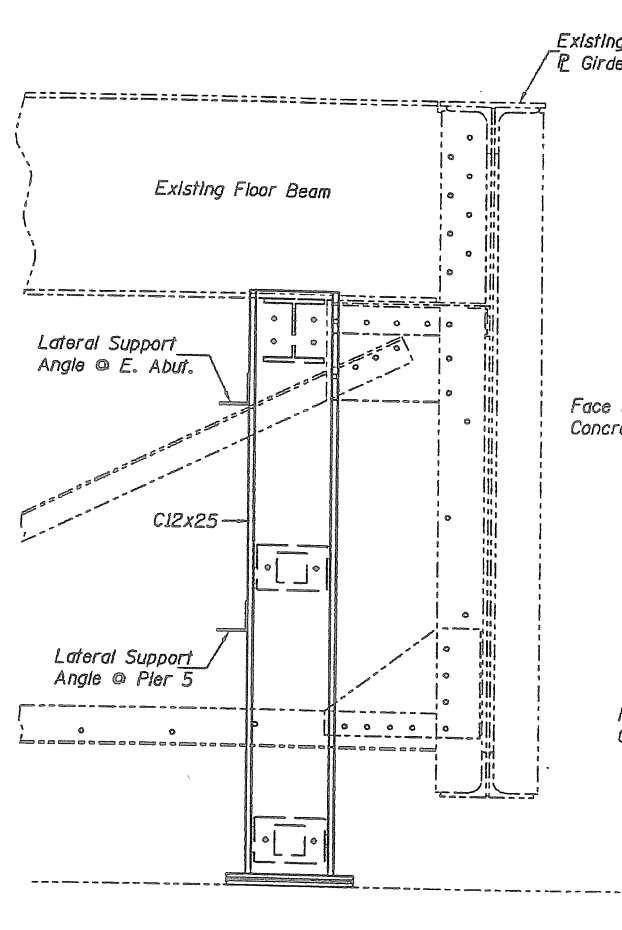
Add Sheet 08/16/05



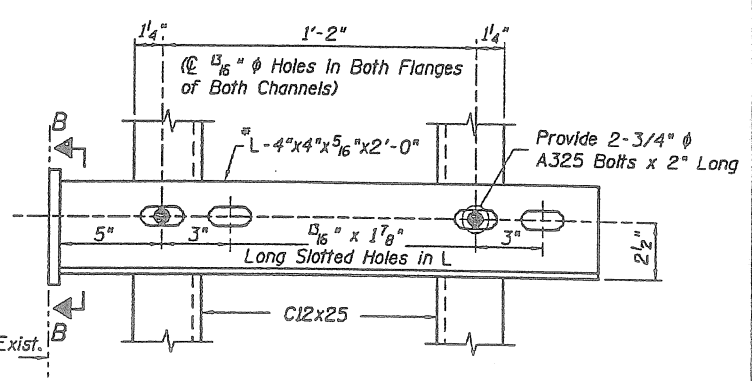
**ELEVATION - FLOORBEAM SUPPORT SYSTEM
(AT PIER 5)**



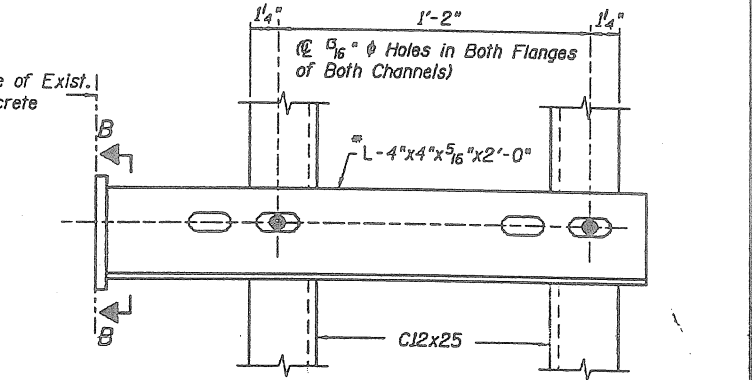
**ELEVATION - FLOORBEAM SUPPORT SYSTEM
(AT EAST ABUTMENT)**



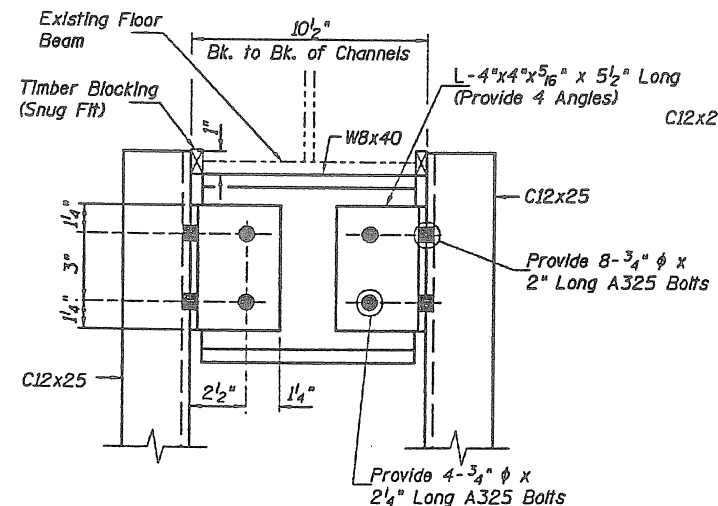
SIDE VIEW - FLOORBEAM SUPPORT SYSTEM



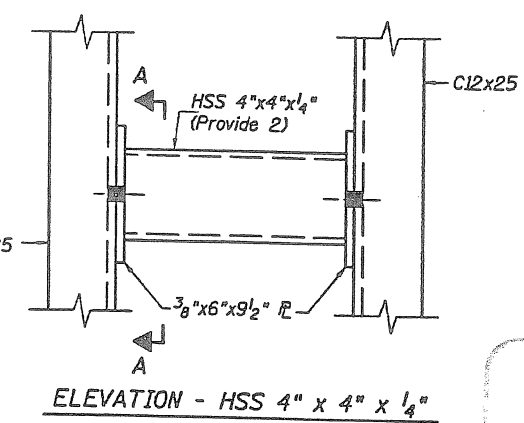
ELEVATION - PIER 5 LATERAL SUPPORT ANGLE



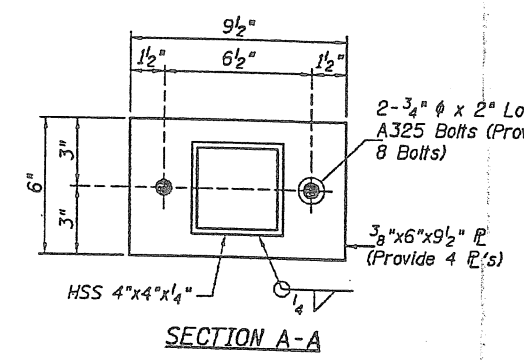
ELEVATION - E. ABUT. LATERAL SUPPORT ANGLE



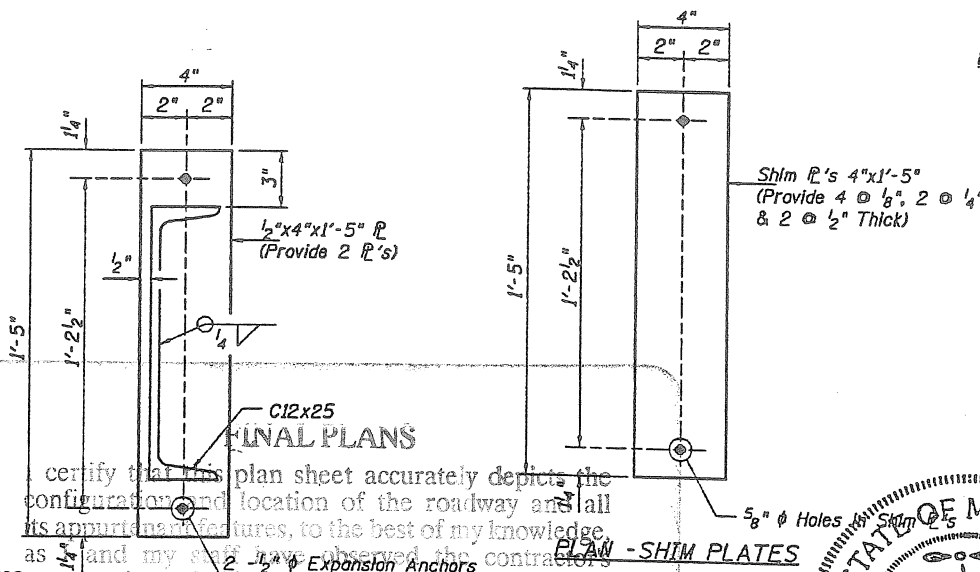
ELEVATION - SUPPORT BEAM



ELEVATION - HSS 4" x 4" x 1/4"



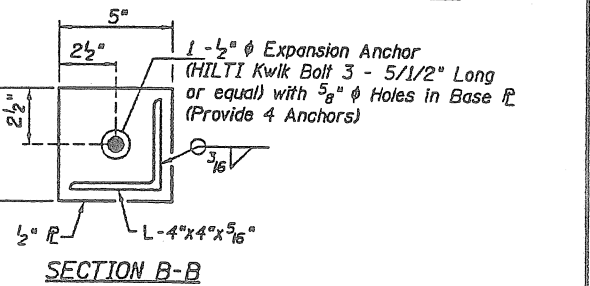
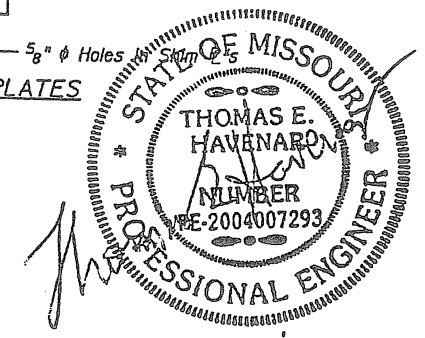
SECTION A-A



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 the project, and I disclaim any responsibility or liability for the project, except as I and my staff may have modified or authorized 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.

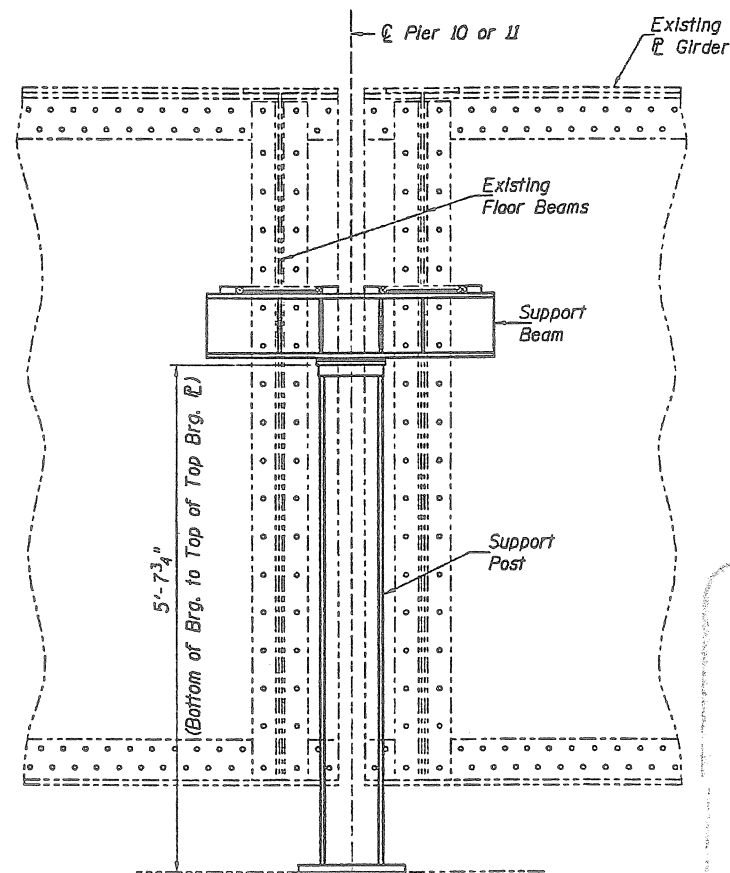
Man Rodenberry 7/21/06
Signature Date



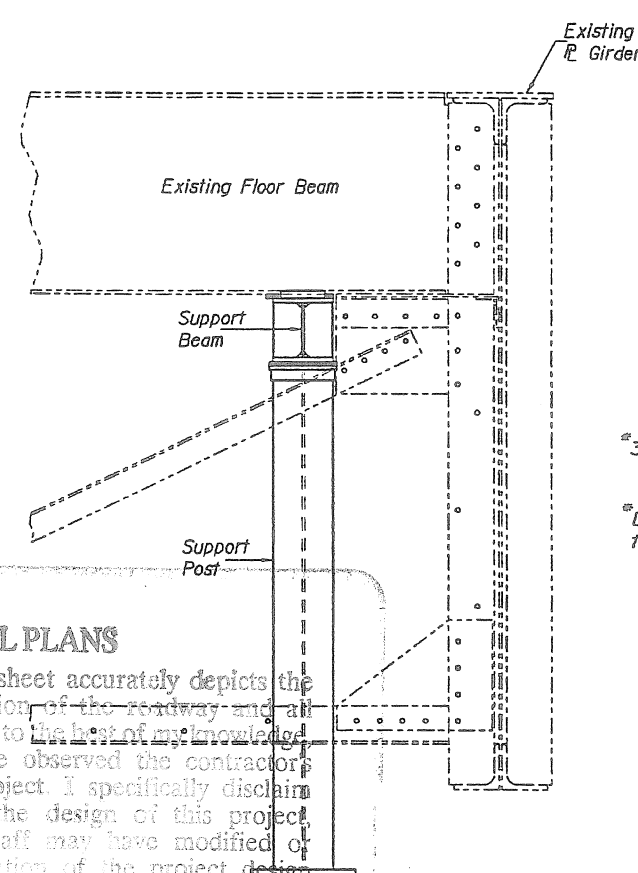
SECTION B-B

- NOTES**
1. The bearing stiffeners shall be replaced only on the girder end under the lane closed to traffic.
 2. The bearing stiffener replacement shall be completed on the girder end before beginning the jacking procedure for the girder bearing replacement.

FLOORBEAM SUPPORT SYSTEM - PIER 5 & E. ABUT.
U.S. ROUTE 54 over MISSISSIPPI RIVER
PIKE COUNTY, MISSOURI
PROJECT NO. F.A.S.-54-4(43)
JOB NO. J3P0673
BRIDGE NO. K09324



ELEVATION - FLOORBEAM SUPPORT SYSTEM

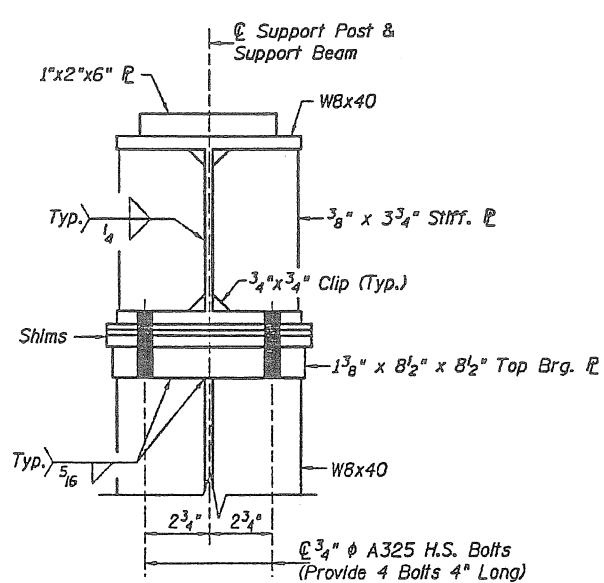


SIDE VIEW - FLOORBEAM SUPPORT SYSTEM

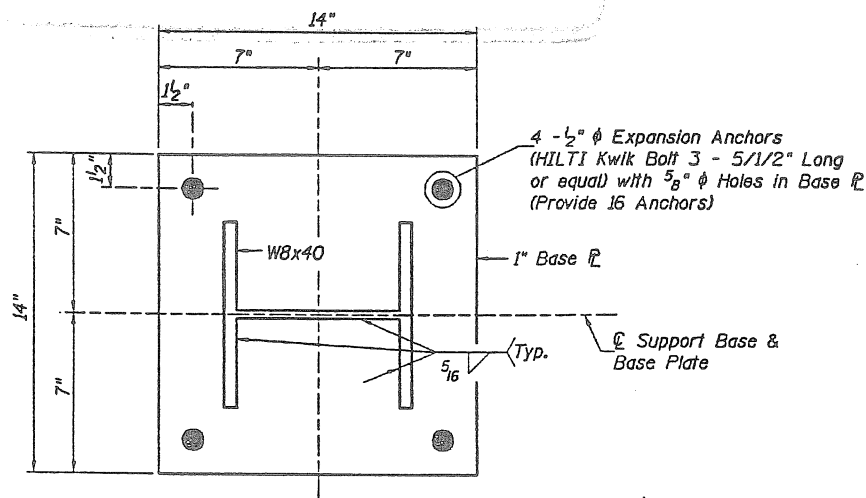
FINAL PLANS

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 construction of this project except as I and my staff may have directed or ordered that the project be constructed.

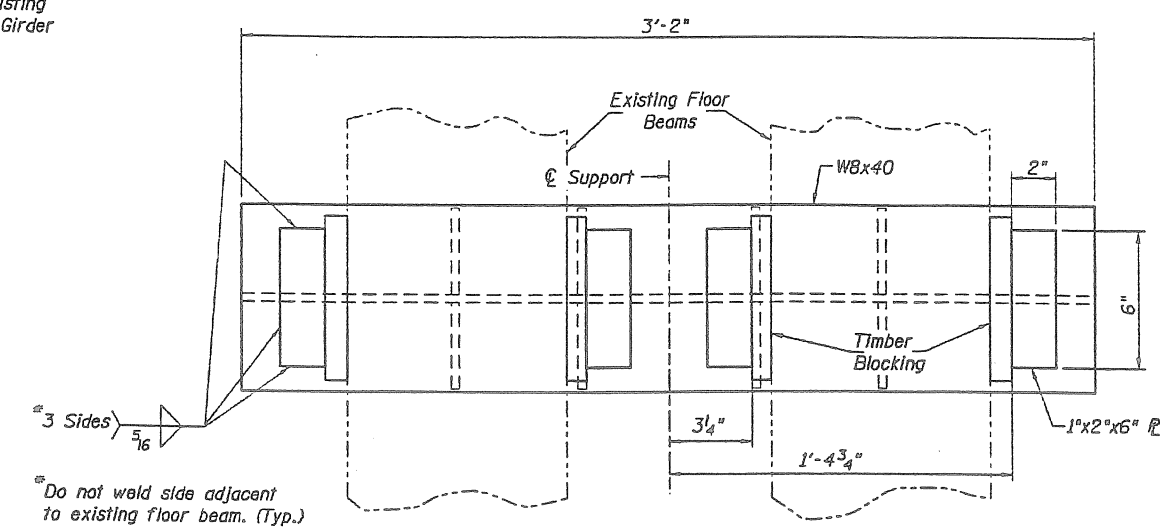
Max Rodenburg 7/21/05
 Signature Date



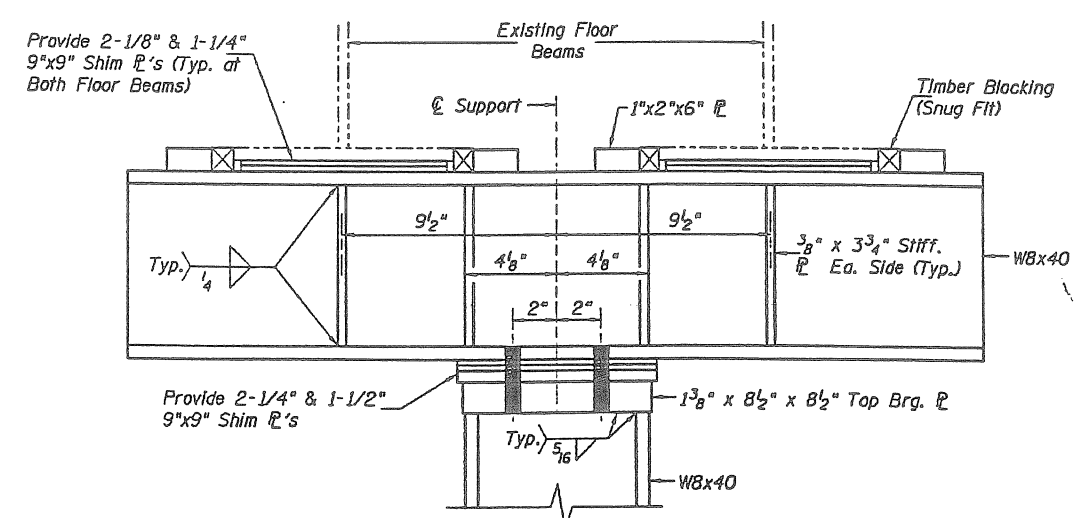
TYPICAL SECTION THRU SUPPORT BEAM



PLAN - SUPPORT POST BASE PLATE



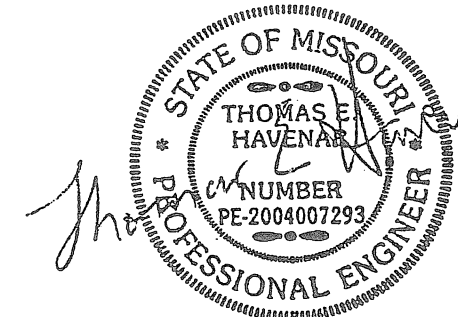
PLAN - SUPPORT BEAM



ELEVATION - SUPPORT BEAM

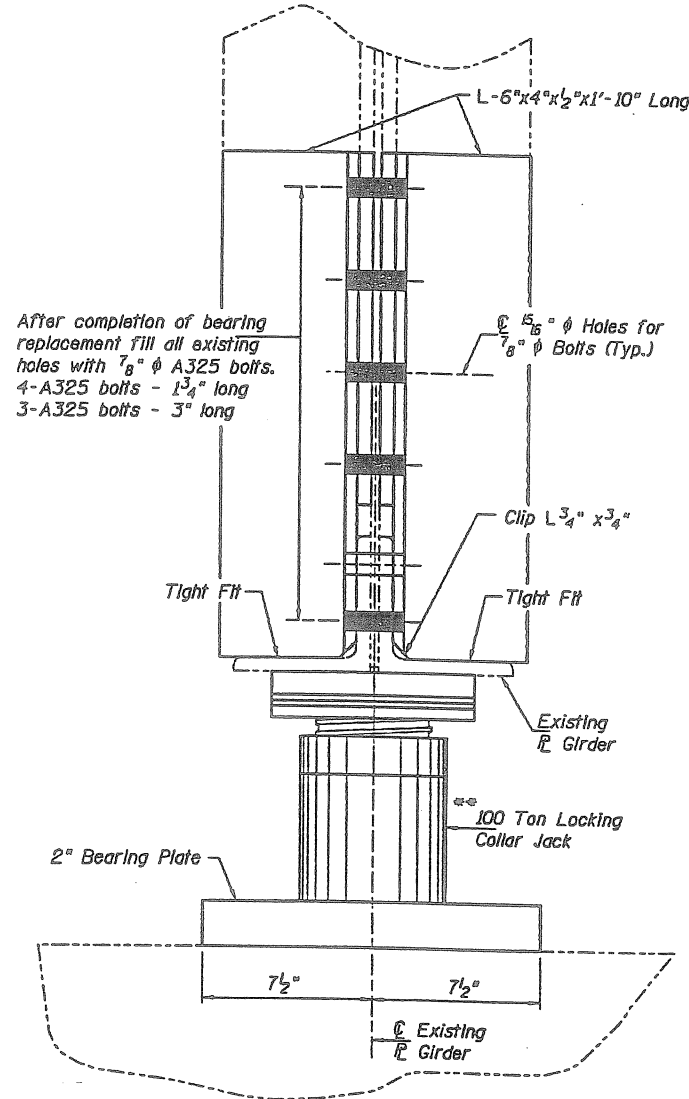
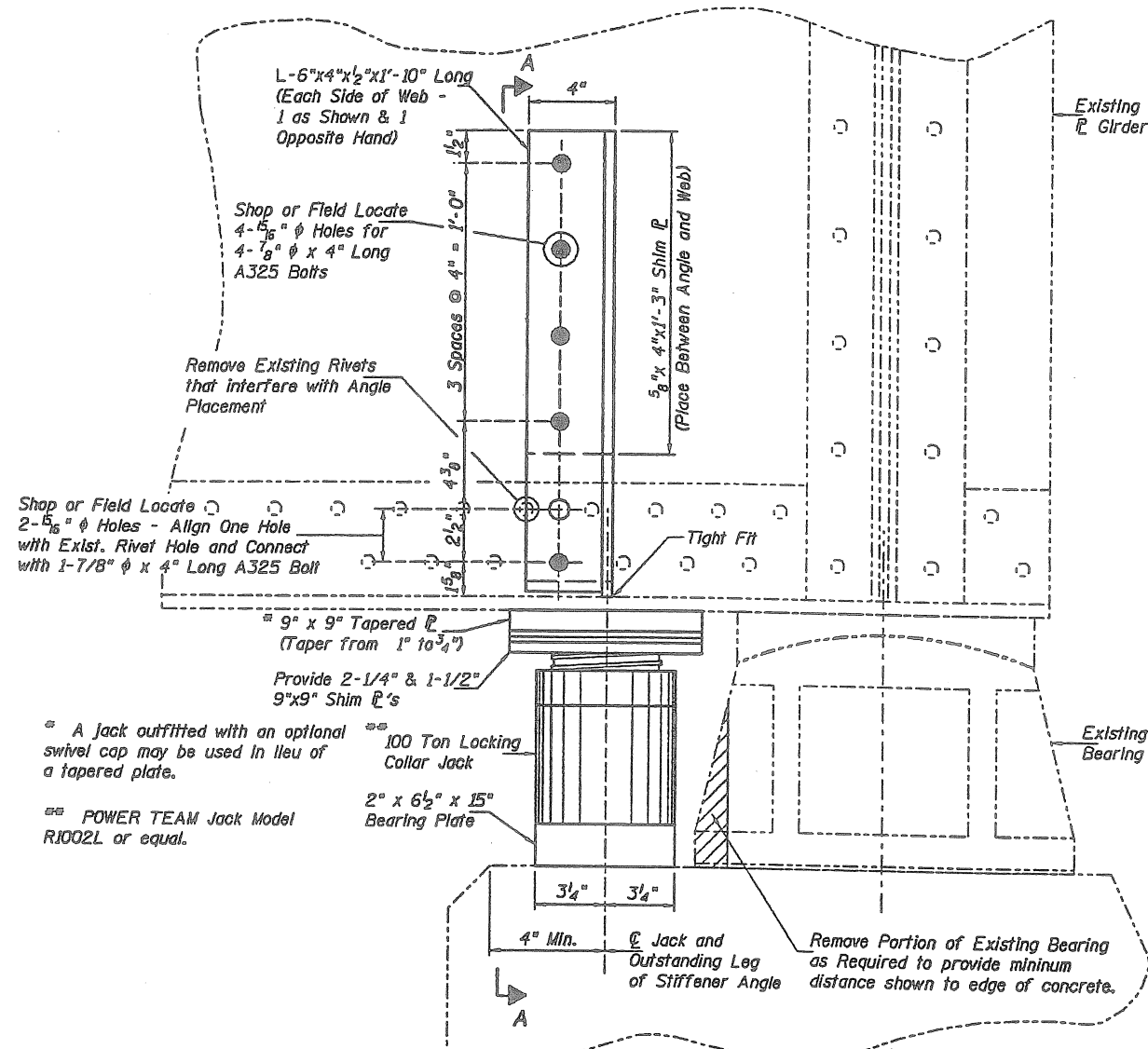
NOTES

1. The bearing stiffeners shall be replaced only on the girder ends under the lane closed to traffic.
2. The bearing stiffener replacement shall be completed on one girder end before beginning the stiffener replacement on the adjacent girder end.
3. The bearing stiffener replacement shall be completed on both girder ends before beginning the jacking procedure for the girder bearing replacement.



8/26/05

FLOORBEAM SUPPORT SYSTEM - PIERS 10 & 11
 U.S. ROUTE 54 over MISSISSIPPI RIVER
 PIKE COUNTY, MISSOURI
 PROJECT NO. F.A.S.-54-4(43)
 JOB NO. J3P0673
 BRIDGE NO. K09324



NOTES

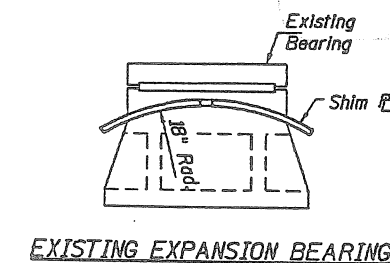
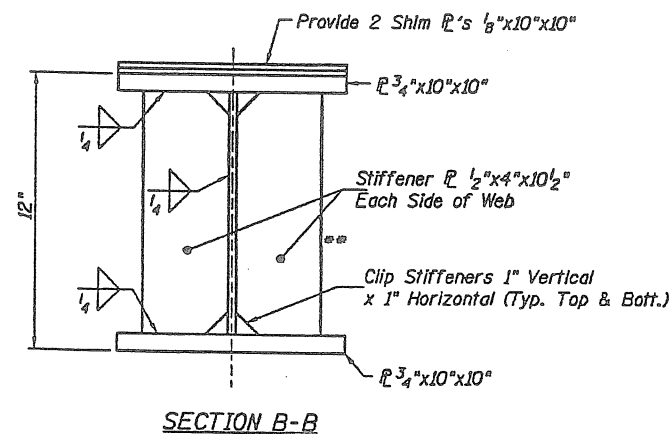
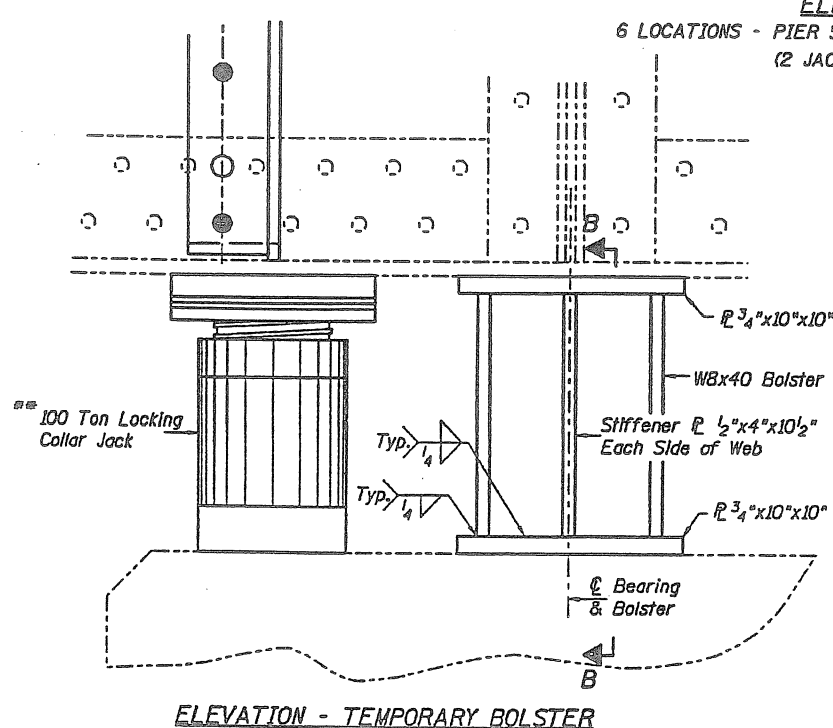
- The bearing shall be replaced on the girder end under the lane closed to traffic.
- Before the girder jacking for bearing replacement begins the new bearing stiffeners shall be in place on the girder end.
- The girder in the same span and under the traffic lane shall be jacked simultaneously to the same elevation as the girder whose bearing is being replaced. Once the girder under traffic has reached the proper elevation a steel shim(s) shall be inserted between the bolster and the sole of sufficient thickness to allow the girder under traffic to be supported by the existing bearing.

- The maximum height to which the girders can be raised for the purpose of replacing the bearings is 1/4 inch.

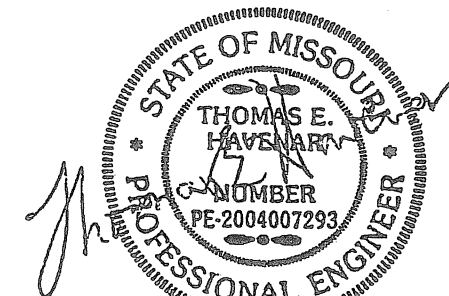
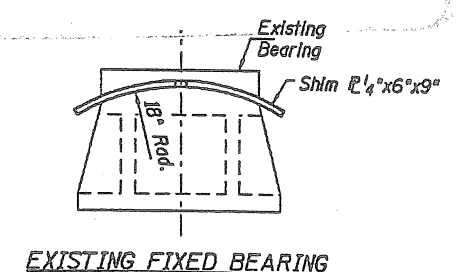
FINAL PLANS

5. The Temporary bolster shall be placed under the girder and centered at intersection of the centerline of bearing and the centerline of the web. The bolster shall be used at all times except when the new bearing is being placed, or when the seal area is cleaned before the new bearing is installed. 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 construction of the project, except as I and my staff may have directed or ordered the project to be constructed.

Mary Roderburg 7/21/06
 Date



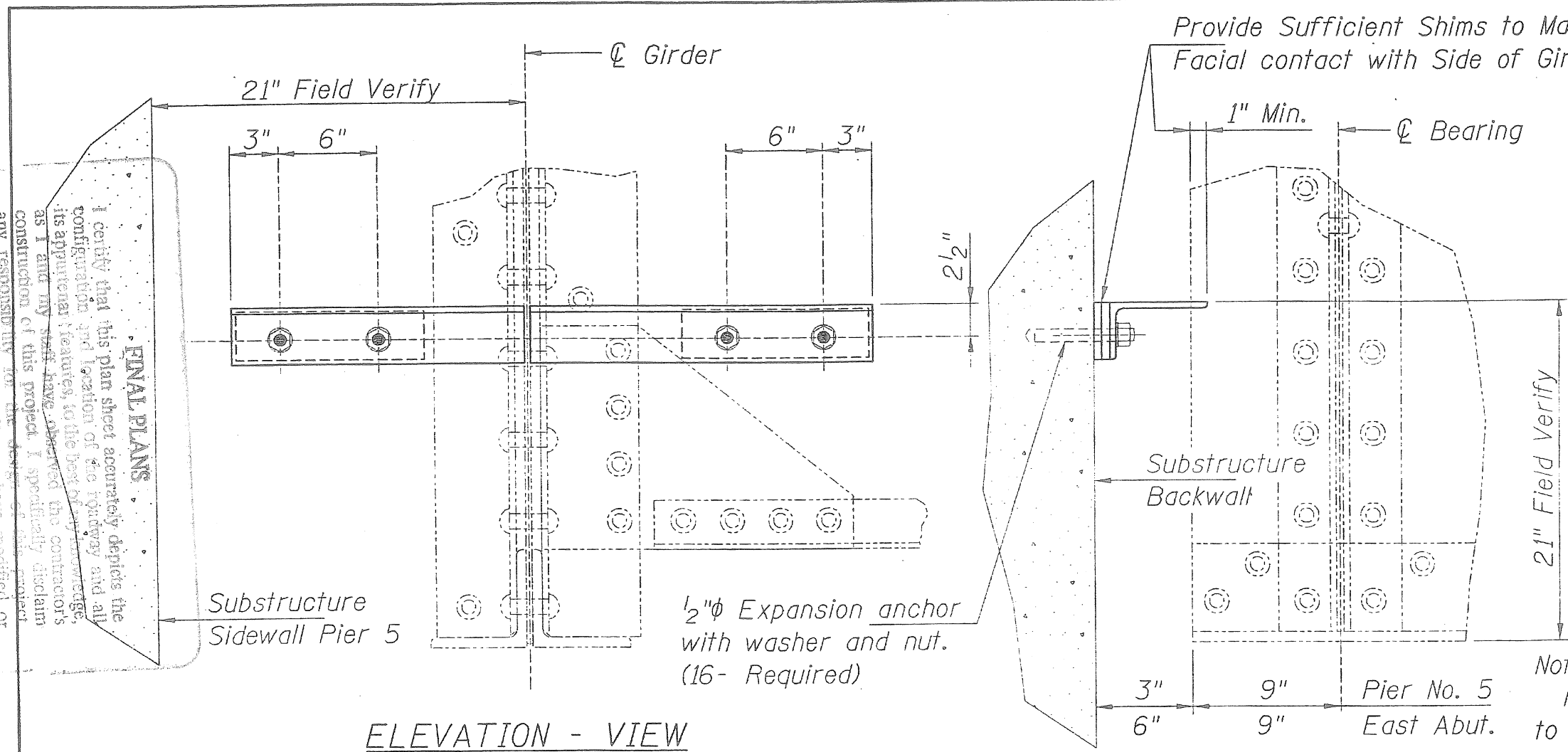
Note:
 Provide 2 shim R's as shown for each jacked bearing under traffic side.



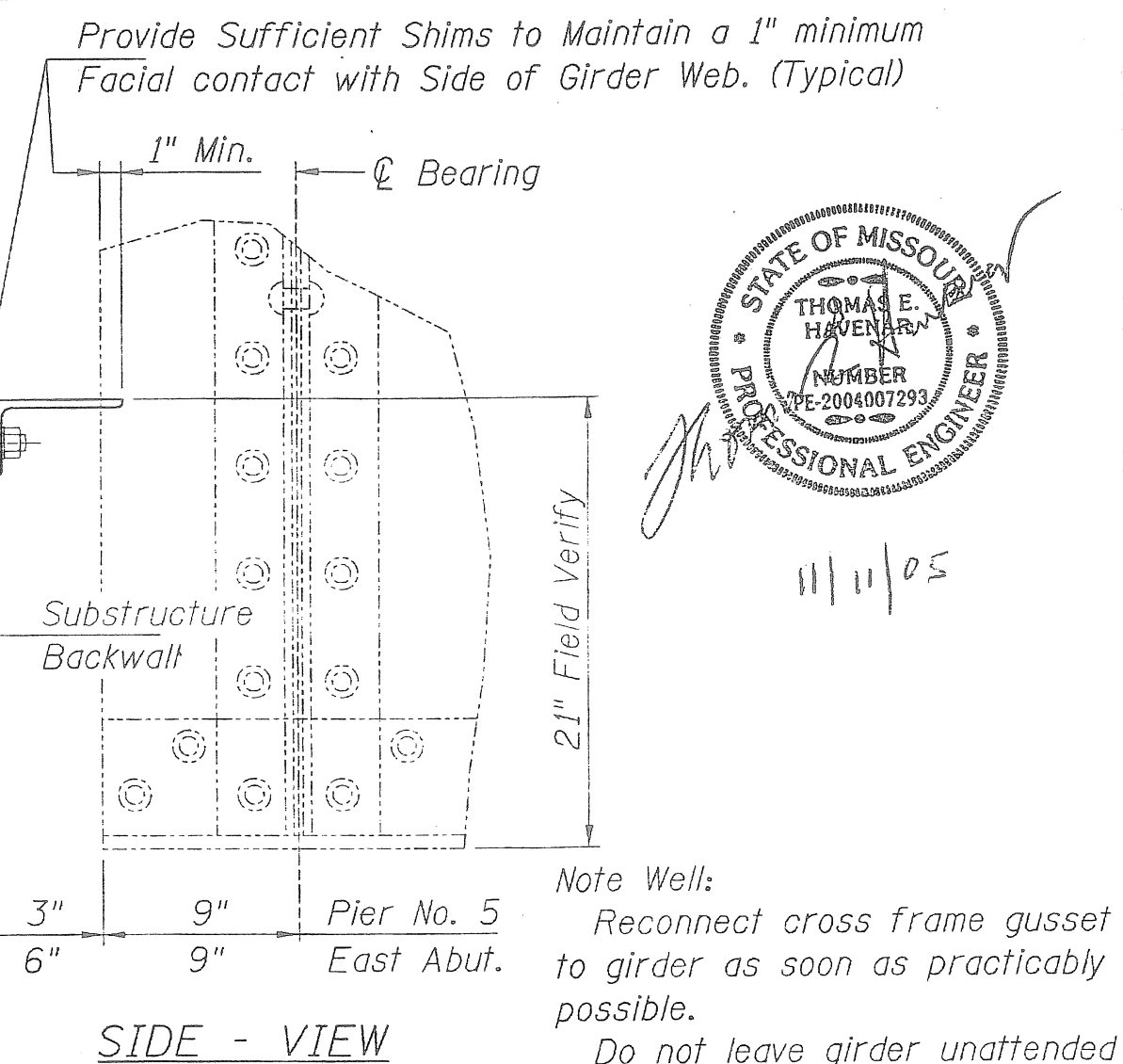
8/26/05

GIRDER JACKING U.S ROUTE 54 over MISSISSIPPI RIVER PIKE COUNTY, MISSOURI PROJECT NO. F.A.S.-54-4(43) JOB NO. J3P0673 BRIDGE NO. K09324	
© Copyright Hanson Professional Services Inc. 2005 	0552064 8/25/05

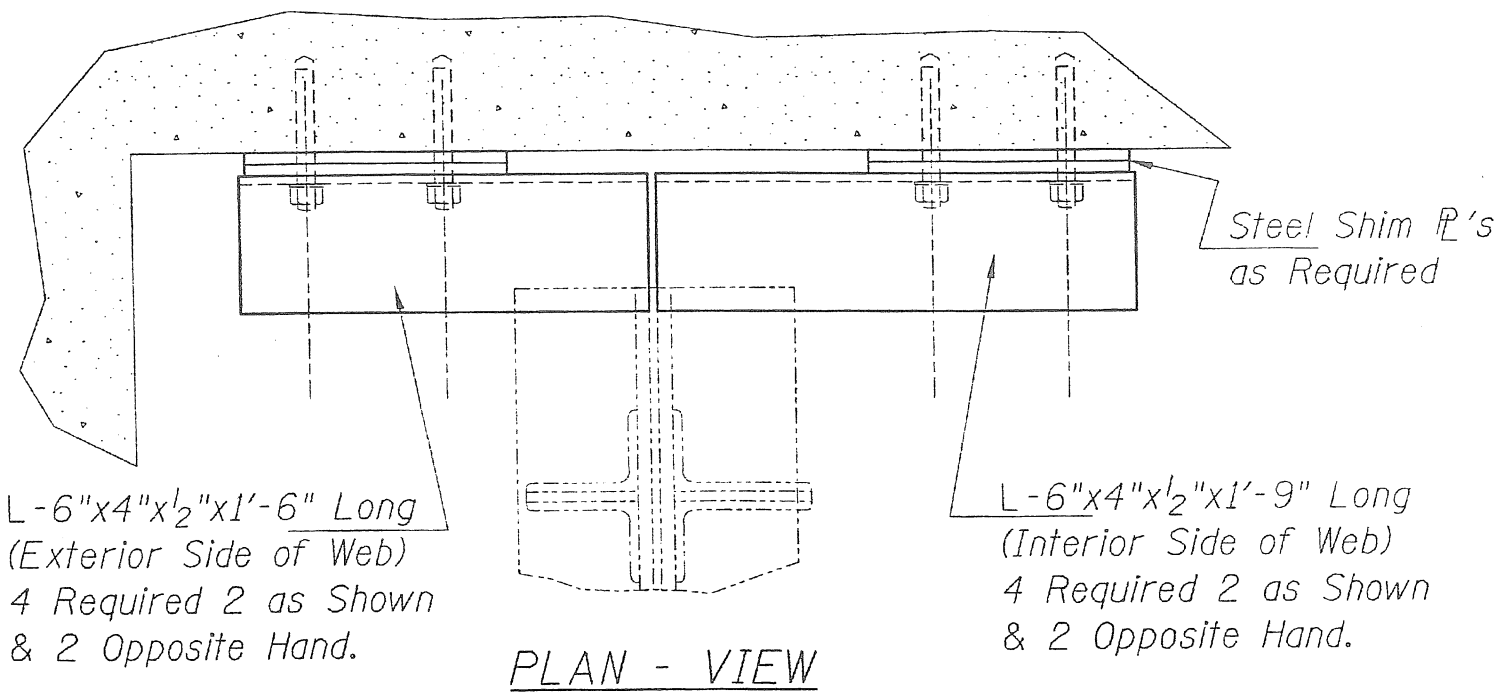
08/26/2005
 IN05-0050552064-gp1-girder jacking.dgn
 LAYOUT M.M.H. 08/24/05
 DRAW D.A.B. 08/25/05
 REVIEW T.E.H. 08/25/05



ELEVATION - VIEW



SIDE - VIEW



PLAN - VIEW

Note Well:
Reconnect cross frame gusset to girder as soon as practicably possible.
Do not leave girder unattended with cross frame and gusset detached.

TEMPORARY LATERAL GIRDER BRACING
U.S ROUTE 54 over MISSISSIPPI RIVER
PIKE COUNTY, MISSOURI
PROJECT NO. F.A.S.-54-4(43)
JOB NO. J3P0673
BRIDGE NO. K09324

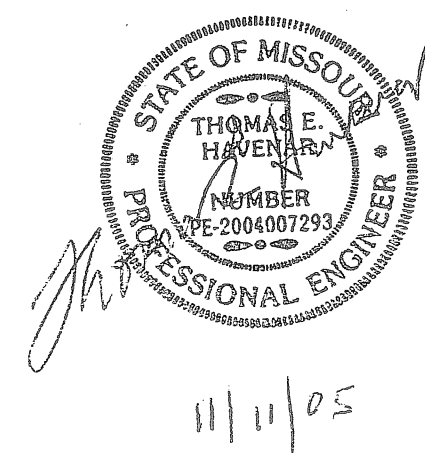
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JOB NO.	05S2064
DATE	11/09/05

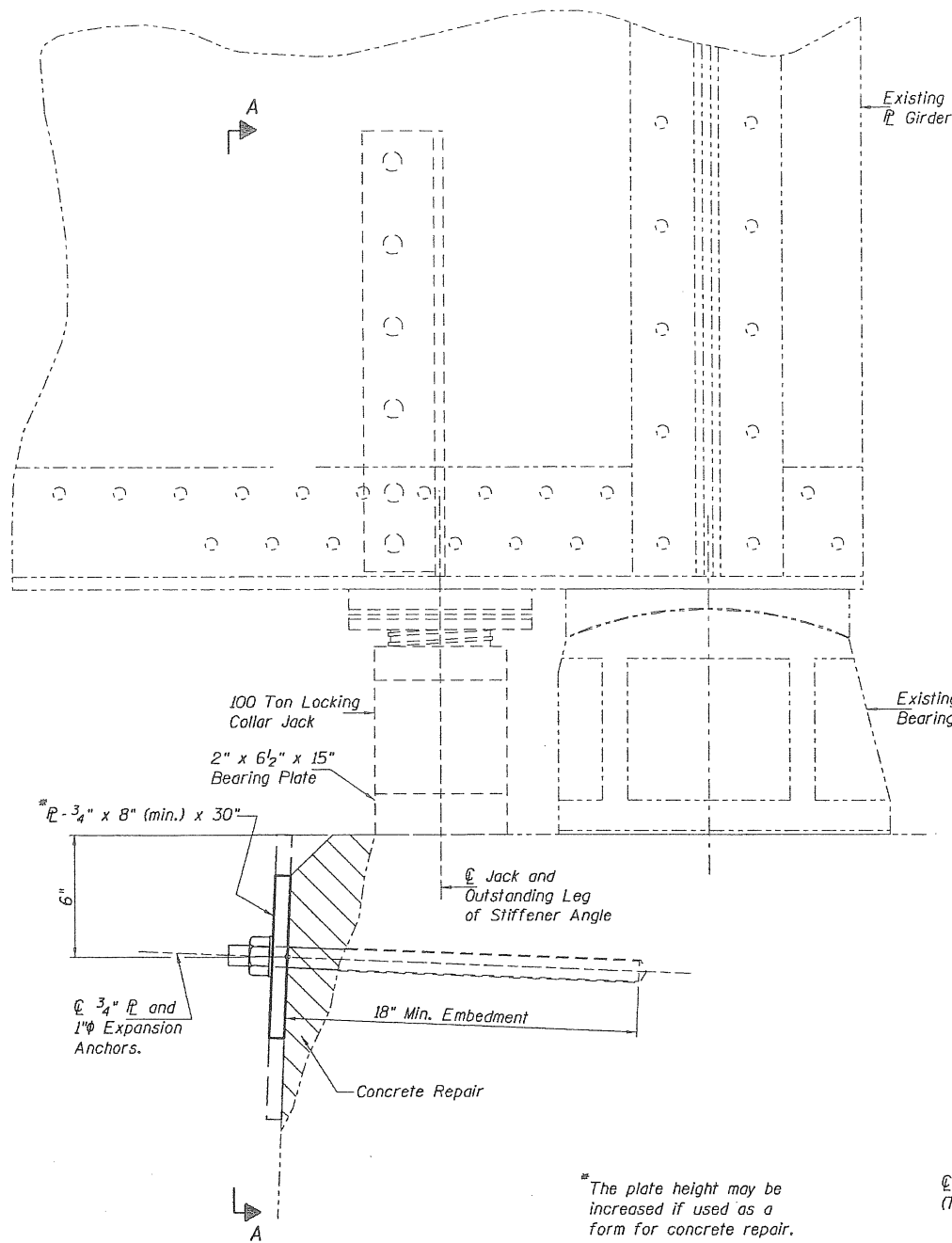
FINAL PLANS
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Mary Redenbach
7/2/06

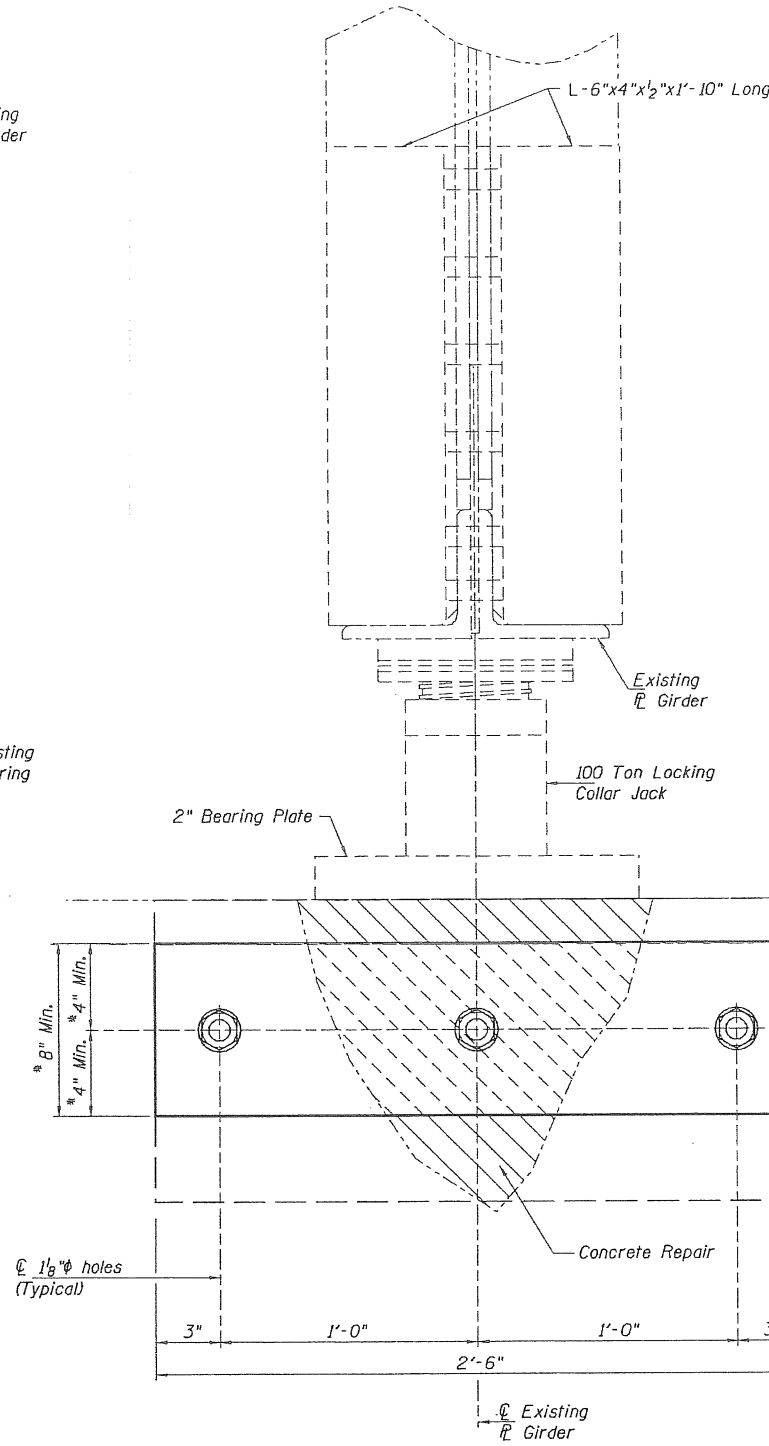


\$DATE\$
\$FILE\$

LAYOUT	T.E.H.	11/07/05
DRAWN	Red	11/07/05
REVIEWED	T.E.H.	11/07/05



ELEVATION - BEARING SEAT REPAIRS
(PIER 5)

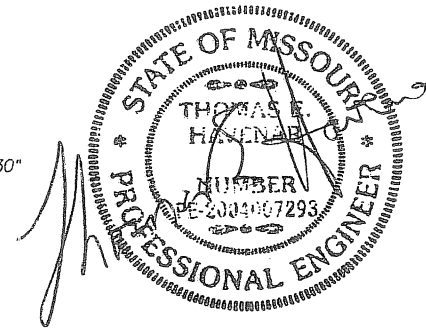


VIEW A-A

FINAL PLANS

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May Rodenburg 7/21/06
Signature Date



ϕ $\frac{3}{4}$ " \times 8" (min.) \times 30"
and # 3- $\frac{1}{2}$ " Expansion
Anchors. (Minimum
Embedded Length 18"
from back of $\frac{3}{4}$ " ϕ)

* The plate height may be increased if used as a form for concrete repair.

11/23/2005
1A05.005V05S206AugGirder SpansPier 5 Seat Repair.dgn

LAYOUT	V.P.T.	11/22/05
DRAWN	Red	11/23/05
REVIEWED	T.E.H.	11/23/05

PIER 5 GIRDER BEARING SEAT REPAIRS
U.S ROUTE 54 over MISSISSIPPI RIVER
PIKE COUNTY, MISSOURI
PROJECT NO. F.A.S.-54-4(43)
JOB NO. J3P0673
BRIDGE NO. K09324

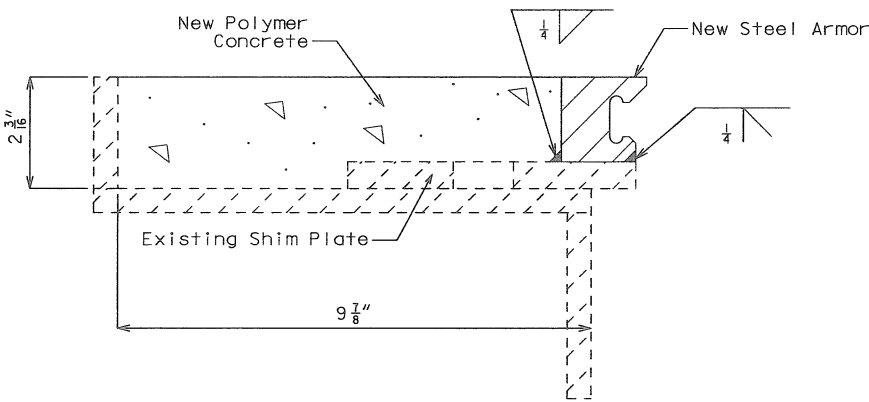
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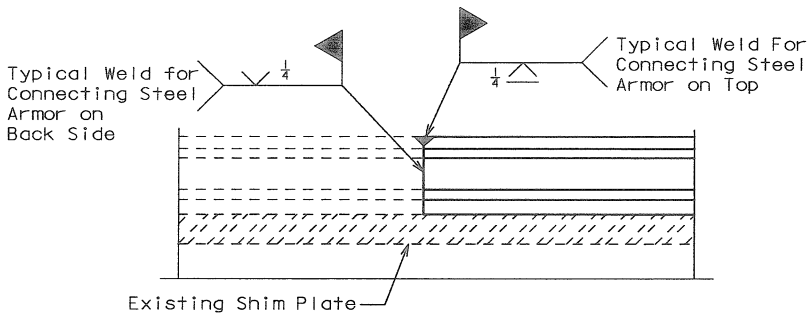
JOB NO.
05S2064

DATE
11/23/05

State	JOB NO. J3P0673	Sheet No.
MO	ID NO 050422-301	B35

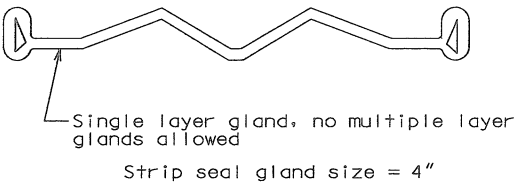


DETAIL "A"



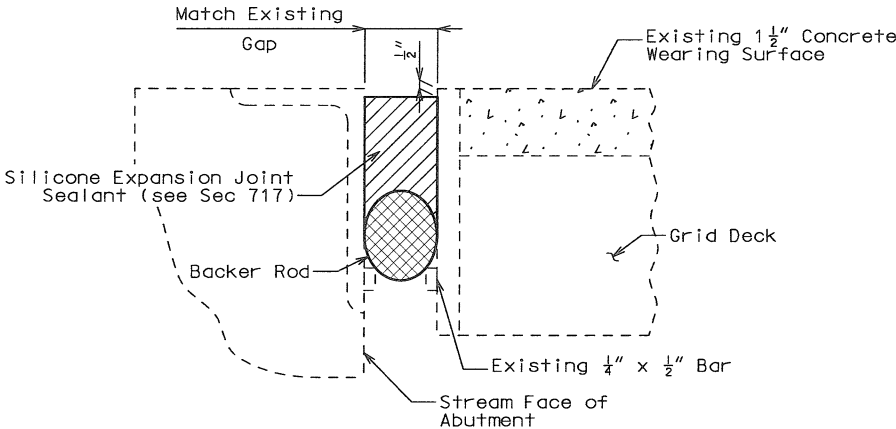
DETAIL OF ARMOR SPLICE

Note: For notes on welding, see Sheet No. 36.



DETAIL OF GLAND AT PIERS 1, 2 & 4

Note : Used D.S. Brown steel armor and strip seal glands to match existing.

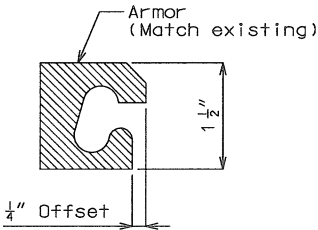


SECTION THRU JOINT SEALANT REPLACEMENT @ WEST AND EAST ABUTMENTS

Notes:

Cost of removal will be considered completely covered by the contract unit price for Removal of Existing Expansion Joint Seal or Sealant.

Payment for furnishing and installing the expansion joint will be considered completely covered by the contract unit price for Silicone Expansion Joint Sealant.



DETAIL OF PARTIAL STEEL ARMOR AT PIER 2

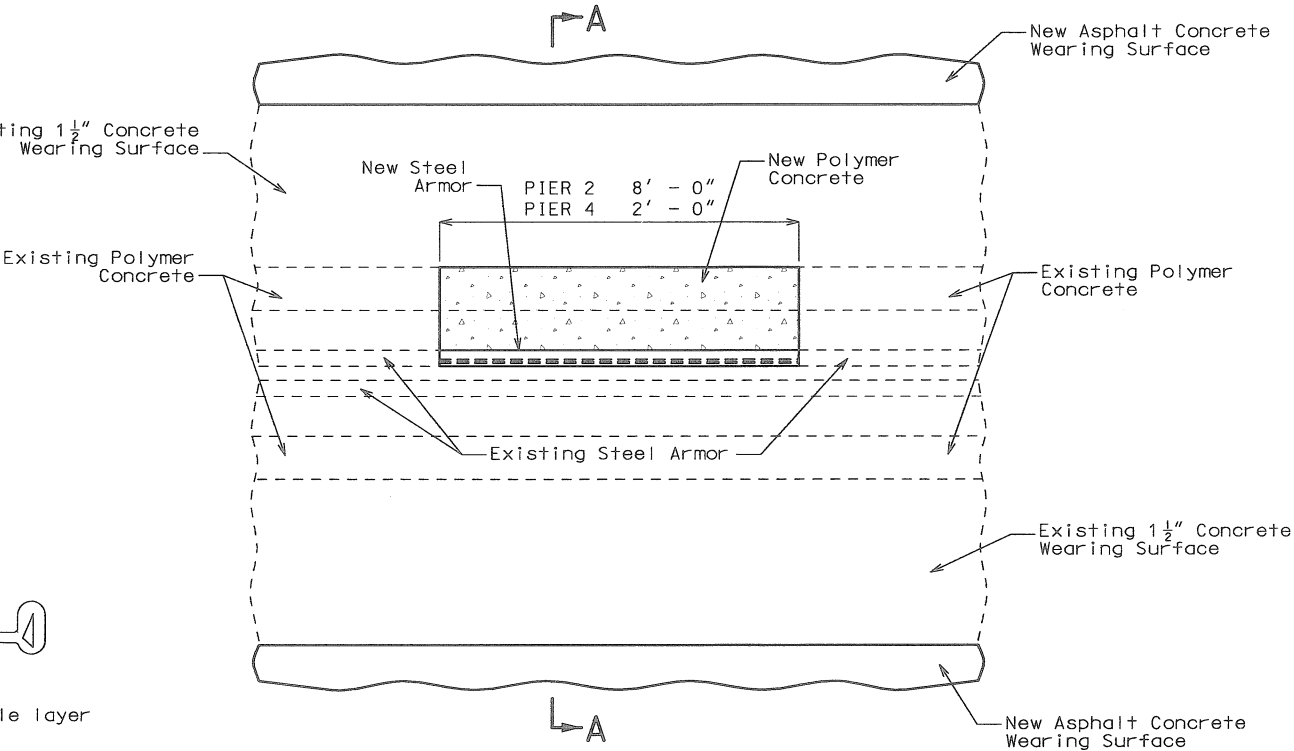
Notes:

Cost of removal of existing strip seal gland at Piers 1, 2 & 4 will be considered completely covered by the contract unit price for Removal of Existing Expansion Joint Seal or Sealant.

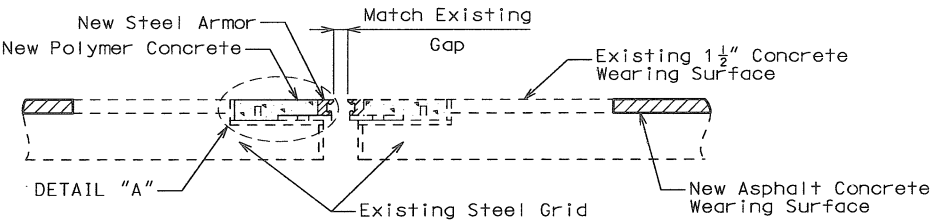
Payment for furnishing and installing the new strip seal gland at Piers 1, 2 & 4 will be considered completely covered by the contract unit price for Strip Seal.

Debris shall be removed from the existing strip seal gland at Pier 3 and the gap in the flat plate expansion device at Pier 5 and these expansion devices cleaned to the satisfaction of the engineer.

The cost of cleaning the expansion devices at Pier 3 and Pier 5 shall be considered completely covered by the contract unit price of other items.



DETAIL SHOWING STEEL ARMOR REPLACEMENT @ PIERS 2 & 4



SECTION A-A

Note: For structural steel requirements for steel armor, see Sheet No. 14.

Payment for removal and replacing of steel armor and removal of adjacent polymer concrete will be considered completely covered by the contract unit price for Steel Armor Repair.

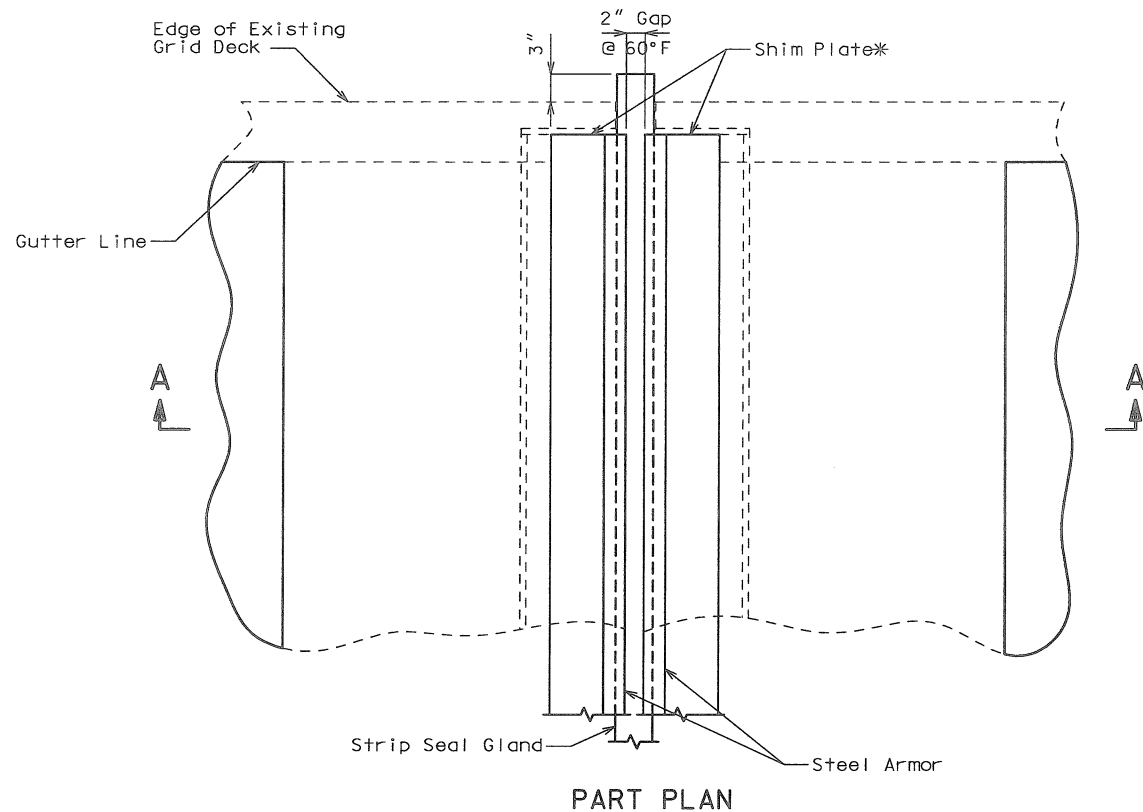
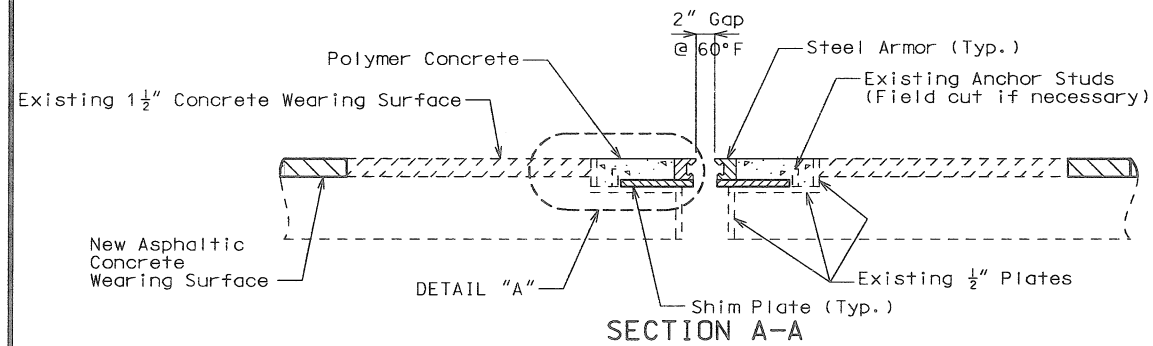
Polymer concrete shall be in accordance with Sec 623.

FINAL PLANS

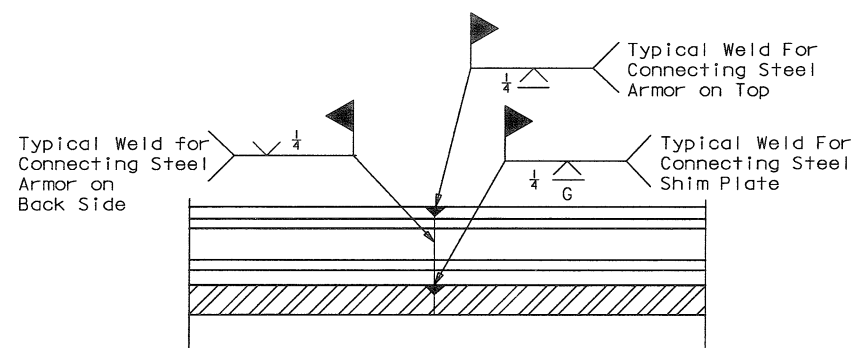
I CERTIFY THAT THIS PLAN SHEET ACCURATELY DEPICTS THE CONFIGURATION AND LOCATION OF THE ROADWAY AND ALL ITS APPURTENANT FEATURES, TO THE BEST OF MY KNOWLEDGE, AS I AND MY STAFF HAVE OBSERVED THE CONTRACTOR'S CONSTRUCTION OF THIS PROJECT. I SPECIFICALLY DISCLAIM ANY RESPONSIBILITY FOR THE DESIGN OF THIS 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.

Mary Rodenbaugh 7/21/06
SIGNATURE DATE

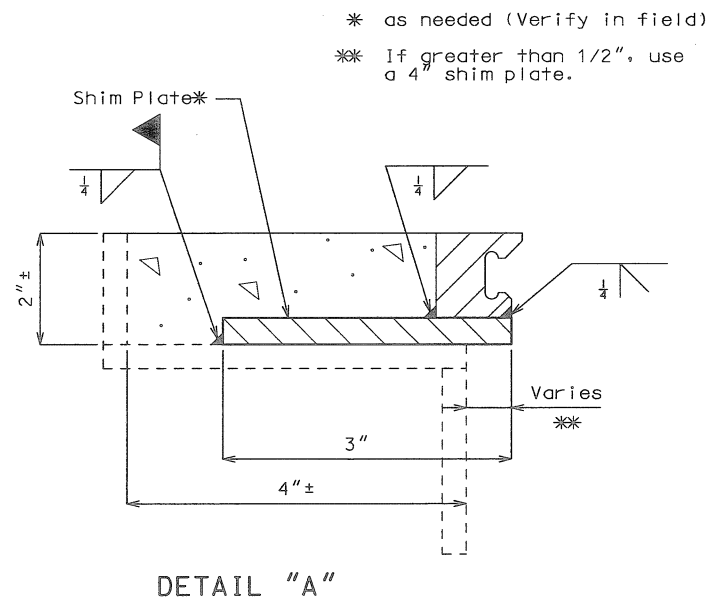
State	JOB NO. J3P0673	Sheet No.
MO	ID # 050422-301	B36



Note: Extend steel shim plate and armor to existing vertical steel armor in curb.

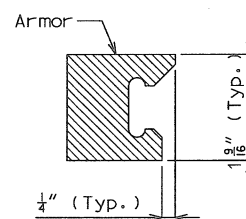


DETAIL OF ARMOR & SHIM PLATE SPLICE

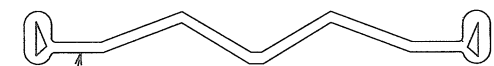


Note: Center the new expansion gap on the existing joint opening.

** Used Watson Bowman Acme Corp. steel armor and strip seal glands.



DETAIL OF STEEL ARMOR AT PEDESTALS 10 & 11



Single layer gland, no multiple layer glands allowed

Strip seal gland size = 4" at Pedestal 10
Strip seal gland size = 3" at Pedestal 11

DETAIL OF GLAND AT PEDESTALS 10 & 11

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.

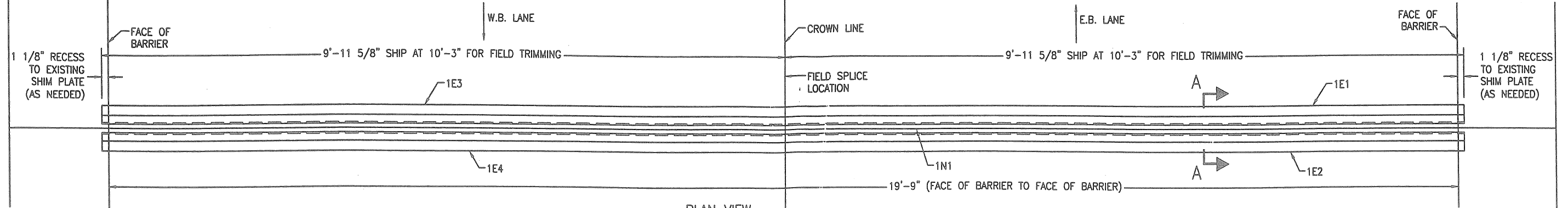
Signature: *Mary Rodenbaugh* DATE: 7/21/06

PIKE COUNTY K09324

DETAILS OF STRIP SEAL EXPANSION JOINT SYSTEM AT PEDESTALS 10 & 11

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

Detailed Dec. 2004
Checked Jan. 2005



PLAN VIEW
SSE105362AA - 2 REQUIRED
PEDESTALS 10 & 11

JOINT INFORMATION CHART				"A" DIMENSIONS									
W.B.A. PRODUCT NO.	QTY.	LOCATION	SKEW	TEMPERATURE - °F									
				40	50	60	70	80	90	100	110		
SSE105362AA	1	PEDESTAL 10	0	2 3/8"	2 3/16"	2"	1 13/16"	1 5/8"	1 1/2"	1 5/16"	1 1/8"		
SSE105362AA	1	PEDESTAL 11	0	2 1/8"	2 1/16"	2"	1 15/16"	1 7/8"	1 13/16"	1 3/4"	1 11/16"		

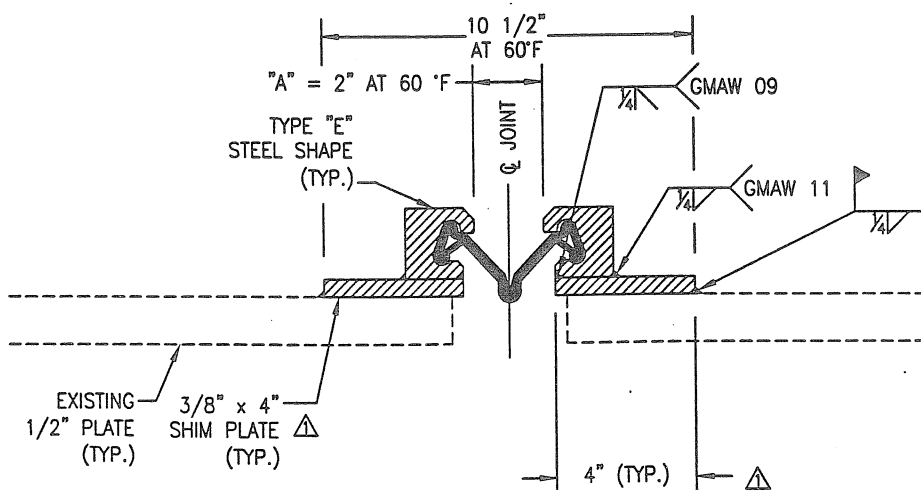
GENERAL NOTES

1. THE CONTRACTOR MUST VERIFY ALL DIMENSIONS TO ENSURE ACCURACY OF THE EXPANSION JOINT PRIOR TO FABRICATION.
2. NEOPRENE SEAL SHALL BE FIELD INSTALLED BY THE CONTRACTOR USING THE SEAL INSTALLATION TOOLS AND BONDED IN PLACE WITH PRIMA-LUB ADHESIVE. THE PRIMA-LUB ADHESIVE SHALL BE APPLIED TO THE FULL PERIMETER OF THE WALLS OF THE STEEL SHAPE CAVITY. THE SEAL WILL BE SUPPLIED IN ONE CONTINUOUS PIECE. FIELD SPLICES WILL NOT BE PERMITTED.
3. THE EXPANSION JOINT SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A123 AFTER FABRICATION.
4. WELDING IS NOT PERMITTED IN THE CAVITY OF THE STEEL LOCKING LUG WHICH IS IN CONTACT WITH THE NEOPRENE SEAL.
5. ALL WELDING SHALL BE IN ACCORDANCE WITH THE CURRENT STRUCTURAL WELDING CODE AWS D1.1 AS MODIFIED BY AASHTO AND IN ACCORDANCE WITH SECTION 712 OF THE MISSOURI STANDARD SPECIFICATIONS. WELDS SHALL BE GROUND FLUSH TO PROVIDE SMOOTH SURFACE.
6. ALL MATERIALS AND FABRICATION SHALL BE IN ACCORDANCE WITH THE "MISSOURI STANDARD SPECIFICATION FOR HIGHWAY CONSTRUCTION, 2004" AND THE SPECIAL PROVISIONS, EXCEPT AS NOTED HEREIN.
7. THE EXPANSION JOINTS SHALL BE FABRICATED IN STAGE CONSTRUCTION SECTIONS UP TO 20 FEET IN LENGTH AND BANDED TOGETHER IN PAIRS FOR SHIPPING.
8. THE MANUFACTURER SHALL PREPARE THE ENDS OF THE STEEL SHAPE FOR FIELD WELDING, EXCEPT AT FIELD CUT PIECES.
9. IN-HOUSE STATE SHOP INSPECTION IS NOT REQUIRED.
10. THE SHOP SHALL APPLY A COAT OF CLEAR LACQUER TO THE STEEL SHAPE CAVITY TO HELP PREVENT CORROSION.

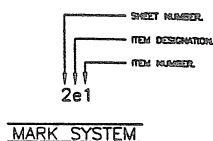
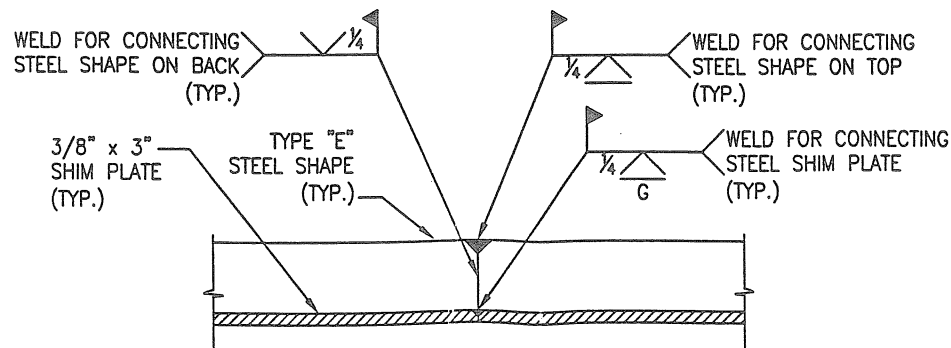
FINAL PLANS

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May Rodenberry Date 7/21/06



SECTION A-A

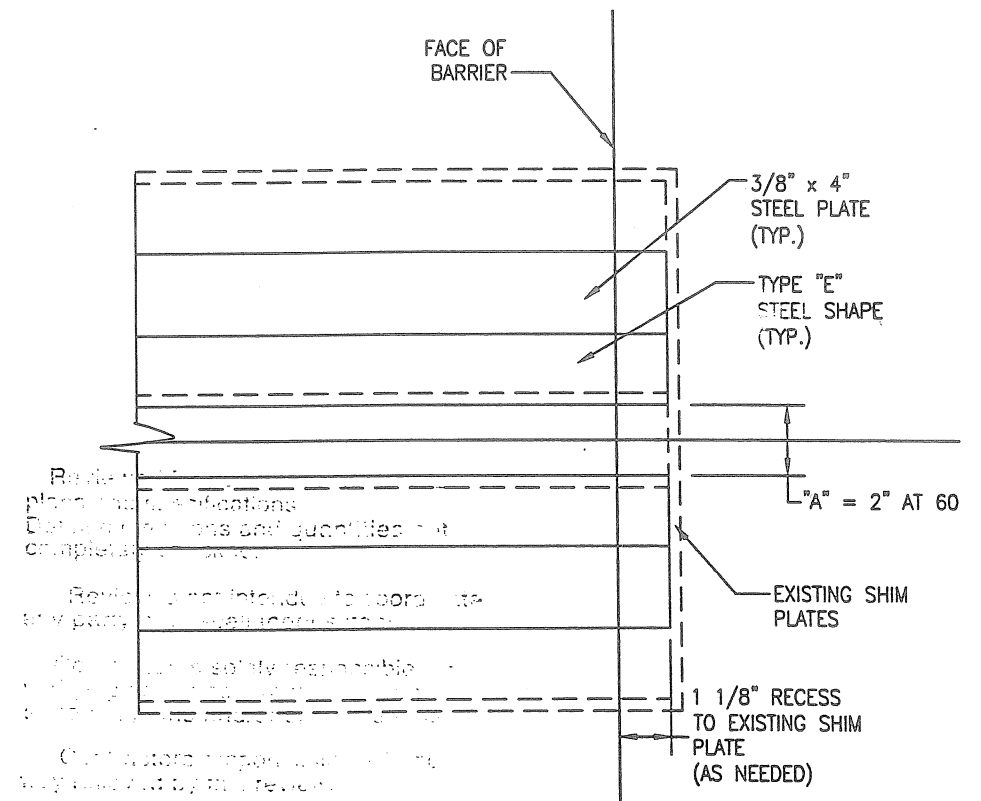


DRAWING ACTION:

SUBMITTED FOR APPROVAL

DATE: 8/8/05

NO.	DESCRIPTION	DATE
1	REV. BRIDGE NO. & PROJECT NO., MODIFIED SHIM PLT TO 4" WIDE	8/8/05
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PARTIAL PLAN VIEW

DATE 09/08/05

APPROVED DESIGN FOR THE PROJECT NO. 54-4(43) FOR THE ROUTE 54 BRIDGE REHABILITATION PROJECT.

STATE: MISSOURI
COUNTY: PIKE
BRIDGE NO.: K09324
PROJECT: F.A.S.-54-4(43)
JOB NO.: J3P0673
ROUTE: 54 STA.: VARIES
W.B.A. PRODUCT NO.: SSE105362AA
JOINT TYPE: STRIP SEAL

wabo

WATSON BOWMAN ACME CORPORATION
65 PARKWAY DRIVE, ANDOVER, N.J. 07003 TEL: (716) 691-7966 FAX: (716) 691-0223

PROJECT: ROUTE 54 BRIDGE REHABILITATION

WBA TYPE "E" STRIP SEAL EXPANSION JOINT DETAILS

DESIGNED BY:	SRN	DATE:	8/8/05
CHECKED BY:	JFW	DATE:	8/9/05
SCALE:	N.T.S.	WBA JOB NO.:	105362
SHEET NO.:	1 OF 2	DRAWING NO.:	8-23814

SSE105362AA QTY: 2 REQ'D STRUCTURED BILL OF MATERIAL DWG. NO.: B-23814						
LV	PART NO.	QTY.	U.M.	DESCRIPTION	MATERIAL	REV.
0	SSE105362AA	1.00	EA	SSE; PEDESTAL NO. 10 & 11 (X)	GALVANIZED	
				PAY LENGTH 19'-11 1/4"	SHIPPING LENGTH = 11' +/-	
1	SSE105362AA01	1.00	EA	EXTRUSION ASSEMBLIES		
2	1929	21.00	FT	SSE FM 1.50x1.5 C11866(W)	A36	
2	5931	21.00	FT	FLAT BAR 3/8" x 4"	A36	

SSE105362S1 QTY: 2 REQ'D STRUCTURED BILL OF MATERIAL DWG. NO.: B-23814						
LV	PART NO.	QTY.	U.M.	DESCRIPTION	MATERIAL	REV.
0	SSE105362S1	1.00	EA	SEAL FOR SHIPPING (1N1)	FOR SSE105362AA	
1	100	23.00	FT	STRIP SEAL GLAND SE-400		

SSE105362PS1 QTY: 1 REQ'D STRUCTURED BILL OF MATERIAL DWG. NO.: B-23814						
LV	PART NO.	QTY.	U.M.	DESCRIPTION	MATERIAL	REV.
0	SSE105362PS1	1.00	EA	PARTS FOR SHIPPING		
1	3020	2.00	EA	INSTALLATION TOOL STRIP SEAL		
1	2720	1.00	EA	PRIMA-LUB		

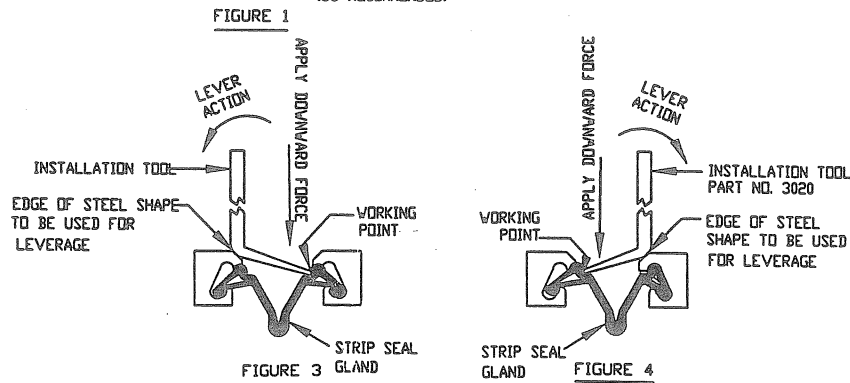
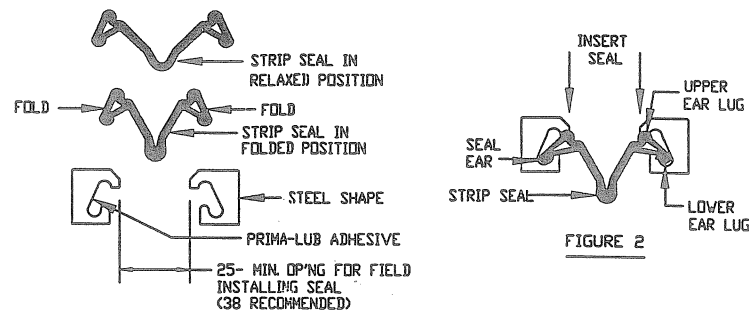
FINAL PLANS

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Max Rodenberry 7/21/06
Signature Date

NEOPRENE SEAL INSTALLATION PROCEDURE

- PRIOR TO INSTALLATION OF THE SEAL, THE STEEL SHAPE CAVITY MUST BE FREE OF ALL CONCRETE, DIRT, OIL OR ANY OTHER CONTAMINANTS. THOROUGHLY CLEAN THE STEEL SHAPE CAVITY AND THE SEAL EARS WITH AN APPROVED SOLVENT (ex. TOLUENE OR XYLENE).
- APPLY THE LUBRICANT/ADHESIVE TO THE INSIDE OF THE STEEL SHAPE CAVITY AND TO THE SEAL EAR LUGS ON BOTH SIDES OF THE EXPANSION JOINT. (APPLY THE LUBRICANT/ADHESIVE IN APPROX. 5 FT INCREMENTS TO PREVENT IT FROM SETTING BEFORE THE SEAL IS INSERTED INTO THE STEEL SHAPE CAVITY.)
- MANUALLY FOLD SEAL AS SHOWN IN FIG. 1, AND INSERT INTO THE OPENING BETWEEN THE STEEL SHAPES. MAKE SURE THAT THE NEOPRENE SEAL IS NOT INSERTED THROUGH AND PAST THE STEEL SHAPE SEAL CAVITY. ONCE PROPERLY INSERTED, THE BOTTOM HALF OF THE EAR LUGS SHOULD BE AUTOMATICALLY EXTENDED OUTWARD AND SEAT THEMSELVES INTO THE BOTTOM PORTION OF THE STEEL SHAPE CAVITY. (SEE FIGURE 2)
- USING THE INSTALLATION TOOLS PROVIDED, WORK THE UPPER EAR LUG OF THE SEAL TO ROTATE TOWARD THE BACK OF THE STEEL SHAPE CAVITY AND LOCK IN UNDER THE UPPER LIP (SEE FIG. 3). USE ONE OF THE TOOLS TO HOLD THE UPPER EAR LUG AND A SECOND TOOL TO APPLY THE LEVER ACTION, UNTIL THE UPPER EAR LUG HAS BEEN PROPERLY SEATED AND LOCKED INTO PLACE. REVERSE THE TOOL AND INSTALL OPPOSITE SIDE IN THE SAME MANNER. (SEE FIG. 4)
- REPEAT STEPS 2 THRU 4 UNTIL THE ENTIRE SEAL HAS BEEN INSTALLED. INSPECT THE OVERALL SEAL INSTALLATION AND INSURE THAT THE SEAL HAS BEEN PROPERLY INSTALLED AND LOCKED IN THE STEEL SHAPE CAVITY. ANY PORTION OF THE SEAL NOT PROPERLY LOCKED MUST BE CORRECTED AT ONCE BY REPEATING STEP 4. ALLOW LUBRICANT/ADHESIVE 24 HOURS TO FULLY CURE.



10 x 38 x 425 STEEL BAR

SEAL INSTALLATION TOOL

INSTALLATION PROCEDURE

STEP 1. BLOCKOUT-Blockout in the roadway shall be constructed to dimensions shown in section A-A and as directed by the field engineer.

STEP 2. Place expansion joint over centerline of open joint and adjust to proper grade and elevation.

STEP 3. Check width of open joint and make final adjustments if necessary. (as directed by Engineer). Complete field splice (If required).

STEP 4. Tie joint to blockout reinforcing or formwork.

STEP 5. Pour concrete into blockout.

STEP 6. Cut expansion joint to required length (if necessary, touch up damaged galvanized areas.

STEP 7. Contractor shall field install neoprene seal across the entire roadway width.

MATERIAL SPECIFICATIONS

STEEL EDGE & CENTER BEAMS - All beams are made of ASTM A36 grade steel and have grooves which grip the neoprene locking seal.

NEOPRENE LOCKING SEAL - The neoprene locking seal is bonded to the steel beams with Prima-Lub Adhesive. The neoprene seal is designed to absorb all joint movements. The strip-seal shall be extruded polychloroprene meeting the requirements of ASTM D2628 with the exception of the recovery and compression deflection test requirements.

PRIMA-LUB ADHESIVE - Prima-lub Adhesive is used to bond the neoprene locking seal to the steel shapes. This adhesive shall be a one-part moisture curing polyurethane and hydrocarbon solvent mixture.

Reviewed for general conformity to plans and specifications.
Do not dimensions and quantities not completely checked.

Reviewed for general conformity to plans and specifications.
Do not dimensions and quantities not completely checked.

Contractor is solely responsible for verifying field measurements with those stated in plans and/or specification.

Contractor's responsibility is in no way relieved by this review.

DATE 09/08/05

- ☒ APPROVED DESIGN FEATURES ONLY
☐ NO CORRECTIONS NOTED
☐ CORRECTIONS NOTED
☐ FOR FILING AND DISTRIBUTION

STATE: MISSOURI
COUNTY: PIKE
BRIDGE NO.: K09324
PROJECT: F.A.S.-54-4(43)
JOB NO.: J3P0673
ROUTE: 54 STA.: VARIES
W.B.A. PRODUCT NO.: SSE105362AA
JOINT TYPE: STRIP SEAL

wabo

PROJECT: ROUTE 54 BRIDGE REHABILITATION

WBA TYPE "E" STRIP SEAL EXPANSION JOINT DETAILS

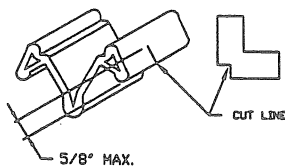
DESIGNED BY: SRN	DATE: 8/8/05
CHECKED BY: JFW	DATE: 8/9/05
SCALE: N.T.S.	WBA JOB NO.: 105362
SHEET NO.: 2 OF 2	DRAWING NO.: B-23814

DRAWING ACTION:

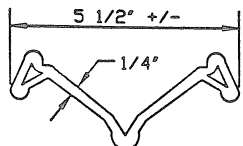
SUBMITTED FOR APPROVAL

DATE: 8/8/05

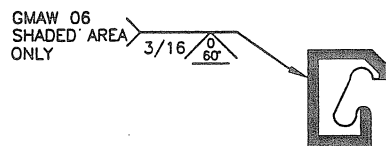
NO.	DESCRIPTION	NAME	DATE
1	REV. BRIDGE NO. & PROJECT NO., MODIFIED SHIM PLT TO 4" WIDE	SRN	8/21/05
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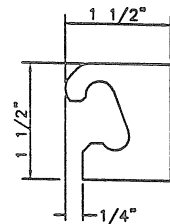
SEAL TREATMENT AT CURB
(TO BE USED FOR ANGLES GREATER THAN 60°)



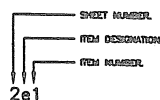
SE-400 GLAND
MOVEMENT RATING - 4"



SHOP WELD DETAIL

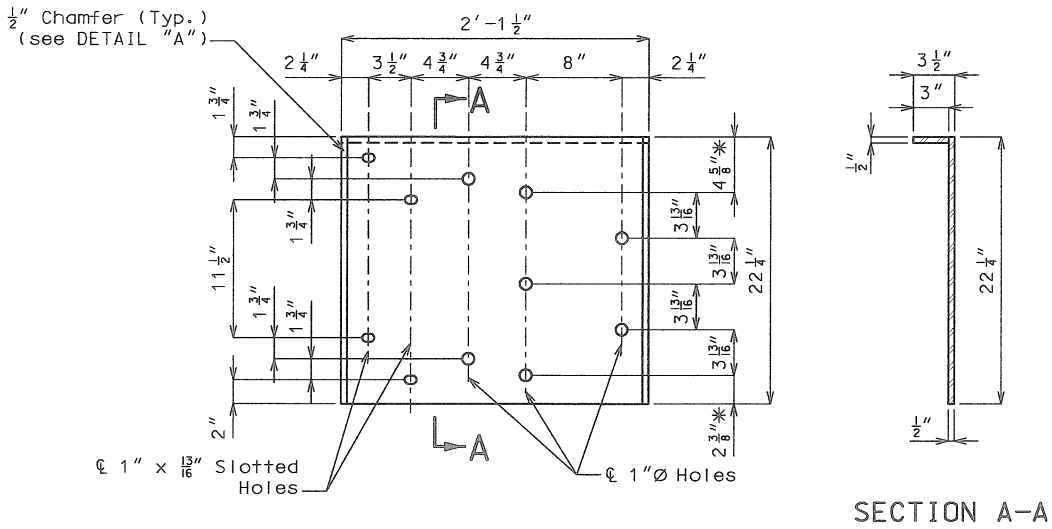


TYPE 'E' STEEL SHAPE

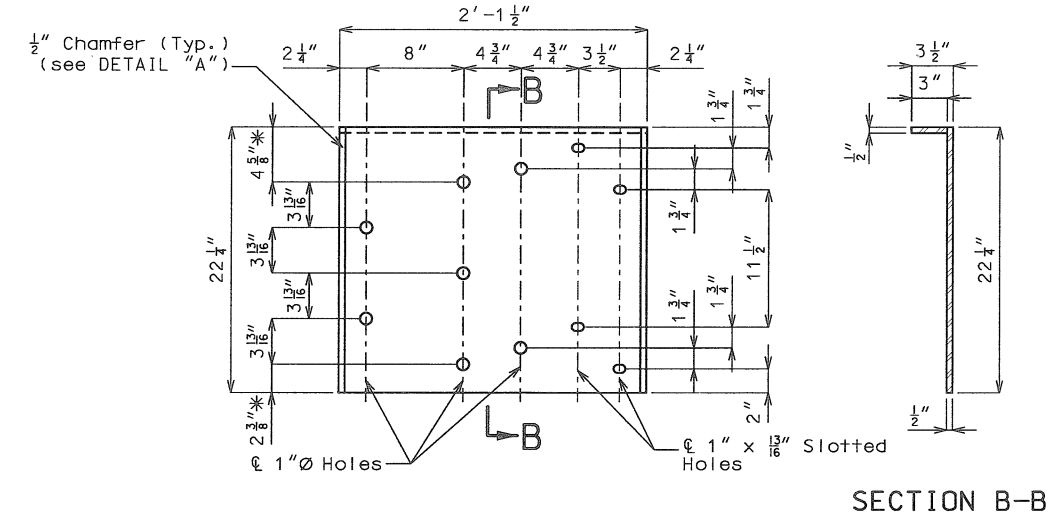


MARK SYSTEM

State	JOB NO. J3P0673	Sheet No.
MO	ID # 050422-301	B39

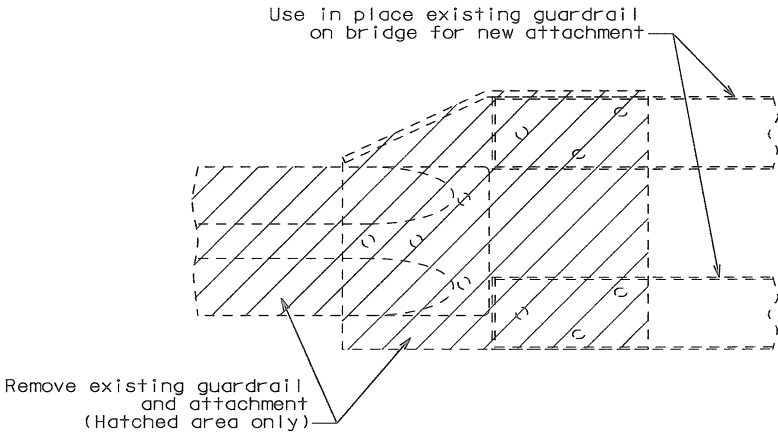


ATTACHMENT PLATE
(2 Required)

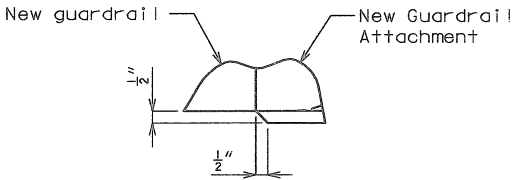


ATTACHMENT PLATE
(2 Required)

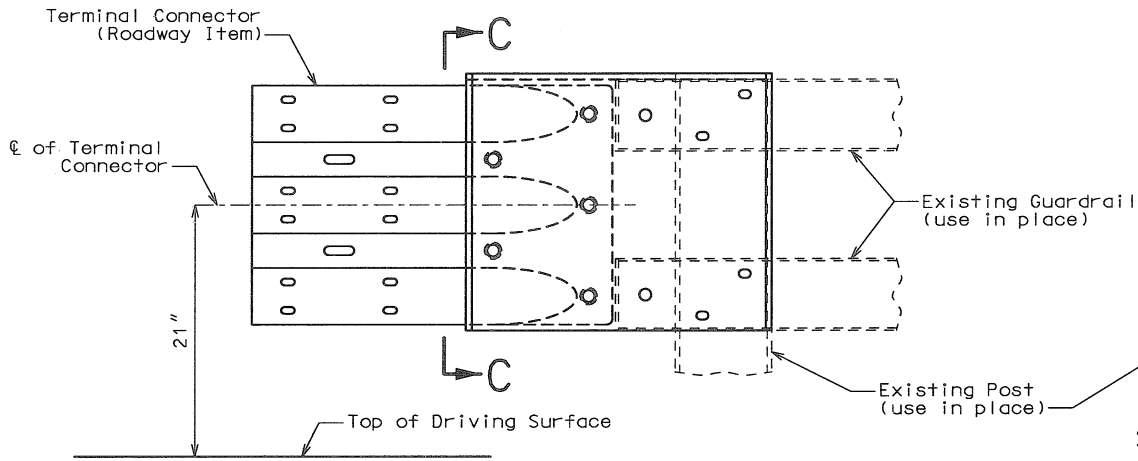
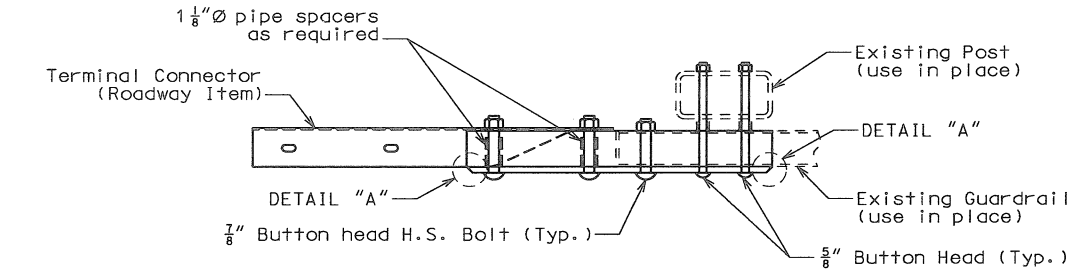
* Adjustment in dimension shall be made as required to install
℄ of terminal connector at 21" above top of driving surface.



ELEVATION OF EXISTING GUARDRAIL AND
ATTACHMENT SHOWING REMOVAL

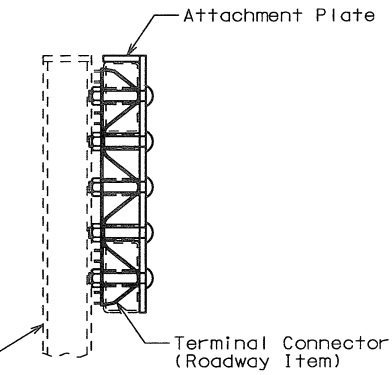


DETAIL "A"



SECTION C-C

DETAIL SHOWING ASSEMBLY OF
ATTACHMENT TO EXISTING GUARDRAIL



FINAL PLANS

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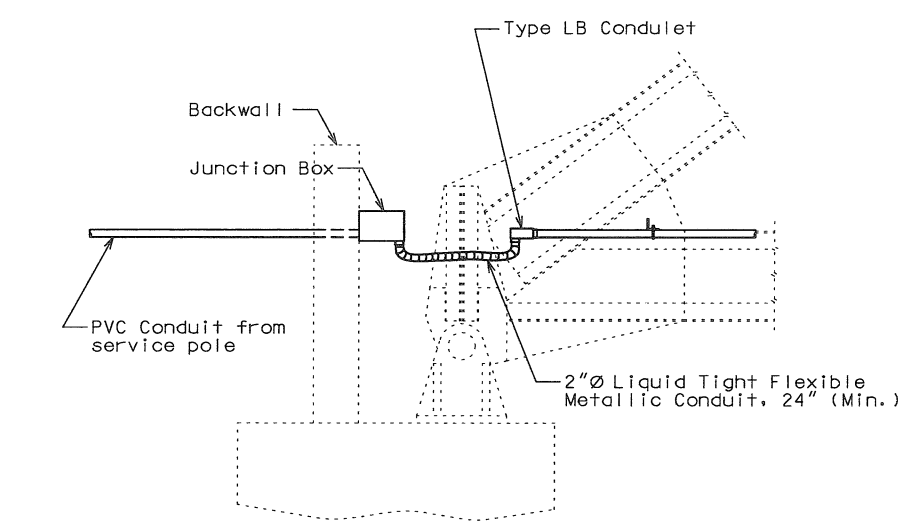
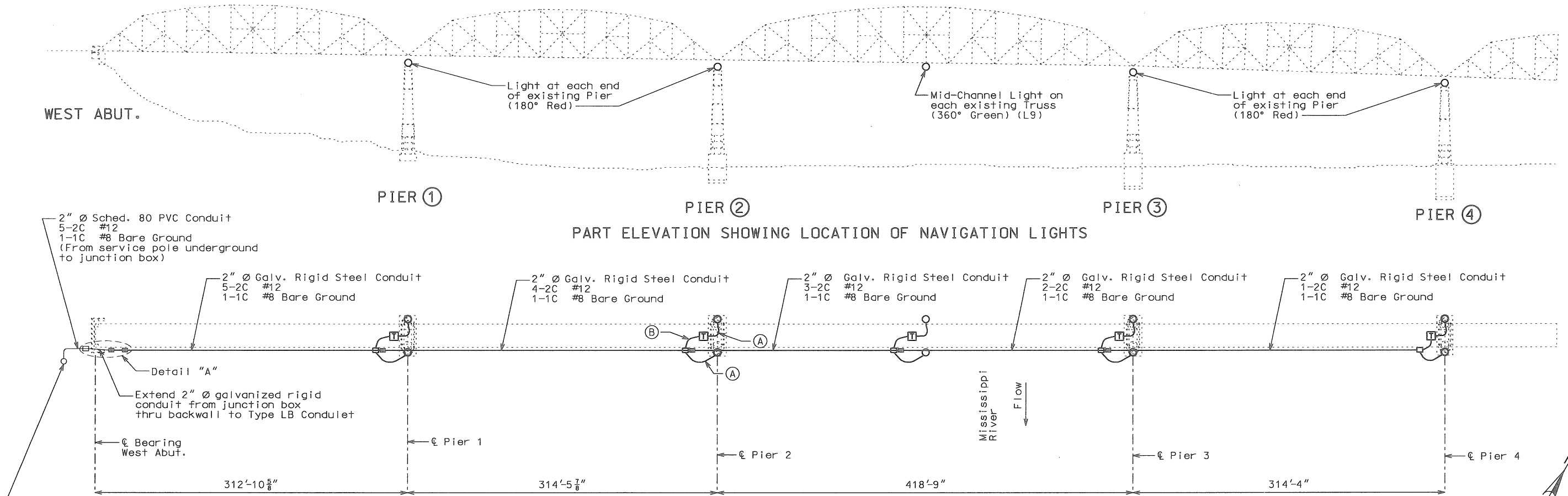
Mary Padenburg 7/21/06
SIGNATURE DATE

PIKE COUNTY K09324

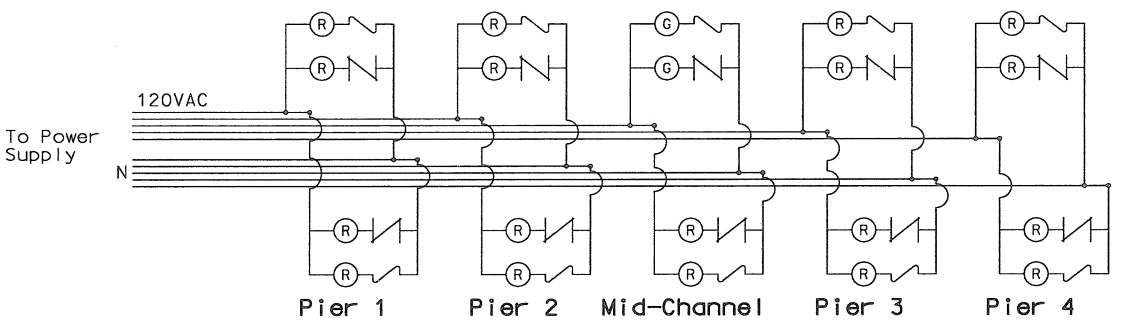
Note: This drawing is not to scale. Follow dimensions.

Detailed Dec. 2004
Checked Jan. 2005

State	JOB NO. J3P0763	Sheet No.
MO	ID # 050422-301	B41



- LEGEND**
- New Light Assembly
 - Terminal Box
 - Type LB Condulet
 - Junction Box
 - (A) 1" Ø Liquid Tight Flexible Metallic Conduit
1-2C #12
1-1C #8 Bare Ground
 - (B) 1" Ø Galv. Rigid Steel Conduit
1-2C #12
1-1C #8 Bare Ground



Notes:
Five circuits at 120 volts are required. One circuit serves the north side and south side navigation lights at each location.

FINAL PLANS
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Max Roda-Benz
SIGNATURE

7/21/06
DATE

NAVIGATION LIGHTING SYSTEM REPLACEMENT

Detailed Nov. 2005
Checked Nov. 2005

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

Add Sheet 11/22/05

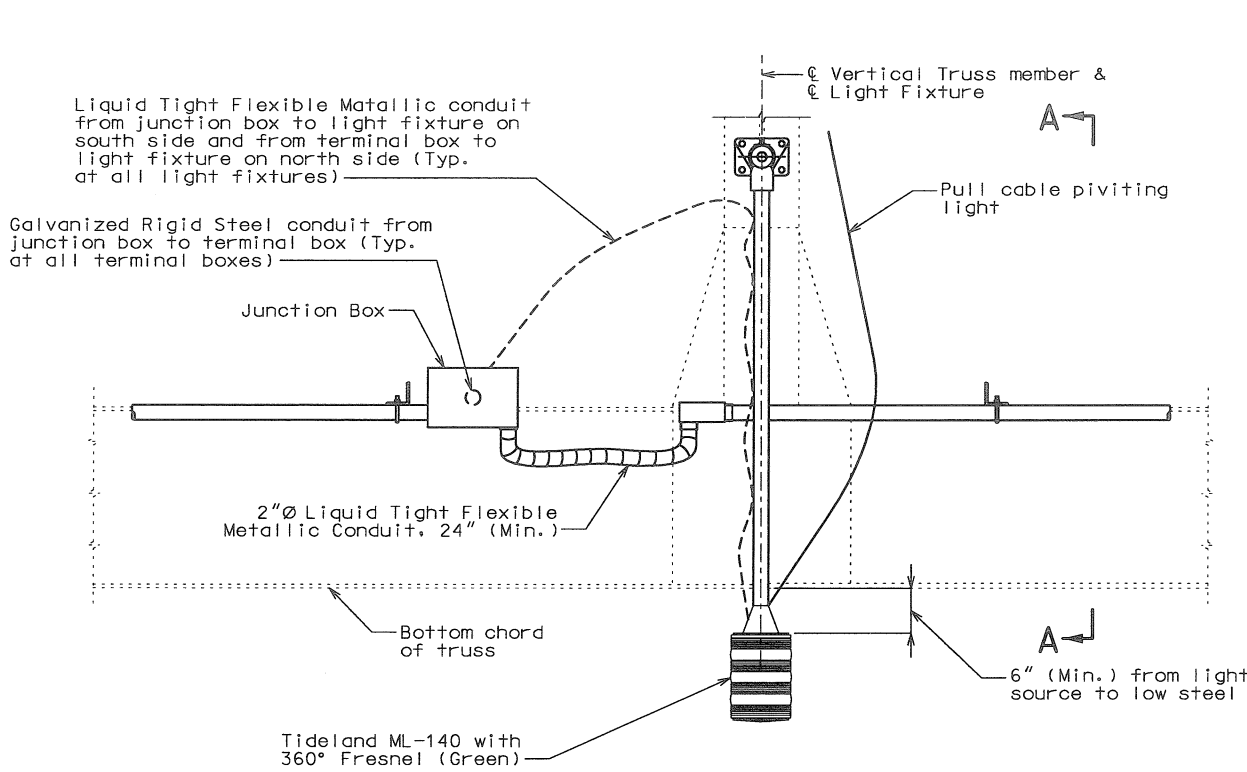
PIKE COUNTY K09324

State	JOB NO. J3P0673	Sheet No.
MO	ID # 050422-301	B42

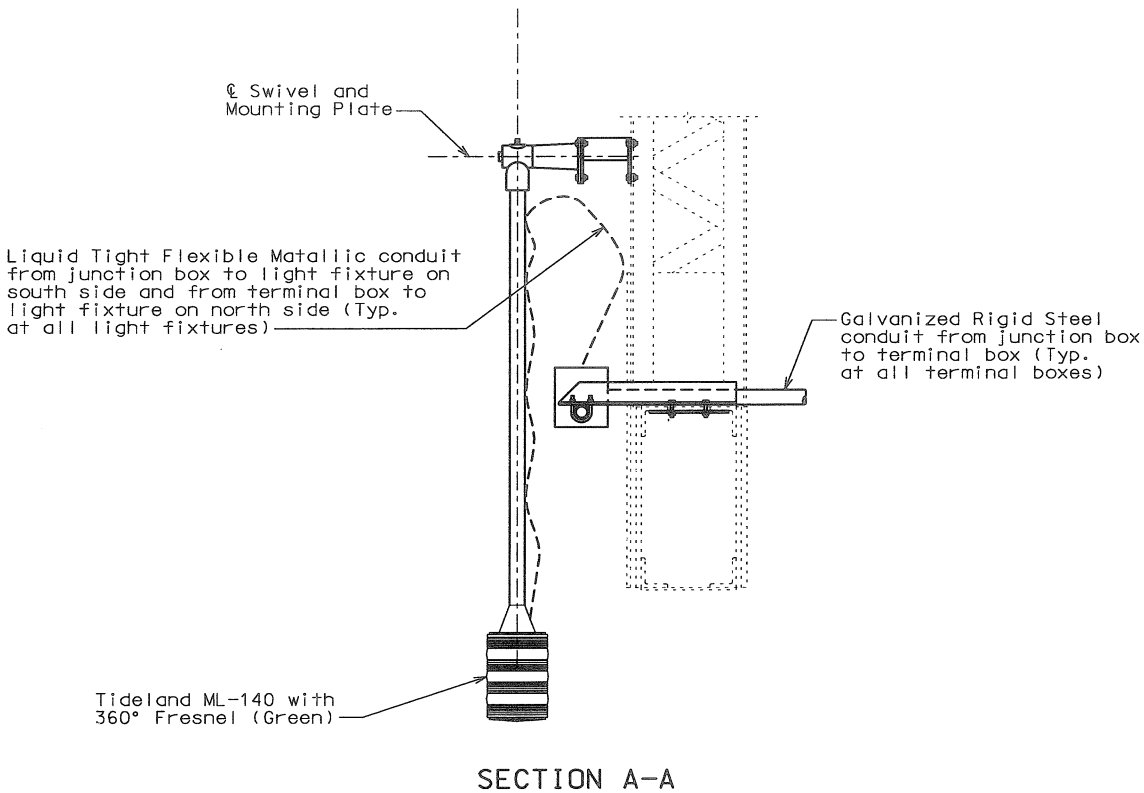
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Mary Rodenberry
SIGNATURE 7/21/06
DATE

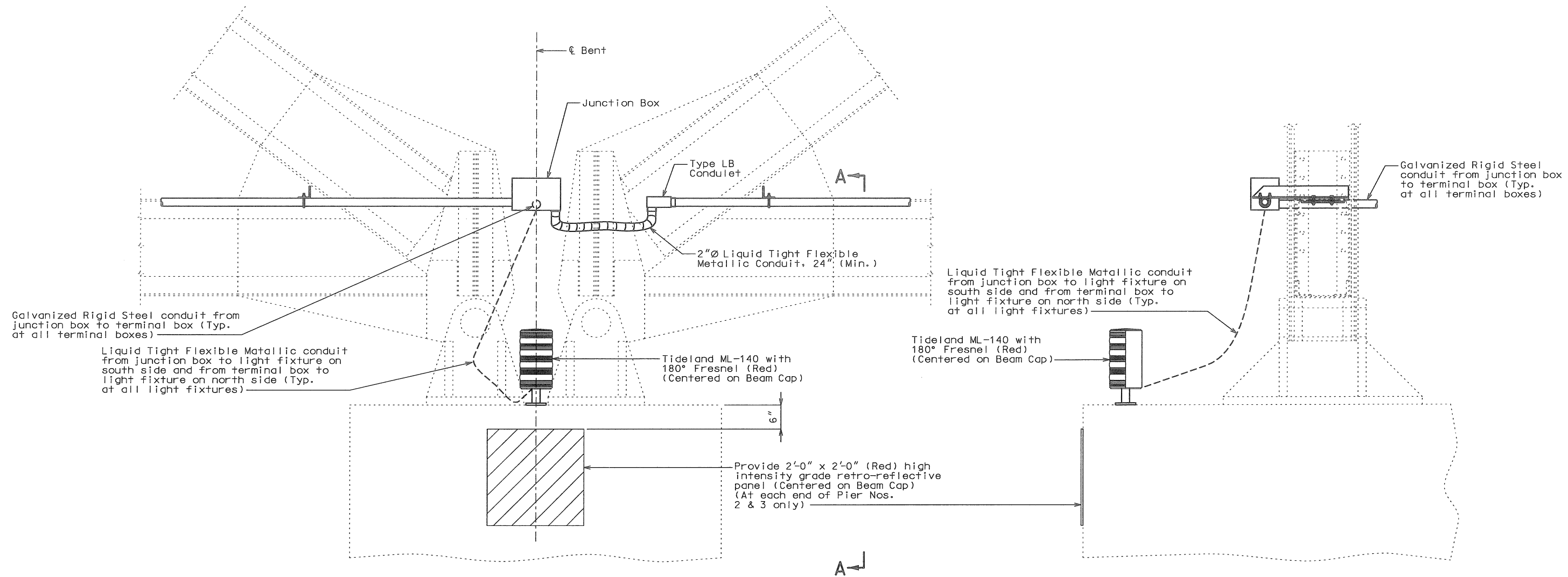


NAVIGATION LIGHT DETAIL AT MID-CHANNEL (SPAN 3) (L9)



Notes:
Minimize length of flexible conduit as approved by the engineer.

DETAILS OF NAVIGATION LIGHTING SYSTEM REPLACEMENT



FINAL PLANS

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Mary Rodenberry
SIGNATURE
7/21/06
DATE

NAVIGATION LIGHT DETAIL AT TOP OF PIERS 1, 2, 3, AND 4

DETAILS OF NAVIGATION LIGHTING SYSTEM REPLACEMENT

Notes:

MoDOT Type 3 retroreflective sheeting on an aluminum flat sheet in accordance with Sec. 1042. For mounting use $\frac{3}{8}$ " Ø stainless steel studs, washers and nut with resin anchor systems. Space aluminum flat plate away from existing concrete with $\frac{3}{8}$ " stainless steel spacers. Minimize length of flexible conduit as approved by the engineer.

The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

Cost of furnishing and installing the resin anchor system complete-in-place will be considered completely covered by the contract unit price for Navigation Lighting System.

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

Add Sheet 09/08/05

PIKE COUNTY K09324

J:\DOCS\J3P0673\Bridge\K09324\K09324_018a.dgn 11:25:11 AM 03/07/2006

Notes:

MoDOT Type 3 retroreflective sheeting on an aluminum flat sheet in accordance with Sec. 1042. For mounting use $\frac{3}{8}$ " stainless steel studs, washers and nut with resin anchor systems. Space aluminum flat plate away from existing concrete with $\frac{3}{8}$ " stainless steel spacers. Minimize length of flexible conduit as approved by the engineer.

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May Rodenberry 7/2/06
Date

BRIDGE SECTION - TRUSS SPANS - PIERS 1, 2, 3 & 4
(Showing placement of Cross Bridge Conduits)
(Looking East - Toward Illinois)

Main Conduit Run
along Lower Chord
Exterior of South
Truss.

NAVIGATION LIGHTING - COMPONENT MANUFACTURERS LIST

- 1 Allied's 2" Galvanized Rigid Steel Conduit
- 2 Allied's 1" Galvanized Rigid Steel Conduit
- 3 Type LB Condulet
- 4 Hoffman's Model A1212CH Junction Box, with a GE Model Cr151B Terminal Board
- 5 ALFLEX's 2" Ultratite Type EF Extra-Flexible Liquid-Tight Metallic Conduit
- 6 ALFLEX's 1" Ultratite Type EF Extra-Flexible Liquid-Tight Metallic Conduit
- 7 Tideland's Model ML-140 Channel Navigation Lantern w/180° Fresnel (Red)
- 9 Tideland's Daymark 2' x 2' Red High Intensity Reflective Panel

**PARTIAL ELEVATION
NAVIGATION LIGHT DETAIL AT TOP OF
PIERS 1, 2, 3, AND 4**
(Upstream Looking Downstream)

**PARTIAL ELEVATION
NAVIGATION LIGHT DETAIL AT TOP OF
PIERS 1, 2, 3, AND 4**
(Downstream Looking Upstream)

NAVIGATION LIGHTING DETAILS - PIERS 1 thru 4
U.S. ROUTE 54 over MISSISSIPPI RIVER
PIKE COUNTY, MISSOURI
PROJECT NO. F.A.S.-54-4(43)
JOB NO. J3P0673
BRIDGE NO. K09324

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HANSON

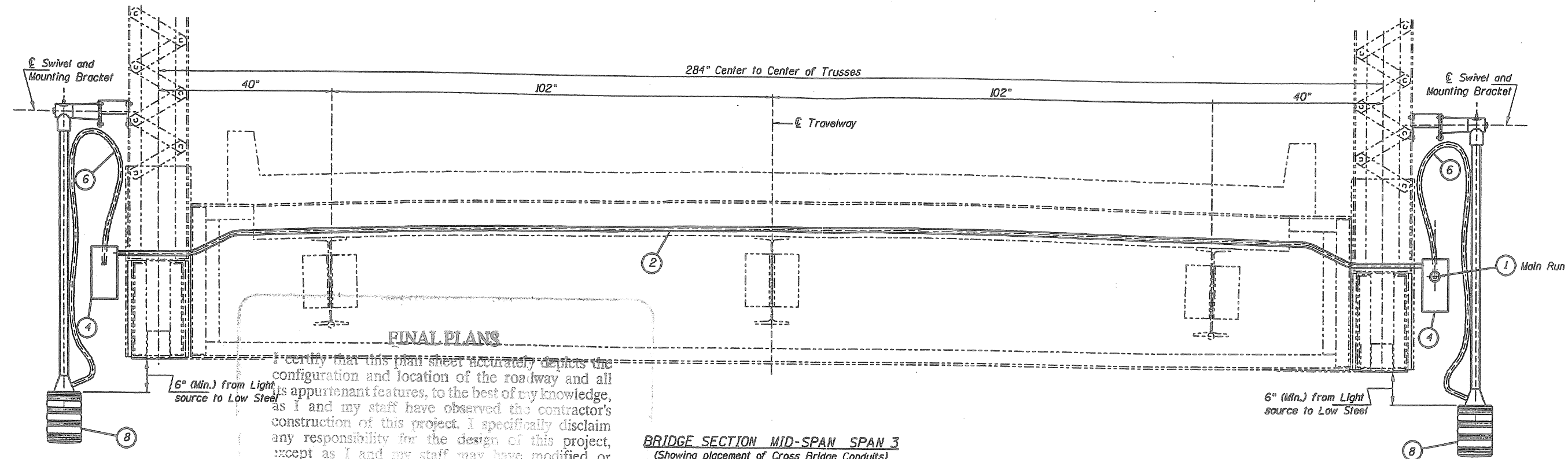
0552064

09/14/05

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

09/14/2005
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C:\Users\j3p0673\Documents\Navigation Lighting Sheet 2.dwg

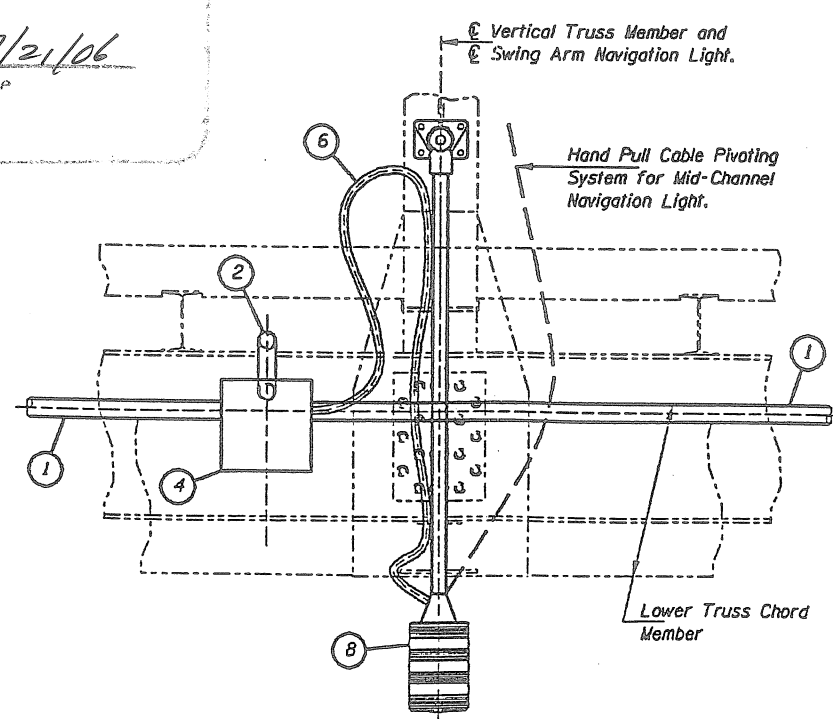
LAYOUT
DRAWN
REVIEWED
T.E.H. 9/14/05
T.E.H. 9/14/05
T.E.H. 9/14/05



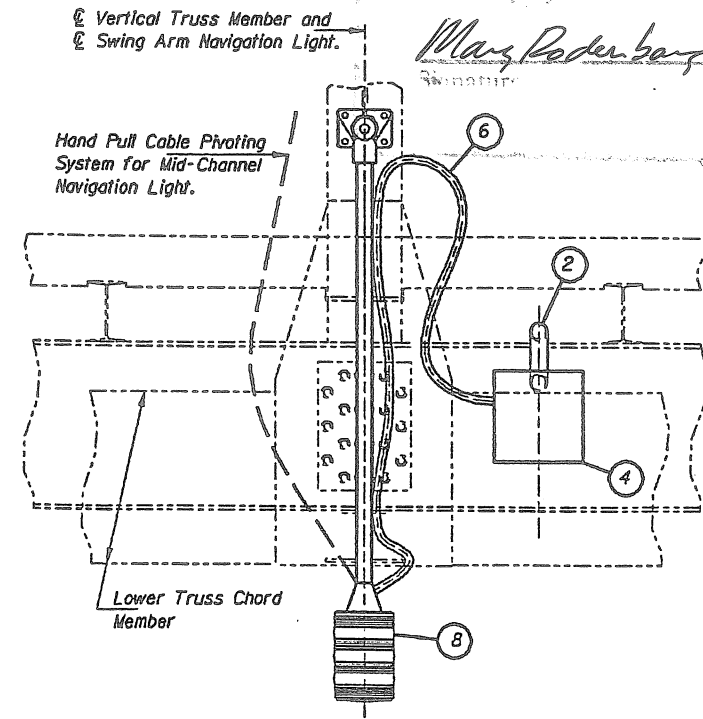
I certify that this plan sheet accurately depicts the configuration and location of the roadway and all its appurtenant features, to the best of my knowledge, as I and my staff have observed the contractor's construction of this project. I specifically disclaim any responsibility for the design of this 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.

Mary Roderburg
 Signature
 7/21/06
 Date

BRIDGE SECTION MID-SPAN SPAN 3
 (Showing placement of Cross Bridge Conduits)
 (Looking East - Toward Illinois)



PARTIAL ELEVATION
NAVIGATION LIGHT DETAIL AT MID-CHANNEL
(SPAN 3) (L9)
 (Downstream Looking Upstream)

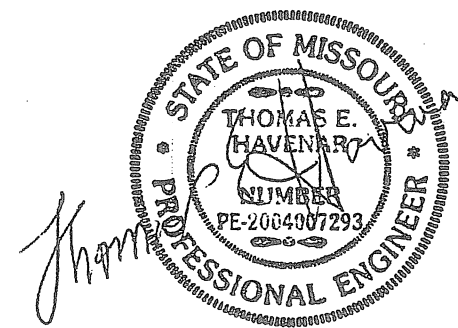


PARTIAL ELEVATION
NAVIGATION LIGHT DETAIL AT MID-CHANNEL
(SPAN 3) (L9)
 (Upstream Looking Downstream)

NAVIGATION LIGHTING - COMPONENT MANUFACTURERS LIST

- ① Allied's 2" Galvanized Rigid Steel Conduit
- ② Allied's 1" Galvanized Rigid Steel Conduit
- ④ Hoffman's Model A1212CH Box, with a GE Model Cr151B Terminal Board
- ⑥ ALFLEX's 1" Ultratite Type EF Extra-Flexible Liquid-Tight Metallic Conduit
- ⑧ Tideland's Model ML-140 Swing Arm Channel Navigation Lantern w/360° Fresnel (Green)

Notes: Minimize length of flexible conduit as approved by the engineer.



9/14/05

NAVIGATION LIGHTING DETAILS - SPAN 3
 U.S. ROUTE 54 over MISSISSIPPI RIVER
 PIKE COUNTY, MISSOURI
 PROJECT NO. F.A.S. - 54-4(43)
 JOB NO. J3P0673
 BRIDGE NO. K09324

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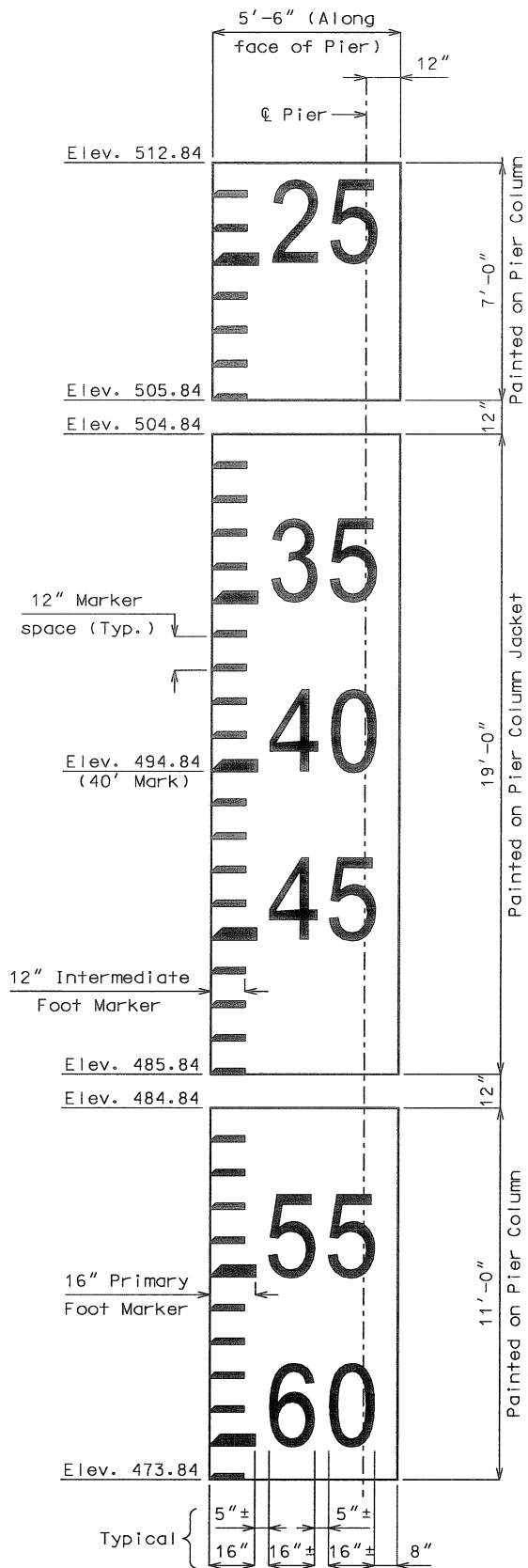
0552064
 09/14/05

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

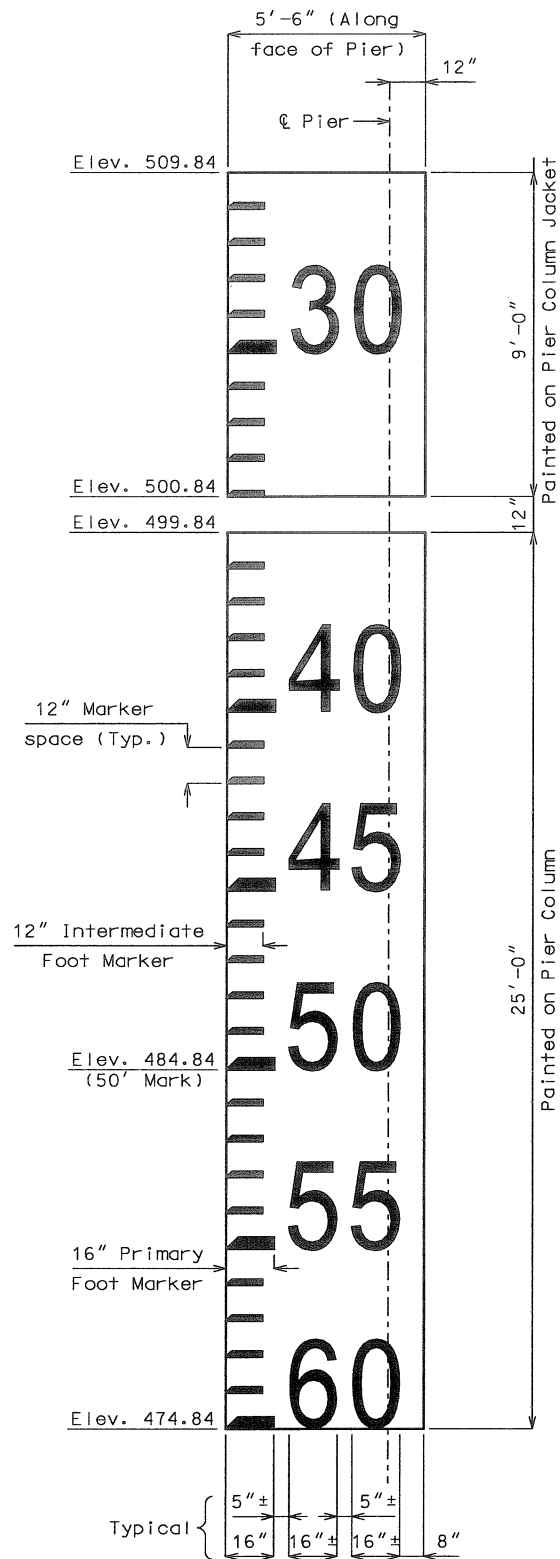
09/14/2005
 110530550552064.dgn Navigation Lighting Sheet 3 of 7.dgn

LAYOUT	J.E.H.	9/13/05
DRAWN	J.E.H.	9/13/05
REVIEWED	J.E.H.	9/13/05

State	JOB NO. J3P0673	Sheet No.
MO	ID NO. 050422-301	B46

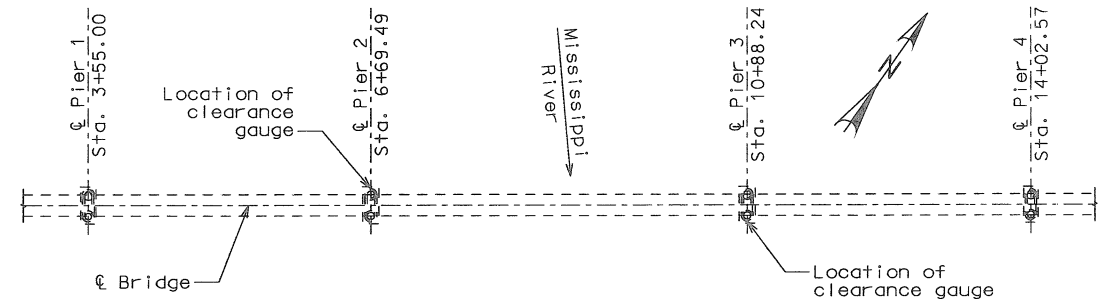


CLEARANCE GAUGE
(Upstream Side of Pier 2)



CLEARANCE GAUGE
(Downstream Side of Pier 3)

DETAILS OF CLEARANCE GAUGE



CLEARANCE GAUGE LOCATION SKETCH
(2 Clearance gauges total)

Clearance Gauge Notes:

Dimensions shown are for clearance to low steel 9'-0" West of E of Pier 3 (Face of footing). Dimensions shall be adjusted as necessary to achieve that result.

Gauge shall be painted on upstream nose of Pier 2 and downstream nose of Pier 3.

See Special Provisions for paint requirements. Used Cotothane I Aliphatic paint (black & white).

Numeral type shall conform with that published in Federal Highway Administration "Standard Alphabets for Highway Signs and Pavement Markings", 1977 edition. Series E numerals, 30" in height, shall be used. Stroke width of numerals and primary foot markers shall be 4".

Primary foot markers shall be spaced at 5'-0" intervals. Intermediate foot markers shall be spaced at 12" intervals between primary foot markers. Intermediate foot markers shall have a stroke width of 1/2 that noted for primary markers.

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.

Mary Rodenberry 7/21/06
SIGNATURE DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
REHABILITATE
 U.I.P. EXISTING (314', 314', 417', 314', 314') THRU TRUSS SPANS AND
 (96'-96'-24'-96'-96', 96', 96') NON-REDUNDANT PLATE GIRDER SPANS



1/12/12

DATE PREPARED 01/19/2012	
ROUTE 54	STATE MO
DISTRICT BR	SHEET NO. 1
COUNTY PIKE	
JOB NO. J2P3005	
CONTRACT NO.	
PROJECT NO.	

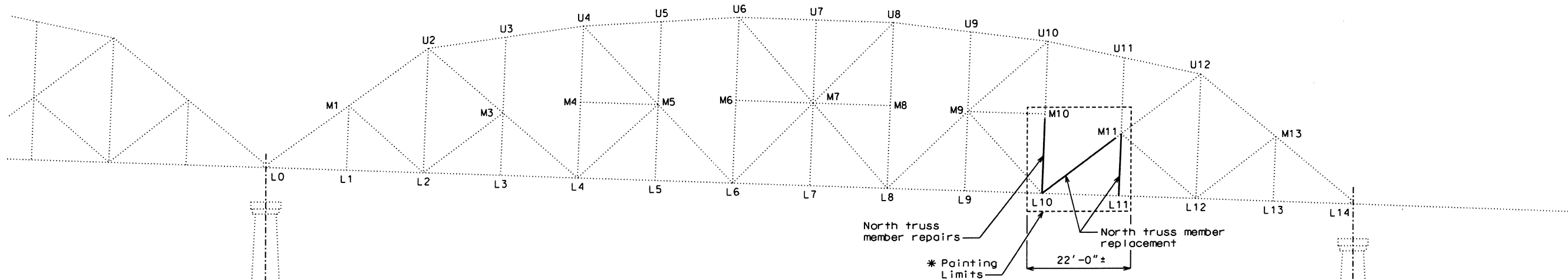
BRIDGE NO.
K09325

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

 105 WEST CAPITOL
 JEFFERSON CITY, MO 65102
 1-888-ASK-MODOT (1-888-275-6636)

HORNER & SHIRIN, INC.
ENGINEERS
 3141 S. GARDEN AVE. ST. LOUIS, MO 63103
 314-435-1100
 www.horner-shirin.com
 Discipline: Professional Engineering
 License No. 000000000
 Expiration Date: December 31, 2012

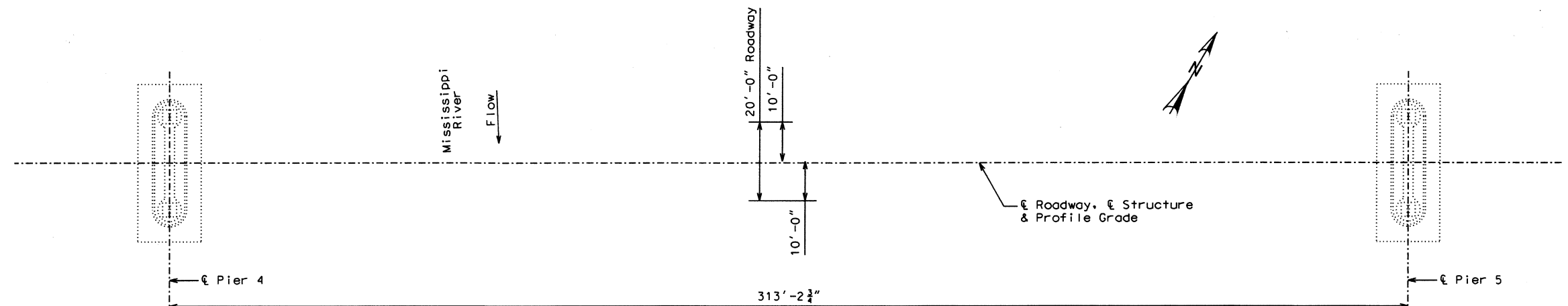


SPAN 5

Existing Groundline

* Overlap new paint over existing paint 6" minimum at repair or replacement locations. see General Notes.

PARTIAL GENERAL ELEVATION



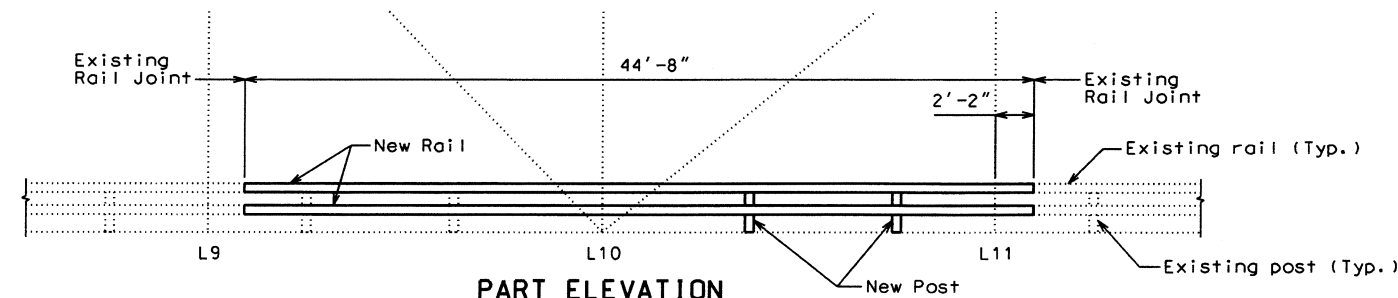
PARTIAL PLAN

REPAIRS TO:
RTE. 54 BRIDGE OVER MISSISSIPPI RIVER & BNSF RAILWAY
 AT LOUISIANA, MISSOURI
 STA. 0+42.12± (Match Existing)

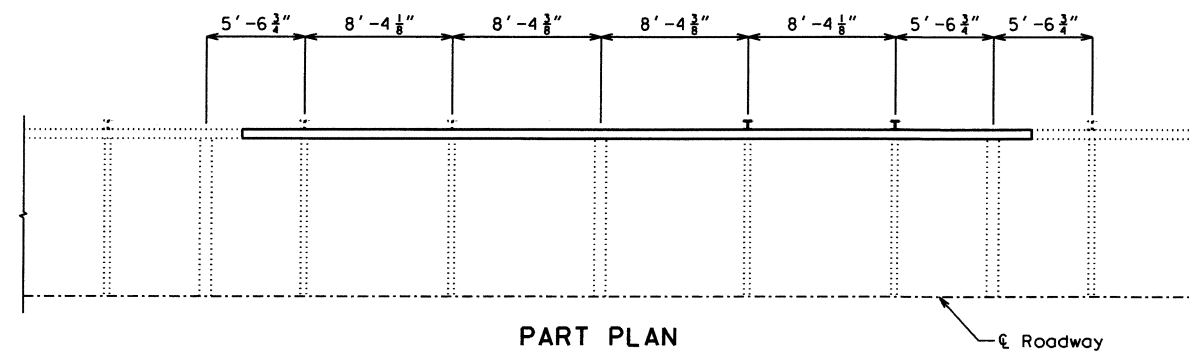
Designed: EML
 Detailed: CAB
 Checked: TPL

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

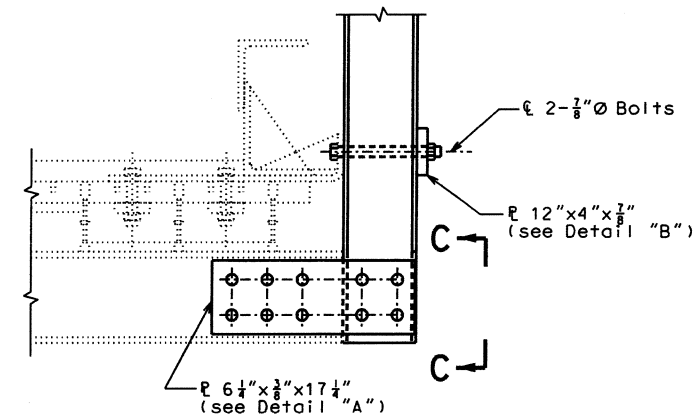
Sheet No. 1 of 7



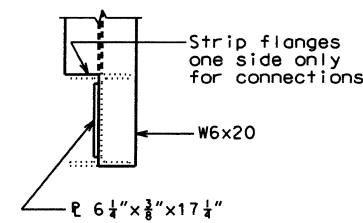
PART ELEVATION
SPAN 5 NORTH TRUSS



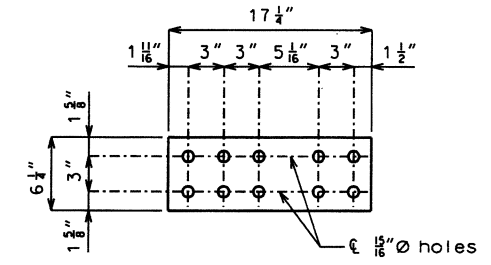
PART PLAN



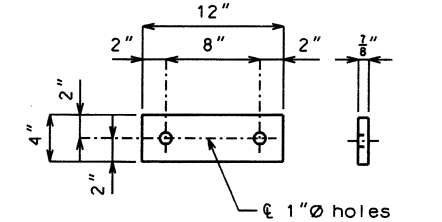
DETAILS OF CONNECTIONS
AT GUARD RAIL POSTS



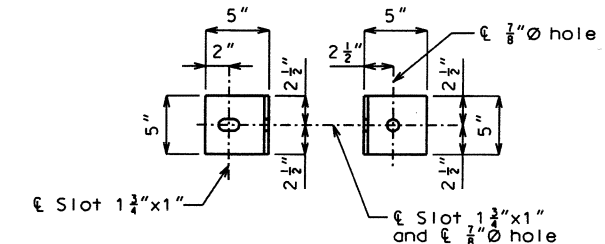
PART ELEV. C-C



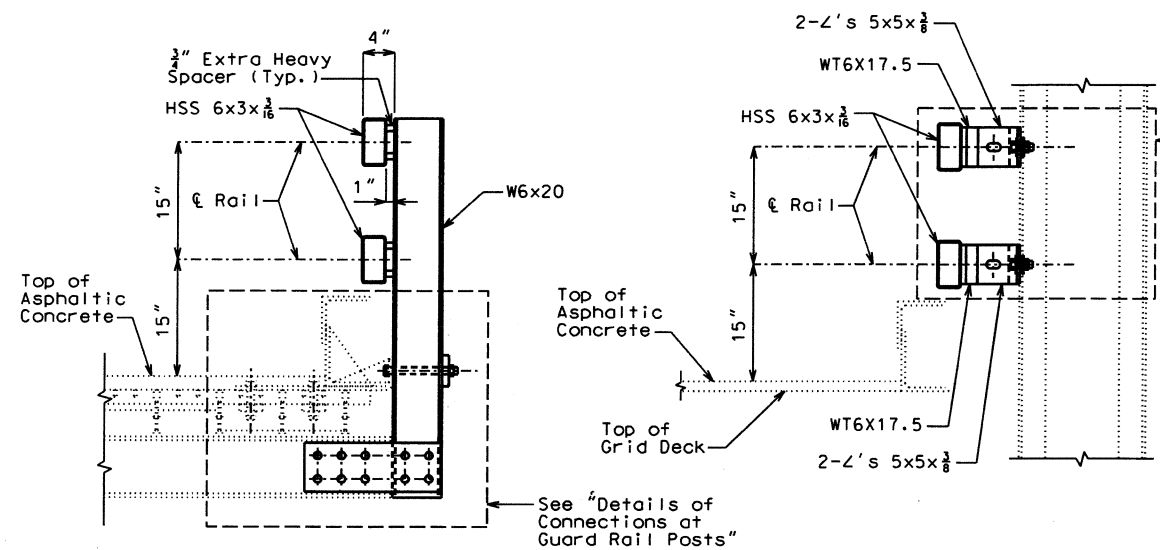
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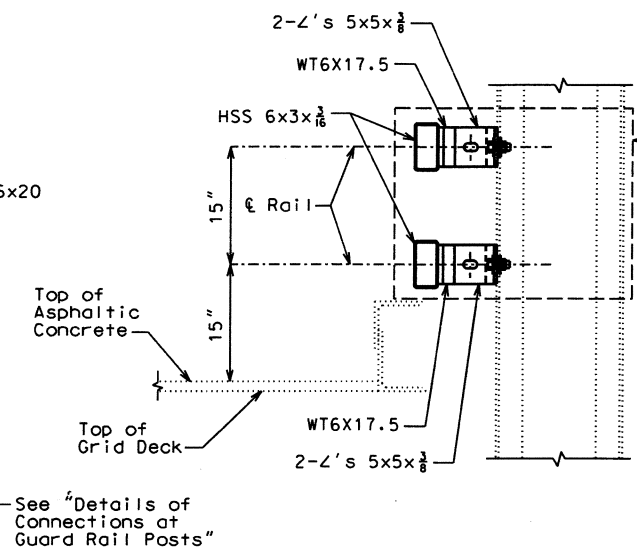
DETAIL "B"



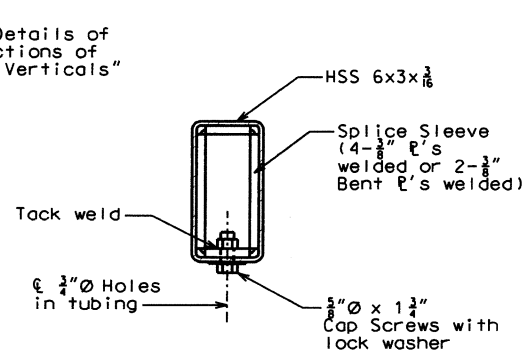
DETAILS OF 45x5x3/8
AT TRUSS VERTICALS



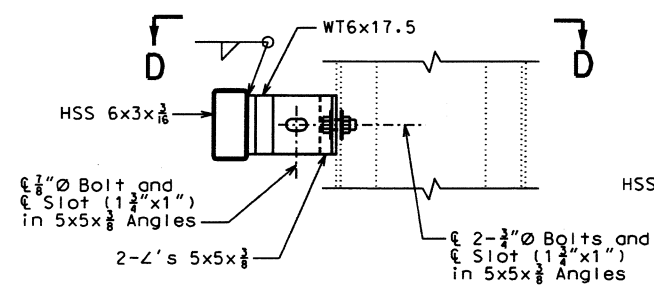
PART SECTION NEAR
NEW RAIL POST



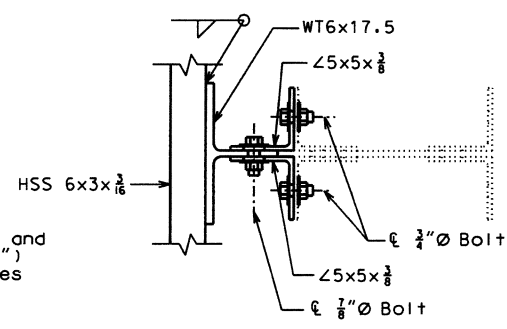
PART SECTION NEAR NEW OR
EXISTING TRUSS VERTICALS



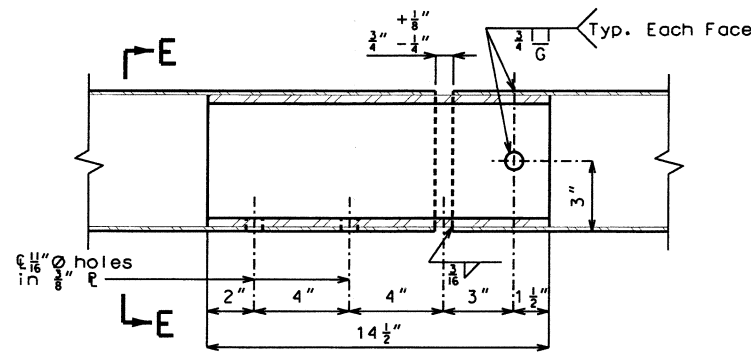
SECTION E-E



DETAILS OF CONNECTIONS
AT TRUSS VERTICALS



SECTION D-D



DETAIL OF RAIL SPLICE

GUARDRAIL DETAILS

Notes:

Field drill 1/2" Ø hole in existing or replacement flange angles of truss verticals. Use 1/2" High Strength Bolts with hex nuts and two washers at Truss Vertical connections.

Match existing railing panel lengths and splice locations.

Match existing hole locations in existing posts.

All work and material necessary to complete this item will be completely covered by the contract unit price for Remove and Replace Guardrail.

All steel connecting bolts and fasteners for posts and railing and all anchor bolts, nuts, washers and plates shall be galvanized after fabrication. For protective coating and material requirement of steel railing, see Section 1040 of the Missouri Standard Specifications.

Posts and plates shall be fabricated from ASTM A709 Grade 36 steel and galvanized.

Railing shall be fabricated from ASTM A500 Grade B, Grade 46 steel and galvanized.

All new bolts, nuts, and washers shall be used where new railing connects to existing posts.

Fabrication of structural steel shall be in accordance with Section 712 of the Missouri Standard Specifications.

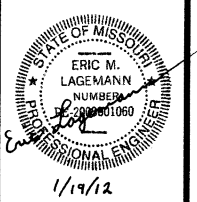
Contractor shall verify all dimensions in field before ordering materials.

See Special Provisions for Removal and Replacement of Guardrail.

Designed: EML
Detailed: CAB
Checked: KAK

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

Sheet No. 5 of 7



DATE PREPARED	01/19/2012
ROUTE	54
STATE	MO
DISTRICT	BR
SHEET NO.	5
COUNTY	PIKE
JOB NO.	J2P3005
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	K09325

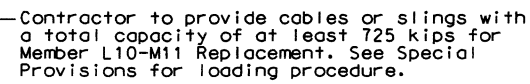
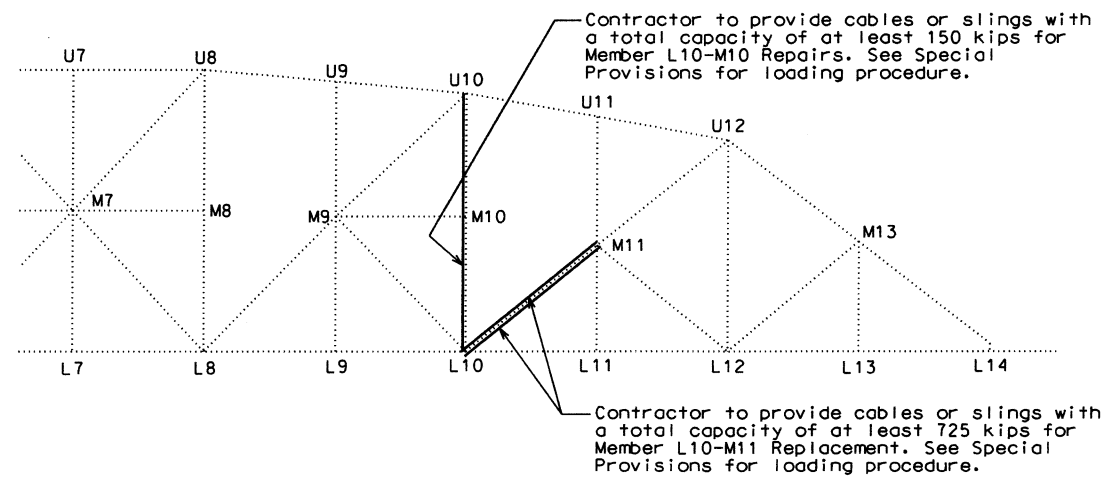
DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

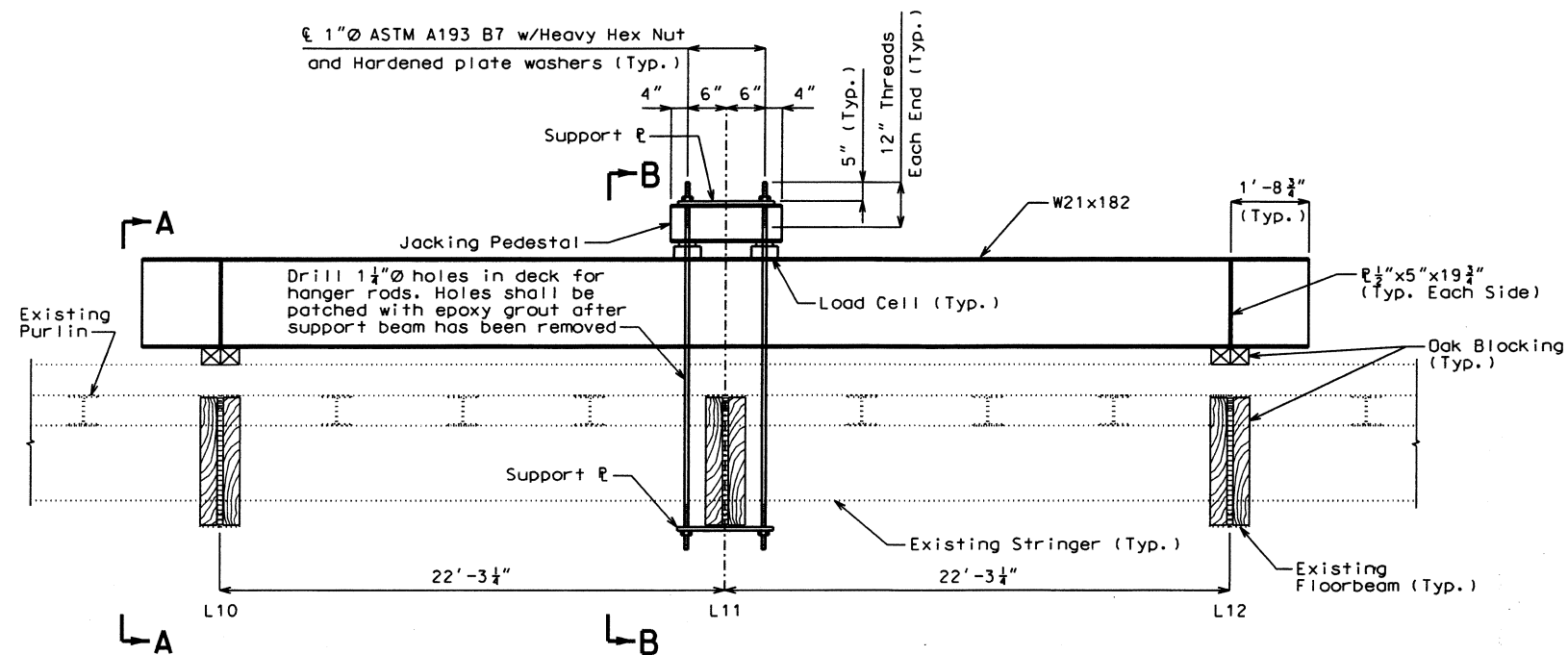
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

HORNER & SHIFRIN, INC.
ENGINEERS

2115 S. 10th St., Suite 100
Lincoln, NE 68502
Disciplined Professional Engineering
Expiration Date December 31, 2012



PART ELEVATION OF SPAN 5 TEMPORARY SUPPORTS

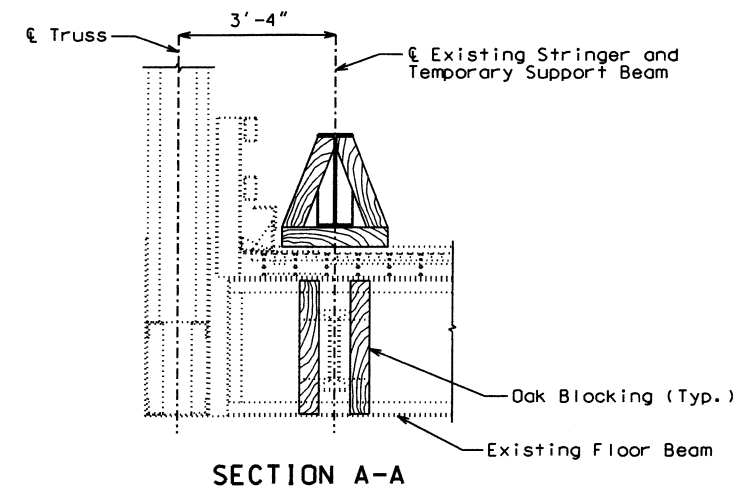


ELEVATION OF TEMPORARY FLOOR BEAM SUPPORT

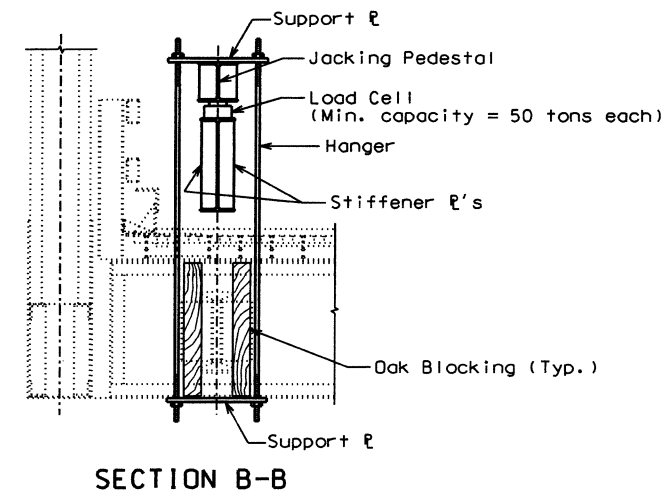
Notes:

Temporary floor beam support shown is a suggested system. If the contractor elects to use a different system, plans shall be submitted to the engineer for approval prior to commencement of the removal and replacement of Member L11-M11.

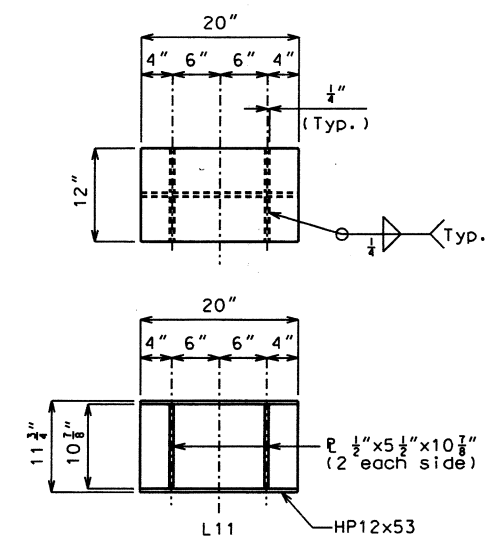
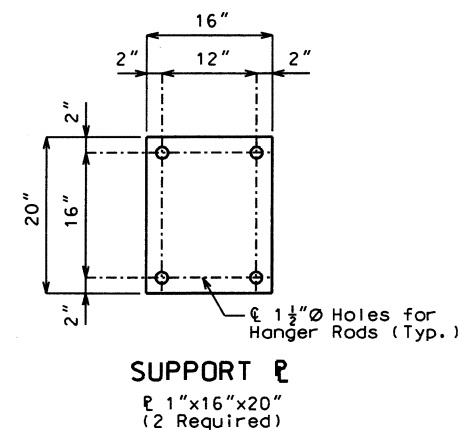
Oak blocking shall be minimum 6"x6" nominal.



SECTION A-A



SECTION B-B



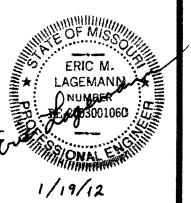
JACKING PEDESTAL
(1 Required)

TEMPORARY SHORING DETAILS

Designed: KAK
Detailed: CAB
Checked: JJD

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

Sheet No. 6 of 7



DATE PREPARED
01/19/2012

ROUTE 54	STATE MO
-------------	-------------

DISTRICT BR	SHEET NO. 6
----------------	----------------

COUNTY
PIKE

JOB NO.
J2P3005

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
K09325

[illegible]

**HORNER &
SHIFRIN, INC.**
ENGINEERS
5000 DELAWARE AVE. ST. LOUIS, MO 63118-1700
314-931-4321 FAX: 314-931-8568
www.Horner-Shifrin.com
Disciplined Professional Engineering
Certificate of Authority #000119
Expiration Date: December 31, 2012



Notes:

Construction loads defined as workers, hand tools, machinery, trucks, construction stock piles, and other items necessary to perform work.

In lieu of 85 psf, an allowable concentrated load of 19 kips are allowed at each panel point of each truss in the area denoted by hatching.



Notes:

Panel point reaction shall be as follows for the North truss:

L9	=	4.5 kips
L10	=	9.0 kips
L11	=	4.5 kips

Adjust preload to equal these reactions.

This Preload must remain in place for the entire duration of Member L10-M10 Repairs.



Note:

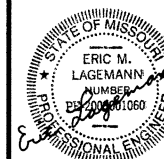
This allowable loading is in addition to the Preload.

ALLOWABLE CONSTRUCTION LOAD DETAILS

Designed: EML
Detailed: CAB
Checked: KAK

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

Sheet No. 7 of 7



1/19/12

DATE PREPARED
01/19/2012

ROUTE	STATE
54	MO

DISTRICT	SHEET NO.
BR	7

COUNTY
PIKE

JOB NO.
J2P3005

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
K09325

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[illegible]MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

**HORNER &
SHIFRIN, INC.**
ENGINEERS
ONE AND AVE. ST. LOUIS, MO 63101-1049
314-531-1321 FAX 314-531-9566
www.Horner-Shifrin.com
Discipline Professional Engineering
Certificate of Authority 0005151
Expiration Date December 31, 2012

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
800-454-4000 / 314-888-3255

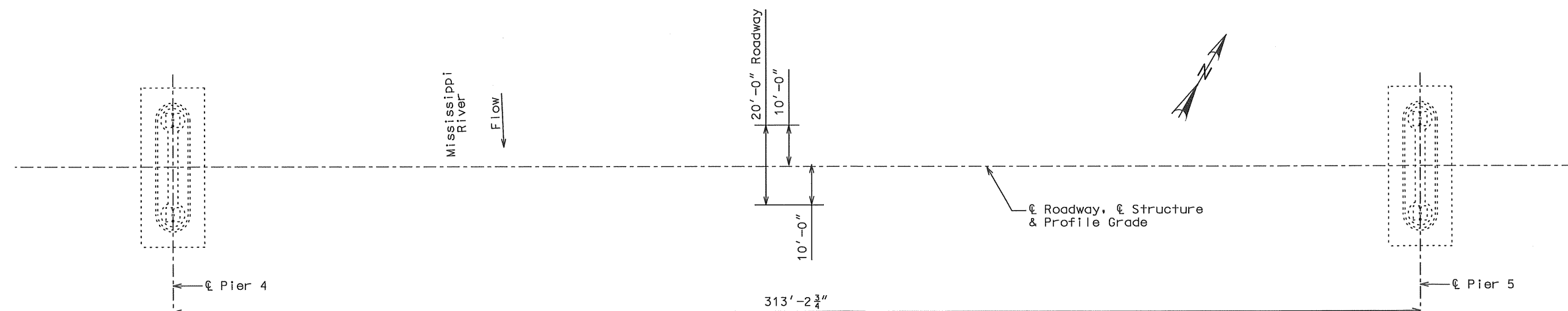
REHABILITATE
U.I.P. EXISTING (314', 314', 417', 314', 314') THRU TRUSS SPANS AND
(96'-96'-24'-96'-96', 96', 96') NON-REDUNDANT PLATE GIRDER SPANS



- Existing Groundline

* Overlap new paint over existing paint 6" minimum at repair or replacement locations, see General Notes.

PARTIAL GENERAL ELEVATION



PARTIAL PLAN

REPAIRS TO:
RTE. 54 BRIDGE OVER MISSISSIPPI RIVER & BNSF RAILWAY
AT LOUISIANA, MISSOURI
STA. 0+42.12± (Match Existing)

J:\DOCS\J2P3005, 54, Pike Co - Champ Clark Bridge Repair\Final Plans\01_Partial_GPE.dgn 9:26:13 AM 6/11/2012

**HORNER &
SHIFRIN, INC.**
ENGINEERS
8280
DANFORD AVE. ST. LOUIS, MO 63114-1918
314-531-5311 FAX 314-531-0966
www.horner-shifrin.com
Design/Construct/Operate/Manage
Construction of Airports & MBAs
Expiration Dates December 31, 2012

Estimated Quantities		
Item		Total
Surface Preparation for Overcoating Structural Steel	lump sum	\ 1 ✓
Calcium Sulfonate Rust Penetrating Sealer	lump sum	\ 1 ✓
Calcium Sulfonate Primer	lump sum	\ 1 ✓
Calcium Sulfonate Topcoat	lump sum	\ 1 ✓
Repair Truss Member	each	\ 1 ✓
Remove and Replace Truss Member	each	\ 2 ✓
Remove and Replace Guardrail	each	\ 1 ✓

GENERAL NOTES:

Design Specifications:
2002 – AASHTO 17th Edition
Working Stress Design (Repair and Replacement Members)

Design Loading:
H15 (Floor System), 31 kip concentrated plus 450 plf uniform (Trusses & Girders)
H20-44 (1978 Filled Grid Decks & New Bearings)
No Future Wearing Surface

Design Unit Stresses:
Structural Carbon Steel (ASTM A709 Grade 36) fy = 36,000 psi

Structural Steel Protective Coatings:
Protective Coating: Recoat all existing ungalvanized steel in the repair area with three coat system of calcium sulfonate. Calcium sulfonate three coat system shall be in accordance with Sec 1081.

Surface Preparation:
Surface preparation of all existing ungalvanized steel located in the splash zone of the repair area shall be in accordance with Sec 1081 for "Recoating of Structural Steel (System G)" except that blast cleaning to SSPC-SP6 instead of SSPC-SP10 shall be performed on all exposed and accessible surfaces. Surface preparation of all existing steel above the splash zone of the repair area shall be in accordance with Sec 1081 for "Overcoating of Structural Steel (Calcium Sulfonate System)".

The cost of surface preparation will be considered completely covered by the contract lump sum price for "Surface Preparation for Overcoating Structural Steel".

The splash zone is defined as the entire superstructure including the bearings up to ten feet above the top of the bridge deck surface.

Rust Penetrating Sealer: The rust penetrating sealer shall be applied to the surfaces of all overlapping steel plates and other locations of the repair area where rust bleeding, pack rust, and layered rust is occurring. The cost of the rust penetrating sealer will be considered completely covered by the contract lump sum price for "Calcium Sulfonate Rust Penetrating Sealer".

Prime Coat: The cost of the prime coat will be considered completely covered by the contract lump sum price for "Calcium Sulfonate Primer".

Prime Coat (New Steel): The cost of the prime coat shall be included in the contract unit price of the fabricated structural steel. Tint of the prime coat for System G shall be similar to the color of the field coat to be used.

Top Coat: The color of the topcoat shall be Gray (Federal Standard #26373). The cost of the topcoat will be considered completely covered by the contract lump sum price for "Calcium Sulfonate Topcoat".

The Calcium Sulfonate topcoat shall be applied to the System G prime coat for new steel. The cost of the topcoat will be considered completely covered by the contract lump sum price for "Calcium Sulfonate Topcoat".



Miscellaneous:
See Roadway plans and Special Provisions for traffic control.

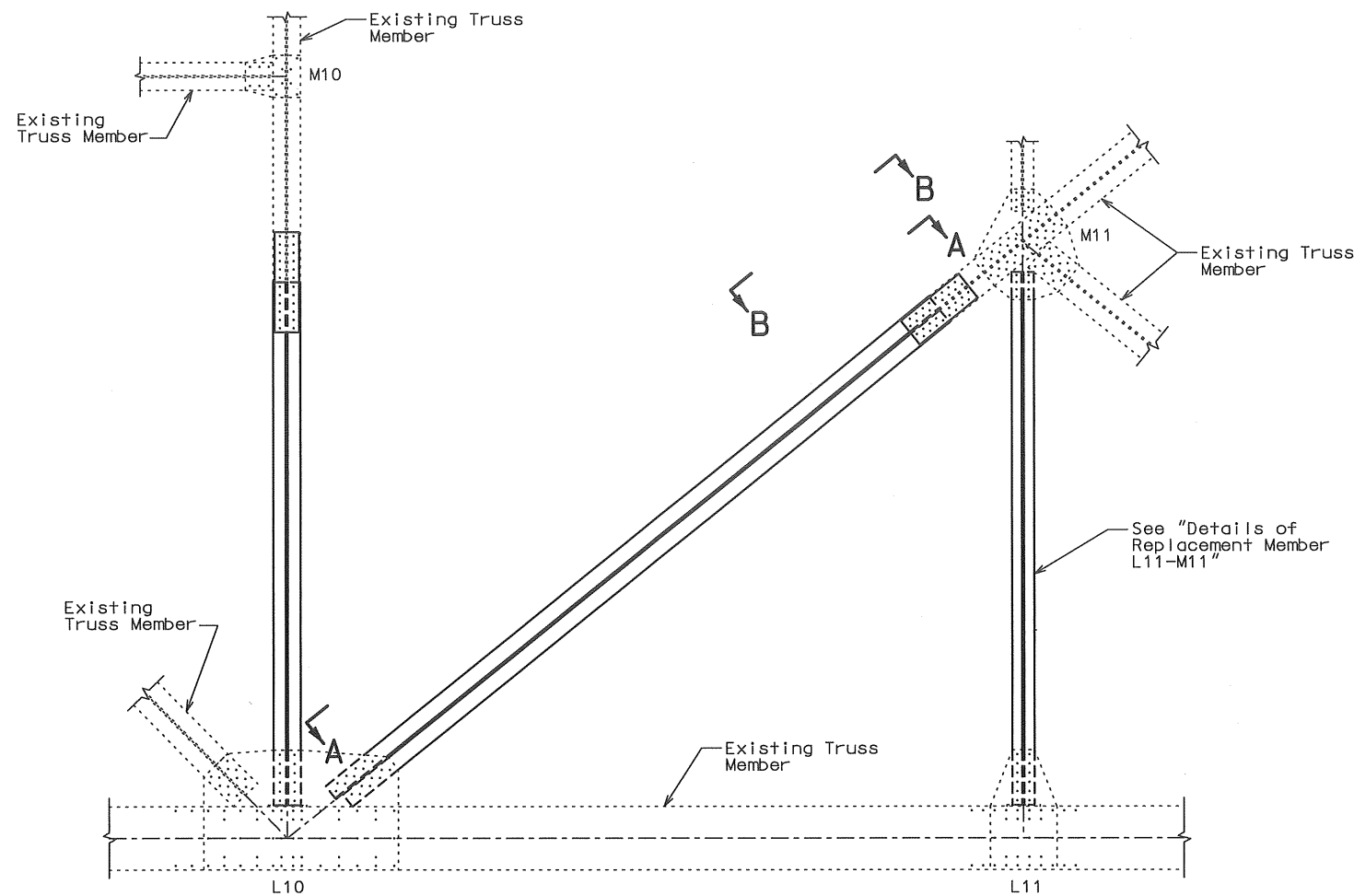
High strength bolts, nuts, and washers will be sampled for quality assurance as specified in Sec 106.

Outline of old work is indicated by light dotted lines. Heavy lines indicate new work.

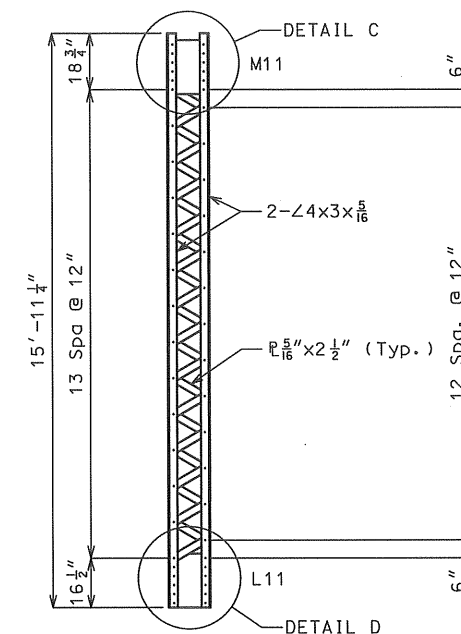
"Sec" refers to the sections in the standard and supplemental specifications unless specified otherwise.

Contractor shall verify all dimensions in field before ordering materials.

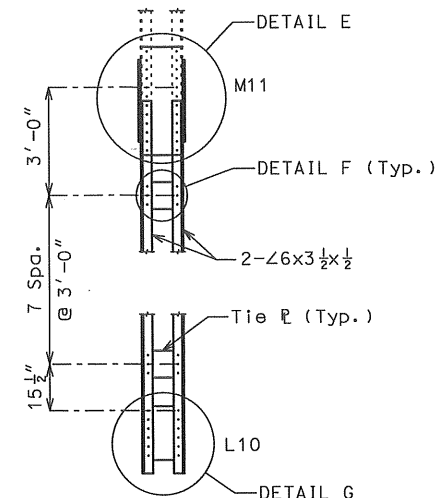
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ROUTE 54	STATE MO
DISTRICT BR	SHEET NO. 2
COUNTY PIKE	
JOB NO. J2P3005	
CONTRACT ID. 120217-B05	
PROJECT NO. FAF-54-4(48)	
BRIDGE NO. K09325	
DESCRIPTION	
DATE	
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION	
	
105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636)	
	
HORNIER & SHIFRIN, INC. ENGINEERS 2208 OAKLAND AVE. ST. LOUIS, MO 63103-4498 314-431-4321 FAX 314-431-6966 Professional Engineer Certification of Authority 880897 Expiration Date December 31, 2012	



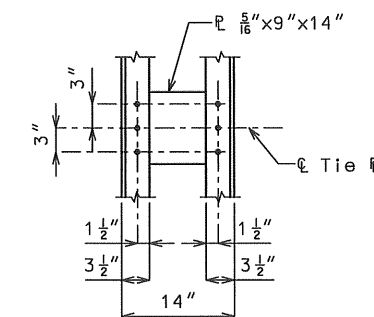
PART ELEVATION OF PANEL POINTS 10 AND 11
SPAN 5 NORTH TRUSS



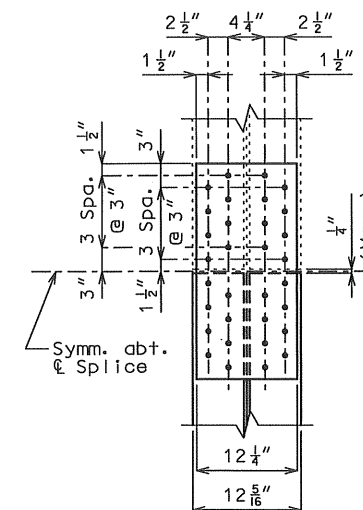
DETAILS OF REPLACEMENT
MEMBER L11-M11



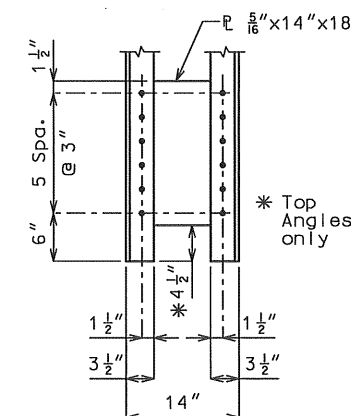
PART VIEW A-A



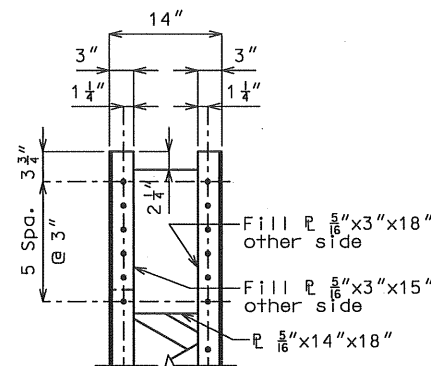
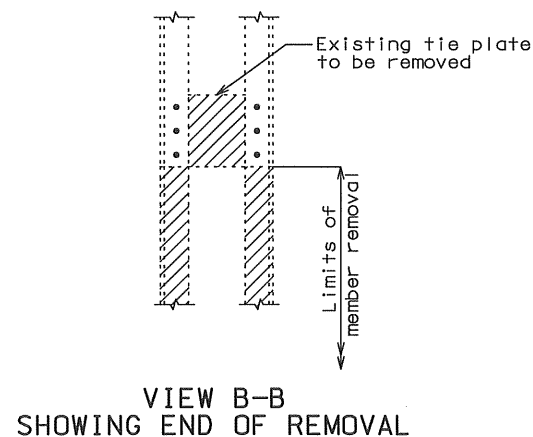
DETAIL F



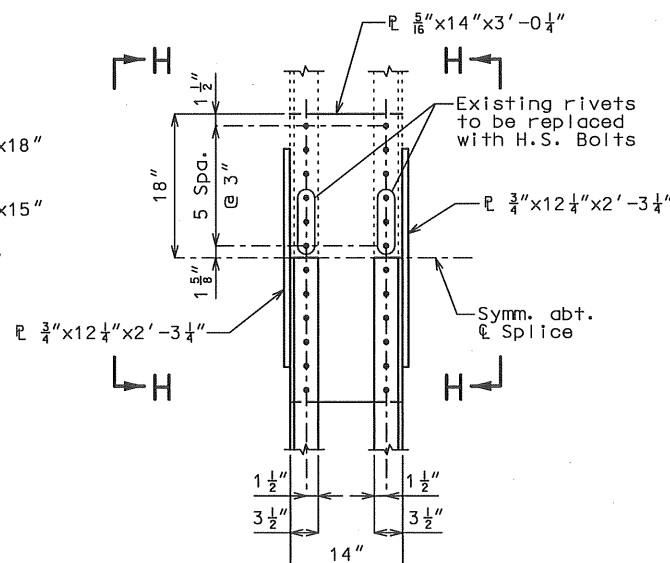
VIEW H-H



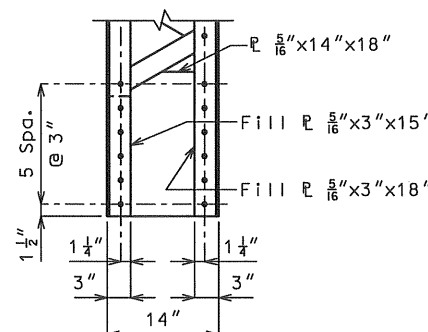
DETAIL G



DETAIL C



DETAIL E



DETAIL D

DETAILS OF STRUCTURAL STEEL REPLACEMENT

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

Sheet No. 3 of 7

Notes:

Match existing hole locations in existing gusset plates and tie plates, as applicable. Replace rivets with H.S. Bolts. See Special Provisions for Rivet Replacement except that cost of work and material to complete this item will be considered completely covered by the contract unit price for Replace Truss Member.

Use 7/8" high strength bolts with 15/16" holes.

Contractor shall verify all dimensions in field before ordering materials.

See Special Provisions for Removal and Replacement of Structural Steel.

Hatched areas indicate removal of Structural Steel.

Designed: EML
Detailed: CAB
Checked: KAK

DATE PREPARED	
01/19/2012	
ROUTE	STATE
54	MO
DISTRICT	SHEET NO.
BR	3
COUNTY	
PIKE	
JOB NO.	
J2P3005	
CONTRACT ID.	
120217-B05	
PROJECT NO.	
JAF-54-4(48)	
BRIDGE NO.	
K09325	

DESCRIPTION

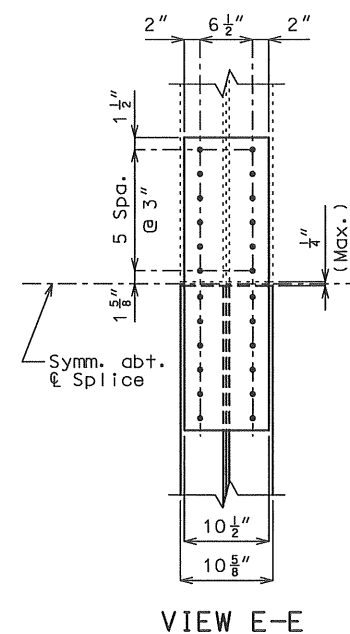
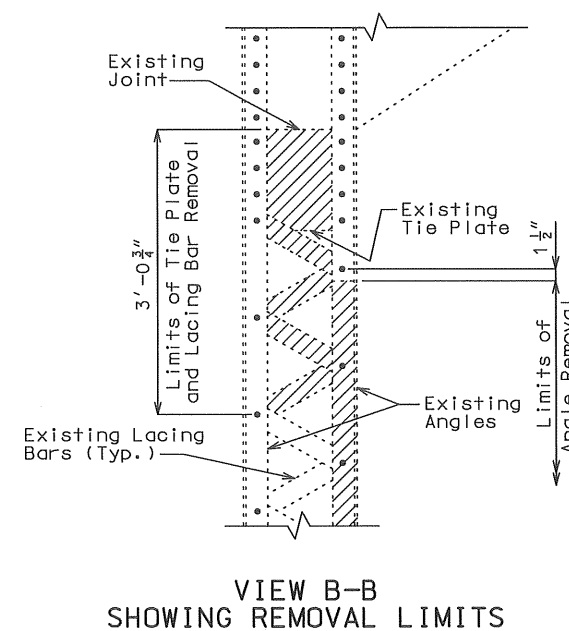
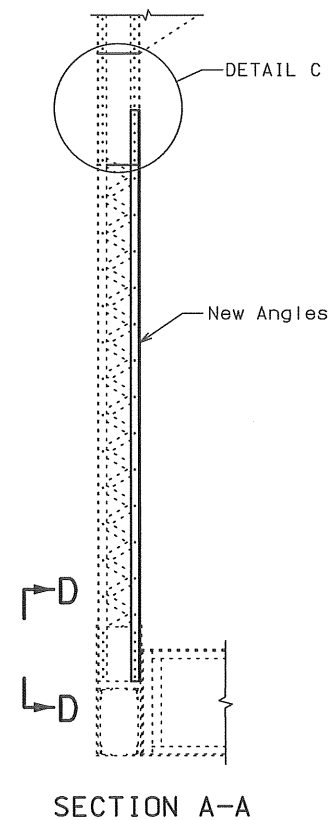
DATE

MISSOURI HIGHWAYS AND TRANSPORTATION
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105 WEST CAPITAL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

HORNER & SHIRIN, INC.
ENGINEERS
2114 S. GARDEN ST.
ST. LOUIS, MO 63105-1496
Professional Engineering
Expirations: 12/31/2012



Hatched areas indicate removal of Structural Steel.

DETAILS OF STRUCTURAL STEEL REPAIRS

J:\DOCS\J2P3005, 54, Pike Co - Champ Clark Bridge Repair\Final Plans\04_Repairs_to_L10_M10.dgn 9:43:23 AM 6/11/2012

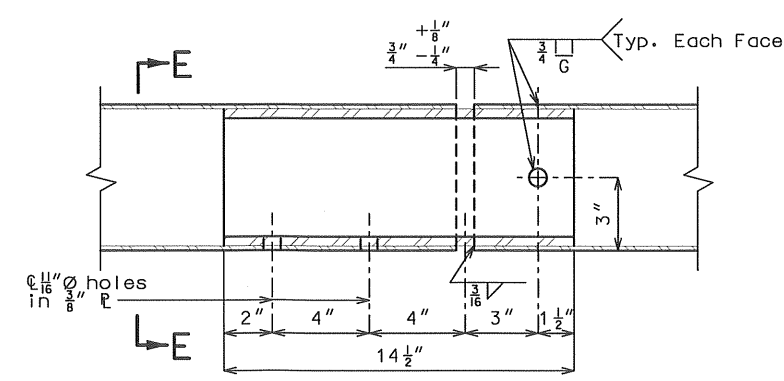
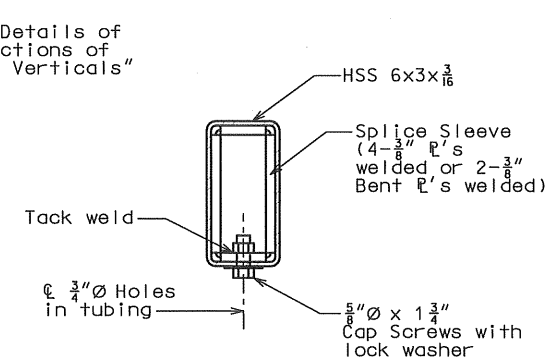
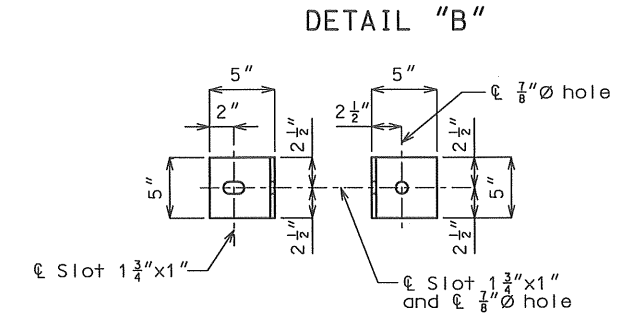
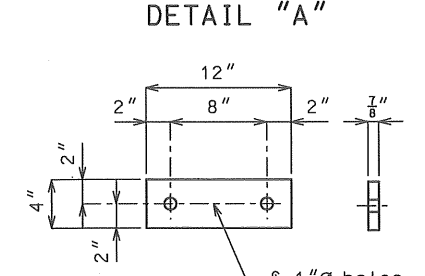
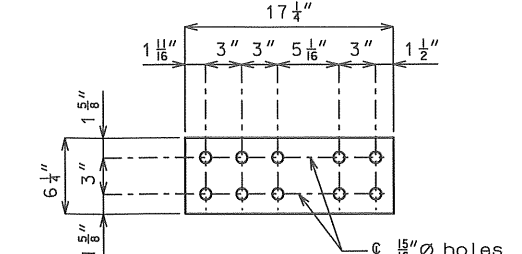
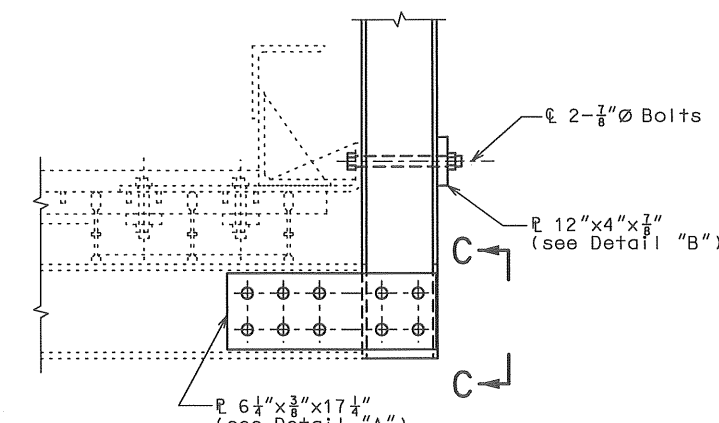
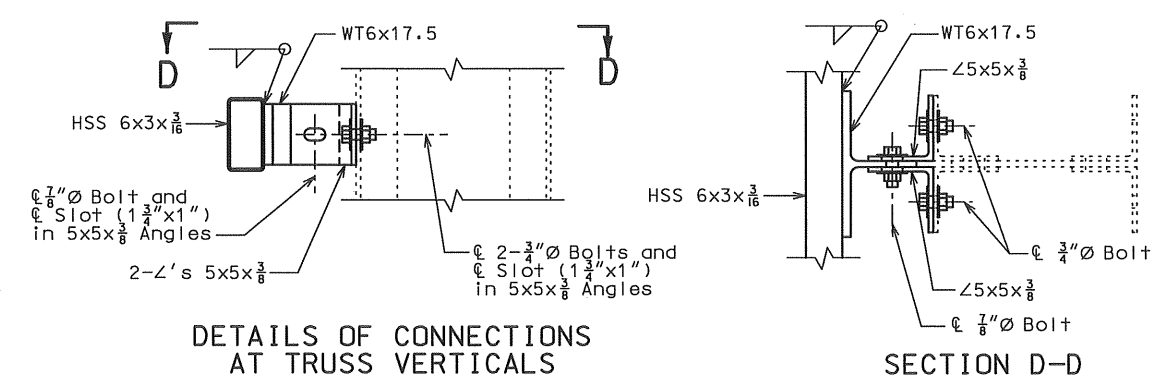
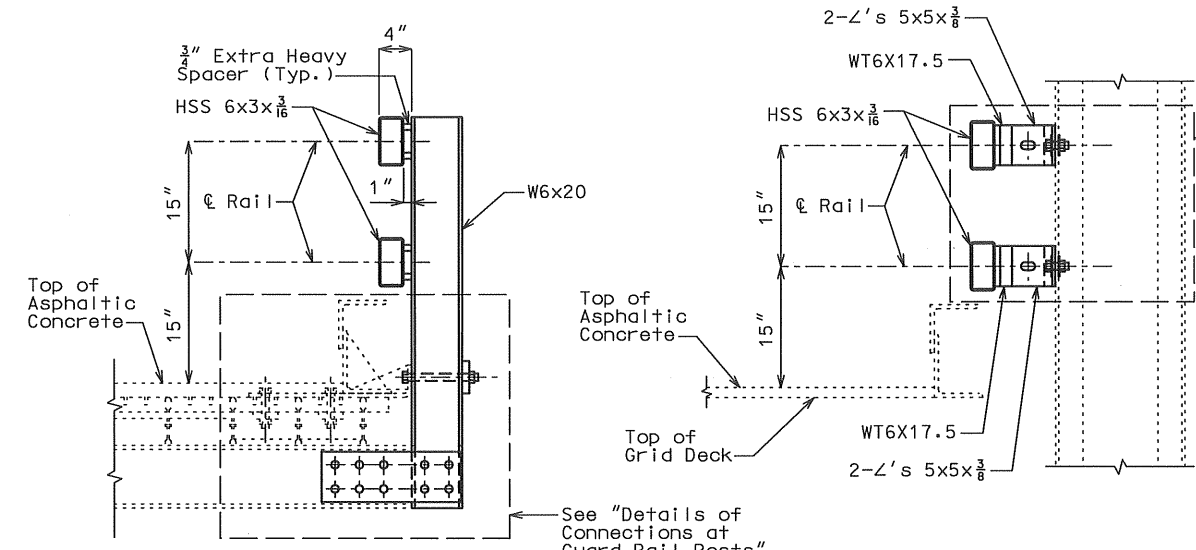
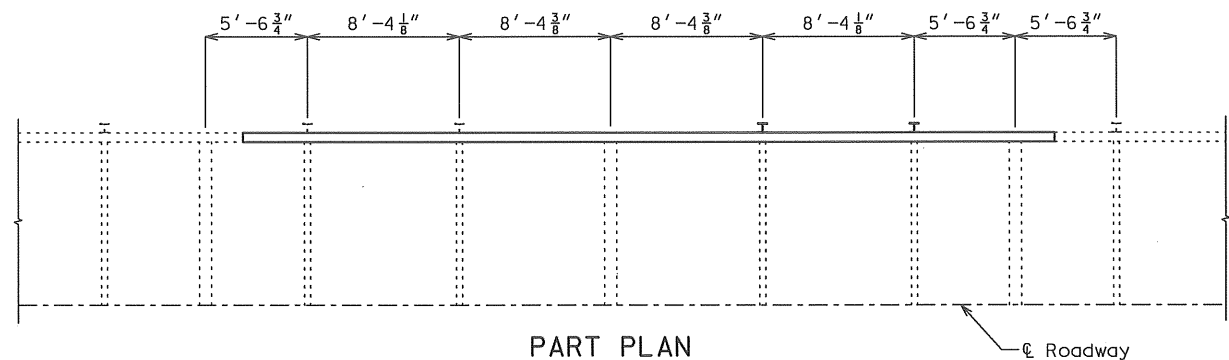
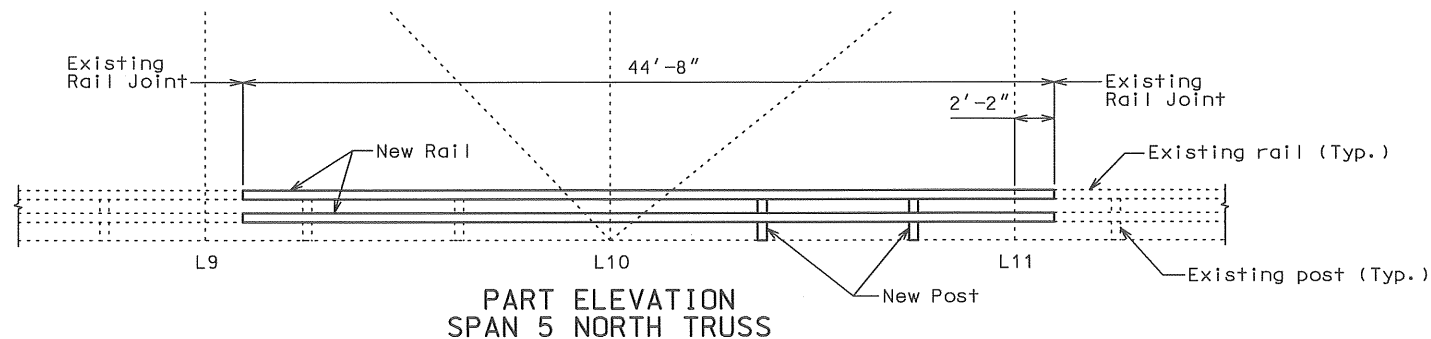
DATE PREPARED	
01/19/2012	
ROUTE	STATE
54	MO
DISTRICT	SHEET NO.
BR	4
COUNTY	
PIKE	
JOB NO.	
J2P3005	
CONTRACT ID.	
120217-B05	
PROJECT NO.	
FAF-54-4(48)	
BRIDGE NO.	
K09325	

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ENGINEERS
1 OAKLAND AVE. ST. LOUIS, MO 63118-1490
314-531-4321 FAX: 314-531-6966
www.Horner-Shuford.com
Disruptives Professional Engineering
Certification of Authority 880159



Notes:

Field drill 1 1/8" Ø hole in existing or replacement flange angles of truss verticals. Use 3/4" Ø High Strength Bolts with hex nuts and two washers at Truss Vertical connections.

Match existing railing panel lengths and splice locations.

Match existing hole locations in existing posts.

All work and material necessary to complete this item will be completely covered by the contract unit price for Remove and Replace Guardrail.

All steel connecting bolts and fasteners for posts and railing and all anchor bolts, nuts, washers and plates shall be galvanized after fabrication. For protective coating and material requirement of steel railing, see Section 1040 of the Missouri Standard Specifications.

Posts and plates shall be fabricated from ASTM A709 Grade 36 steel and galvanized.

Railing shall be fabricated from ASTM A500 Grade B, Grade 46 steel and galvanized.

All new bolts, nuts, and washers shall be used where new railing connects to existing posts.

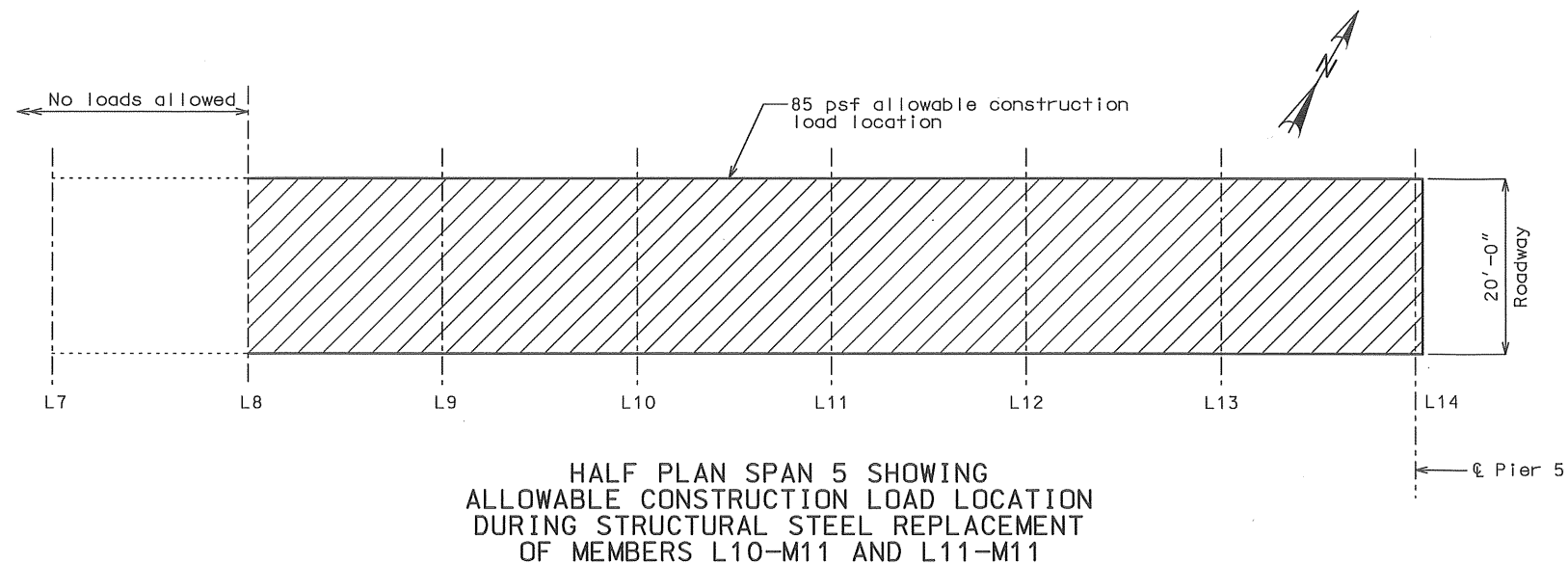
Fabrication of structural steel shall be in accordance with Section 712 of the Missouri Standard Specifications.

Contractor shall verify all dimensions in field before ordering materials.

See Special Provisions for Removal and Replacement of Guardrail.

GUARDRAIL DETAILS

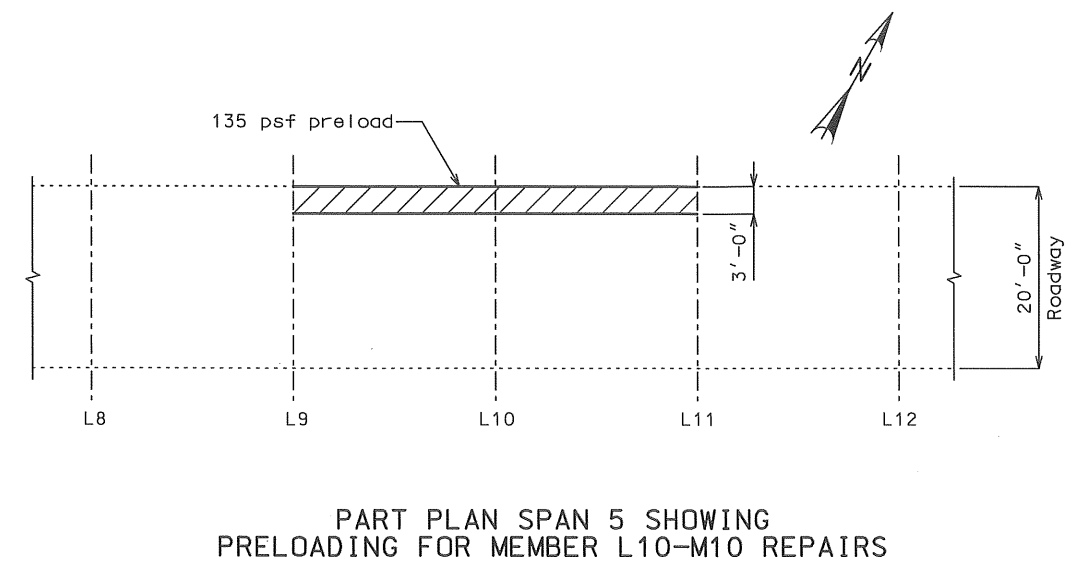
DATE PREPARED 01/19/2012	
ROUTE 54	STATE MO
DISTRICT BR	SHEET NO. 5
COUNTY PIKE	
JOB NO. J2P3005	
CONTRACT ID. 120217-B05	
PROJECT NO. FAF-54-4(48)	
BRIDGE NO. K09325	
DESCRIPTION	
DATE	
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION	
<p>105 WEST CAPITAL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636)</p>	
<p>HORNER & SHIFRIN, INC. ENGINEERS 2038 DIXON AVE. ST. LOUIS, MO 63104-4700 314-531-4321 FAX 314-531-0905 Professional Engineer Certificate of Authority MB0795 Expiration Date December 31, 2012</p>	



Notes:

Construction loads defined as workers, hand tools, machinery, trucks, construction stock piles, and other items necessary to perform work.

In lieu of 85 psf, an allowable concentrated load of 19 kips are allowed at each panel point of each truss in the area denoted by hatching.



Notes:

Panel point reaction shall be as follows for the North truss:

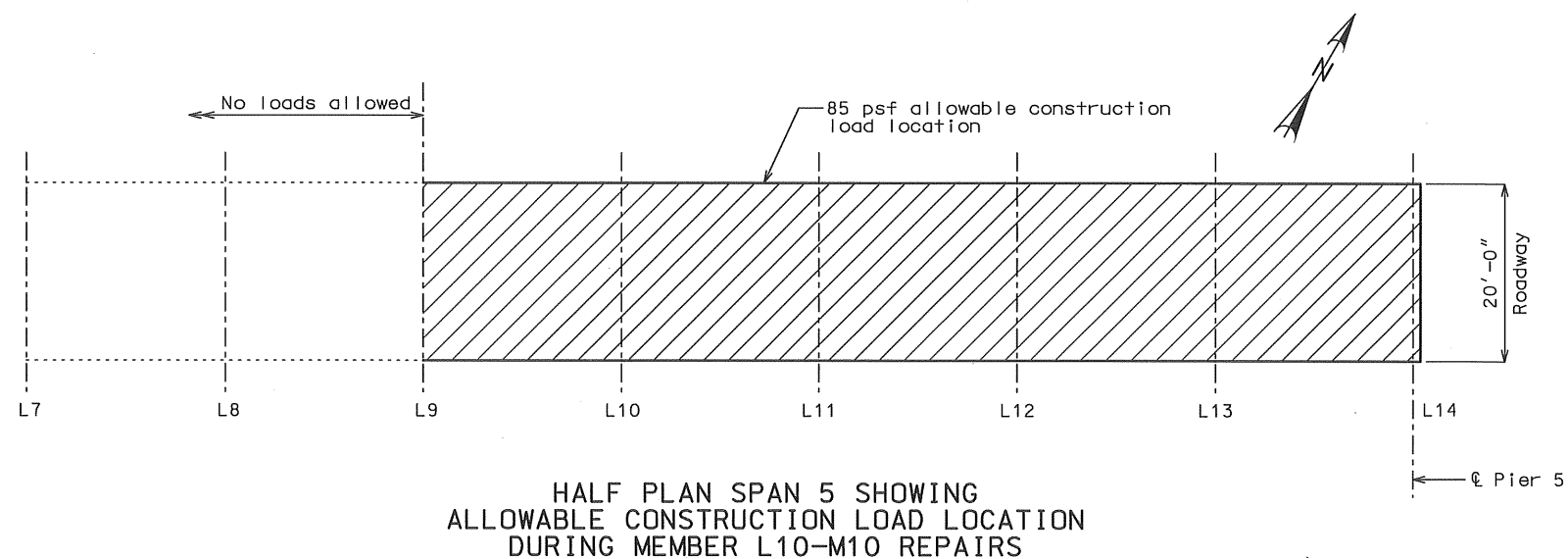
$$L9 = 4.5 \text{ kips}$$

L10 = 9.0 kips

$$L11 = 4.5 \text{ kips}$$

Adjust preload to equal these reactions.

This Preload must remain in place for the entire duration of Member L10-M10 Repairs.



Note:

This allowable loading is in addition to the Preload.

ALLOWABLE CONSTRUCTION LOAD DETAILS

Designed: EML
Detailed: CAB
Checked: KAK

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

Sheet No. 7 of 7

DATE PREPARED	
01/19/2012	
ROUTE	STATE
54	MO
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**HORNER &
SHIFRIN, INC.**
ENGINEERS
2508 ORLAND AVE. ST. LOUIS, MO 63119
314-531-4321 FAX 314-531-6166
www.Horner-Shifrin.com
Disciplines: Professional Engineering
Certificates of Authority: 0000109
Expiration Date: December 31, 2012