

EFFECTIVE: 07-01-2024															
SIGN	SIZE	AREA	QTY	TOTAL	QTY	TOTAL	SIGN								
	IN.	SQ.FT.	EACH	SQ.FT.	EACH	SQ.FT.	NUM.								
WARNING SIGNS								DESCRIPTION							
WO1-1L	48X48	16.00						TURN (SYMBOL LEFT)							
WO1-1R	48X48	16.00						TURN (SYMBOL RIGHT)							
WO1-2L	48X48	16.00						CURVE (SYMBOL LEFT)							
WO1-2R	48X48	16.00						CURVE (SYMBOL RIGHT)							
WO1-3L	48X48	16.00						REVERSE TURN (SYMBOL LEFT)							
WO1-3R	48X48	16.00						REVERSE TURN (SYMBOL RIGHT)							
WO1-4L	48X48	16.00						REVERSE CURVE (SYMBOL LEFT)							
WO1-4R	48X48	16.00						REVERSE CURVE (SYMBOL RIGHT)							
WO1-4bL	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL LEFT)							
WO1-4bR	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL RIGHT)							
WO1-4cL	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL LEFT)							
WO1-4cR	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL RIGHT)							
WO1-6	60X30	12.50						HORIZONTAL ARROW (SYMBOL)							
WO1-6a	72X36	18.00						HORIZ. ARROW (SYMBOL ON PERMANENT BARRICADE)							
WO1-7	60X30	12.50						DOUBLE HEAD HORIZONTAL ARROW (SYMBOL)							
WO1-7a	72X36	18.00						DOUBLE HEAD HORIZ. ARROW (SYMBOL ON PERM. BARR.)							
WO1-8	18X24	3.00						CHEVRON (SYMBOL)							
WO1-8a	30X36	7.50						CHEVRON (SYMBOL FOR DIVIDED HIGHWAYS)							
WO3-1	48X48	16.00						STOP AHEAD (SYMBOL)							
WO3-2	48X48	16.00						YIELD AHEAD (SYMBOL)							
WO3-3	48X48	16.00						SIGNAL AHEAD (SYMBOL)							
WO3-4	48X48	16.00						BE PREPARED TO STOP							
WO3-5	48X48	16.00						SPEED LIMIT AHEAD							
WO4-1L	48X48	16.00						MERGE (SYMBOL FROM LEFT)							
WO4-1R	48X48	16.00						MERGE (SYMBOL FROM RIGHT)							
WO4-1aL	48X48	16.00						MERGE (LEFT)							
WO4-1aR	48X48	16.00						MERGE (RIGHT)							
WO5-1	48X48	16.00						ROAD/BRIDGE/RAMP NARROWS							
WO5-3	48X48	16.00						ONE LANE BRIDGE							
WO5-5	48X48	16.00						NARROW LANES							
WO6-1	48X48	16.00						DIVIDED HIGHWAY (SYMBOL)							
WO6-2	48X48	16.00						DIVIDED HIGHWAY END (SYMBOL)							
WO6-3	48X48	16.00						TWO WAY TRAFFIC (SYMBOL)							
WO7-3a	30X24	5.00						NEXT XX MILES (PLAQUE)							
WO8-1	48X48	16.00						BUMP							
WO8-2	48X48	16.00						DIP							
WO8-3	48X48	16.00						PAVEMENT ENDS							
WO8-4	48X48	16.00						SOFT SHOULDER							
WO8-5	48X48	16.00						SLIPPERY WHEN WET (SYMBOL)							
WO8-6	48X48	16.00						TRUCK CROSSING							
WO8-6c	48X48	16.00						TRUCK ENTRANCE							
WO8-7	36X36	9.00						LOOSE GRAVEL							
WO8-7a	36X36	9.00						FRESH OIL / LOOSE GRAVEL							
WO8-9	48X48	16.00						LOW SHOULDER							
WO8-11	48X48	16.00						UNEVEN LANES							
WO8-12	48X48	16.00						NO CENTER LINE							
WO8-15	48X48	16.00						GROOVED PAVEMENT							
WO8-15P	30X24	5.00						MOTORCYCLE (PLAQUE)							
WO8-17L	48X48	16.00						SHOULDER DROP-OFF (SYMBOL LEFT)							
WO8-17R	48X48	16.00						SHOULDER DROP-OFF (SYMBOL RIGHT)							
WO8-17P	30X24	5.00						SHOULDER DROP-OFF (PLAQUE)							
W10-1	42RND.	9.62						RAILROAD CROSSING							
WO12-1	24X24	4.00						DOUBLE DOWN ARROW (SYMBOL)							
WO12-2	48X48	16.00						LOW CLEARANCE (SYMBOL)							
WO12-2x	24X18	3.00						LOW CLEARANCE (PLAQUE)							
WO12-2a	84X24	14.00						OVERHEAD LOW CLEARANCE (FEET AND INCHES)							
WO12-4	120X60	50.00						LOW CLEARANCE XX FT XX IN XX MILES AHEAD							
WO12-5	120X60	50.00						WIDTH RESTRICTION XX FT XX IN XX MILES AHEAD							
WO13-1	30X30	6.25						ADVISORY SPEED (PLAQUE)							
WO16-2	30X24	5.00						XXX FEET (PLAQUE)							
WO16-3	30X24	5.00						X MILE (PLAQUE)							
WO20-1	48X48	16.00						ROAD/BRIDGE/RAMP WORK AHEAD							
WO20-2	48X48	16.00						DETOUR AHEAD							
WO20-3	48X48	16.00	7	112.00			20	ROAD CLOSED AHEAD							
WO20-4	48X48	16.00						ONE LANE ROAD AHEAD							
WO20-5	48X48	16.00						RIGHT/CENTER/LEFT LANE CLOSED AHEAD							
WO20-5a	48X48	16.00						2 RIGHT/CENTER/LEFT LANES CLOSED AHEAD							
WO20-6a	48X48	16.00						RIGHT/CENTER/LEFT LANE CLOSED							
WO20-7a	48X48	16.00						FLAGGER (SYMBOL)							
WO21-2	36X36	9.00						FRESH OIL							
WO21-5	48X48	16.00						SHOULDER WORK / SHOULDER WORK AHEAD							
WO22-1	48X48	16.00						BLASTING ZONE AHEAD							
WO22-2	42X36	10.50						TURN OFF 2-WAY RADIO AND PHONE							
WO22-3	42X36	10.50						END BLASTING ZONE							
GO22-1	21X15	2.19						WET PAINT (ARROW PIVOTS)							
SIGN	SIZE	AREA	QTY	TOTAL	QTY	TOTAL	SIGN								
	IN.	SQ.FT.	EACH	SQ.FT.	EACH	SQ.FT.	NUM.								
GUIDE SIGNS								DESCRIPTION							
E05-1	36X48	12.00						GORE EXIT							
E05-2	48X36	12.00						EXIT OPEN							
E05-2a	48X36	12.00						EXIT CLOSED							
GO20-1	60X24	10.00						ROAD WORK NEXT XX MILES							
GO20-2	48X24	8.00						END ROAD WORK							
GO20-4	36X18	4.50						PILOT CAR FOLLOW ME							
GO20-4a	42X30	8.75						PILOT CAR IN USE WAIT & FOLLOW							
GO20-4a	18X12	1.50						PILOT CAR IN USE WAIT & FOLLOW							
GO20-5aP	36X24	6.00						WORK ZONE (PLAQUE)							
MO4-8a	24X18	3.00						END DETOUR							
MO4-9L	48X36	12.00						DETOUR (LEFT)							
MO4-9R	48X36	12.00						DETOUR (RIGHT)							
MO4-9P	48X12	4.00						STREET NAME (PLAQUE)							
MO4-10L	48X18	6.00						DETOUR ARROW (LEFT)							
MO4-10R	48X18	6.00						DETOUR ARROW (RIGHT)							
REGULATORY SIGNS															
R1-1	48X48	13.25						STOP							
R1-2	48TRI	6.93						YIELD							
R1-2a	36X36	9.00						TO ONCOMING TRAFFIC (PLAQUE)							
R1-3P	30X12	2.50						ALL WAY (PLAQUE)							
R2-1	36X48	12.00						SPEED LIMIT XX							
R3-1	48X48	16.00						NO RIGHT TURN (SYMBOL)							
R3-2	48X48	16.00						NO LEFT TURN (SYMBOL)							
R3-3	36X36	9.00						NO TURNS							
R3-4	48X48	16.00						NO U-TURN (SYMBOL)							
R3-7L	30X30	6.25						LEFT LANE MUST TURN LEFT							
R3-7R	30X30	6.25						RIGHT LANE MUST TURN RIGHT							
R4-1	36X48	12.00						DO NOT PASS							
R4-2	36X48	12.00						PASS WITH CARE							
R4-7a	36X48	12.00						KEEP RIGHT (HORIZONTAL ARROW)							
R4-8a	36X48	12.00						KEEP LEFT (HORIZONTAL ARROW)							
R5-1	30X30	6.25						DO NOT ENTER							
R5-1a	36X24	6.00						WRONG WAY							
R6-1L	54X18	6.75						ONE WAY ARROW (LEFT)							
R6-1R	54X18	6.75						ONE WAY ARROW (RIGHT)							
R6-2L	24X30	5.00						ONE WAY (LEFT)							
R6-2R	24X30	5.00						ONE WAY (RIGHT)							
R9-9	24X12	2.00						SIDEWALK CLOSED							
								SIDEWALK CLOSED AHEAD, (ARROW LEFT) CROSS HERE							
R9-11L	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW RIGHT) CROSS HERE							
R9-11R	24X18	3.00						STOP HERE ON RED (45° ARROW)							
R10-6	24X36	6.00						ROAD CLOSED							
R11-2	48X30	10.00						ROAD CLOSED XX MILES AHEAD							
R11-3a	60X30	12.50						LOCAL TRAFFIC ONLY							
R11-4	60X30	12.50						ROAD CLOSED TO THRU TRAFFIC							
CONST-3A	60X48	20.00						FINE SIGN							
CONST-3X	56X12	4.67						SPEEDING/PASSING (PLATE)							
MISCELLANEOUS SIGNS															
CONST-5	48X36	12.00						POINT OF PRESENCE							
CONST-5	96X48	32.00						POINT OF PRESENCE							
CONST-8	48X36	12.00						WORK ZONE NO PHONE ZONE							

MOBILIZATION
FOR BRIDGE NO. A1501

TOTAL = 1 LUMP SUM

LUMP SUM TEMPORARY TRAFFIC
CONTROL FOR BRIDGE NO. A1501

TOTAL = 1 LUMP SUM



DATE PREPARED
7/30/2024

ROUTE 1-64	STATE MO
DISTRICT SL	SHEET NO. 2

COUNTY

ST. LOUIS CITY

JOB NO.
JST0071

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A150119/A150120

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION



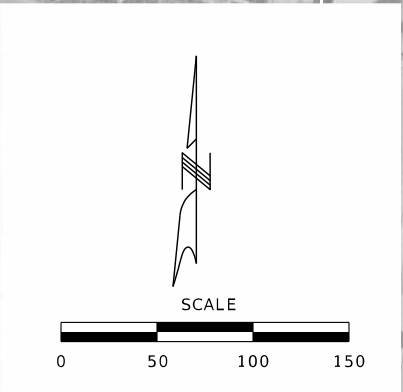
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-273-6636)



5220 Oakland Avenue
St. Louis, MO 63110
314.863.5570

CIVIL DESIGN, INC.
WBE / DBE
Missouri State Certificate of Authority #2002006804

NOTE: PARKING LOT CLOSURE, ELEVATED
ROADWAY TO REMAIN OPEN



DATE PREPARED
7/30/2024

ROUTE 1-64 STATE MO

DISTRICT SL SHEET NO. 3

COUNTY ST. LOUIS CITY

JOB NO. JST0071

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A150119/A150120

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

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

5220 Oakland Avenue
St. Louis, MO 63110
314.863.5570

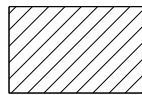
CIVIL DESIGN, INC.
WBE / DBE
Missouri State Certificate of Authority #2002006804

LEGEND



W020-3

(20)



WORK AREA



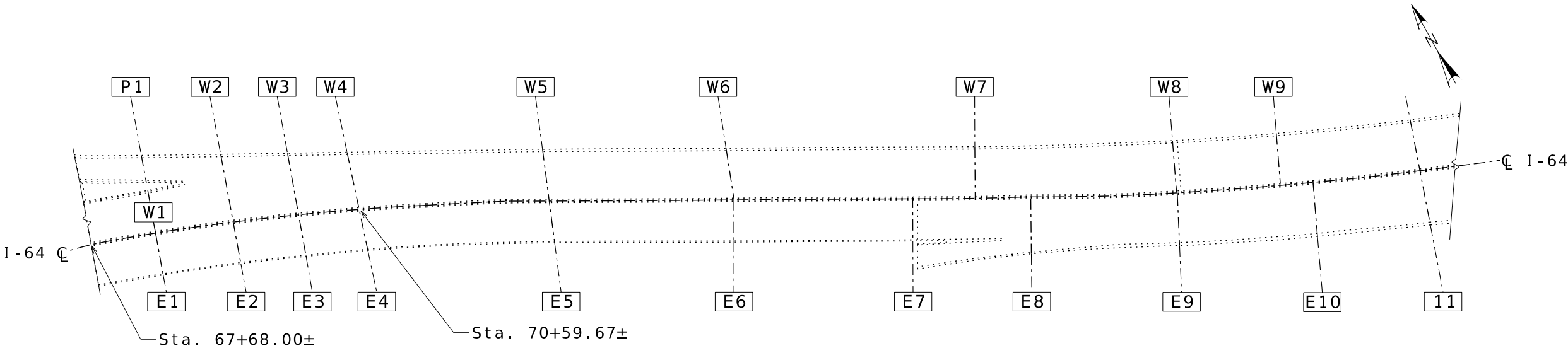
TYPE 3 MOVABLE BARRICADE

TYPE 3 BARRICADE (TYP.)

TYPE 3 BARRICADE (TYP.)

TRAFFIC CONTROL
SHEET 1 OF 1

Repair Existing (195'-3 1/4" - 191'-2 1/4" - 188'-3") EB ☿ Continuous Welded 2-Girder Spans
Repair Existing (199'-11" - 194'-1 1/2" - 258'-0 1/2" - 211'-9") WB ☿ Continuous Welded 2-Girder Spans



LOCATION SKETCH SHOWING PIER NUMBERING

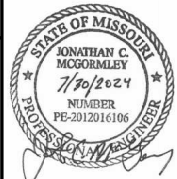
INDEX OF SHEETS

- 1. Location Plan and Sheet List
- 2. General Notes and Summary of Quantities
- 3. Location of Structural Steel Repairs - Eastbound
- 4. Location of Structural Steel Repairs - Westbound

LOCATION PLAN AND SHEET LIST

Sheet No. 1 of 4

REPAIRS TO BRIDGE:
ROUTE I-64 (E.B.L.& W.B.L.)
ROUTE I-64 FROM 22nd St TO 14th St
BEG.STA. 67+68.00+/- (MATCH EXISTING)



THIS SHEET HAS BEEN
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DATED ELECTRONICALLY

DATE PREPARED
7/30/2024

ROUTE I-64	STATE MO
DISTRICT BR	SHEET NO. 1

COUNTY
ST. LOUIS CITY

JOB NO.
JST0071

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A150119/A150120

DESCRIPTION	DESIGN DRAWINGS	DATE	6/21/24				

MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

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

ENGINEERS
ARCHITECTS
MATERIALS SCIENTISTS

WJE

Wiss, Janney, Elstner Associates, Inc.
330 Pfingsten Road
Northbrook, Illinois 60062
847.272.7400 tel | 847.291.9599 fax
www.wja.com

Estimated Quantities for A150119			
Item	Unit	Superstr.	Total
Surface Preparation for Recoating Structural Steel	lump sum	1	1
Field Application of Organic Zinc Primer	lump sum	1	1
Finish Field Coat - A150119, A150120	lump sum	1	1
Weld Inspection	each	6	6
Defect Removal	each	2	2
Longitudinal Stiffener Retrofit	each	6	6

Estimated Quantities for A150120			
Item	Unit	Superstr.	Total
Surface Preparation for Recoating Structural Steel	lump sum	1	1
Field Application of Organic Zinc Primer	lump sum	1	1
Finish Field Coat	lump sum	1	1
Weld Inspection	each	15	15
Defect Removal	each	3	3
Longitudinal Stiffener Retrofit	each	12	12
Web Gap Grinding	each	3	3

GENERAL NOTES:

ORIGINAL DESIGN SPECIFICATIONS:
1961 AASHO Standard Specifications for Highway Bridges with 1961-1964 Interims

DESIGN SPECIFICATIONS:
2002 AASHTO Standard Specifications for Highway Bridges (17th Edition)

DESIGN LOADING:
HS20-44 with Alternate Military Loading (Original)

LOCATE WELDS:
Contractor shall locate web plate butt welds prior to commencing work.

WELD INSPECTION:
All existing welds identified on the drawings for inspection shall be cleaned of existing coating in the regions of the longitudinal stiffener on both sides of the girder web plate prior to inspection. Work to be paid under the contract unit price for Surface Preparation for Recoating Structural Steel. Any additional cleaning and surface preparation necessary to recoat the existing steel after the inspection will be considered completely covered by the contract unit price for Surface Preparation for Recoating Structural Steel.

NON-DESTRUCTIVE TESTING:
All non-destructive testing shall be performed by an ASNT certified Level II or Level III MT and UT inspector. Non-destructive testing procedures to be prepared by an ASNT certified Level III MT and UT inspector. Contractor to submit certifications prior to starting work.

LONGITUDINAL STIFFENER RETROFIT:
The following shall apply when retrofitting the longitudinal stiffeners at butt welds:
1. Flame-cutting or plasma-arc cutting will not be permitted
2. Inspect the ground surfaces of the web plate after installing retrofit using MT on near side and UT on the opposite side of the web plate
3. Remove any remaining defect by coring a hole through the web plate and grinding smooth. Consult the engineer prior to removing web material. See JSP for additional requirements.

RECOATING EXISTING STEEL:
Protective Coating: In accordance with Sec 1081 as modified herein, per the Longitudinal Stiffener Retrofit JSP, and locations shown on plans.

Surface Preparation: Surface preparation of the existing steel shall be in accordance with Sec 1081 for Recoating of Structural Steel and as modified herein. The cost of surface preparation will be considered completely covered by the contract lump sum price for Surface Preparation for Recoating Structural Steel.

Prime Coat: The cost of the prime coat will be considered completely covered by the contract lump sum price for Field Application of Organic Zinc Primer. Tint of the prime coat shall be similar to the color of the finish field coat to be used.

Field Coats: The color of the finish field coat shall match existing. The cost of the finish field coat will be considered completely covered by the lump sum price for Finish Field Coat.

Complete recoating in accordance with the following procedure:

- At all weld inspection locations where the coating has been removed,
 - Prepare surfaces in accordance with SSPC SP1.
 - Test for chloride content on surfaces to be painted using a Surface Chloride Test Kit (such as Chlor*test or as recommended by the coating manufacturer). If chloride contamination is greater than the coating manufacturer's maximum permissible surface chloride concentration. Remove the chloride.
- Mask transition surfaces 4 to 8 inches around the outside perimeter of the repair area.
 - Use methods of SSPC-SP2 and SSPC-SP3 over 100% of the transition adjacent to the repair area to remove all loose and poor to marginally bonded existing coating.
 - Feather edges of existing coating 2 to 4 inches for a smooth transition to the exposed steel of the repair area in accordance with SSPC-PA1.
 - Assure that all coating surfaces in the transition area are thoroughly and uniformly roughened to the degree required by the coating manufacturer.
 - Prepare all exposed steel substrate of the repair area and at the transition in accordance with SSPC-SP11.

- Apply prime coat and finish field coat using the products listed in the table below.
 - Apply prime coat to properly prepared steel substrate in accordance with the coating manufacturer's directions.
 - Prime coat (organic zinc-rich primer) application may overlap prepared existing zinc-primer but shall not overlap the existing epoxy intermediate coat and polyurethane finish coat unless directed otherwise by the coating manufacturer in writing and approved by the engineer.
 - Apply the finish field coat to primed steel substrate and to properly prepared, firm, and intact existing coatings at the transition areas in accordance with the coating manufacturer's directions.
 - Apply finish field coat and blend in with existing.
 - Follow manufacturer's written instructions for recoat times for all coatings.

Coating	Product	Dry Film Thickness(mils)
Primer	Zinc Clad 4100	3.0 to 5.0
Finish Coat	Sher-Loxane 800	4.0 to 6.0

TRAFFIC CONTROL:
Traffic to be maintained on structure during construction. Contractor to coordinate access under the bridge with the following:

Tony Bure: St Louis Union Station Property Manager.
636-248-8629 tbure@stlouisunionstationhotel.com

Daniel Dewes: Union Station Railroad Operations.
314-578-0505 ddewes@aol.com

Tim Kenner: Mechanical Superintendent Amtrak St Louis.
314-780-4723 timothy.kenner@amtrak.com

Benjamin Kenner: Amtrak Road Foreman benjamin.kenner@amtrak.com

MISCELLANEOUS:
Outline of existing work is indicated by light dashed lines. Heavy lines indicate new work.

All existing dimensions shown were taken from as-built drawings, shop drawings or limited field measurements.

Longitudinal dimensions are based on original design plans.



THIS SHEET HAS BEEN
SIGNED, SEALED AND
DATED ELECTRONICALLY

DATE PREPARED 7/30/2024	
ROUTE 1-64	STATE MO
DISTRICT BR	SHEET NO. 2
COUNTY ST. LOUIS CITY	
JOB NO. JST0071	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A150119/A150120	

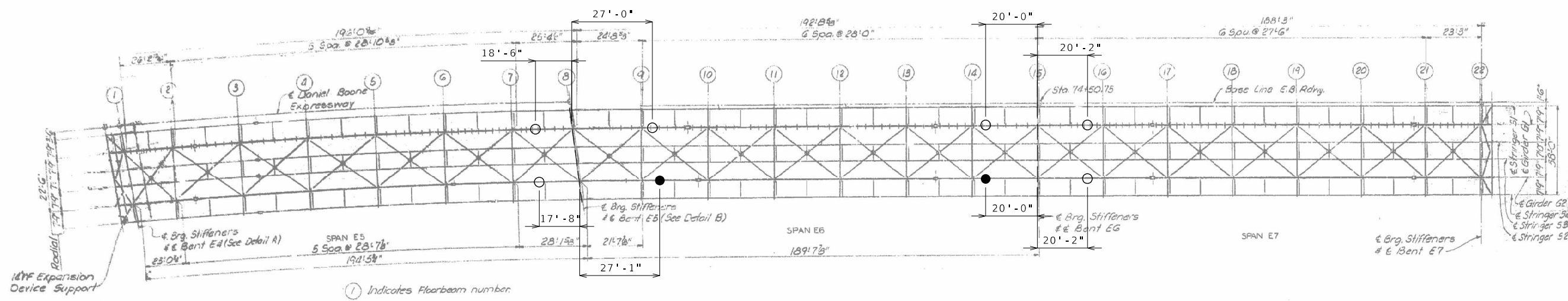
DESCRIPTION	DATE	DESIGN	DRAWINGS						
	6/21/24								

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

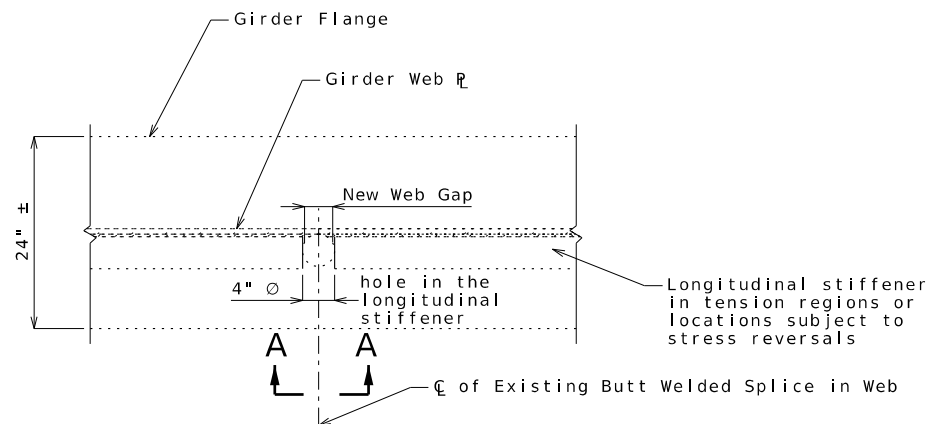
ENGINEERS
ARCHITECTS
MATERIALS SCIENTISTS

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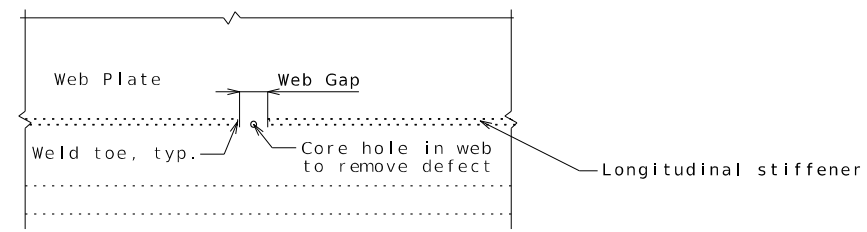


Key:
Longitudinal Stiffener Retrofit ○
Completed Longitudinal Stiffener Retrofit (By Others) ●

EASTBOUND FRAMING PLAN



LONGITUDINAL SECTION VIEW THRU GIRDER



VIEW A-A
(Showing Defect Removal Detail)

- Longitudinal Stiffener Retrofit Procedure:
1. Remove coating in a 2 foot square region of the web plate on both sides of the web centered with the butt weld and aligned with the longitudinal stiffener.
 2. Verify width of butt weld in girder web plate using Eddy Current.
 3. Core a 4 inch minimum diameter hole, with vertical alignment positioned directly against web plate and centered with butt weld. Size core such that width of butt weld does not exceed 2/3 the diameter of the core. This step not required for Web Gap Grinding Retrofit.
 4. Remove material between core and girder web plate by grinding. Provide a clear gap between longitudinal stiffener terminations equal to the width of the butt weld. Polish ground and cut surfaces to Ra=500 μ-inch or less.
 5. Clean all steel surfaces of any cutting oils or contaminants.
 6. Inspect ground web plate area for defects or cracks using magnetic particle (MT) methods. Inspect from the opposite side of the web using UT.
 7. If a defect is detected, grind butt weld up to 1/8 inch to remove defect and retest.
 8. Defects remaining after grinding are to be removed by using a core sized to remove the defect from the web.
 9. Apply new coating where existing coating was disturbed.

LOCATION OF STRUCTURAL STEEL REPAIRS - EASTBOUND

Detailed June, 2024
Checked July, 2024 Note: This drawing is not to scale. Follow dimensions.

Sheet No. 3 of 4

STATE OF MISSOURI
KONATHAN C. MCGORMLEY
7/30/2024
NUMBER
PE-2012016106

THIS SHEET HAS BEEN
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DATE PREPARED
7/30/2024

ROUTE
1-64

STATE
MO

DISTRICT
BR

SHEET NO.
3

COUNTY
ST. LOUIS CITY

JOB NO.
JST0071

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A150119/A150120

DESCRIPTION
DESIGN DRAWINGS

DATE
6/21/24

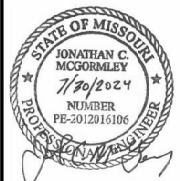
MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

105 WEST CAPITOL
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ENGINEERS
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847.272.7400 tel | 847.291.9599 fax
www.wje.com

REV. RevDesc



THIS SHEET HAS BEEN
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DATE PREPARED
7/30/2024

ROUTE STATE
1-64 MO

DISTRICT SHEET NO.
BR 4

COUNTY
ST. LOUIS CITY

JOB NO.
JST0071

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A150119/A150120

DESCRIPTION
DESIGN DRAWINGS

DATE
6/21/24

MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

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

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Northbrook, Illinois 60062
847.272.7400 tel | 847.291.9599 fax
www.wja.com

REV. RevDesc

1:13:35 PM 9/20/2024

18'-11"

28'-11"

27'-1"

27'-0"

18'-11"

28'-11"

27'-1"

27'-0"

18'-11"

28'-11"

27'-1"

27'-0"

18'-11"

28'-11"

27'-1"

27'-0"

18'-11"

28'-11"

27'-1"

27'-0"

18'-11"

28'-11"

27'-1"

27'-0"

18'-11"

28'-11"

27'-1"

27'-0"

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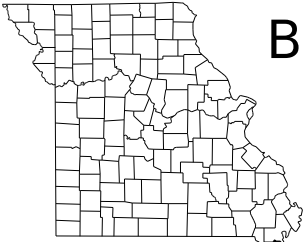
27'-1"

DESIGN DESIGNATION

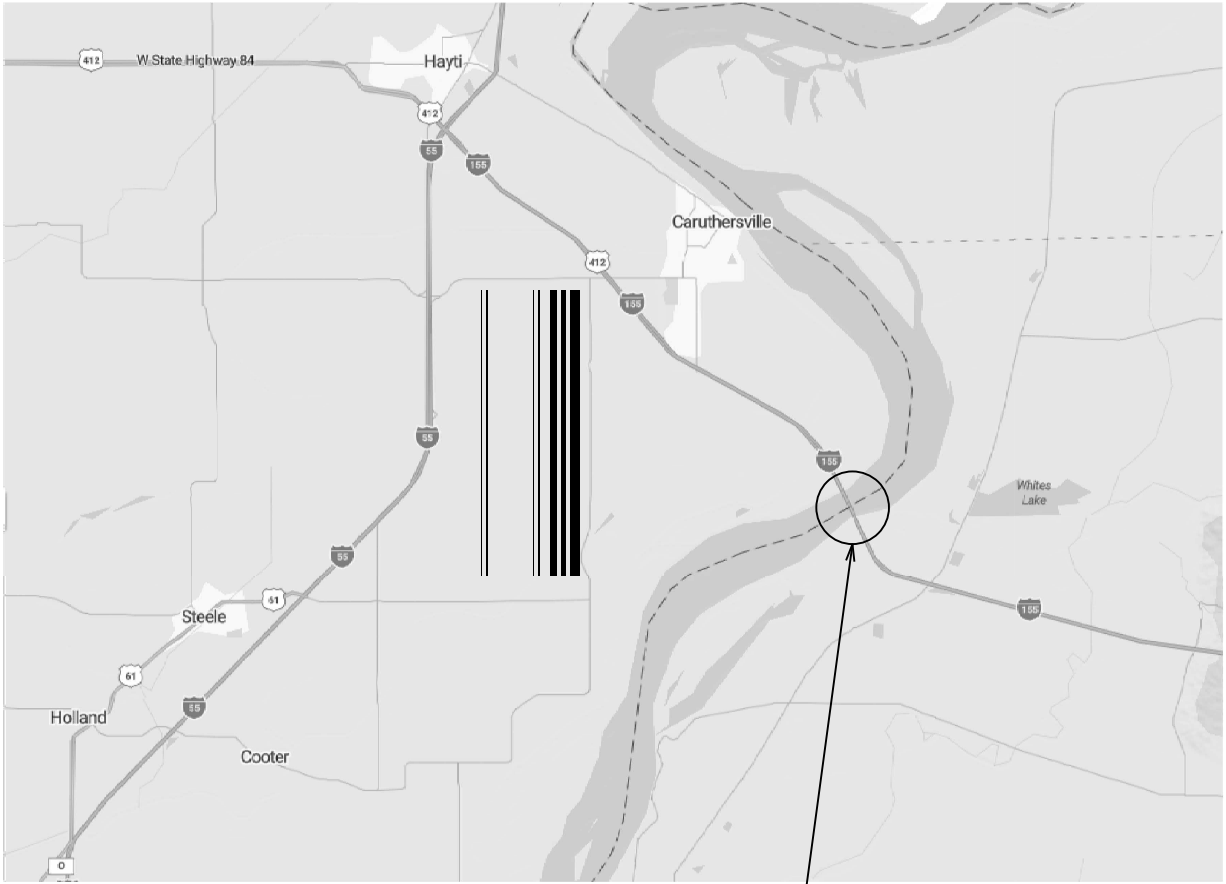
A.A.D.T. - 2023 = 13360
D.H.V. = 10%
T = 34%
V = 70 M.P.H.
D = 50%

FUNCTIONAL CLASSIFICATION- INTERSTATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
PLANS FOR PROPOSED
STATE HIGHWAY
BRIDGE A1700 T-1 STEEL BRIDGE
REHABILITATION



KEY MAP
LOCATION OF PEMISCOT COUNTY



BRIDGE A1700
(I-155 OVER MISSISSIPPI RIVER)

NOTE: MAP NOT TO SCALE

THE EXISTENCE AND APPROXIMATE LOCATION OF UTILITY FACILITIES KNOWN TO EXIST, AS SHOWN ON THE PLANS, ARE BASED ON THE BEST INFORMATION AVAILABLE TO THE COMMISSION AT THIS TIME. THIS INFORMATION IS PROVIDED BY THE COMMISSION "AS-IS" AND THE COMMISSION EXPRESSLY DISCLAIMS ANY REPRESENTATION OR WARRANTY AS TO THE COMPLETENESS, ACCURACY, OR SUITABILITY OF THE INFORMATION FOR ANY USE. RELIANCE UPON THIS INFORMATION IS DONE AT THE RISK AND PERIL OF THE USER, AND THE COMMISSION SHALL NOT BE LIABLE FOR ANY DAMAGES THAT MAY ARISE FROM ANY ERROR IN THE INFORMATION. IT IS, THEREFORE, THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXISTENCE, LOCATION AND STATUS OF ANY FACILITY. SUCH VERIFICATION INCLUDES DIRECT CONTACT WITH THE LISTED UTILITIES.

INDEX OF SHEETS

DESCRIPTION	SHEET NUMBER
TITLE SHEET	1
QUANTITIES (2 SHEETS).....	2
TRAFFIC CONTROL SHEETS	3-4
BRIDGE DRAWINGS (B)	
A1700.....	1-12



DATE PREPARED 8/1/2024	
ROUTE 1-155	STATE MO
DISTRICT SE	SHEET NO. 1
COUNTY PEMISCOT	
JOB NO. JST0071	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A17006	

DESCRIPTION	DATE

LENGTH OF PROJECT

BEGINNING OF PROJECT	M.M. 10.25
END OF PROJECT	M.M. 11.60
APPARENT LENGTH	7130 FEET
EQUATIONS AND EXCEPTIONS:	

TOTAL CORRECTIONS	0 FEET
NET LENGTH OF PROJECT	7130 FEET
STATE LENGTH	1.35 MILES
FOR INFORMATION ONLY ESTIMATED DISTURBED ACRES	0 ACRES

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

5220 Oakland Avenue
St. Louis, MO 63110
314.863.5570

CIVIL DESIGN, INC.
WBE / DBE
Missouri State Certificate of Authority #2002006804

STATE OF MISSOURI

PROFESSIONAL ENGINEER

ELENA T. WISE

NUMBER PB-2014015051

DATE PREPARED

8/1/2024

ROUTE

I - 155

DISTRICT

SE

STATE

MO

SHEET NO.

2

COUNTY

PEMISCOT

JOB NO.

JST0071

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

A17006

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

5220 Oakland Avenue St. Louis, MO 63110 314.863.5570

CIVIL DESIGN, INC. WBE / DBE

Missouri State Certificate of Authority #2002006804

SIGN

SIZE

AREA

QTY

TOTAL

QTY

TOTAL

SIGN

IN.

SQ. FT.

EACH

SQ. FT.

EACH

SQ. FT.

NUM.

WARNING SIGNS

DESCRIPTION

WO1-1L

48X48

16.00

TURN (SYMBOL LEFT)

WO1-1R

48X48

16.00

TURN (SYMBOL RIGHT)

WO1-2L

48X48

16.00

CURVE (SYMBOL LEFT)

WO1-2R

48X48

16.00

CURVE (SYMBOL RIGHT)

WO1-3L

48X48

16.00

REVERSE TURN (SYMBOL LEFT)

WO1-3R

48X48

16.00

REVERSE TURN (SYMBOL RIGHT)

WO1-4L

48X48

16.00

REVERSE CURVE (SYMBOL LEFT)

WO1-4R

48X48

16.00

REVERSE CURVE (SYMBOL RIGHT)

WO1-4bL

48X48

16.00

DOUBLE ARROW REVERSE CURVE (SYMBOL LEFT)

WO1-4bR

48X48

16.00

DOUBLE ARROW REVERSE CURVE (SYMBOL RIGHT)

WO1-4cL

48X48

16.00

TRIPLE ARROW REVERSE CURVE (SYMBOL LEFT)

WO1-4cR

48X48

16.00

TRIPLE ARROW REVERSE CURVE (SYMBOL RIGHT)

WO1-6

60X30

12.50

HORIZONTAL ARROW (SYMBOL)

WO1-6a

72X36

18.00

HORIZ. ARROW (SYMBOL ON PERMANENT BARRICADE)

WO1-7

60X30

12.50

DOUBLE HEAD HORIZONTAL ARROW (SYMBOL)

WO1-7a

72X36

18.00

DOUBLE HEAD HORIZ. ARROW (SYMBOL ON PERM. BARR.)

WO1-8

18X24

3.00

CHEVRON (SYMBOL)

WO1-8a

30X36

7.50

CHEVRON (SYMBOL FOR DIVIDED HIGHWAYS)

WO3-1

48X48

16.00

STOP AHEAD (SYMBOL)

WO3-2

48X48

16.00

YIELD AHEAD (SYMBOL)

WO3-3

48X48

16.00

SIGNAL AHEAD (SYMBOL)

WO3-4

48X48

16.00

BE PREPARED TO STOP

WO3-5

48X48

16.00

SPEED LIMIT AHEAD

WO4-1L

48X48

16.00

MERGE (SYMBOL FROM LEFT)

WO4-1R

48X48

16.00

MERGE (SYMBOL FROM RIGHT)

WO4-1aL

48X48

16.00

MERGE (LEFT)

WO4-1aR

48X48

16.00

MERGE (RIGHT)

WO5-1

48X48

16.00

ROAD/BRIDGE/RAMP NARROWS

WO5-3

48X48

16.00

ONE LANE BRIDGE

WO5-5

48X48

16.00

NARROW LANES

WO6-1

48X48

16.00

DIVIDED HIGHWAY (SYMBOL)

WO6-2

48X48

16.00

DIVIDED HIGHWAY END (SYMBOL)

WO6-3

48X48

16.00

TWO WAY TRAFFIC (SYMBOL)

WO7-3a

30X24

5.00

NEXT XX MILES (PLAQUE)

WO8-1

48X48

16.00

BUMP

WO8-2

48X48

16.00

DIP

WO8-3

48X48

16.00

PAVEMENT ENDS

WO8-4

48X48

16.00

SOFT SHOULDER

WO8-5

48X48

16.00

SLIPPERY WHEN WET (SYMBOL)

WO8-6

48X48

16.00

TRUCK CROSSING

WO8-6c

48X48

16.00

TRUCK ENTRANCE

WO8-7

36X36

9.00

LOOSE GRAVEL

WO8-7a

36X36

9.00

FRESH OIL / LOOSE GRAVEL

WO8-9

48X48

16.00

LOW SHOULDER

WO8-11

48X48

16.00

UNEVEN LANES

WO8-12

48X48

16.00

NO CENTER LINE

WO8-15

48X48

16.00

GROOVED PAVEMENT

WO8-15P

30X24

5.00

MOTORCYCLE (PLAQUE)

WO8-17L

48X48

16.00

SHOULDER DROP-OFF (SYMBOL LEFT)

WO8-17R

48X48

16.00

SHOULDER DROP-OFF (SYMBOL RIGHT)

WO8-17P

30X24

5.00

SHOULDER DROP-OFF (PLAQUE)

WO10-1

42RND.

9.62

RAILROAD CROSSING

WO12-1

24X24

4.00

DOUBLE DOWN ARROW (SYMBOL)

WO12-2

48X48

16.00

LOW CLEARANCE (SYMBOL)

WO12-2x

24X18

3.00

LOW CLEARANCE (PLAQUE)

WO12-2a

84X24

14.00

OVERHEAD LOW CLEARANCE (FEET AND INCHES)

WO12-4

120X60

50.00

LOW CLEARANCE XX FT XX IN XX MILES AHEAD

WO12-5

120X60

50.00

WIDTH RESTRICTION XX FT XX IN XX MILES AHEAD

WO13-1

30X30

6.25

ADVISORY SPEED (PLAQUE)

WO16-2

30X24

5.00

XXX FEET (PLAQUE)

WO16-3

30X24

5.00

X MILE (PLAQUE)

WO20-1

48X48

16.00

ROAD/BRIDGE/RAMP WORK AHEAD

WO20-2

48X48

16.00

DETOUR AHEAD

WO20-3

48X48

16.00

ROAD CLOSED AHEAD

WO20-4

48X48

16.00

ONE LANE ROAD AHEAD

WO20-5

48X48

16.00

RIGHT/CENTER/LEFT LANE CLOSED AHEAD

WO20-5a

48X48

16.00

2 RIGHT/CENTER/LEFT LANES CLOSED AHEAD

WO20-6a

48X48

16.00

RIGHT/CENTER/LEFT LANE CLOSED

WO20-7a

48X48

16.00

FLAGGER (SYMBOL)

WO21-2

36X36

9.00

FRESH OIL

WO21-5

48X48

16.00

SHOULDER WORK / SHOULDER WORK AHEAD

WO22-1

48X48

16.00

BLASTING ZONE AHEAD

WO22-2

42X36

10.50

TURN OFF 2-WAY RADIO AND PHONE

WO22-3

42X36

10.50

END BLASTING ZONE

GO22-1

21X15

2.19

WET PAINT (ARROW PIVOTS)

SIGN

SIZE

AREA

QTY

TOTAL

QTY

TOTAL

SIGN

IN.

SQ. FT.

EACH

SQ. FT.

EACH

SQ. FT.

NUM.

GUIDE SIGNS

DESCRIPTION

E05-1

36X48

12.00

GORE EXIT

E05-2

48X36

12.00

EXIT OPEN

E05-2a

48X36

12.00

EXIT CLOSED

GO20-1

60X24

10.00

ROAD WORK NEXT XX MILES

GO20-2

48X24

8.00

4

32.00

2

END ROAD WORK

GO20-4

36X18

4.50

PILOT CAR FOLLOW ME

GO20-4a

42X30

8.75

PILOT CAR IN USE WAIT & FOLLOW

GO20-4a

18X12

1.50

PILOT CAR IN USE WAIT & FOLLOW

GO20-5aP

36X24

6.00

2

12.00

54

WORK ZONE (PLAQUE)

MO4-8a

24X18

3.00

END DETOUR

MO4-9L

48X36

12.00

DETOUR (LEFT)

MO4-9R

48X36

12.00

DETOUR (RIGHT)

MO4-9P

48X12

4.00

STREET NAME (PLAQUE)

MO4-10L

48X18

6.00

DETOUR ARROW (LEFT)

MO4-10R

48X18

6.00

DETOUR ARROW (RIGHT)

REGULATORY SIGNS

DESCRIPTION

R1-1

48X48

13.25

STOP

R1-2

48TRI

6.93

YIELD

R1-2a

36X36

9.00

TO ONCOMING TRAFFIC (PLAQUE)

R1-3P

30X12

2.50

ALL WAY (PLAQUE)

R2-1

36X48

12.00

4

48.00

4

SPEED LIMIT 60

R3-1

48X48

16.00

NO RIGHT TURN (SYMBOL)

R3-2

48X48

16.00

NO LEFT TURN (SYMBOL)

R3-3

36X36

9.00

NO TURNS

R3-4

48X48

16.00

NO U-TURN (SYMBOL)

R3-7L

30X30

6.25

LEFT LANE MUST TURN LEFT

R3-7R

30X30

6.25

RIGHT LANE MUST TURN RIGHT

R4-1

36X48

12.00

DO NOT PASS

R4-2

36X48

12.00

PASS WITH CARE

R4-7a

36X48

12.00

KEEP RIGHT (HORIZONTAL ARROW)

R4-8a

36X48

12.00

KEEP LEFT (HORIZONTAL ARROW)

R5-1

30X30

6.25

DO NOT ENTER

R5-1a

36X24

6.00

WRONG WAY

R6-1L

54X18

6.75

ONE WAY ARROW (LEFT)

R6-1R

54X18

6.75

ONE WAY ARROW (RIGHT)

R6-2L

24X30

5.00

ONE WAY (LEFT)

R6-2R

24X30

5.00

ONE WAY (RIGHT)

R9-9

24X12

2.00

SIDEWALK CLOSED

R9-11L

24X18

3.00

SIDEWALK CLOSED AHEAD, (ARROW LEFT) CROSS HERE

R9-11R

24X18

3.00

SIDEWALK CLOSED AHEAD, (ARROW RIGHT) CROSS HERE

R10-6

24X36

6.00

STOP HERE ON RED (45° ARROW)

R11-2

48X30

10.00

ROAD CLOSED

R11-3a

60X30

12.50

ROAD CLOSED XX MILES AHEAD

R11-4

60X30

12.50

LOCAL TRAFFIC ONLY

CONST-3A

60X48

20.00

ROAD CLOSED TO THRU TRAFFIC

CONST-3X

56X12

4.67

FINE SIGN

CONST-3X

56X12

4.67

SPEEDING/PASSING (PLATE)

MISCELLANEOUS SIGNS

DESCRIPTION

CONST-5

48X36

12.00

POINT OF PRESENCE

CONST-5

96X48

32.00

POINT OF PRESENCE

CONST-8

48X36

12.00

WORK ZONE NO PHONE ZONE

<

(2) SPACINGS MAY BE ADJUSTED AS NECESSARY TO MEET
FIELD CONDITIONS

LONGITUDINAL BUFFER SPACE	
SPEED (P) MPH	BUFFER SPACE (FEET)
0-35	280
40-45	400
50-55	560
60-70	840

TAPER LENGTH (L)

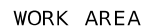
$L = W \times P$ FOR 40 MPH OR MORE

$L = \frac{WP^2}{60}$ FOR 35 MPH OR LESS

L = TAPER LENGTH IN FEET

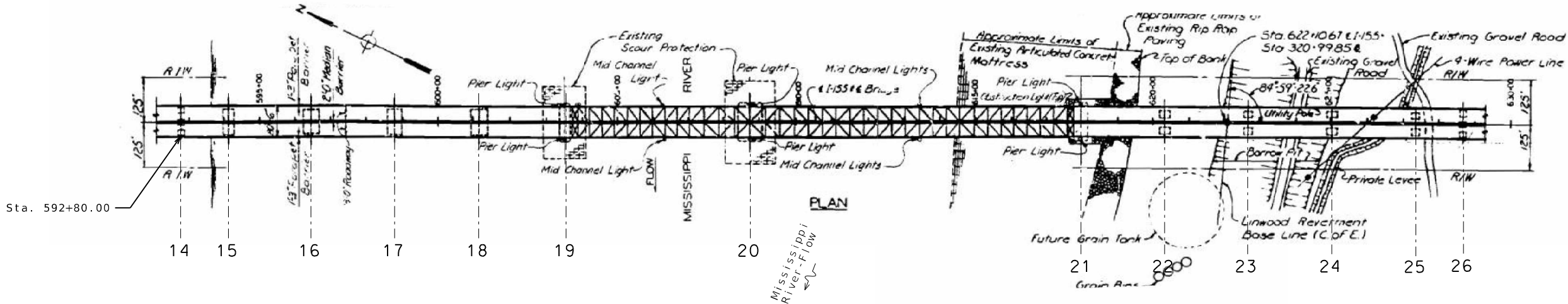
W = LATERAL SHIFT IN FEET

P = POSTED SPEED PRIOR TO ROAD
WORK IN MPH



- LANE CLOSURE
WITH TEMPORARY
TRAFFIC BARRIER
TEMPORARY
TRAFFIC CONTROL
SHEET 2 OF 2

U.I.P. and Repair Existing (132'-4 1/2") Steel Multi-Beam Span
3 @ 234'-11 1/8" - 237'-11") Continuous Two-Plate Girder Spans,
(519'-11 1/4" - 991'-11" Continuous Truss Spans, (237'-11" - 3 @ 234'-11 1/8")
Continuous Two-Plate Girder Spans, (132'-4 1/2") Steel Multi-Beam Span



LOCATION SKETCH SHOWING PIER NUMBERING

INDEX OF SHEETS

1. Location Plan and Sheet List
2. General Notes and Summary of Quantities
3. Location of Structural Steel Repairs - Missouri Approach Spans
4. Location of Structural Steel Repairs - Truss Spans
5. Approach Span Structural Steel Details - Span 15, Pier 16 Bottom Flange Weld Repair
6. Truss Span Structural Steel Details - L34-L36 Weld Repair
7. Truss Span Structural Steel Details - M17-L18 Weld Repair
8. Truss Span Structural Steel Weld Repair Details
9. Structural Steel Details - Bolted Splice Repair Location No.1
10. Structural Steel Details - Bolted Splice Repair Location No.2 (1 of 2)
11. Structural Steel Details - Bolted Splice Repair Location No.2 (2 of 2)
12. Bill of Reinforcing Steel

REPAIRS TO BRIDGE:

ROUTE I-155 OVER MISSISSIPPI RIVER

ROUTE I-155 FROM ROUTE 84 TO DYER COUNTY, TN

ABOUT 3.6 MILES SOUTHEAST OF ROUTE 84

BEG. STATION 592+80.00± (Match Existing)

LOCATION PLAN AND SHEET LIST

Sheet No. 1 of 12

Detailed June, 2024
Checked July, 2024 Note: This drawing is not to scale. Follow dimensions.



THIS SHEET HAS BEEN
SIGNED, SEALED AND
DATED ELECTRONICALLY



THIS SHEET HAS BEEN
SIGNED, SEALED AND
DATED ELECTRONICALLY

DATE PREPARED 7/30/2024	
ROUTE I - 155	STATE MO
DISTRICT BR	SHEET NO. 1
COUNTY PEMI SCOT	
JOB NO. JST0071	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A17006	

DESCRIPTION	DATE
DESIGN DRAWINGS	7/30/24

MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

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

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ARCHITECTS
MATERIALS SCIENTISTS

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www.wje.com

Michael Baker
INTERNATIONAL
200 West Adams St., Suite 1800 Chicago, IL
Phone: (312) 575-3952 • MBAKERINTL.COM

REV. RevDesc

GENERAL NOTES:

Original Design Specifications:
1969 - AASHO Standard Specifications for Highway Bridges

Design Specifications:
2020 - AASHTO LRFD Bridge Design Specifications (9th Edition) (New Construction)
Seismic Design Category = A

Design Loading:
HS20-44 with Alternate Military Loading (Existing and New Construction)

Design Unit Stresses:
Class B-2 Concrete (Superstructure) f'c = 4,000 psi
Reinforcing Steel (Grade 60) fy = 60,000 psi
Structural Steel (ASTM A709 Grade HPS 70W) fy = 70,000 psi

Fabricated Steel Connections:
Field connections shall be made with 1 inch diameter ASTM F3125 Grade A490 Type 3 bolts and 1 1/8 inch diameter holes, except as noted. Holes in existing plates to be match drilled using a template or the actual splice plate unless approved by the engineer. Bolt threads shall be excluded from the shear plane.

REINFORCING STEEL:
Minimum clearance to reinforcing steel shall be 1 1/2 inches unless otherwise shown. MBS refers to mechanical bar splicers. All mechanical bar splicers for the slab modification shall be epoxy coated and in accordance with Sec 710.

LOCATE WELDS:
Contractor shall locate welds prior to commencing work.

WELD INSPECTION:
All existing welds identified on the drawings for inspection shall be cleaned of existing coating prior to inspection under the pay item for Surface Preparation for Recoating Structural Steel. Any additional cleaning and surface preparation necessary to recoat the existing steel after the inspection will be considered completely covered by the contract unit price for Surface Preparation for Recoating Structural Steel.

NON-DESTRUCTIVE TESTING:
All non-destructive testing shall be performed by an ASNT certified Level II or Level III MT and UT inspector. Non-destructive testing procedures to be prepared by an ASNT certified Level III MT and UT inspector. Contractor to submit certifications prior to starting work. See JSP for additional requirements.

FIELD WELDING:
The following shall apply when field welding:
1) Perform weld repairs during permitted weekend closures under stated load restrictions.
2) Use E10018 electrodes for SMAW with an H8 or H4 rating.
3) Practice proper electrode maintenance to maintain low hydrogen conditions.
4) Grind to white metal and completely remove moisture, oil, grease, rust, paint, etc. before welding.
5) Preheat weld a distance of 10 inches transverse to the weld axis to 300 deg. F for at least one hour before welding.
6) Maintain 300 to 400 deg. F interpass temperature (450 deg. F for plate thickness greater than 1 1/2 inches) until entire length of weld has been repaired.
7) Maintain 300 deg. F post-heat after completion of welding for at least 3 hours.

Contractor shall submit and have approved welding procedures for all field welding operations. Procedures shall be prepared by an AWS Certified Welding Inspector.

COATING NEW STEEL (WEATHERING):
Protective Coating: System I in accordance with Sec 1081 and locations shown on plans. Costs for this work to be paid under Structural Steel - Bolted Splice Repair.

Surface Preparation: Surface preparation of the new steel shall be in accordance with Sec 1081 Coating Structural Steel (System I) except as modified herein. The cost of surface preparation will be considered completely covered by the contract unit price per each for Structural Steel - Bolted Splice Repair.

Prime Coat: Tint of the prime coat for System I shall be similar to the color of the finish field coat to be used. The cost of the inorganic zinc-rich prime coat will be considered completely covered by the contract unit price per each for Structural Steel - Bolted Splice Repair Location No. 1 and Structural Steel - Bolted Splice Repair Location No. 2.

Finish Field Coat: The color of the finish field coat shall match existing. The cost of the finish field coat will be considered completely covered by the contract unit price per each for Structural Steel- Bolted Splice Repair Location No. 1 and Structural Steel - Bolted Splice Repair Location No. 2. At the option of the contractor, the finish field coat may be applied in the shop. The contractor shall exercise extreme care during all phases of loading, hauling, handling, erection, and placement of the slab to minimize damage and shall be fully responsible for all repairs and cleaning of the coating systems as required by the engineer.

RECOATING EXISTING STEEL:
All existing steel surfaces to be plated over (faying surfaces only) shall be recoated with one 5.0 mils thick gray organic zinc-rich epoxy primer (see table) applied over a SSPC-SP10 surface preparation in accordance with Sec 1081. Costs for this work to be paid under Strucural Steel - Bolted Splice Repair.

Protective Coating: At all other locations shown on plans (interior and exterior surfaces of plate), apply coating system shown in table.

Surface Preparation: Surface preparation of the existing steel non-faying surfaces shall be in accordance with Sec 1081 for Recoating of Structural Steel and these notes herein. The cost of surface preparation will be considered completely covered by the contract lump sum price for Surface Preparation for Recoating Structural Steel.

Prime Coat: Tint of the prime coat shall be similar to the color of the finish field coat to be used. The cost of the prime coat applied to non-faying surfaces will be considered completely covered by the contract lump sum price for Field Application of Organic Zinc Primer.

Finish Field Finish Coat: The color of the finish field coat applied to non-faying surfaces shall match existing. The cost of the finish field coat will be considered completely covered by the lump sum price for Finish Field Coat.

Complete recoating in accordance with the following procedure:

- At all weld inspection locations where the coating has been removed.
 - Prepare surfaces in accordance with SSPC SP1
 - Test for chloride content on surfaces to be painted using a Surface Chloride Test Kit (such as Chlor*test or as recommended by the coating manufacturer). Test locations shall also include areas immediately adjacent to welds and new welds. If chloride contamination is greater than the coating manufacturer's maximum permissible surface chloride concentration remove the chloride.
- Mask transition surfaces 4 to 8 inches around the outside perimeter of the repair area.
 - Use methods of SSPC-SP2 and SSPC-SP3 over 100% of the transition adjacent to the repair area to remove all loose and poor-to-marginally bonded existing coating.
 - Feather back edges of existing coating 2 to 4 inches to provide a smooth transition between new and existing coatings so that the recoated surface will have a smooth, continuous appearance in accordance with SSPC-PA1.
 - Assure that all coating surfaces in the transition area are thoroughly and uniformly roughened to the degree required by the coating manufacturer.
 - Prepare all exposed steel substrate in the repair area and at the transition accordance with SSPC-SP11.
 - Remove all dust, grinding dust, paint residue, and other debris from surfaces to be painted.
- Apply prime coat and finish field coat using the products listed in the table below.
 - Apply prime coat to properly prepared steel substrate in accordance with the coating manufacturer's directions.
 - Do not overlap organic zinc-rich primer onto existing coatings unless directed otherwise by the coating manufacturer in writing and approved by the engineer.
 - Apply the finish field coat to primed steel substrate and to properly prepared, firm, and intact existing coatings at the transition areas in accordance with the coating manufacturer's directions.
 - Apply finish field coat and blend in with existing.
 - Follow manufacturer's written instructions for recoat times for all coatings.

For the duration of the cleaning and recoating the truss spans, the truss span superstructure in any span shall not be draped with an impermeable surface subject to wind loads for a length any longer than 1/4 the span length at any one time regardless of height of coverage.

Coating	Product	Dry Film Thickness,mils
Prime Coat	Sherwin Williams Zinc Clad 4100	3.0 to 5.0
Finish Field Coat	Sherwin Williams Pro Industrial DTM Acrylic B66-Series	4.0 to 5.0

The existing paint system contains lead. The contractor shall have all necessary licenses and certifications for lead abatement and removal prior to the commencement of cleaning operations as required by the Missouri Department of Health in accordance with Sec 1081.

TRAFFIC CONTROL:
Traffic on structure shall be maintained during construction. See roadway plans for traffic control. Weld repairs to be performed under closures with the right lane closed to traffic. Coordinate retrofit work with Motor Carrier Services by using message boards for 80,000-pound weight limit on trucks during all demolition and construction activities of the bridge superstructure.

RESIN ANCHORS:
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 price for other items.

The minimum embedment depth in concrete with f'c = 4,000 psi for the resin anchor system shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5 inches.

An epoxy coated Grade 60 reinforcing bar shall be substituted for the equally sized threaded rod.

BARS BONDED IN EXISTING CONCRETE:
Bars bonded in existing concrete not removed shall be cleanly stripped and embedded into new concrete where possible. If length is available, existing bars shall be extended into new concrete at least 40 diameters for plain bars and 30 diameters for deformed bars, unless otherwise noted.

MISCELLANEOUS:
This structure contains non-redundant Fracture Critical Members (FCM). FCM requirements shall be in accordance with Sec 1080.

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

All existing dimensions shown were taken from as-built drawings, shop drawings or limited field measurements. Contractor shall verify all dimensions in field before ordering new material.

Longitudinal dimensions are based on original design plans.

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

All reinforcement for the slab modification shall be epoxy coated.

Slab pour shall be considered a closure pour in accordance with Sec 703. Expansive Class B-2 Concrete shall be used in the closure pour.

Slab shall be poured upgrade from end to end at a minimum rate of 25 cubic yards per hour.

Method of forming the slab shall be as shown on the plans and in accordance with Sec 703. All hardware for forming the slab to be left in place as permanent part of the structure shall be coated in accordance with ASTM A123 or ASTM B633.


Form sheets shall not rest on the top of beam flanges. Sheets shall be securely fastened to form supports. Welding on or drilling holes in the beam flanges for formwork will not be permitted. All steel fabrication and construction shall be in accordance with Sec 1080 and 712. Certified field welders will not be required for the welding of form supports.

The design of steel formwork is per manufacturer which shall be in accordance with Sec 703 for falsework and forms. Complete shop drawings of the steel formwork, including steel formwork design and steel formwork support connection calculations, shall be required in accordance with Sec 1080. The cost of the steel formwork will be considered completely covered by the contract unit price per each for Structural Steel- Bolted Splice Repair Location No. 2.


The faying surfaces for new bolted connections and bolted connections between proposed and existing steel shall have a slip coefficient and creep resistance for Class B coatings for specified notes and testing methods in accordance with Sec 1081.

All holes are to be drilled full size or sub-punched and reamed to size.

ESTIMATED QUANTITIES			
Item	Unit	Superstr.	Total
Partial Removal of Existing Bridge Deck	sq. foot	49.0	49.0
Class B-2 Concrete (Superstructure on Steel)	cu. yard	1.4	1.4
Mechanical Bar Splice	each	78	78
Reinforcing Steel (Epoxy Coated)	pound	420	420
Surface Prep. for Recoating Structural Steel	lump sum	1	1
Field Application of Organic Zinc Primer	lump sum	1	1
Finish Field Coat - A17006	lump sum	1	1
Structural Steel - Bolted Splice Repair Loc. No.1	each	1	1
Structural Steel - Bolted Splice Repair Loc. No.2	each	1	1
Weld Inspection	linear foot	10	10
Defect Removal	linear foot	2	2
Weld Repair	linear foot	3	3



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ROUTE I - 155	STATE MO
DISTRICT BR	SHEET NO. 2
COUNTY PEMI SCOT	
JOB NO. JST0071	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A17006	

DATE	DESCRIPTION DESIGN DRAWINGS				
	7/30/24				

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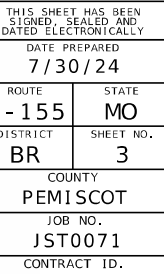


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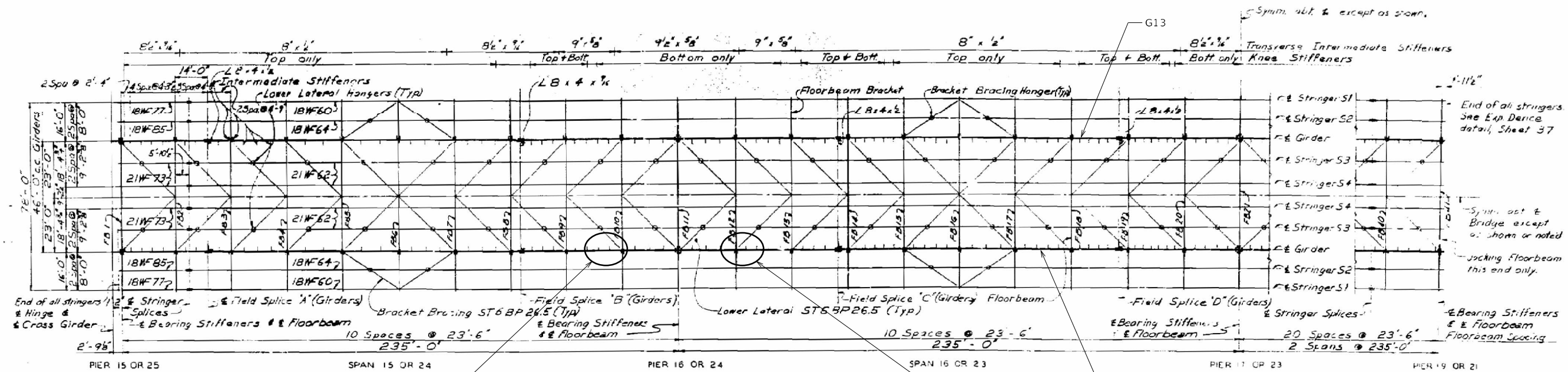
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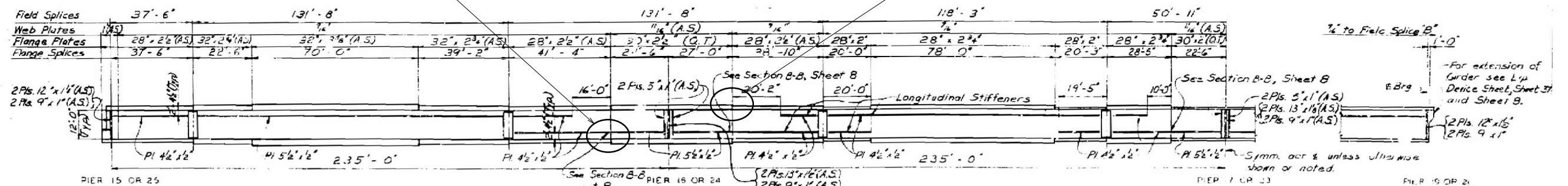

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FRAMING PLAN

All dimensions are measured along grade.

GIRDER ELEVATION

Field Splice Flange Pis. and Intermediate Stiffeners not shown.
All dimensions are measured along grade.
All splices shall be shop splices except as shown.

Retrofit/Repair/Remediation	General Location	Description
4	Span 16, Butt Weld in Top Flange of Built-Up I-Section.	Remove deck, bolt plates across butt weld along top and bottom faces of existing top Flange, Replace Deck
5	Span 15, Butt Weld in Bottom Flange of Built-Up I-Section.	Remove weld at rejectable indications and re-weld.

NOTES:
For Retrofit and Repairs Details, see Sheets No. 10 thru 12.

Temporary Barrier shall be placed 13 feet from Median Barrier measured between traffic facing sides.

① Denotes location of Retrofit or Repair in Approach Spans.

LOCATION OF STRUCTURAL STEEL REPAIRS - MISSOURI APPROACH SPANS

Detailed Jun. 2024
Checked Jun. 2024

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

Sheet No. 3 of 12

\$FILE\$	\$TIME\$	\$DATE\$
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ROUTE STATE
I-155 MO

DISTRICT SHEET NO.
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JOB NO.
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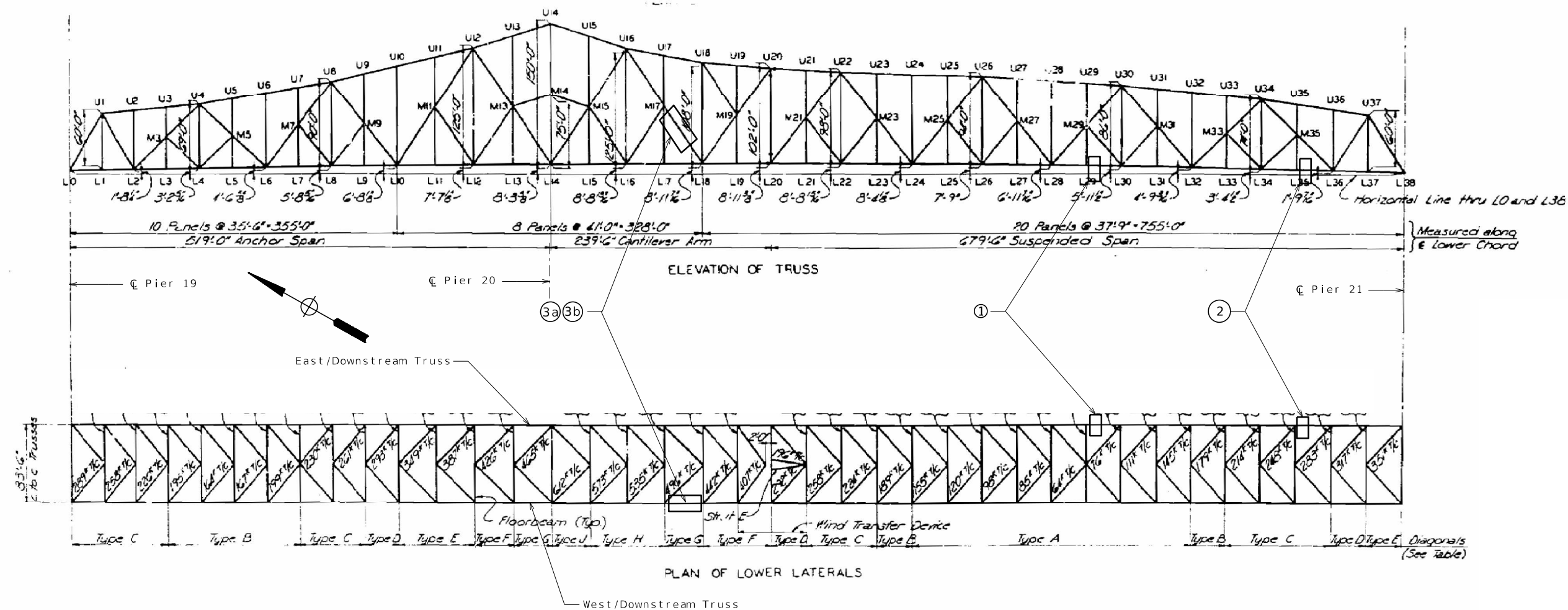
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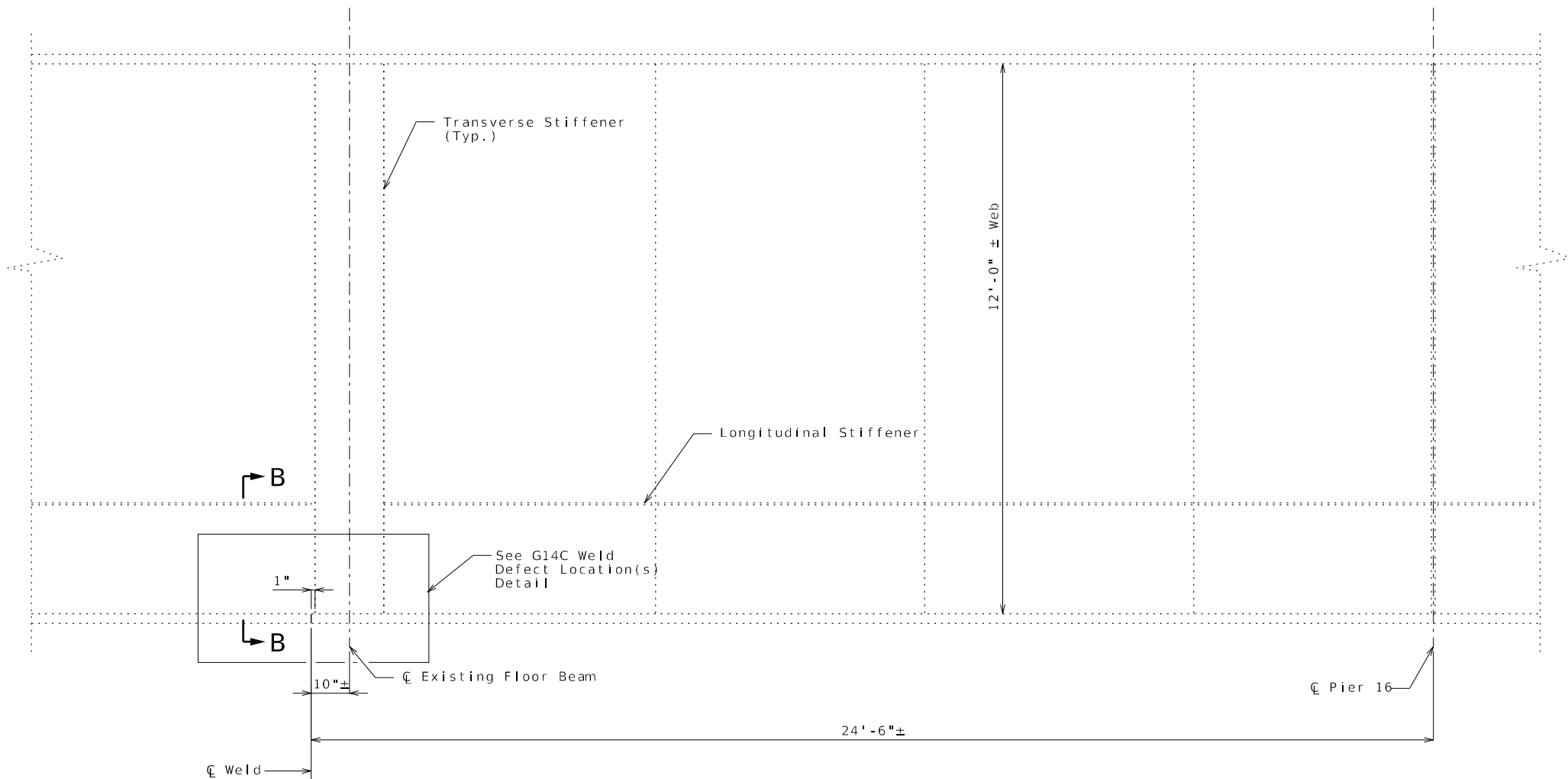
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Retrofit/Repair	General Location	Description
1	Span 20, L29-L30 Member Outboard Web Plate of Built-Up Box Section.	Bolt Plates across butt weld along inner and outer faces of existing Web Plate.
2	Span 20, L35-L36 Member Butt Weld in Outboard Web Plate of Built-Up Box Section.	Remove weld at rejectable indications and re-weld.
3a	Span 20, L18-M17 Member Butt Weld in Outboard Web Plate of Built-Up Box Section.	Remove weld at rejectable indications and re-weld.
3b	Span 20, L18-M17 Member Butt Weld in Top Cover Plate of Built-Up Box Section.	Remove rejectable defect by grinding.

LOCATION OF STRUCTURAL STEEL REPAIRS - TRUSS SPANS

NOTES:
For Retrofit details, see Sheets No. 6 thru 9.
① Denotes location of Retrofit or Repair in Truss Span.



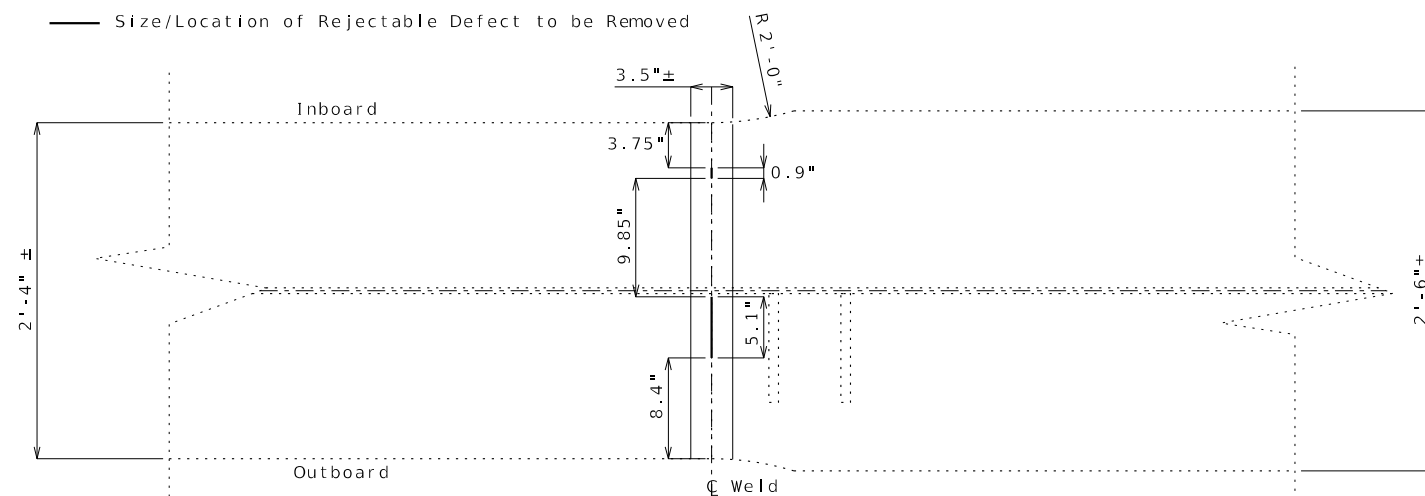
ELEVATION OF MEMBER G14C WEST GIRDER

Downstream Girder (View looking East)

LEGEND:

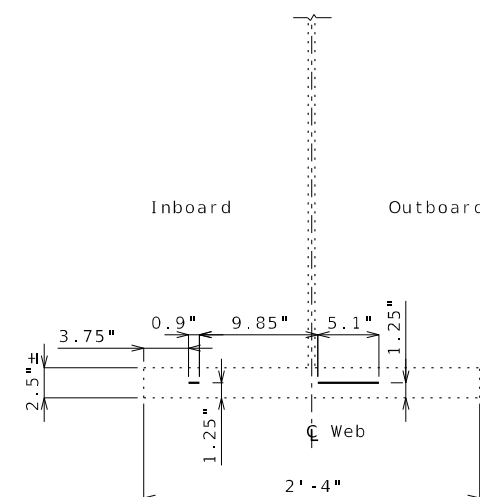
..... Size/Location of Recordable Defect To Remain

—— Size/Location of Rejectable Defect to be Removed



G14C Weld Defect Location(s) Detail

(View looking down)



SECTION B-B

Detailed June, 2024
Checked July, 2024

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

Sheet No. 5 of 12

APPROACH SPANS STRUCTURAL STEEL DETAILS - SPAN 15, PIER 16 BOTTOM FLANGE WELD REPAIR



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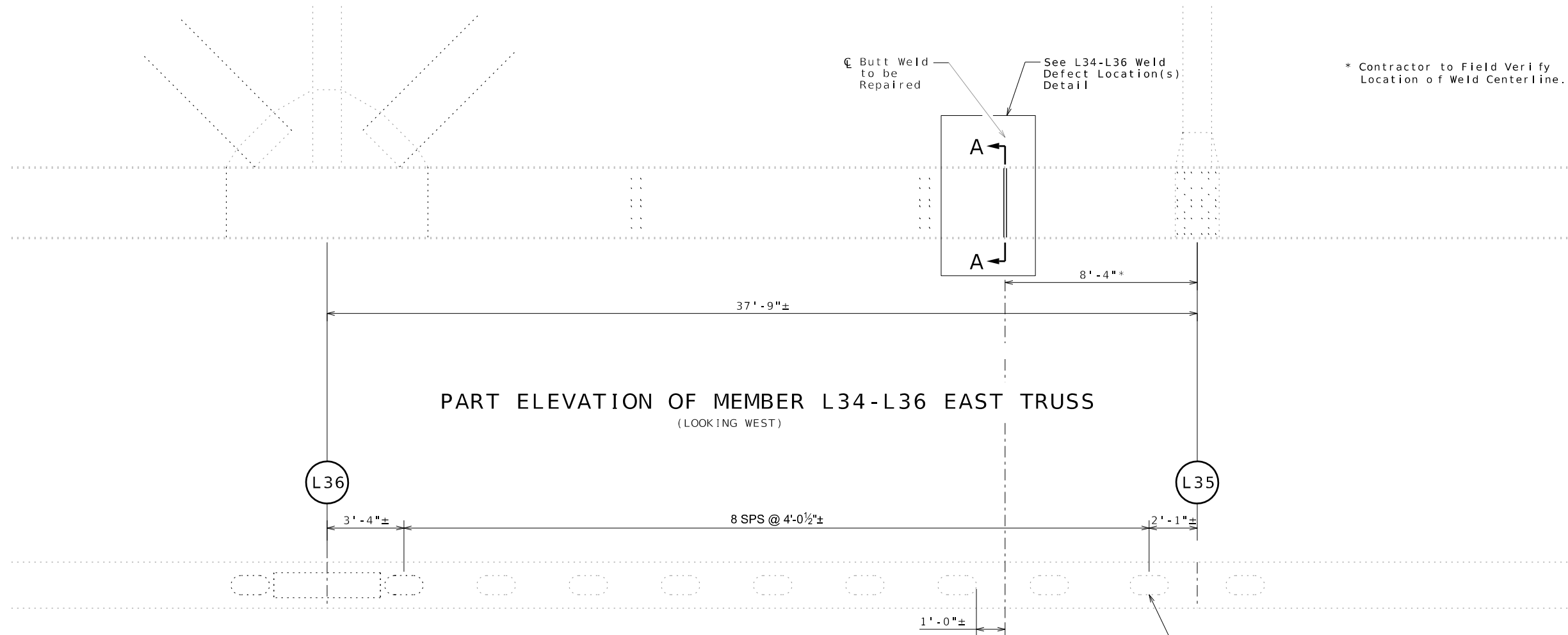
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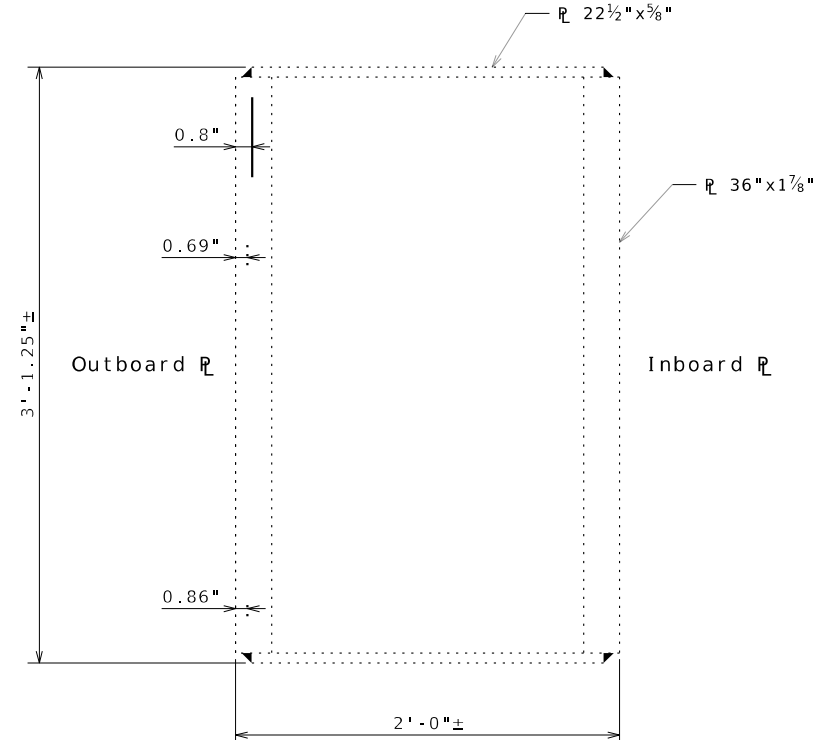
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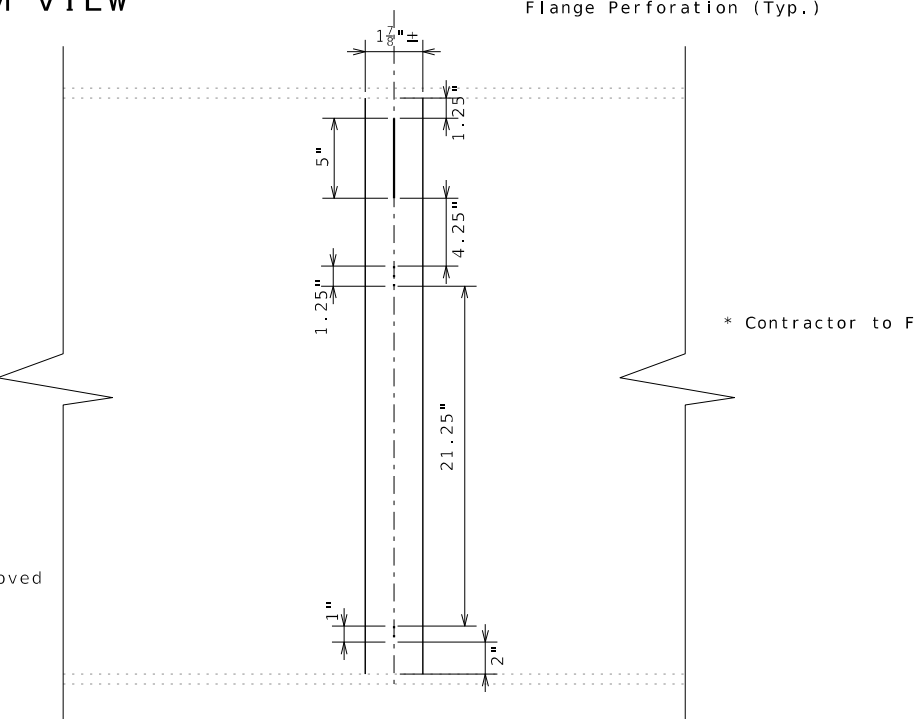
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TRUSS MEMBER BOTTOM VIEW
(BOTTOM VIEW MATCHES TOP VIEW)



SECTION A-A



L34-L36 WELD DEFECT LOCATION(S) DETAIL

LEGEND:
..... Size/Location of Recordable Defect To Remain
—— Size/Location of Rejectable Defect To Be Removed

* Contractor to Field Verify Location of Weld Centerline.

* Contractor to Field Verify Weld Width.



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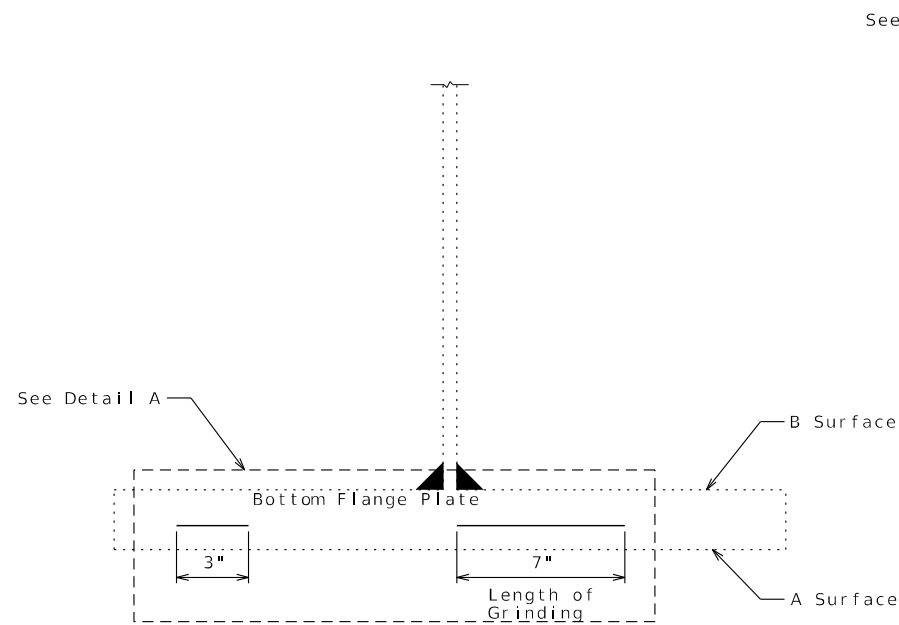
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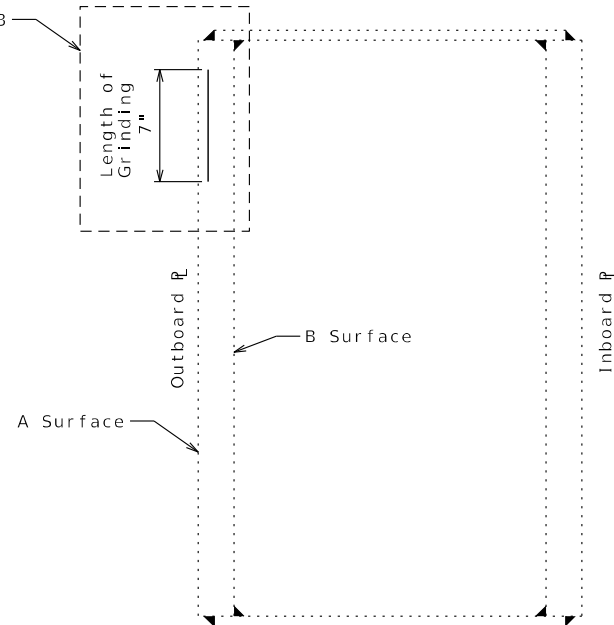
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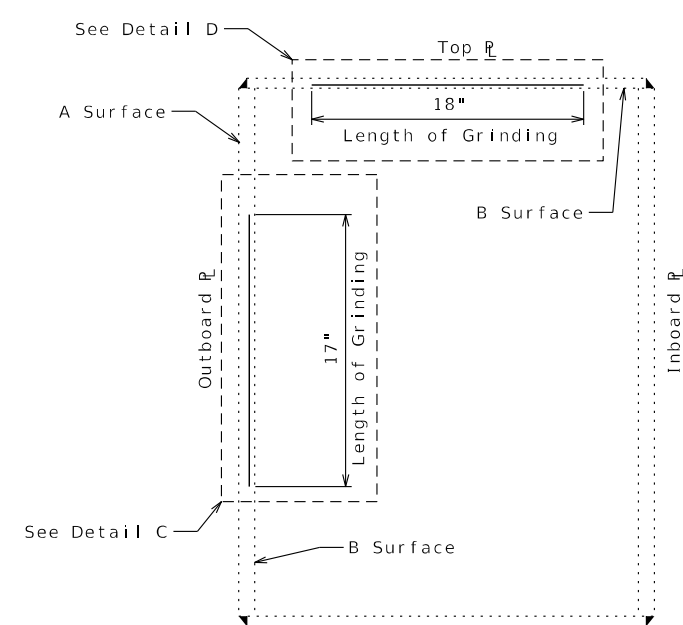
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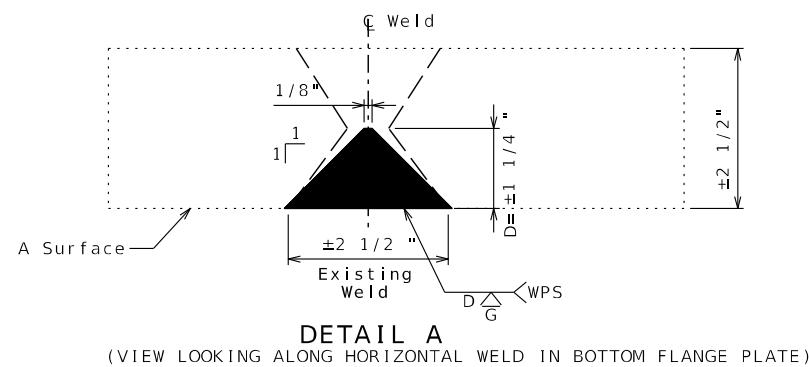
SECTION - SPAN 15, PIER 16
(WEST GIRDER)



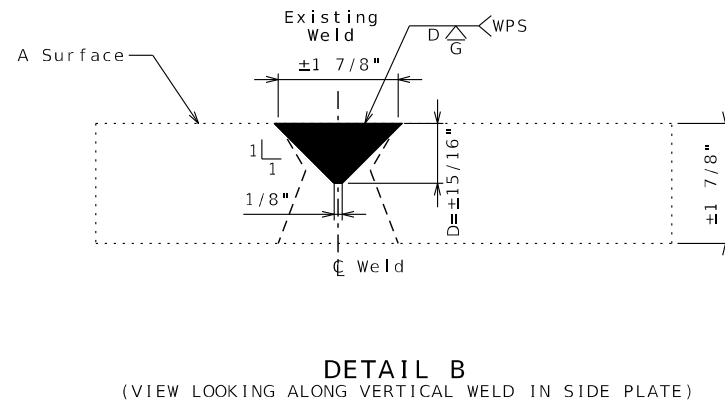
SECTION - L34-L36
(EAST TRUSS)



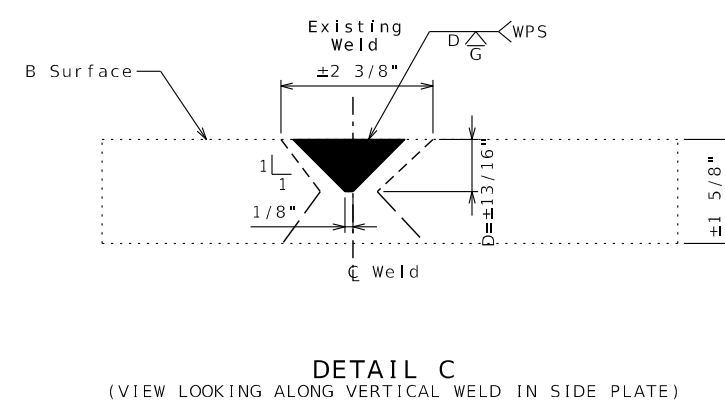
SECTION - M17-L18
(WEST TRUSS)



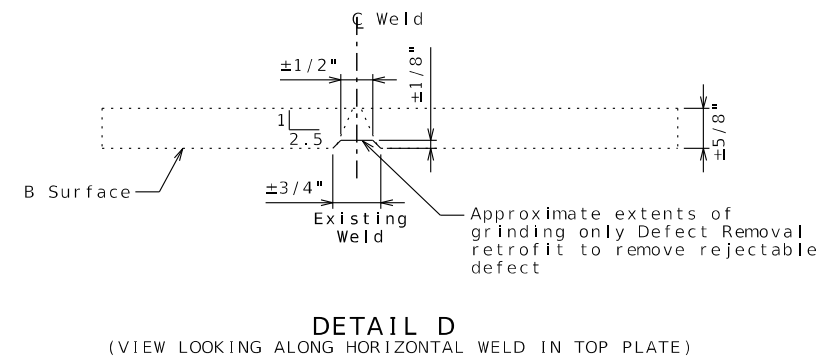
DETAIL A
(VIEW LOOKING ALONG HORIZONTAL WELD IN BOTTOM FLANGE PLATE)



DETAIL B
(VIEW LOOKING ALONG VERTICAL WELD IN SIDE PLATE)



DETAIL C
(VIEW LOOKING ALONG VERTICAL WELD IN SIDE PLATE)



DETAIL D
(VIEW LOOKING ALONG HORIZONTAL WELD IN TOP PLATE)

- Notes:
1. Defect grinding locations are approximate based on previous UT inspections.
 2. Remove coatings on both A and B surfaces 1 foot each side of weld centerline to facilitate UT inspection.
 3. Remove all weld defects classified as rejectable in accordance with AWS D1.5.
 4. Submit Weld Inspection Summary Report for approval prior to starting grinding.
 5. Complete grinding and weld repair during scheduled weekend closure(s).
 6. Limit grinding to the length needed to remove all rejectable defects, combining defect removal where noted in the Weld Summary Report.
 7. Verify all rejectable defects have been removed and document any remaining recordable defects using UT.
 8. Complete weld repairs in accordance with approved Repair Welding Plan.
 9. Perform hands-on visual inspection daily of the weld both inside and outside the member.
 10. Reinspect welds using UT one week after completing hydrogen bake-out.
 11. Recoat steel in accordance with procedures provided in General Notes.

WELD REPAIR DETAILS

Sheet No. 8 of 12

Detailed June, 2024
Checked July, 2024 Note: This drawing is not to scale. Follow dimensions.



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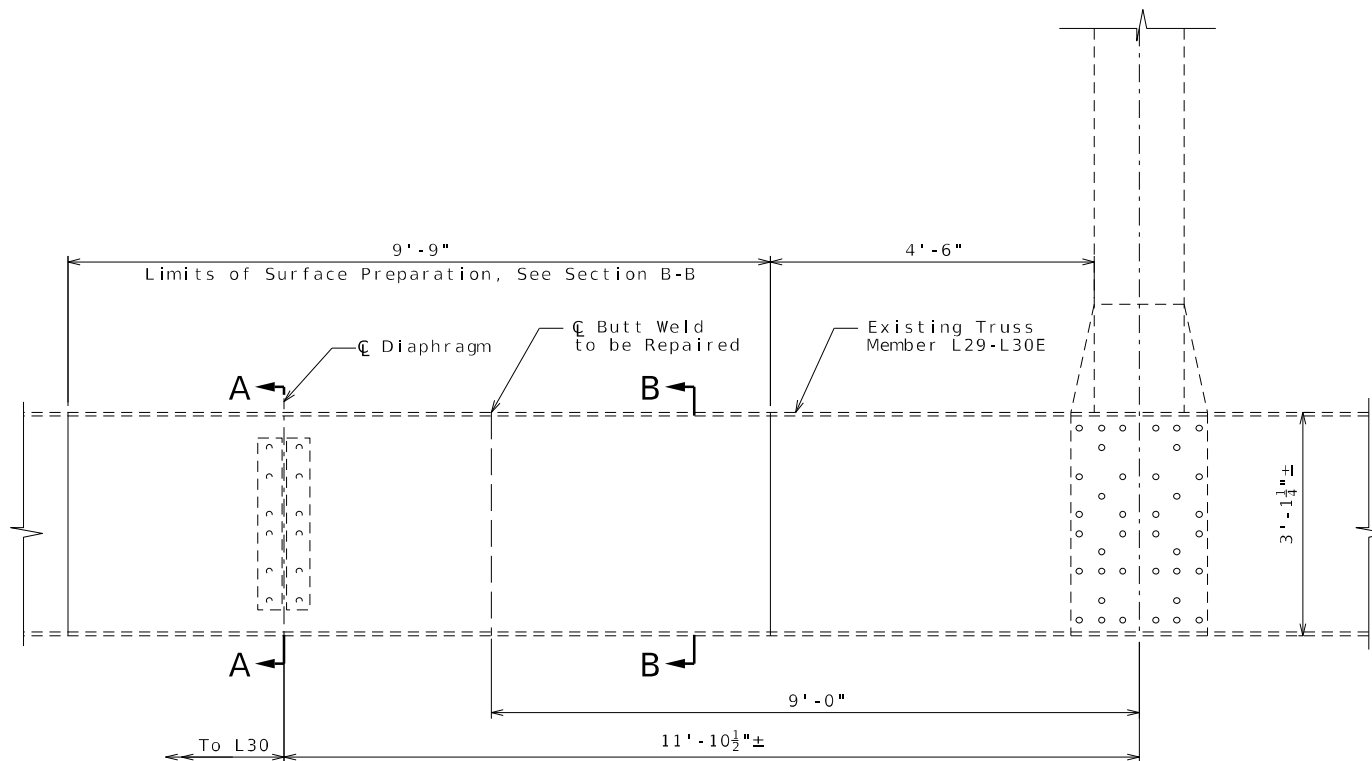
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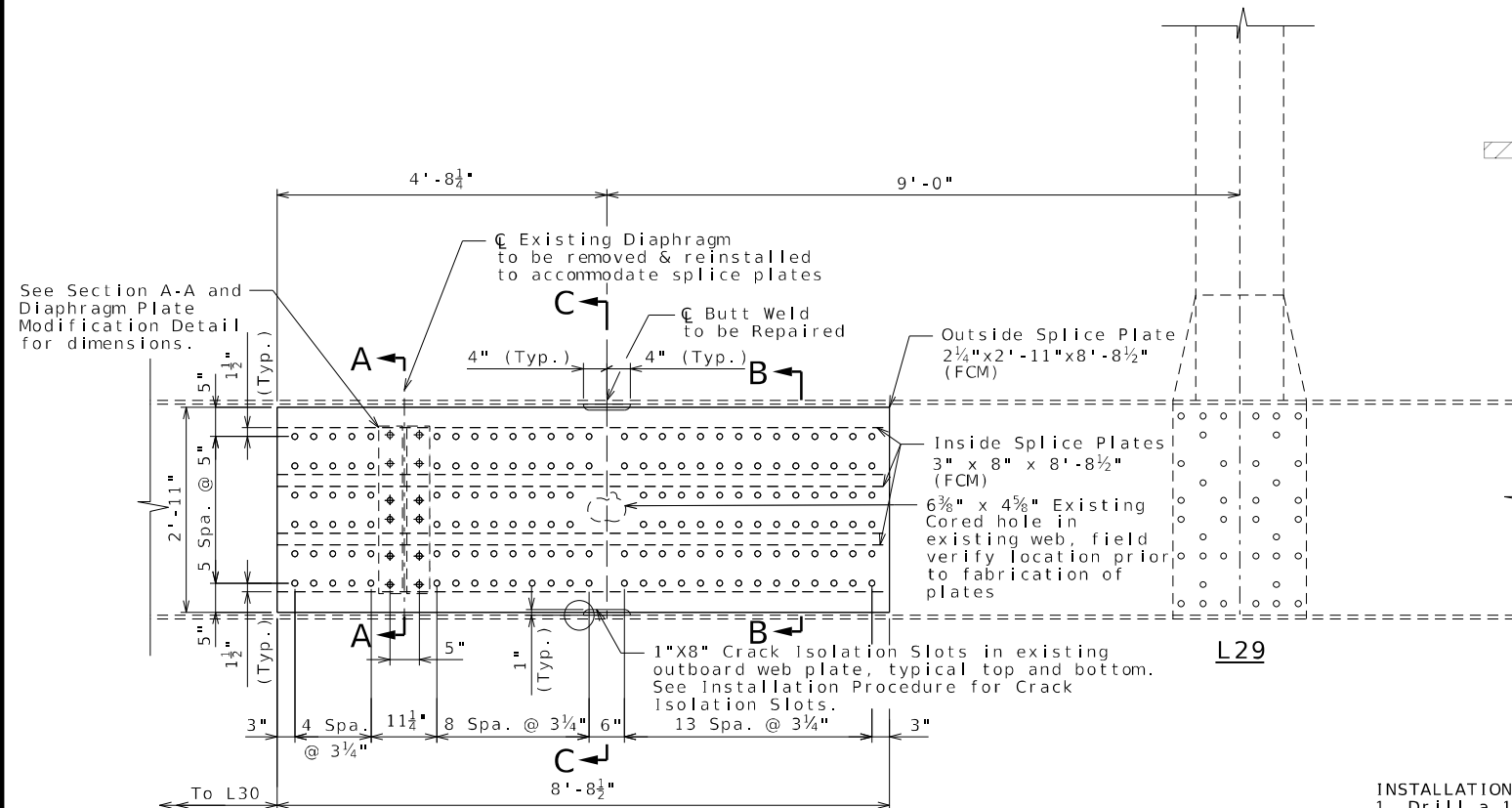
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EXISTING ELEVATION - L30-L29E
(LOOKING WEST)



PROPOSED ELEVATION - L30-L29E
(LOOKING WEST)

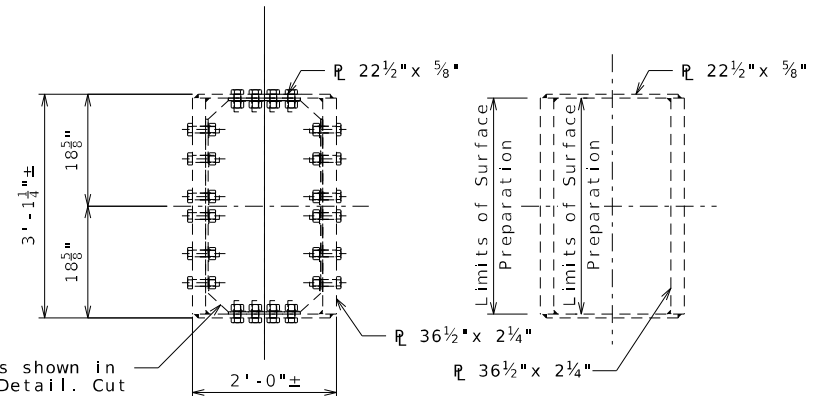
Remove diaphragm and modify as shown in
Diaphragm Plate Modification Detail. Cut
and drill holes in diaphragm plate.
Use new 7/8" Dia. bolts.

- CONSTRUCTION SEQUENCE:**
1. Install crack isolation slots at top and bottom of the outboard web.
 2. Disconnect diaphragm bolts and plates.
 3. Modify diaphragm plate as shown.
 4. Install splice plates with new fasteners as indicated.
 5. Attach modified diaphragm to new splice plates with new angles and bolts (1 side). Attach modified diaphragm to existing web and existing cover plates with new angles and bolts (3 sides).

- LEGEND:**
- 1" Dia. Bolt, 1 1/8" Dia. Hole
 - ⊕ 7/8" Dia. Bolt, 1" Dia. Hole
 - ▨ Removal Limits of Diaphragm

**DIAPHRAGM PLATE
MODIFICATION DETAIL**
(Proposed)

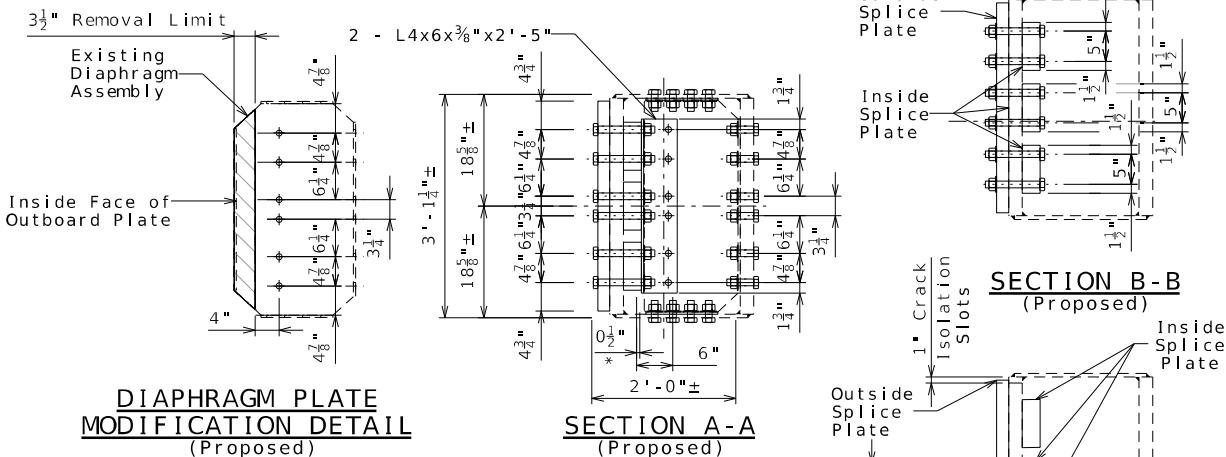
- INSTALLATION PROCEDURE FOR CRACK ISOLATION SLOTS:**
1. Drill a 1" diameter hole in existing plate on either side of butt weld.
 2. With a cutting wheel cut slot using the holes as a start/stop point.
 3. Finish hole by grinding to provide smooth transition between hole and slot and remove any notches, gouges or burrs.



SECTION A-A
(Existing)

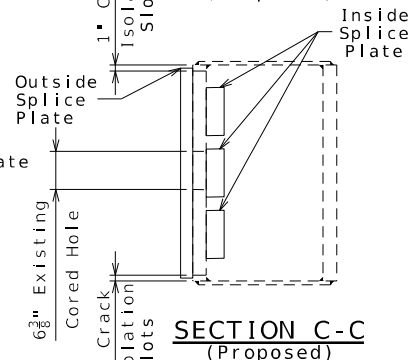
SECTION B-B
(Existing)

- NOTES:**
1. FCM indicates Fracture Critical Member, see Sec 1080.
 2. Surface preparation includes removing of existing coatings and cleaning of existing steel. Cleaning of existing steel shall be in accordance with Sec 1081.10.4.
 3. Materials and labor for work shown on this sheet is included in bid item Structural Steel-Bolted Splice Repair Location No. 1 except as noted.
 4. Surface preparation of existing steel non-faying surfaces shall be included with the bid item Surface Preparation for Recoating Structural Steel.
 5. Prime coat of existing steel non-faying surfaces shall be included with the bid item Field Application of Organic Zinc Primer.
 6. Finish field coat of existing steel non-faying surfaces shall be included with the bid item Finish Field Coat.
 7. Faying surfaces shall not receive Finish Field Coat and shall meet Class B Slip Surface criteria.



SECTION A-A
(Proposed)

SECTION B-B
(Proposed)



SECTION C-C
(Proposed)

* Gap between inside splice plate and edge of diaphragm plate.

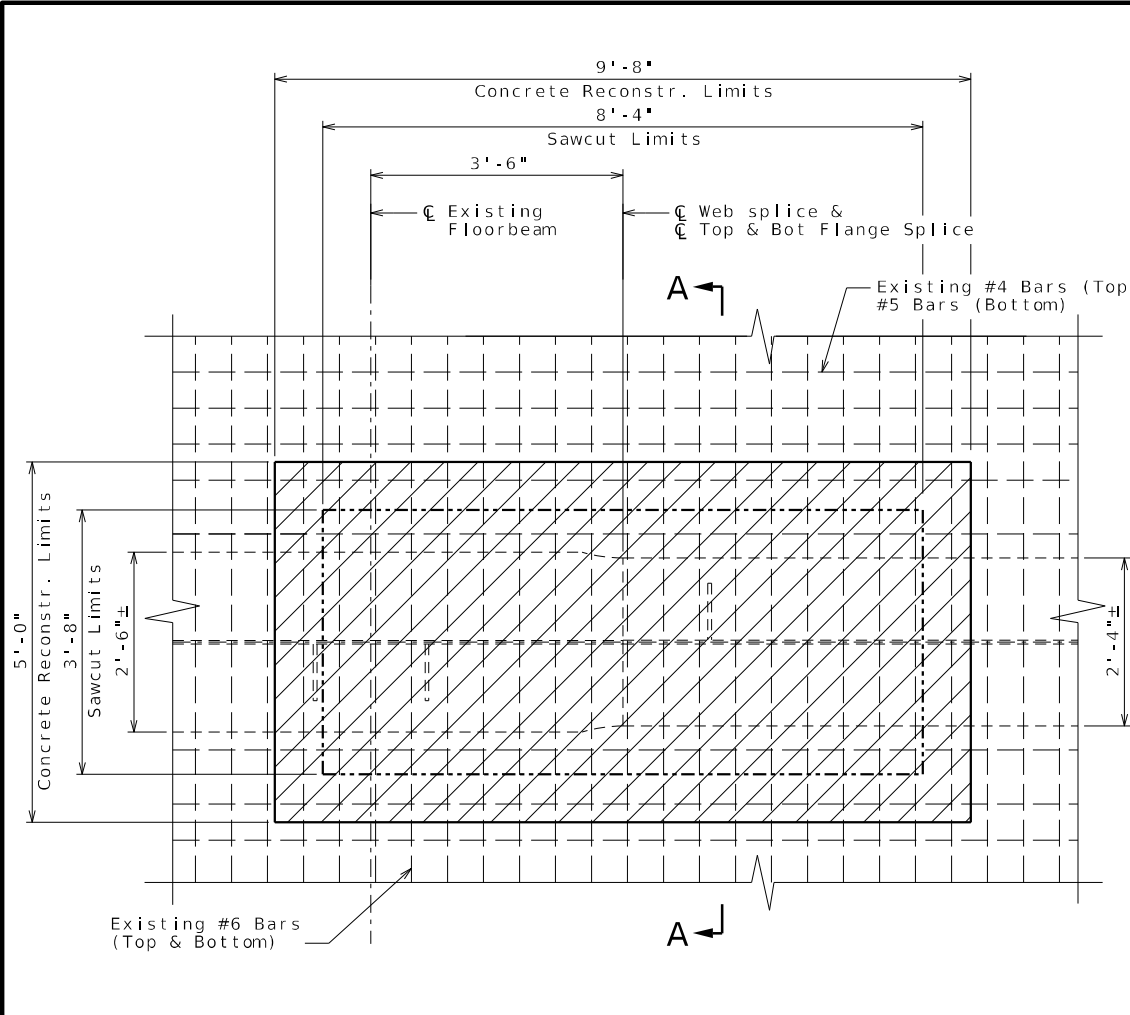
STRUCTURAL STEEL DETAILS - BOLTED SPLICE REPAIR LOCATION NO.1

Detailed Jun. 2024
Checked Jun. 2024

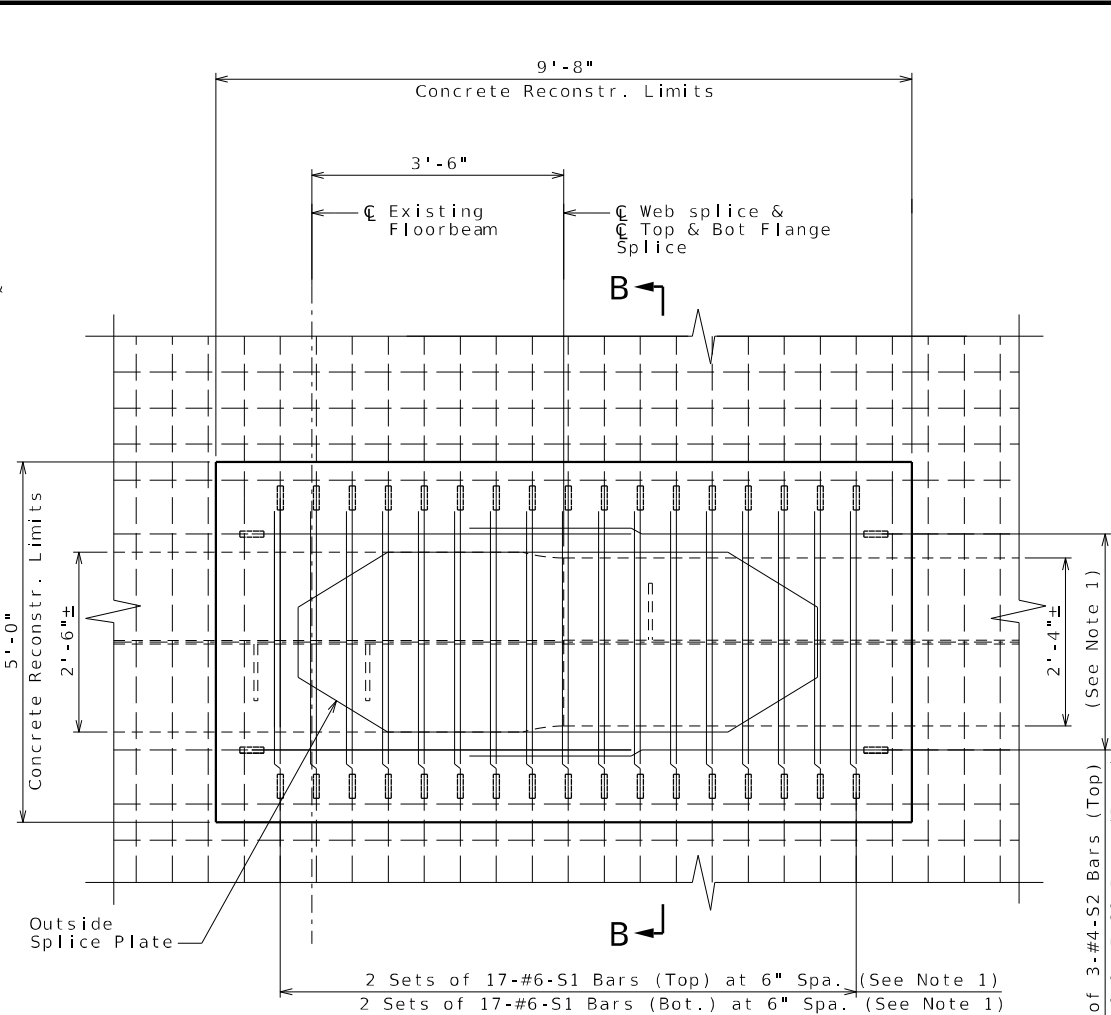
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Sheet No. 9 of 12

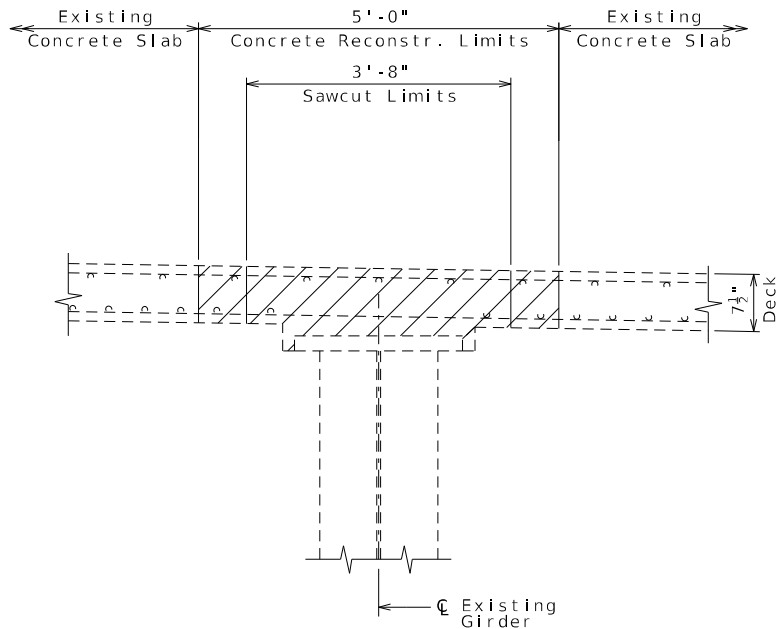
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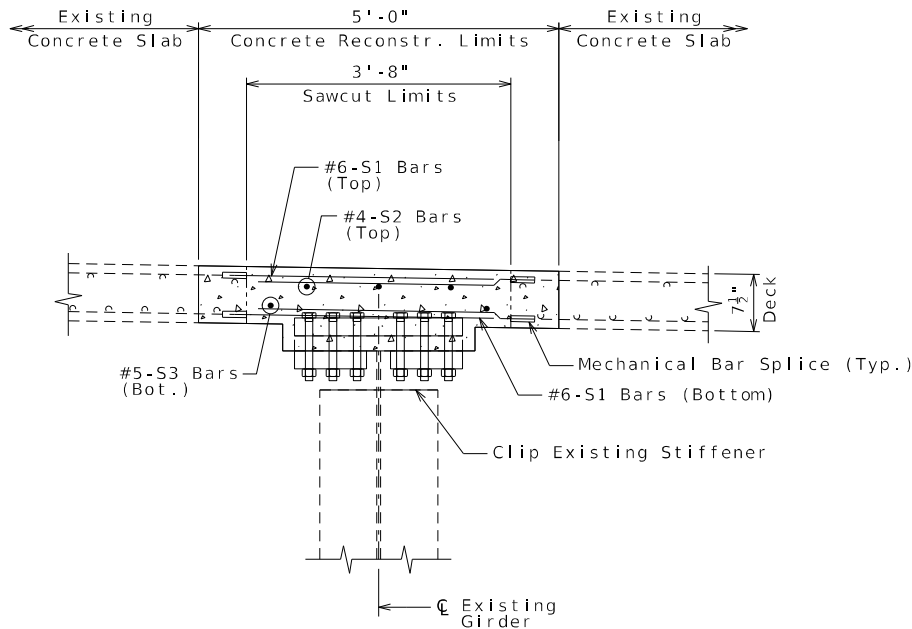
DECK REMOVAL PLAN - SPAN 16



DECK RECONSTRUCTION PLAN - SPAN 16



SECTION A-A



SECTION B-B

STRUCTURAL STEEL DETAILS - BOLTED SPLICE REPAIR LOCATION NO.2 (SHEET 1 OF 2)

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

Sheet No. 10 of 12

- Notes:
1. Mechanically lap splice new #4, #5, and #6 to existing reinforcing. New bars may be bent as needed to avoid girder top flange and new splice plates.
 2. Mechanical bar splices shall be screw-lock type.
 3. #4 bar minimum lap = 2'-5"
#5 bar minimum lap = 3'-0"
#6 bar minimum lap = 3'-7"
 4. For Splice details and stiffener removal procedures, see Sheet No. 11.
 5. Materials and labor for work shown on this sheet is included in bid item Structural Steel-Bolted Splice Repair Location No. 2 except Partial Removal of Existing Bridge Deck, Class B-2 Concrete (Superstructure on Steel), Mechanical Bar Splicers, and Reinforcing Steel (Epoxy Coated), which will be paid for separately.
 6. Surface preparation of existing steel non-faying surfaces shall be included with the bid item Surface Preparation for Recoating Structural Steel.
 7. Prime coat of existing steel non-faying surfaces shall be included with the bid item Field Application of Organic Zinc Primer.
 8. Finish field coat of existing steel non-faying surfaces shall be included with the bid item Finish Field Coat.
 9. Faying surfaces shall not receive Finish Field Coat and shall meet Class B Slip Surface criteria.
 10. Contractor shall exercise care when removing existing concrete to prevent damage to reinforcing steel and leave adequate projection of existing reinforcement to allow for proposed mechanical bar splice connection.
 11. Falsework may be required. Contractor shall be responsible for the stability of the structure.
 12. Contractor shall repair any damage to the structure caused by the concrete removal, including but not limited to drilling, saw cutting, or hammering.

LEGEND:

Removal Limits of Slab



THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY

DATE PREPARED 7/30/24

ROUTE I-155 STATE MO

DISTRICT BR SHEET NO. 10

COUNTY JEFFERSON

PROJECT NO. JST0071

CONTRACT ID.

BRIDGE NO. A17006

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

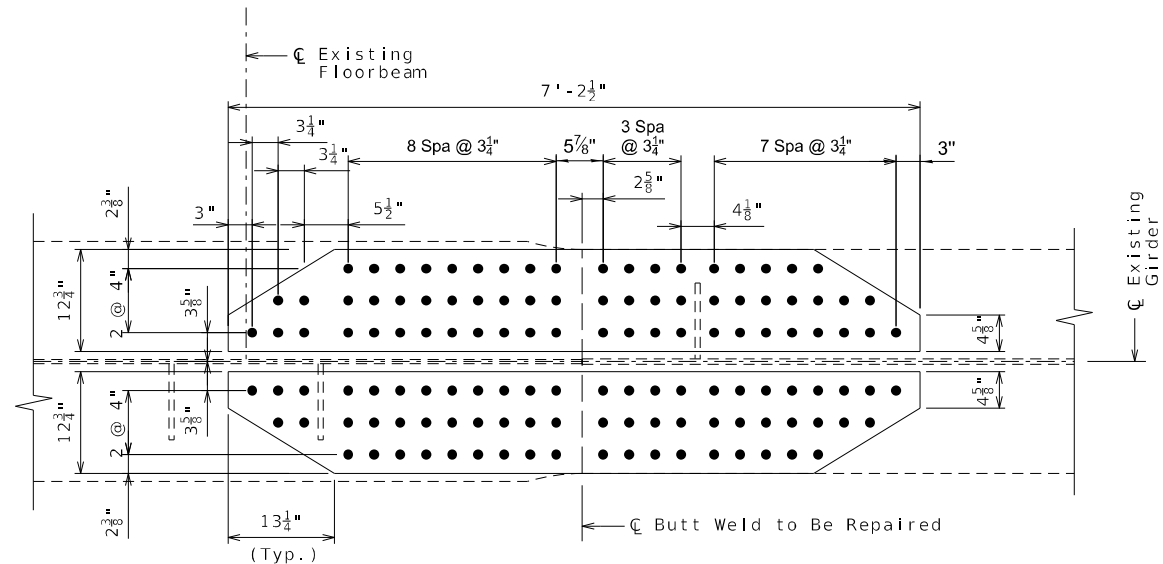
105 WEST CAPITOL JEFFERSON CITY, MO 65102

1-888-ASK-MODOT (1-888-275-6636)

Michael Baker INTERNATIONAL

200 West Adams St., Suite 1800 Chicago, IL 60606

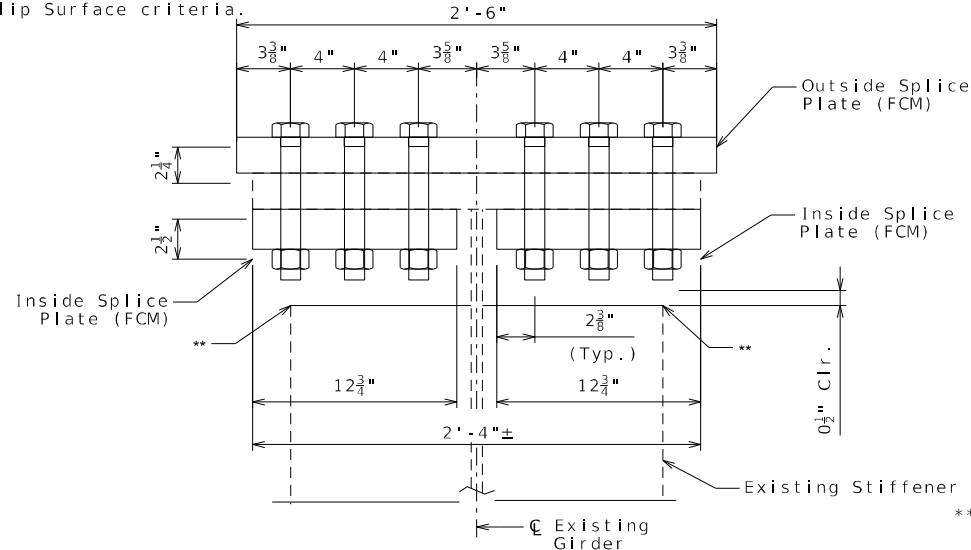
Phone: (312) 575-3852 • MBEKERINTL.COM



INSIDE SPLICE PLATES - SPAN 16

Notes:

- For deck removal limits, see Sheet No. 10.
- Where proposed splice plates interfere with typical transverse stiffeners, remove stiffeners as described in the Stiffener Removal Procedure.
- FCM indicates Fracture Critical Member, see Sec 1080.
- Materials and labor for work shown on this sheet are included in bid item - Bolted Splice Repair Location No. 2 except Partial Removal of Existing Bridge Deck, Class B-2 Concrete (Superstructure on Steel), Mechanical Bar Splicers, and Reinforcing Steel (Epoxy Coated), which will be paid for separately.
- Surface preparation includes removing of existing coatings and cleaning of existing steel. Cleaning of existing steel shall be in accordance with Sec 1081.10.4.
- Surface preparation of existing steel non-faying surfaces shall be included with the bid item Surface Preparation for Recoating Structural Steel.
- Prime coat of existing steel non-faying surfaces shall be included with the bid item Field Application of Organic Zinc Primer.
- Finish field coat of existing steel non-faying surfaces shall be included with the bid item Finish Field Coat.
- Faying surfaces shall not receive Finish Field Coat to meet Class B Slip Surface criteria.



GIRDER SECTION - SPAN 16

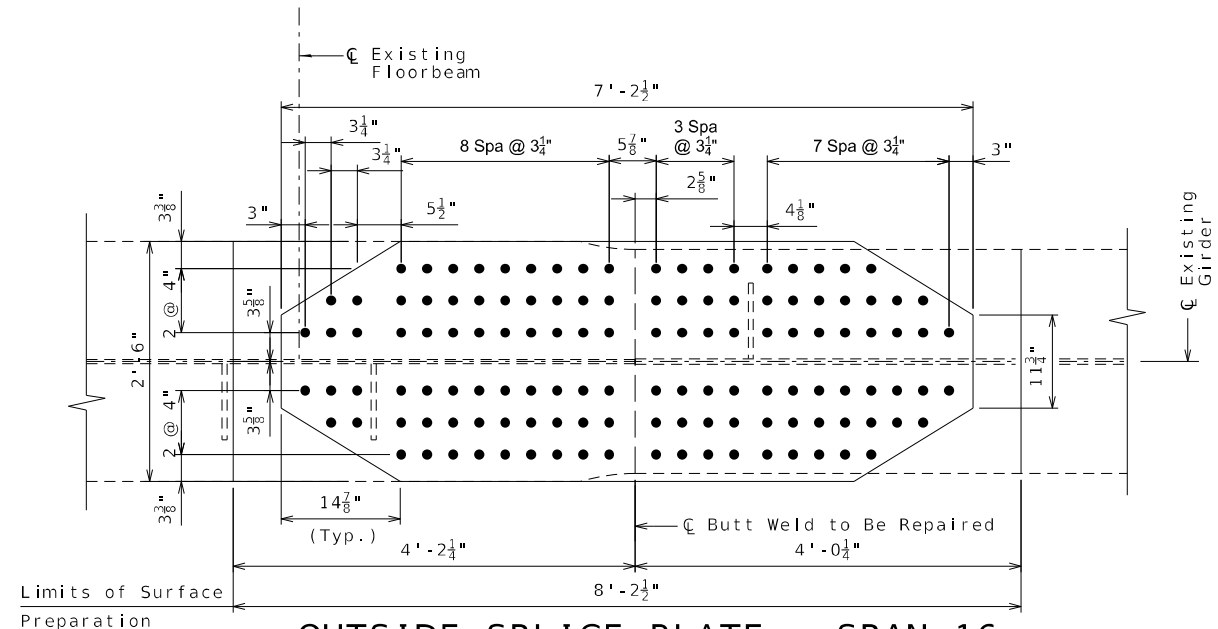
STRUCTURAL STEEL DETAILS - BOLTED SPLICE REPAIR LOCATION NO.2 (SHEET 2 OF 2)

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

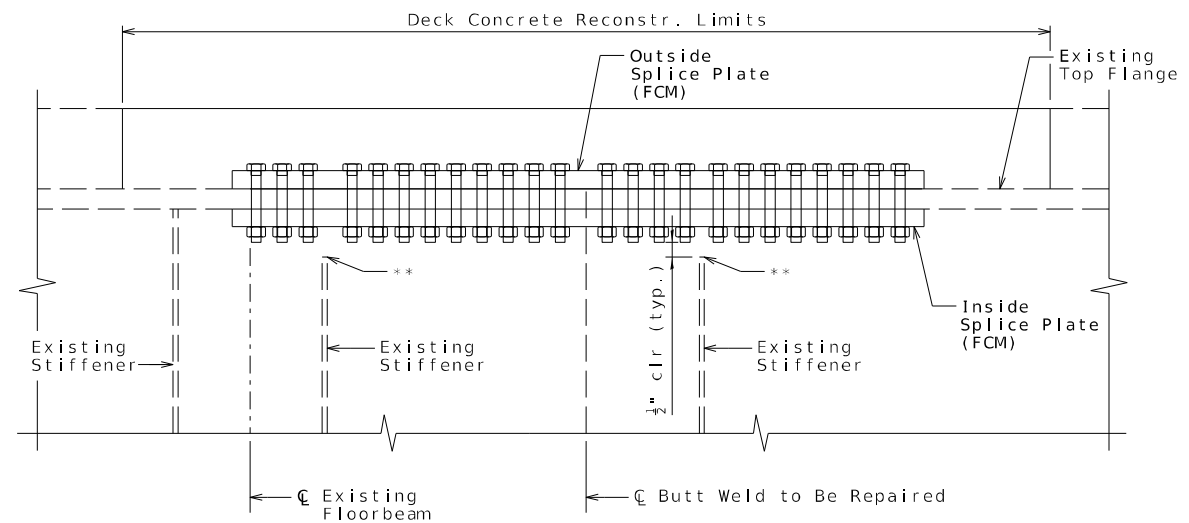
Stiffener Removal Procedure:

- Thermal cut, plasma cut, air carbon arc gouge, angle grind, or saw cut the stiffener to within 3/8" of the flange or web plate. Use mechanical guide while making the cut.
- Air carbon arc gouge the weld and remaining stiffener to within 3/16" of the web or flange plate, avoiding any damage to the existing steel to remain.
- Grind the remaining weld and stiffener remnants flush with the surrounding base metal. Final grinding shall be done in the direction of the flange length. Ground surfaces shall have a surface roughness of RA=1000 microinches or less.
- Provide a smooth 1/2" min. radius at the end of the existing stiffener cut edge and the floor frame fillet weld transition.

** Trim existing stiffener and grind welds (typ.), see Stiffener Removal Procedure.



OUTSIDE SPLICE PLATE - SPAN 16



ELEVATION - SPAN 16



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SIGNED, SEALED AND
DATED ELECTRONICALLY
DATE PREPARED
7/30/24

ROUTE STATE
I - 155 MO
DISTRICT SHEET NO.
BR 11

COUNTY
PEMISCOT
JOB NO.
JST0071
CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A17006

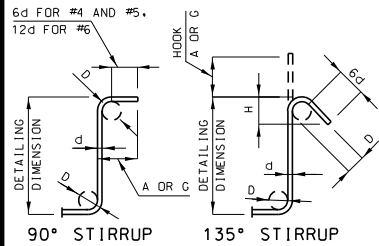
DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

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

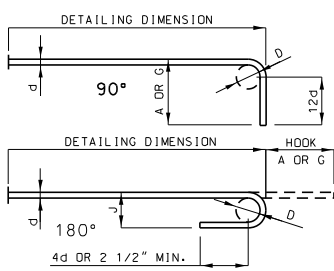
Michael Baker
INTERNATIONAL
200 West Adams St., Suite 1800 Chicago, IL 60606
Phone: (312) 575-3852 • MBEKERINTL.COM

BILL OF REINFORCING STEEL																						
NO.	REQ'D.		MARK NO.	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS								NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT	
											B	C	D	E	F	H	K					
	SIZE	MARK	FT.								IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.
				SLAB																		
68	6	S1	T & B TRANS	E	20						3	8.000						3	8	3	8	375
6	4	S2	TOP LONG	E	20						5	5.000						5	5	5	5	22
4	5	S3	BOT LONG	E	20						5	8.000						5	8	5	8	24
				SLAB																		
		4		E																	22	
		5		E																	24	
		6		E																	375	
			TOTAL	E																	420	
								</														



STIRRUP HOOK DIMENSIONS				
GRADES 40 - 50 - 60 KSI				
BAR SIZE	D (IN.)	90° HOOK A OR G	135° HOOK A OR G	APPROX. H
#4	2"	4 1/2"	4 1/2"	3"
#5	2 1/2"	6"	5 1/2"	3 3/4"
#6	4 1/2"	12"	8"	4 1/2"

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



END HOOK DIMENSIONS				
ALL GRADES				
BAR SIZE	D (IN.)	180° HOOKS A OR G	90° HOOKS J	A OR G
#3	2 1/4"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3 3/4"	7"	5"	10"
#6	4 1/2"	8"	6"	12"
#7	5 1/4"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9 1/2"	15"	11 3/4"	19"
#10	10 3/4"	17"	13 1/4"	22"
#11	12"	19"	14 3/4"	2'-0"
#14	18 1/4"	2'-3"	21 3/4"	2'-7"

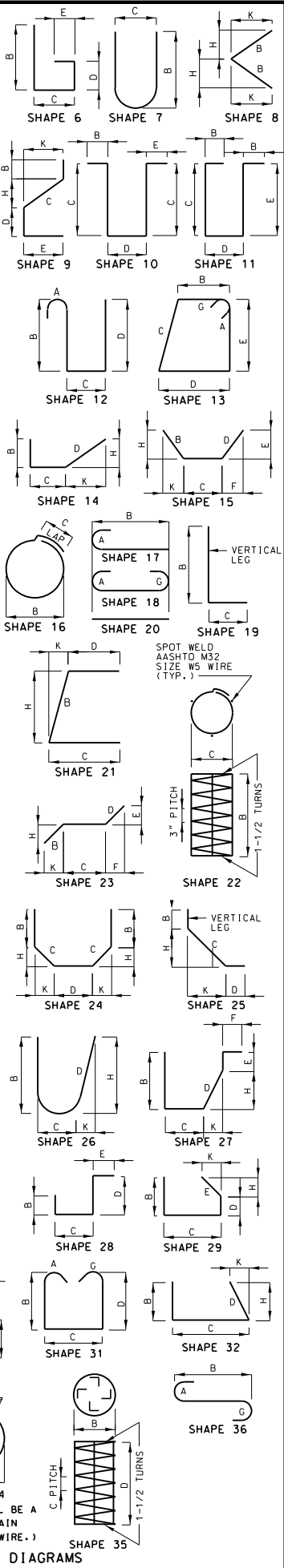
NOTE:
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE ARE TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEGREE STANDARD HOOKS.
HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.
E = EPOXY COATED REINFORCEMENT.
S = STIRRUP.
X = BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.
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.
PAYWEIGHTS ARE BASED ON ACTUAL LENGTHS.
FOUR ANGLE OR CHANNEL SPACERS ARE REQUIRED FOR EACH COLUMN SPIRAL. SPACERS ARE TO BE PLACED ON INSIDE OF SPIRALS. LENGTH AND WEIGHT OF COLUMN SPIRALS DO NOT INCLUDE SPLICES OR SPACERS.
REINFORCING STEEL (GRADE 60) F_y = 60,000 PSI.

Detailed Jun. 2024
Checked Jun. 2024

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

Sheet No. 12 of 12

BILL OF REINFORCING STEEL																				
NO.	REQ'D.	MARK NO.	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS								NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT
										B	C	D	E	F	H	K				
										FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.



7-31-2024
License Expires: 12-31-2024

THIS SHEET HAS BEEN
SIGNED, SEALED AND
DATED ELECTRONICALLY
DATE PREPARED
7/30/24

ROUTE I-155 STATE MO
DISTRICT BR SHEET NO. 12

COUNTY PEMISCOT
JOB NO. JST0071
CONTRACT ID.

PROJECT NO.

BRIDGE NO. A17006

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

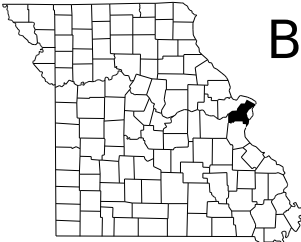
Michael Baker INTERNATIONAL
200 West Adams St., Suite 1800 Chicago, IL 60606
Phone: (312) 575-3852 • MB@MBAINTL.COM

DESIGN DESIGNATION

A.A.D.T. - 2023 = 81,742
A.A.D.T. - 2043 = XXXX
D.H.V. = 10%
T = 11%
V = 60 M.P.H.
D = XX%

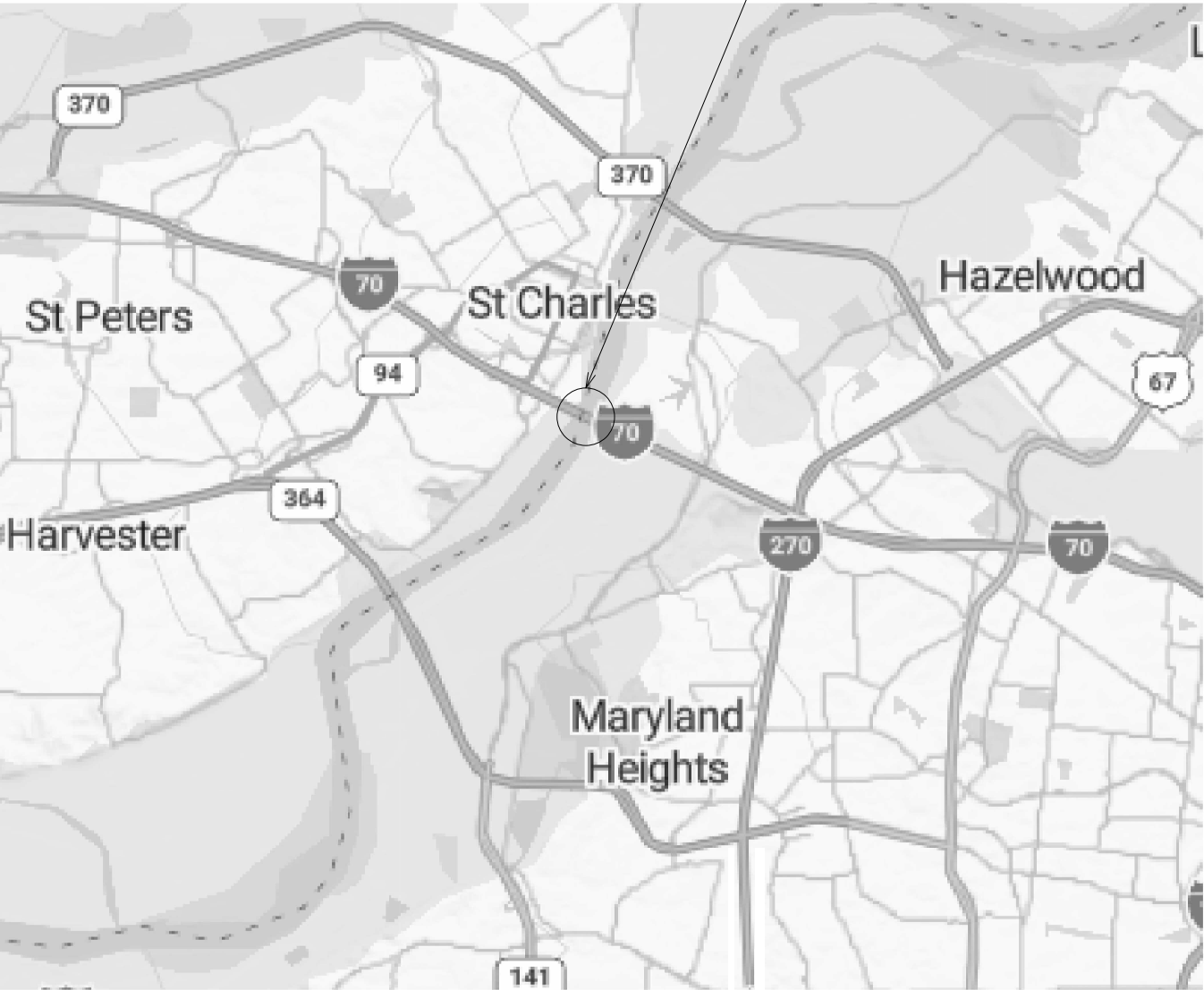
FUNCTIONAL CLASSIFICATION- INTERSTATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
PLANS FOR PROPOSED
STATE HIGHWAY
BRIDGE A3292 T-1 STEEL BRIDGE
REHABILITATION



KEY MAP
LOCATION OF ST. LOUIS COUNTY

BRIDGE A3292
BLANCHETTE BRIDGE OVER MISSOURI RIVER



CONVENTIONAL SYMBOLS
(USED IN PLANS)

	EXISTING	NEW
BUILDINGS AND STRUCTURES		
GUARD RAIL		
GUARD CABLE		
CONCRETE RIGHT-OF-WAY MARKER		
STEEL RIGHT-OF-WAY MARKER		
LOCATION SURVEY MARKER		
UTILITIES		
FIBER OPTICS	-FO-	-FO-
OVERHEAD CABLE TV	-OTV-	-OTV-
UNDERGROUND CABLE TV	-UTV-	-UTV-
OVERHEAD TELEPHONE	-OT-	-OT-
UNDERGROUND TELEPHONE	-UT-	-UT-
OVERHEAD POWER	-OE-	-OE-
UNDERGROUND POWER	-UE-	-UE-
SANITARY SEWER	-S-	-S-
STORM SEWER	-SS-	-SS-
GAS	-G-	-G-
WATER	-W-	-W-
MANHOLE		
FIRE HYDRANT		
WATER VALVE		
WATER METER		
DROP INLET		
DITCH BLOCK		
GROUND MOUNTED SIGN		
LIGHT POLE		
H-FRAME POWER POLE		
TELEPHONE PEDESTAL		
FENCE		
CHAIN LINK	-V-	-V-
WOVEN WIRE	-X-	-X-
GATE POST		
BENCHMARK		

NOTE: DASHED OR OPEN SYMBOLS INDICATE
EXISTING FEATURES

THE EXISTENCE AND APPROXIMATE LOCATION OF UTILITY FACILITIES KNOWN TO EXIST, AS SHOWN ON THE PLANS, ARE BASED ON THE BEST INFORMATION AVAILABLE TO THE COMMISSION AT THIS TIME. THIS INFORMATION IS PROVIDED BY THE COMMISSION "AS-IS" AND THE COMMISSION EXPRESSLY DISCLAIMS ANY REPRESENTATION OR WARRANTY AS TO THE COMPLETENESS, ACCURACY, OR SUITABILITY OF THE INFORMATION FOR ANY USE. RELIANCE UPON THIS INFORMATION IS DONE AT THE RISK AND PERIL OF THE USER, AND THE COMMISSION SHALL NOT BE LIABLE FOR ANY DAMAGES THAT MAY ARISE FROM ANY ERROR IN THE INFORMATION. IT IS, THEREFORE, THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXISTENCE, LOCATION AND STATUS OF ANY FACILITY. SUCH VERIFICATION INCLUDES DIRECT CONTACT WITH THE LISTED UTILITIES.

INDEX OF SHEETS

DESCRIPTION	SHEET NUMBER
TITLE SHEET	1
QUANTITIES (2 SHEETS).....	2
TRAFFIC CONTROL SHEETS	3
BRIDGE DRAWINGS (B)	
A3292.....	1-8



DATE PREPARED 9/24/2024	
ROUTE 1 - 70	STATE MO
DISTRICT SL	SHEET NO. 1
COUNTY ST. CHARLES/ST. LOUIS	
JOB NO. JST0071	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A32926	

DESCRIPTION	DATE

LENGTH OF PROJECT

BEGINNING OF PROJECT	M.M. 229.713
END OF PROJECT	M.M. 230.439
APPARENT LENGTH	3833.28 FEET
EQUATIONS AND EXCEPTIONS:	

TOTAL CORRECTIONS	0 FEET
NET LENGTH OF PROJECT	3833.28 FEET
STATE LENGTH	0.726 MILES
FOR INFORMATION ONLY ESTIMATED DISTURBED ACRES	0 ACRES

MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION



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

5220 Oakland Avenue
St. Louis, MO 63110
314.863.5570



CIVIL DESIGN, INC.
WBE / DBE

Missouri State Certificate of Authority #2002006804

MOBILIZATION FOR BRIDGE NO. A3292
TOTAL = 1 LUMP SUM

LUMP SUM TEMPORARY TRAFFIC CONTROL FOR BRIDGE NO. A3292
TOTAL = 1 LUMP SUM

TRUCK MOUNTED ATTENUATOR (TMA)
TOTAL = 1 LUMP SUM

CHANGEABLE MESSAGE SIGNS			
ROUTE	DIRECTION	LOCATION	CHANGEABLE MESSAGE SIGN W/O COMM. INTERFACE - CONTRACTOR FURNISHED/RETAINED
			EA
I-70	EB	RT	2
TOTAL			2



DATE PREPARED 9/24/2024	
ROUTE 1 - 70	STATE MO
DISTRICT SL	SHEET NO. 2
COUNTY ST. CHARLES/ST. LOUIS	
JOB NO. JST0071	
CONTRACT ID.	
PROJECT NO.	

BRIDGE NO. A32926

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION



105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-273-6636)



5220 Oakland Avenue
St. Louis, MO 63110
314.863.5570

CIVIL DESIGN, INC.
WBE / DBE
Missouri State Certificate of Authority #2002006804

- (1) SPACING BETWEEN SIGNS AND SPACING BETWEEN LAST SIGN AND FLAGGER, BEGINNING OF TAPER, OR SIGNED CONDITION
- (2) SPACINGS MAY BE ADJUSTED AS NECESSARY TO MEET FIELD CONDITIONS

TAPER LENGTHS AND SPACING OF CHANNELIZING DEVICES						
SPEED (P) MPH	MINIMUM TAPER LENGTHS (T2) FOR LANE WIDTHS (W)			MINIMUM SHOULDER TAPER LENGTH BASED ON 10' SHOULDER (T1)	MAXIMUM CHANNELIZER SPACING	
	10 FT	11 FT	12 FT		TAPERS	BUFFER/ WORK AREA
0-35	205 FT	225 FT	245 FT	70	35 FT	40 FT
40-45	450 FT	495 FT	540 FT	150	40 FT	80 FT
50-55	550 FT	605 FT	660 FT	185	50 FT	80 FT
60-70	700 FT	770 FT	840 FT	235	60 FT	120 FT

LONGITUDINAL TRANSITION (X)	
SPEED (P) MPH	BUFFER SPACE (FEET)
0-35	490
40-45	1080
50-55	1320
60-70	1680



WO20-1

(2)



W020-5a

(5A)



WO20-

(6)

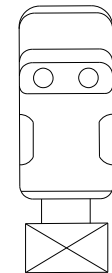


W04-1 c
(6A)



■ ■ ■ ■ ■

CHANNELIZERS



TRUCK MOUNTED ATTENUATOR

STATIONARY DOUBLE
LANE CLOSURES ON
INTERIOR LANE ON A
MULTI-LANE HIGHWAY
TRAFFIC CONTROL
SHEET 1 OF 1



CDI CIVIL DESIGN, INC.



MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

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JEFFERSON CITY, MO 65102
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St. Louis, MO 63110
314.863.5570

Missouri State Certificate of Authenticity #2002008604



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DATE PREPARED
7/30/2024

ROUTE 1 - 70 STATE MO

DISTRICT BR SHEET NO. 1

COUNTY ST. CHARLES / ST. LOUIS

JOB NO. JST0071

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A32926

DATE	DESCRIPTION
7/30/24	DESIGN DRAWINGS

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

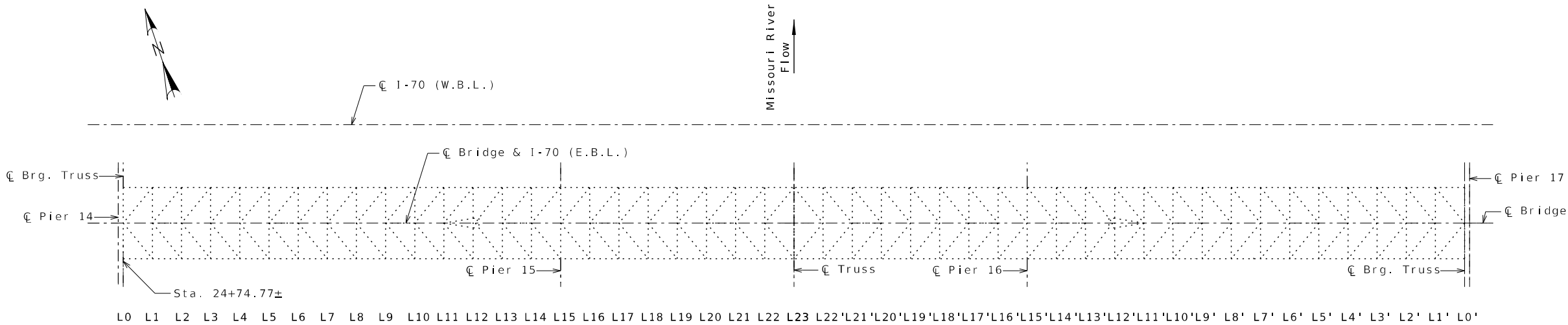
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JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

ENGINEERS ARCHITECTS MATERIALS SCIENTISTS

Wiss, Janney, Elstner Associates, Inc.
330 Pfingsten Road
Northbrook, Illinois 60062
847.272.7400 | 847.291.9599 fax
www.wje.com

REV. RevDesc

Repair Existing (450' - 480' - 450') Continuous Truss Spans



LOCATION SKETCH SHOWING PIER NUMBERING AND TRUSS PANEL LOCATIONS

INDEX OF SHEETS

1. Location Plan and Sheet List
2. General Notes and Summary of Quantities
3. Location of Structural Steel Weld Repairs - Truss Spans
4. Location of Structural Steel Weld Repairs - Truss Spans
5. Truss Spans Structural Steel Details - L4-L6 Weld Repair
6. Truss Spans Structural Steel Details - L10'-L8' Weld Repair
7. Truss Spans Structural Steel Details - L8'-L6' Weld Repair
8. Weld Repair Details

REPAIRS TO BRIDGE:

ROUTE I-70 (E.B.L.) OVER MISSOURI RIVER

ROUTE I-70 FROM ROUTE 94 TO ROUTE 141
ABOUT 1.4 MILES SOUTHEAST OF ROUTE 94
BEG. STA. 24+74.77± (MATCH EXISTING)

LOCATION PLAN AND SHEET LIST

Sheet No. 1 of 8

ESTIMATED QUANTITIES			
Item	Unit	Superstr.	Total
Surface Preparation for Recoating Structural Steel	Lump Sum	1	1
Field Application of Organic Zinc Primer	Lump Sum	1	1
Finish Field Coat (System I)	Lump Sum	1	1
Weld Inspection	Linear Foot	6	6
Weld Repair	Linear Foot	2	2

GENERAL NOTES:

ORIGINAL DESIGN SPECIFICATIONS
1969 AASHTO Standard Specifications for Highway Bridges

DESIGN SPECIFICATIONS
2002 AASHTO Standard Specifications for Highway Bridges(17th Edition)

DESIGN LOADING
HS20-44 with Alternate Military Loading (Original)

LOCATE WELDS:
Contractor shall locate welds prior to commencing work. See JSP for additional requirements.

WELD INSPECTION:
Contractor shall inspect welds prior to performing defect removal or weld repairs. All existing welds identified on the drawings for inspection shall be cleaned of existing coating prior to inspection. Work shall be included with contract unit price for Surface Preparation for Recoating Steel. Any additional cleaning and surface preparation necessary to recoat the existing steel after the inspection will be considered completely covered by the contract unit price for Surface Preparation for Recoating Structural Steel. See JSP for additional requirements.

NON-DESTRUCTIVE TESTING:
All non-destructive testing shall be performed by an ASNT certified Level II or Level III MT and UT inspector. Non-destructive testing procedure to be prepared by an ASNT certified Level III MT and UT inspector. Contractor to submit certifications prior to starting work. See JSP for additional requirements.

FIELD WELDING:
The following shall apply when field welding:
1) Perform weld repairs during permitted weekend closures under stated load restrictions.

2) Use E11018M-H4R electrodes for SMAW.

3) Practice proper electrode maintenance to maintain low-hydrogen conditions.

4) Grind to white metal and completely remove moisture, oil, grease, rust, Paint, etc. before welding.

5) Preheat weld a distance of 10 inches transverse to the weld axis temperature to 300 deg. F for at least one hour before welding.

6) Maintain 300 to 400 deg. F interpass temperature until entire length of weld has been repaired.

7) Maintain 300 deg. F post-heat after completion of welding for at least 3 hours.

Contractor shall submit and have approved welding procedures for all field welding operations. Procedures shall be prepared by an AWS Certified Welding Inspector. See JSP for additional requirements.

RECOATING EXISTING STEEL:

Protective Coating: System I shall be applied in accordance with Sec 1081 as modified herein, and locations shown on plans (interior and exterior surfaces of plate).

Surface Preparation: surface preparation of the existing steel shall be in accordance with Sec 1081 for Recoating of Structural Steel (System I) as modified herein. The cost of surface preparation will be considered completely covered by the contract lump sum price for Surface Preparation for Recoating Structural Steel.

Prime Coat: The cost of the prime coat will be considered completely covered by the contract lump sum price for Field Application of Organic Zinc Primer. Tint of the prime coat for System I shall be similar to the color of the finish field coat to be used.

Finish Field Coat: The color of the finish field coat shall be gray (Federal Standard #26373). The cost of the finish field coat will be considered completely covered by the lump sum price for Finish Field Coat (System I).

Complete recoating in accordance with the following procedure:

- Determine chloride content on surfaces to be painted using a Surface Chloride Test Kit (such as Chlor*test or as recommended by the coating manufacturer). Test locations shall also include areas immediately adjacent to welds and new welds. If chloride contamination is greater than the coating manufacturer's maximum permissible surface chloride concentration, repeat the surface preparation procedure.
- If the surface chloride concentrations are below the coating manufacturer's permissible limits, prepare the surfaces and remove all visible oil, grease, soil, markings and cutting compounds, and other soluble contaminants from surfaces.
- If non-compliant surface chloride concentrations are present, prepare the surfaces in accordance with SSPC SP1 using the following procedure:
 - Remove all visible oil, grease, soil, markings and cutting compounds, and other soluble contaminants from surfaces in accordance with SSPC SP1 using an alkaline cleaner/degreaser approved by the coating manufacturer and designed to remove dirt, oils, and greases.
 - Allow a dwell time of 3 to 5 minutes for the applied alkaline pH cleaner/degreaser.
 - Do not allow the alkaline pH cleaner/degreaser solution to dry on the surface; maintain a wet condition.
 - With clean potable water, thoroughly pressure wash surfaces with a stand-off distance of not less than 6 inches at 3,000 to 5,000 psi to remove water soluble contaminants, dust, dirt, oil, grease, animal waste, salts, the alkaline pH cleaner/degreaser, and other debris. Thoroughly rinse all cleaned surfaces with clean potable water on final pass.
 - When the washing and rinsing is completed, the cleaned surfaces shall be free of dust, dirt, oil, grease, animal waste, salts, the alkaline pH cleaner/degreaser, and other debris.
 - Determine chloride content on prepared surfaces using a Surface Chloride Test Kit (such as Chlor*test or as recommended by the coating manufacturer). If chloride contamination is greater than the manufacturer's maximum permissible surface chloride concentration, repeat the surface preparation procedure. If non-compliant surface chloride concentrations persist, pressure washing surface at 3,000 to 5,000 psi with Salt Remover (such as Chlor*rid) added to the clean potable water in accordance with the Salt Remover manufacturer's directions.
 - Before proceeding with the remainder of the surface preparation, allow surfaces to completely dry, including crevices, but proceed with surface preparation in a timely manner before chlorides or other contaminants can be redeposited on the surface.
 - Clean, dry, oil-free compressed air may be used to assist drying.
- When surfaces are dry, continue surface preparation as follows:

- Prepare all exposed steel substrate of the repair area and at the transition in accordance with applicable portions of SSPC-SP11.
- Use methods of SSPC-SP2 and SSPC-SP3 over 100% of the transition adjacent to the repair area to remove all loose and poor to marginally bonded existing coating.
- Feather back edges of existing coating 2 to 4 inches for a smooth transition to the exposed steel of the repair area in accordance with SSPC-PA1.

- Assure that all coating surfaces in the transition area are thoroughly and uniformly roughened to the degree required by the coating manufacturer.
 - Where coatings have been damaged but the substrate is not exposed or rusted, prepare the substrate in accordance with the applicable portions of SSPC SP2 or SP3 to roughen and clean the existing coating surface so that it is free of debris and contaminants.
5. Remove all dust, grinding dust, paint residue, and other debris from surfaces to be painted.
6. Apply coatings where properly prepared bare steel is exposed and before oxidation of the surface that could limit adhesion occurs. Re-prepare non-compliant surfaces.
7. Coating Application:
- Where aesthetics is an issue, apply coatings to the complete face of affected component to appropriate planar break points so as not to have aesthetically unacceptable patches of non-matching finish colors and gloss.
 - Apply coatings according to manufacturer's written instructions.
 - Pay close attention to the film thickness being applied, trying to stay as close to the existing thickness as possible to help blend touch-up areas in the surrounding areas.
 - Apply Prime Coat:
 - At prepared damaged areas where steel is exposed, apply the primer only to properly prepared bare steel surfaces.
 - Prime coat (organic zinc-rich primer) shall not overlap the other existing coating layers unless directed otherwise by the coating manufacturer in writing and approved by the Engineer.
 - At prepared damage areas where steel is not exposed but existing primer is exposed, apply the remedial primer only to properly prepared existing primer as required to meet the thickness requirements for primer. If the existing primer is not damaged and the thickness already meets requirements, no additional primer needs to be applied.
 - Apply finish field coat and blend in with existing.
 - Follow manufacturer's written instructions for recoat times for all coatings.
 - Use contrasting colors between undercoats and finish.
 - Select color and gloss to match existing finish,

8. For the duration of the cleaning and recoating the truss spans, the truss span superstructure in any span shall not be draped with an impermeable surface subject to wind loads for a length any longer than 1/4 the span length at any one time regardless of height of coverage. Simultaneous work in adjacent spans is permissible using the specified limits in each span.

TRAFFIC CONTROL:

Traffic on structure shall be maintained during construction. See roadway plans for traffic control. Weld repairs to be performed under weekend closures with the two right lanes closed to traffic. Permit loads over the bridge shall be prohibited during defect removal and installation of weld repairs. Contractor to coordinate load and lane restrictions with the Department.

MISCELLANEOUS:

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

All existing dimensions shown were taken from as-built drawings, shop drawings or limited field measurements.

Longitudinal dimensions are based on original design plans.



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JST0071

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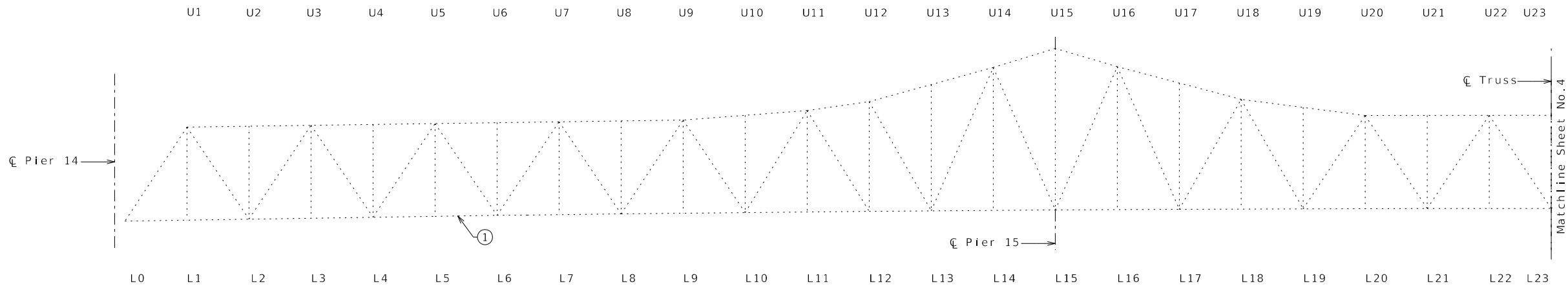
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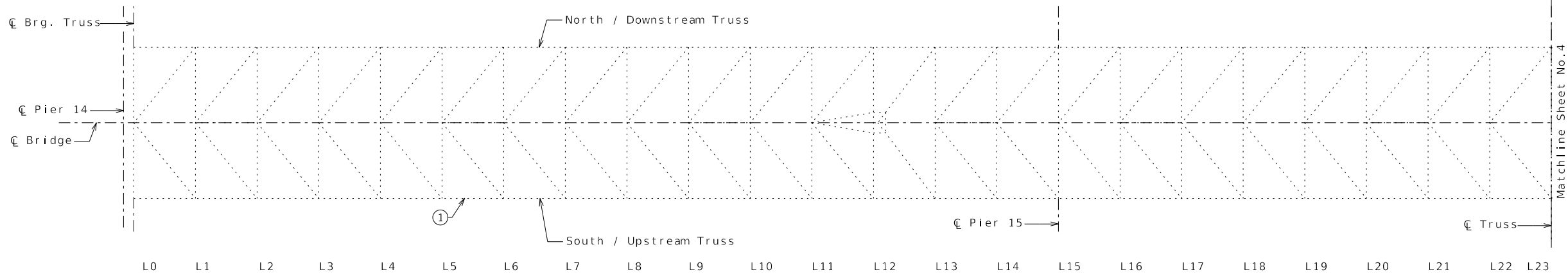
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PART ELEVATION OF TRUSS
(Retrofit ①, ② & ③ to be done on South Truss)



PART PLAN OF LOWER LATERALS

Retrofit	General Location	Description
1	South/Upstream Truss Member L4-L6 Inboard Plate	Grind out weld defects and reweld from exterior of box. Removal area = 3/4"x 8"

- Notes:
- ① ② ③ Denotes location of weld repair.
See Sheets No. 5 thru 8 for details.
 - Weld removal areas are approximate and
to be determined by non-destructive
evaluation.



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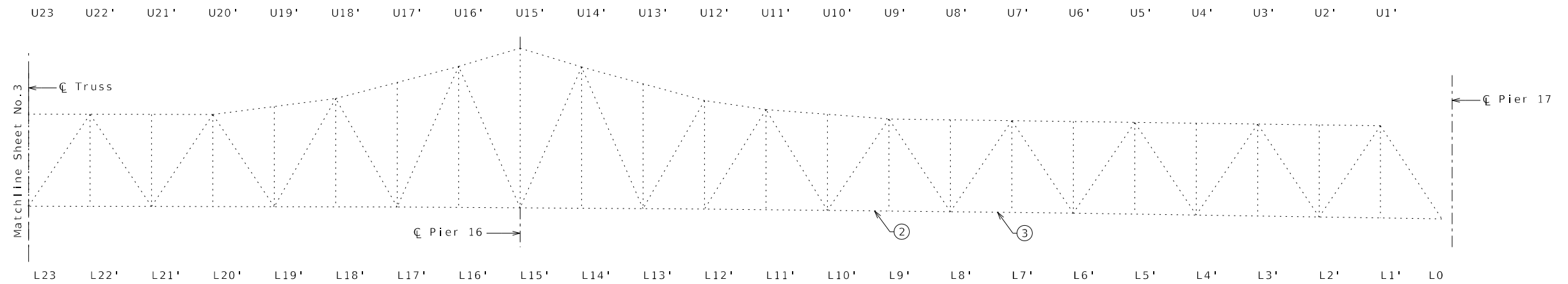
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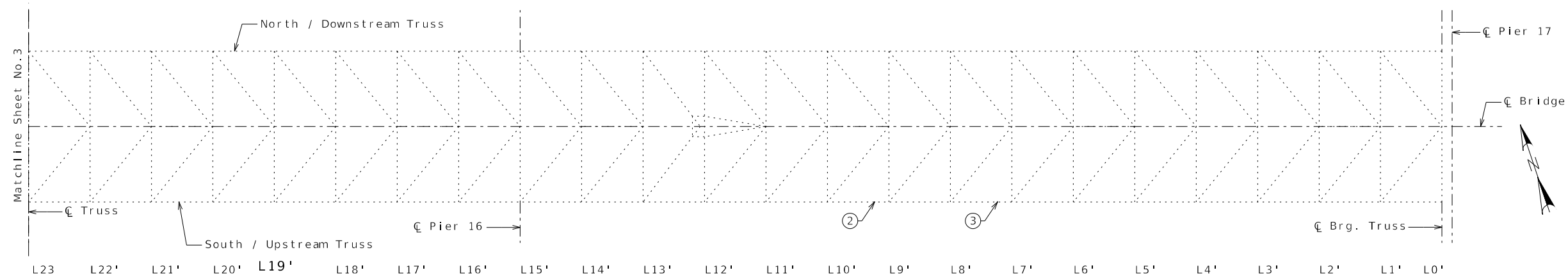
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PART ELEVATION OF TRUSS
(Retrofit ①, ② & ③ to be done on South Truss)

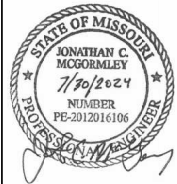


PART PLAN OF LOWER LATERALS

Retrofit	General Location	Description
2	South/Upstream Truss Member L10'-L8' Outboard Plate	Grind out weld defects and reweld from exterior of box. Removal area = 1/2"x 8"
3	South/Upstream Truss Member L8'-L6' Outboard Plate	Grind out weld defects and reweld from interior of box. Removal area = 3/4"x 12"

Notes:

- ① ② ③ Denotes location of weld repair.
See Sheets No. 5 thru 8 for details.
- Weld removal areas are approximate and
to be determined by non-destructive
evaluation.



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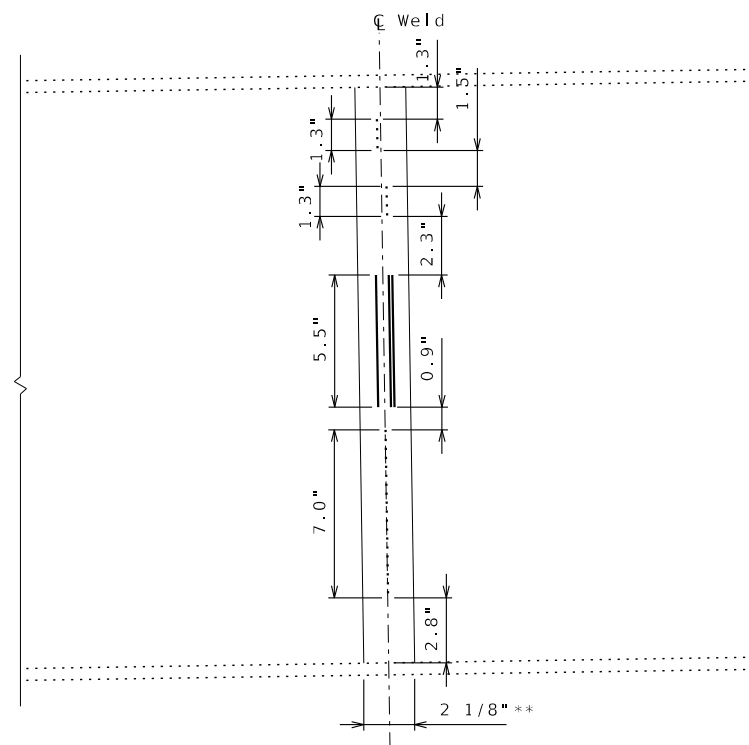
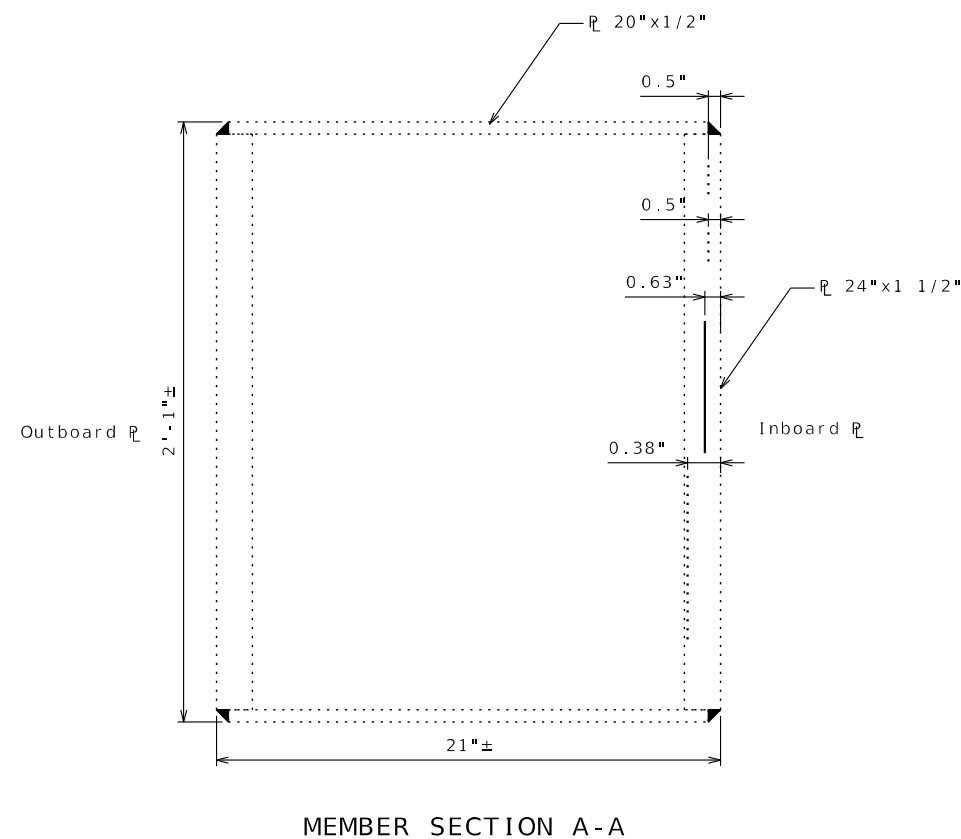
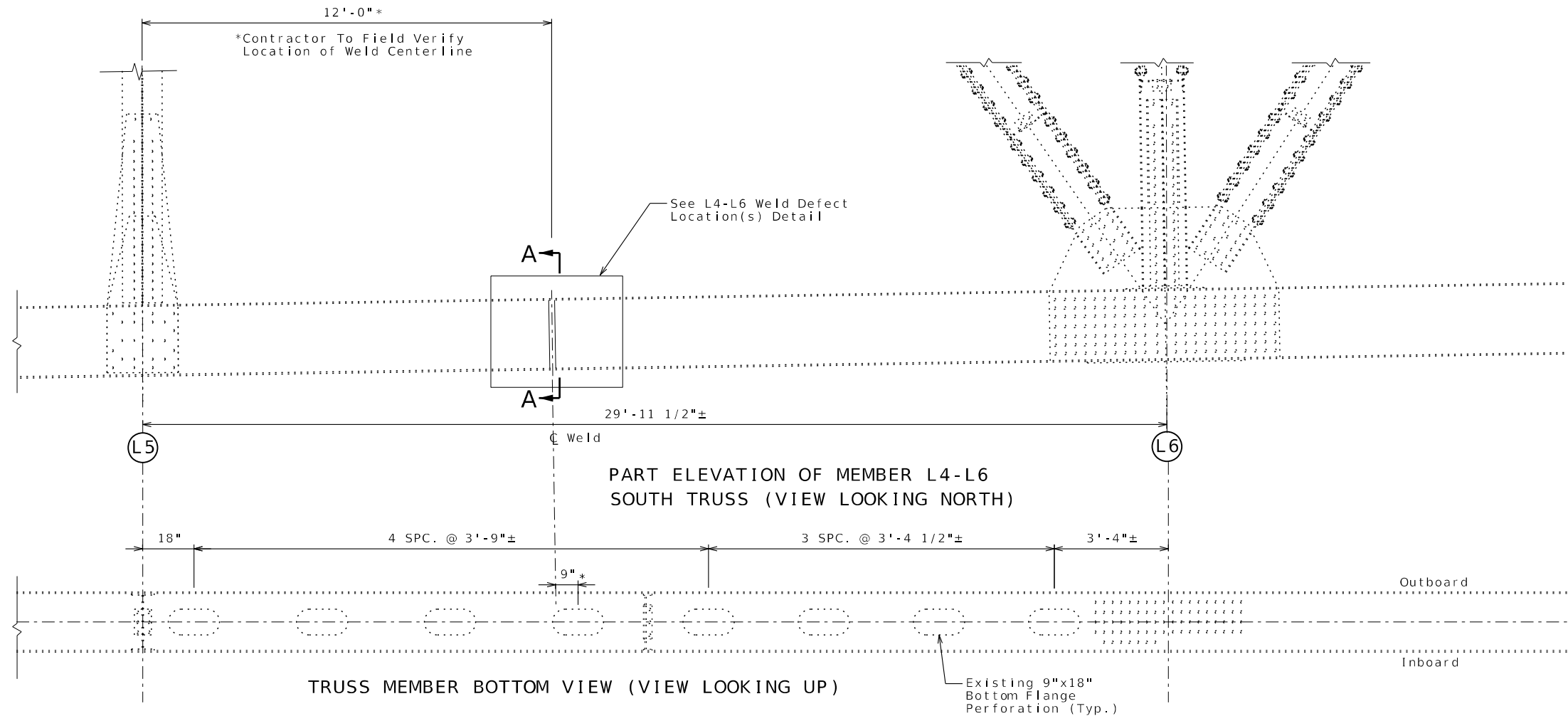
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LEGEND:

..... Size/Location of Recordable Defect To Remain

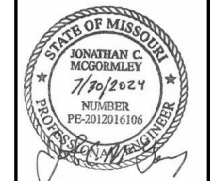
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** Contractor To Field Verify Weld Width

TRUSS SPANS STRUCTURAL STEEL DETAILS - L4-L6 WELD REPAIR

Detailed June, 2024
 Checked July, 2024
 Note: This drawing is not to scale. Follow dimensions.

Sheet No. 5 of 8



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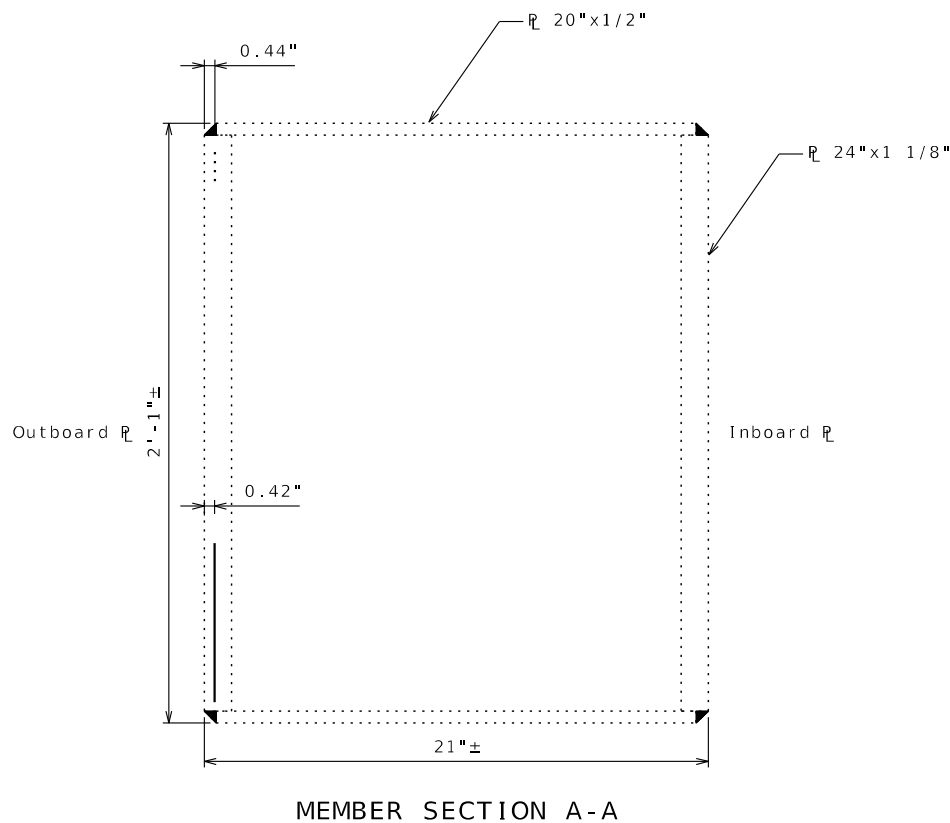
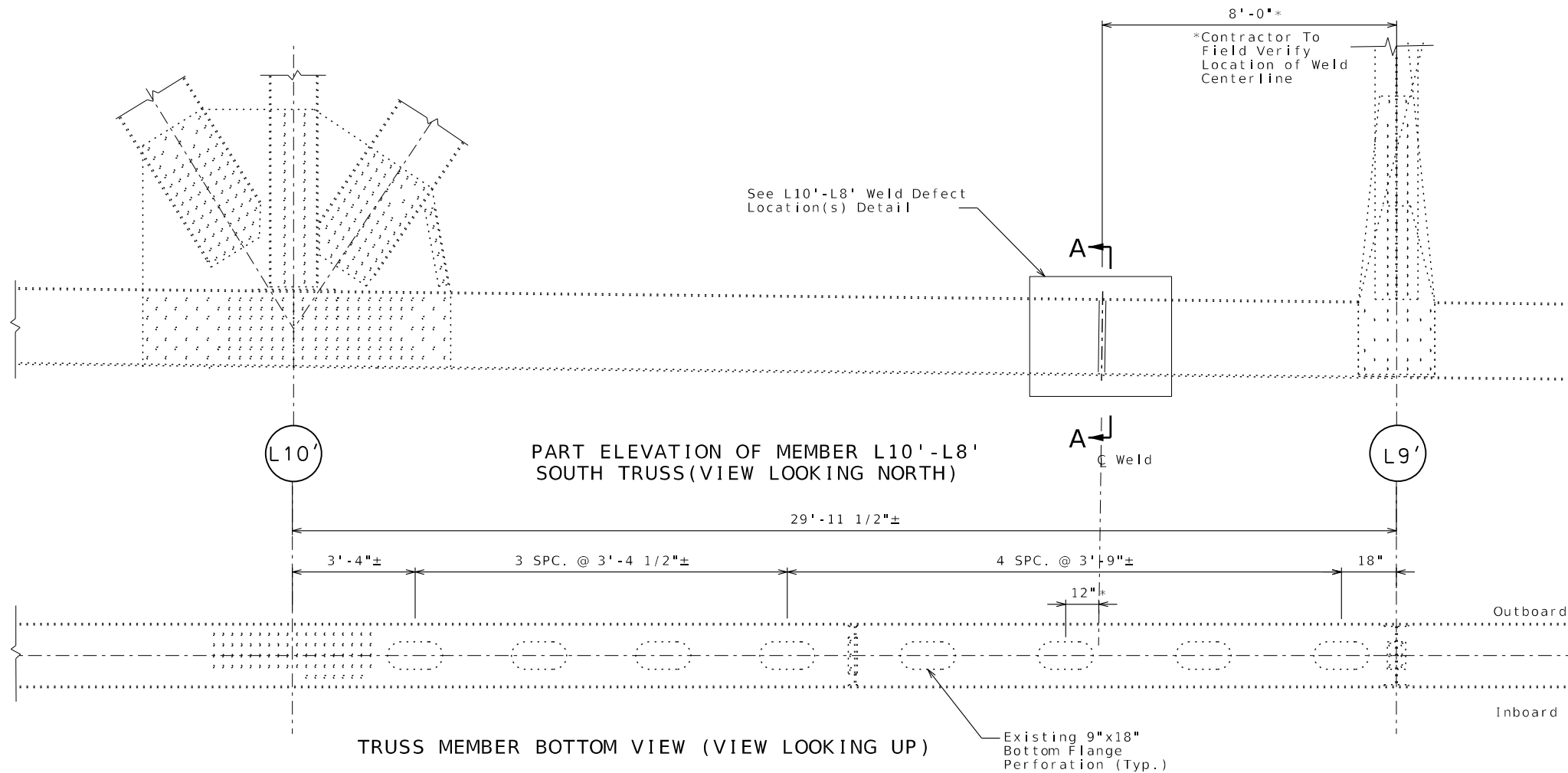
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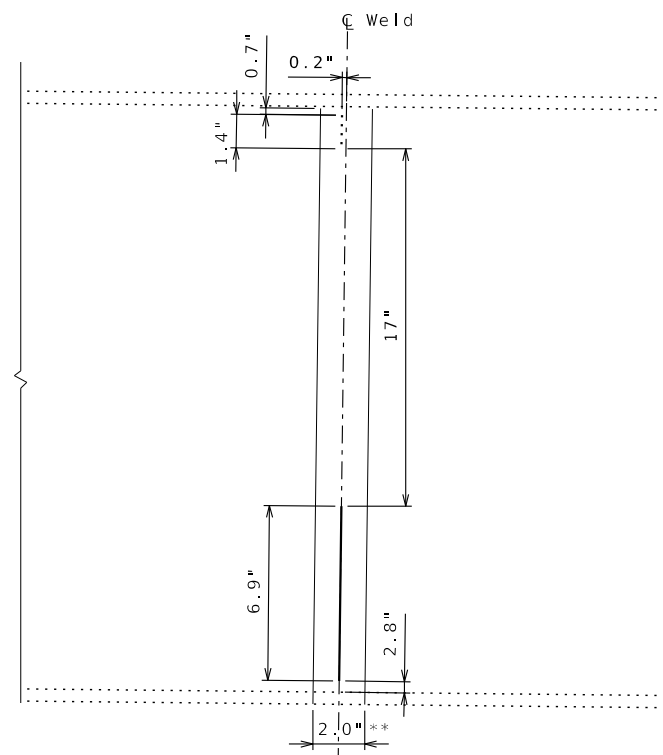
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MEMBER SECTION A-A



L10'-L8' WELD DEFECT LOCATION(S) DETAIL

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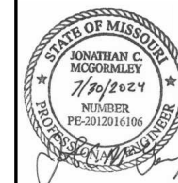
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- Size/Location of Rejectable Defect To Be Removed

** Contractor To Field Verify Weld Width

TRUSS SPANS STRUCTURAL STEEL DETAILS - L10'-L8' WELD REPAIR

Sheet No. 6 of 8

Detailed June, 2024
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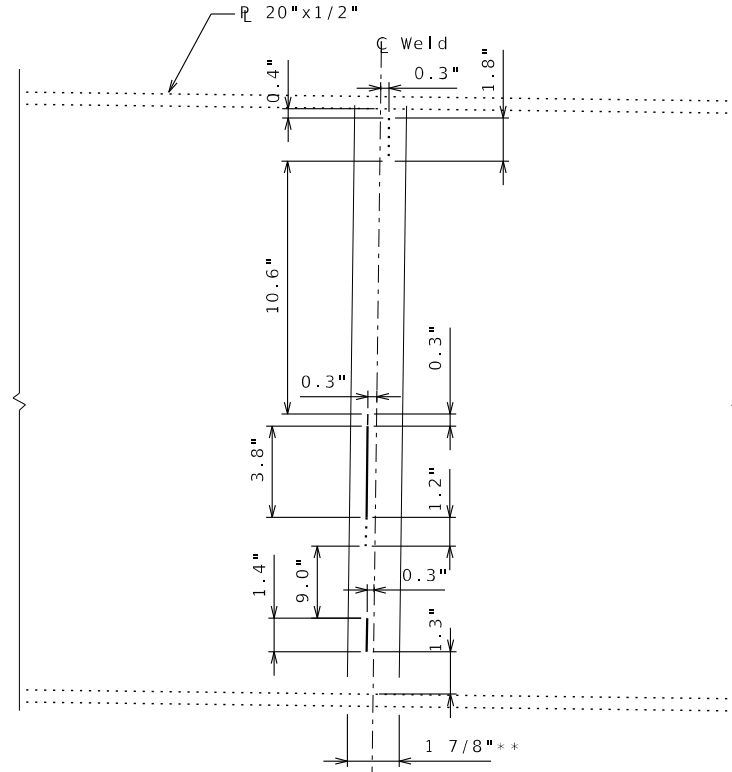
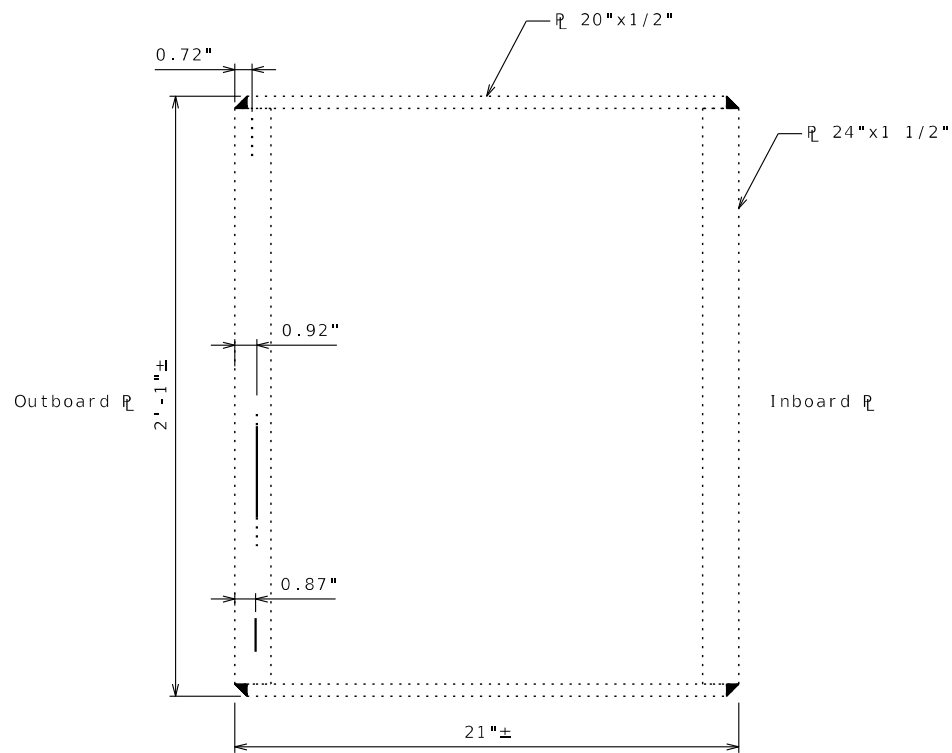
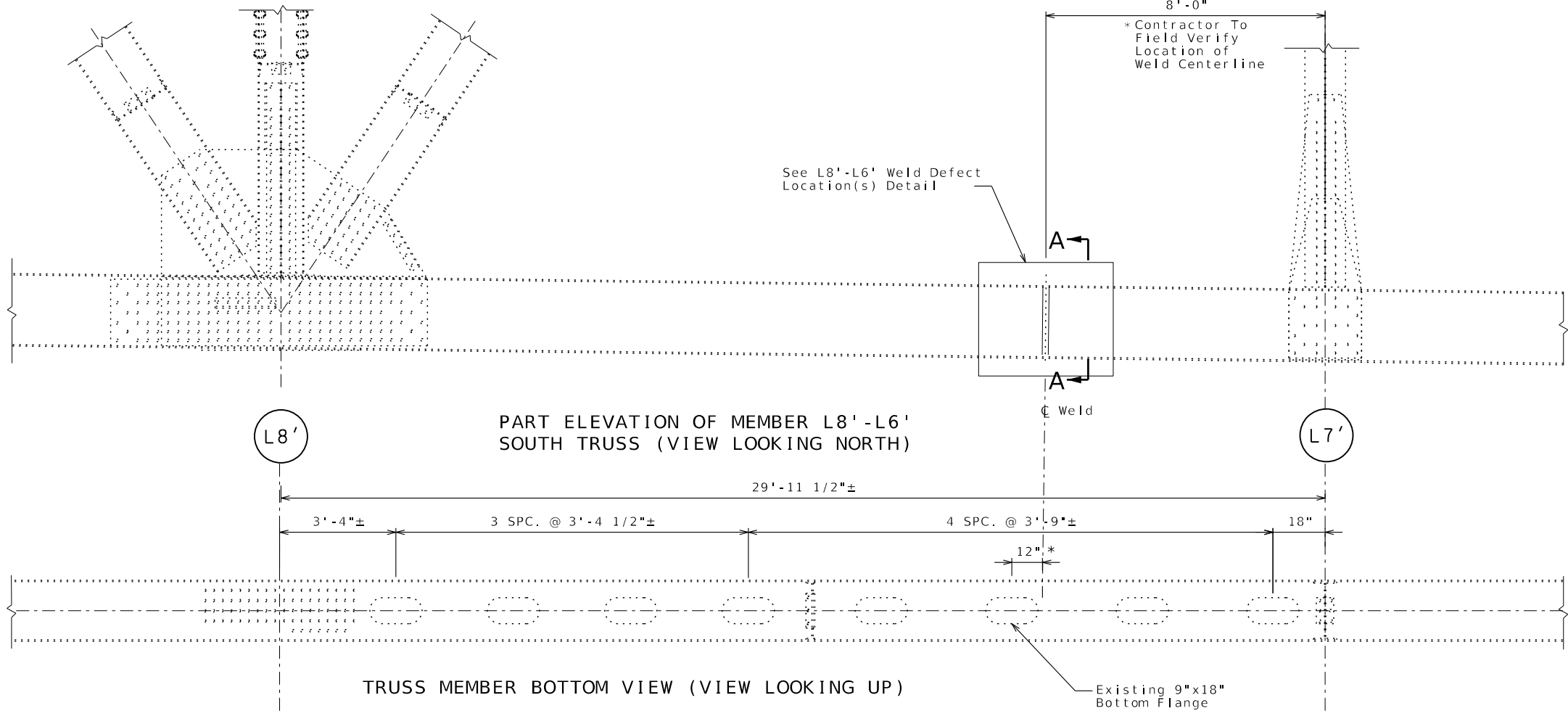
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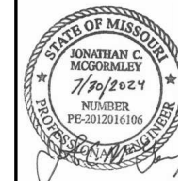
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** Contractor To Field Verify Weld Width

TRUSS SPANS STRUCTURAL STEEL DETAILS - L8'-L6' WELD REPAIR

Detailed June, 2024
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Note: This drawing is not to scale. Follow dimensions.

Sheet No. 7 of 8



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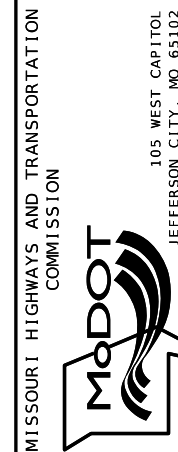
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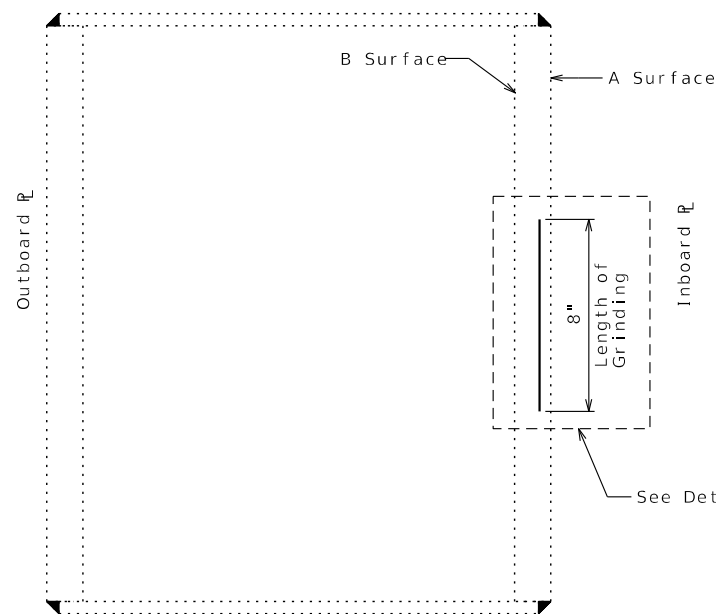
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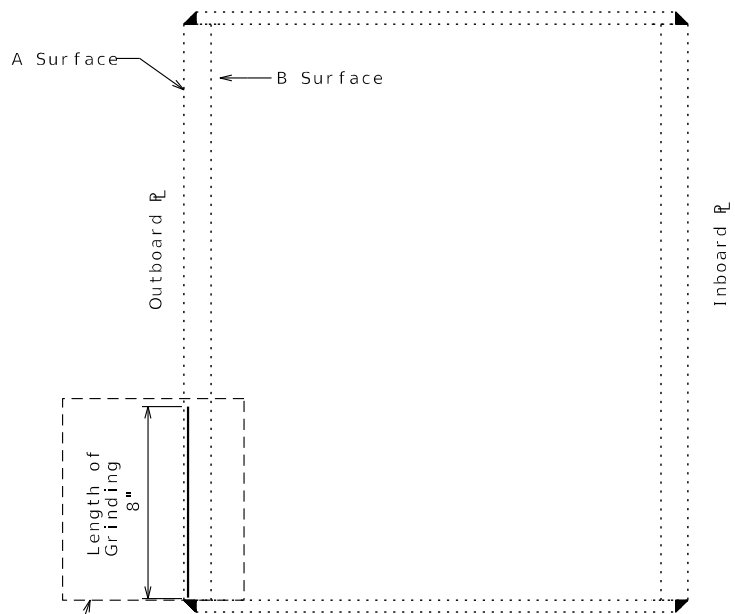
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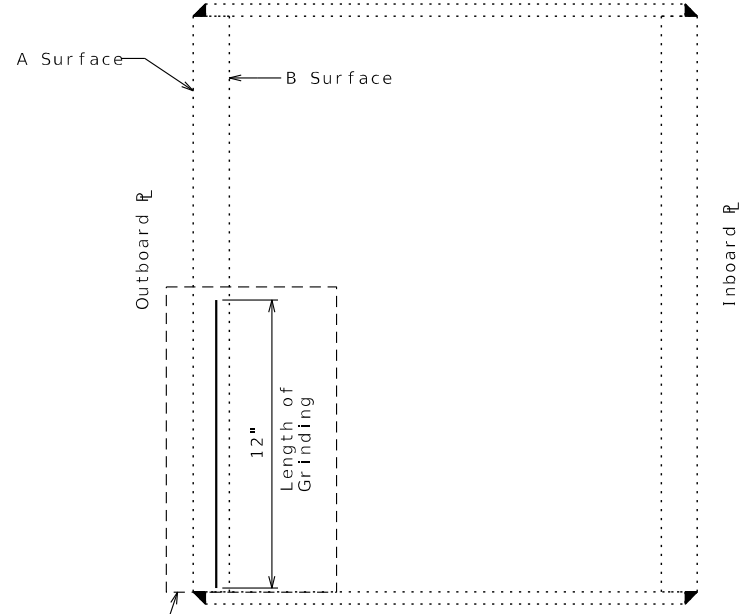
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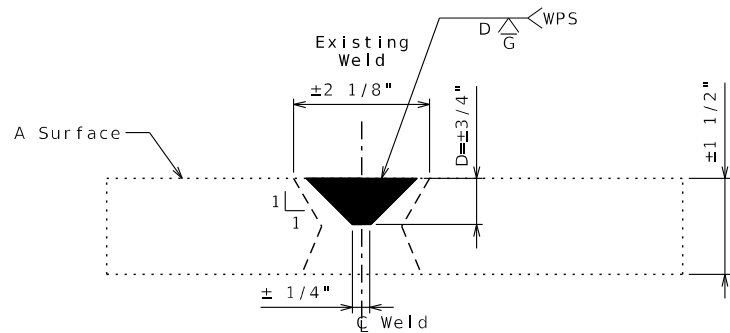
SECTION L4-L6



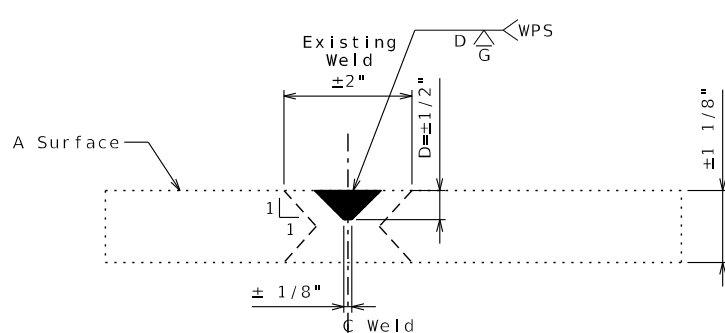
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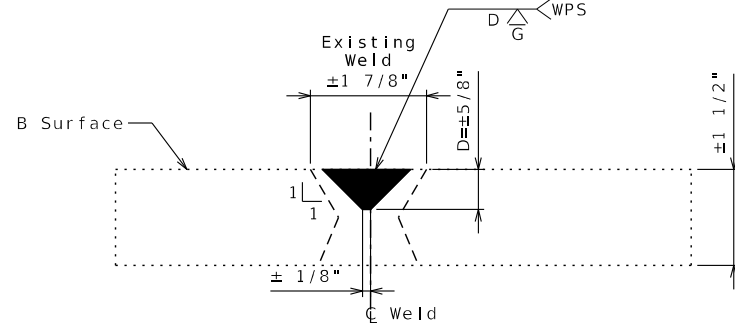
SECTION L8'-L6'



DETAIL A
(View Looking Along Vertical Weld in Side Plate)



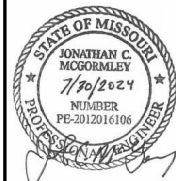
DETAIL B
(View Looking Along Vertical Weld in Side Plate)



DETAIL C
(View Looking Along Vertical Weld in Side Plate)

Notes:

1. Defect grinding locations are approximate based on previous UT inspections.
2. Remove coatings on both A and B surfaces 1 foot each side of weld centerline to facilitate UT inspection.
3. Remove all weld defects classified as rejectable in accordance with AWD D1.5.
4. Submit Weld Inspection Summary Report for approval prior to starting grinding.
5. Complete grinding and weld repair during same scheduled weekend closure(s).
6. Limit grinding to the length needed to remove all rejectable defects, combining defect removal where noted in the Weld Summary Report.
7. Verify all rejectable defects have been removed and document any remaining recordable defects using UT.
8. Complete weld repairs in accordance with approved Repair Welding Plan.
9. Reinspect welds using UT one week after completing hydrogen bake-out.
- 10.Recoat steel in accordance with procedures provided in General Notes.
- 11.See T-1 Weld Inspection and Repair JSP for additional requirements.



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