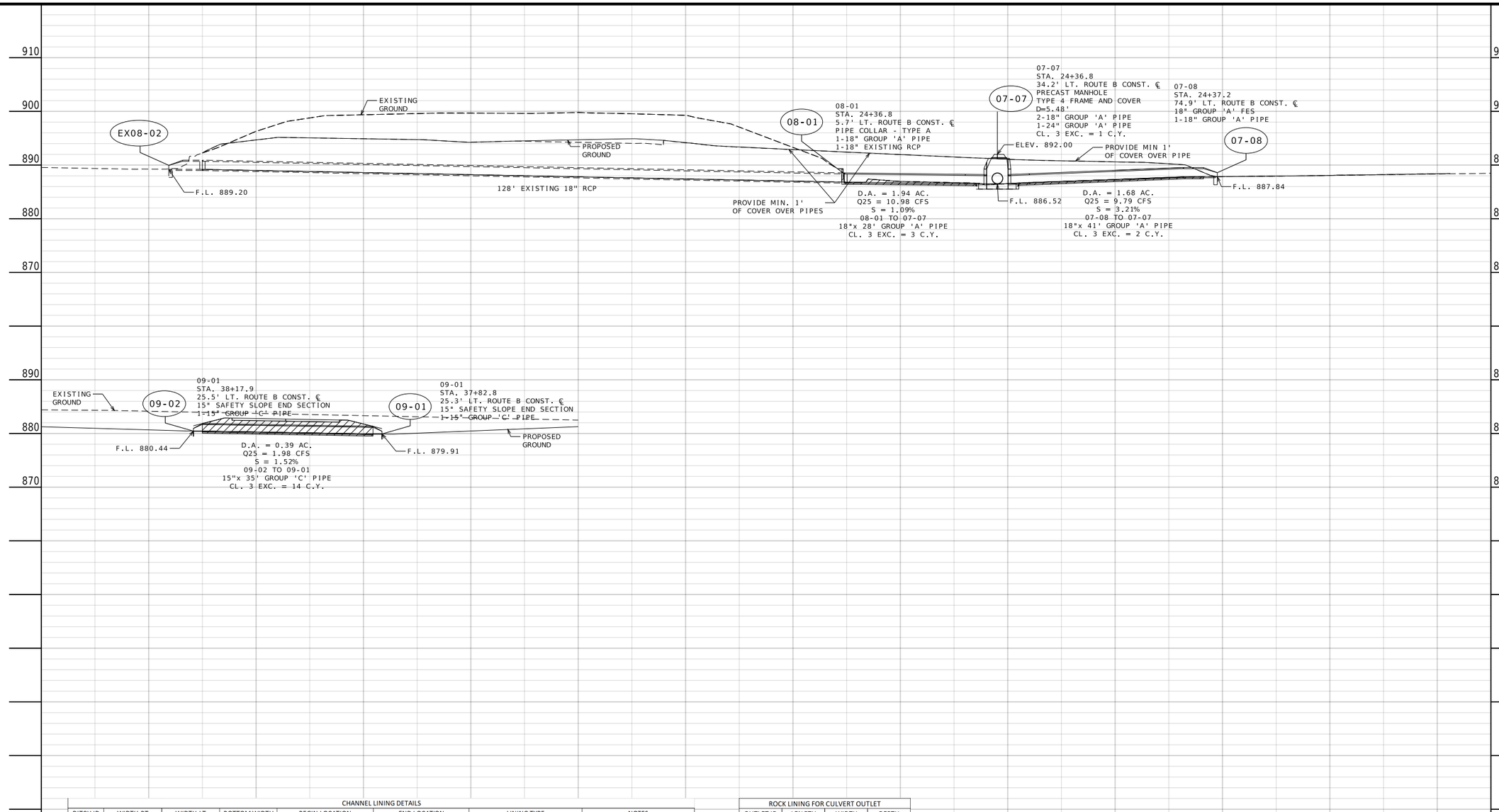


CHANNEL LINING DETAILS

DITCH ID	WIDTH-RT	WIDTH-LT	BOTTOM WIDTH	BEGIN LOCATION	END LOCATION	LINING TYPE	NOTES
02-01-3	6.6	6.6	V-DITCH	W VMP STA 75+23, RT	ROUTE B STA 34+61, LT	TYPE 1 TURF REINFORCEMENT MAT	
02-01-2	6.6	VARIES, SEE NOTE	V-DITCH	ROUTE B STA 34+61, LT	ROUTE B STA 35+13, LT	TYPE 1 TURF REINFORCEMENT MAT	PROVIDE MAT TO TOP OF THE SLOPE LIMITS
02-01-5	VARIES, SEE NOTE	6.6	V-DITCH	ROUTE B STA 35+65, LT	ROUTE B STA 35+13, LT	TYPE 1 TURF REINFORCEMENT MAT	PROVIDE MAT TO TOP OF THE SLOPE LIMITS
03-02-1	10.5	10.5	V-DITCH	ROUTE B STA 29+54, RT	W VMP STA 72+88, LT	TYPE 2 ROCK DITCH LINER	
04-01-2	4.5	4.5	4	NW SERVICE RD STA 19+30, LT	NW SERVICE RD STA 18+58, LT	TYPE 1 TURF REINFORCEMENT MAT	
04-01-1	4.5	4.5	4	NW SERVICE RD STA 18+58, LT	NW SERVICE RD STA 16+87, LT	TYPE 3 ROCK DITCH LINER	
04-01-3	4.5	4.5	V-DITCH	NW SERVICE RD STA 14+33, LT	NW SERVICE RD STA 16+75, LT	TYPE 3 ROCK DITCH LINER	
04-02-5	10	4.5	V-DITCH	RAMP 3 STA 6+59, LT	RAMP 3 STA 4+48, LT	TYPE 2 ROCK DITCH LINER	
04-02-4	10	0 / 4.5, SEE NOTE	V-DITCH	RAMP 3 STA 4+48, LT	ROUTE A STA 19+69, LT	TYPE 3 ROCK DITCH LINER	TRIM ROCK LINER TO ROCK FILL
04-02-3	10	0, SEE NOTE	V-DITCH	ROUTE A STA 19+69, LT	ROUTE A STA 17+15, LT	TYPE 2 ROCK DITCH LINER	TRIM ROCK LINER TO ROCK FILL; TRANSITION TO 34-02-2 WIDTH BETWEEN 17+60 AND 17+15
04-02-2	23	0, SEE NOTE	0, SEE NOTE	ROUTE A STA 17+15, LT	ROUTE A STA 16+00, LT	TYPE 2 ROCK DITCH LINER	TRIM ROCK LINER TO ROCK FILL; BOTTOM WIDTH CONSIDERED IN WIDTH-RT; SEE ROADWAY CROSS SECTIONS FOR DITCH DETAILS
04-02-1	5.25	5.25	VARIES, SEE NOTE	ROUTE A STA 16+00, LT	ROUTE A STA 13+95, LT	TYPE 2 ROCK DITCH LINER	SEE ROADWAY CROSS SECTIONS FOR DITCH DETAILS
06-02-1	5	5	V-DITCH	ROUTE A STA 8+30, RT	NW SERVICE RD STA 10+53, LT	TYPE 1 TURF REINFORCEMENT MAT	
EX06-02-3	5	5	V-DITCH	NW SERVICE RD STA 10+53, LT	N. 1095817.88, E. 614221.72	TYPE 1 TURF REINFORCEMENT MAT	

NOTE: WIDTH DIRECTION IS FACING DOWNSTREAM ALONG THE FLOWLINE OF THE DITCH. SEE ROADWAY PLANS FOR ADDITIONAL DITCH DETAILS.

ROCK LINING FOR CULVERT OUTLET

OUTLET ID	LENGTH	WIDTH	DEPTH
01-01	63	7	1
02-01	11	6	1
04-01	20	12	2
05-01	42	9	1.5
07-01	18	9	1.5
09-01	12	4	1

NOTES:

1. BACKFILL SHALL BE CONSIDERED INCIDENTAL TO CLASS 3 EXCAVATION. EXCAVATION QUANTITIES ARE PROVIDED IN SUMMARY OF QUANTITIES FOR HATCHURED LIMITS SHOWN.
2. PIPE LENGTHS SHOWN ON PLANS ARE FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE OR FROM CENTER OF STRUCTURE TO END OF FLARED END SECTION.
3. PIPE SLOPE IS CALCULATED BASED ON LENGTHS FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE OR FROM CENTER OF STRUCTURE TO END OF FLARED END SECTION.
4. UNDERGROUND FACILITIES, STRUCTURES, AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS; AND THEREFORE, THEIR LOCATION$ MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THERE MAY BE OTHERS. THE EXISTENCE OF WHICH IS PRESENTLY NOT KNOWN OR SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND LOCATION AND TO AVOID DAMAGE THERETO.
5. ALL PIPES SHALL BE SMOOTH INTERIOR REGARDLESS OF MATERIAL SELECTION.
6. ALL STORM SEWERS ARE PUBLIC AND TO BE MAINTAINED BY MODOT.

STATE OF MISSOURI
RICHARD S. BAUM
NUMBER E-24320
PROFESSIONAL ENGINEER
12/06/2024 5:44:28 PM
Richard S. Baum
MO PE E-24320

DATE PREPARED: 6-DEC-2024
ROUTE: A
STATE: MO
DISTRICT: NE
SHEET NO.: 73
COUNTY: WARREN
JOB NO.: J2S3438
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

DESCRIPTION | DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

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

Jacobs
JACOBS ENGINEERING GROUP
1001 HIGHLANDS PLAZA DRIVE
ST. LOUIS, MISSOURI 63110
PHONE: (314) 335-4000
CERTIFICATE OF AUTHORITY #00704

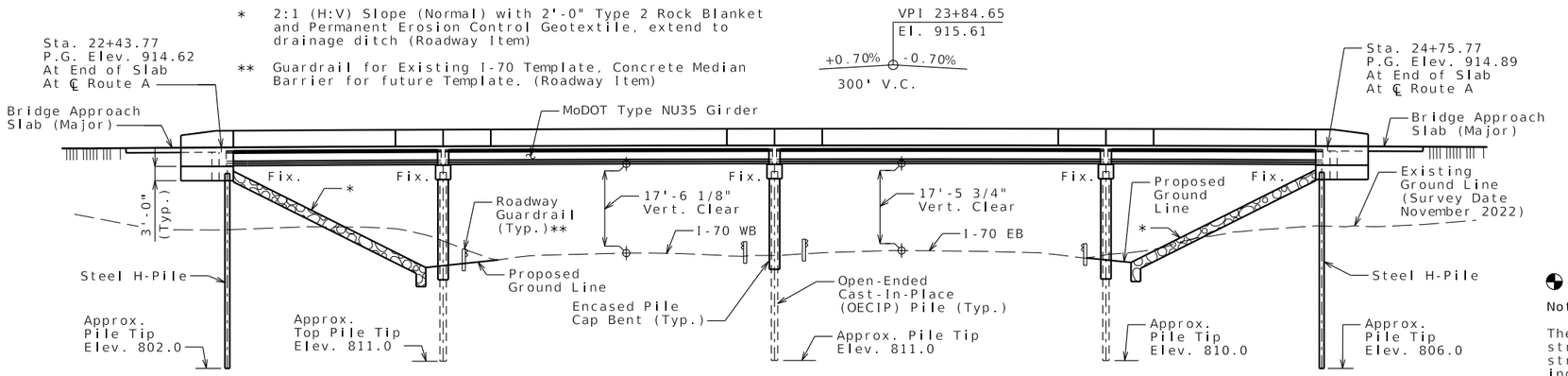
\\jacobspw18ics01\iCS_pdf_work_dir\76708\70911_147\073_CS_03_J2S3438_i10.dgn 08:12 6-DEC-2024

(45.3'-69.5'-69.5'-45.3') PRESTRESSED CONCRETE NU-GIRDER SPANS (NO SKEW)

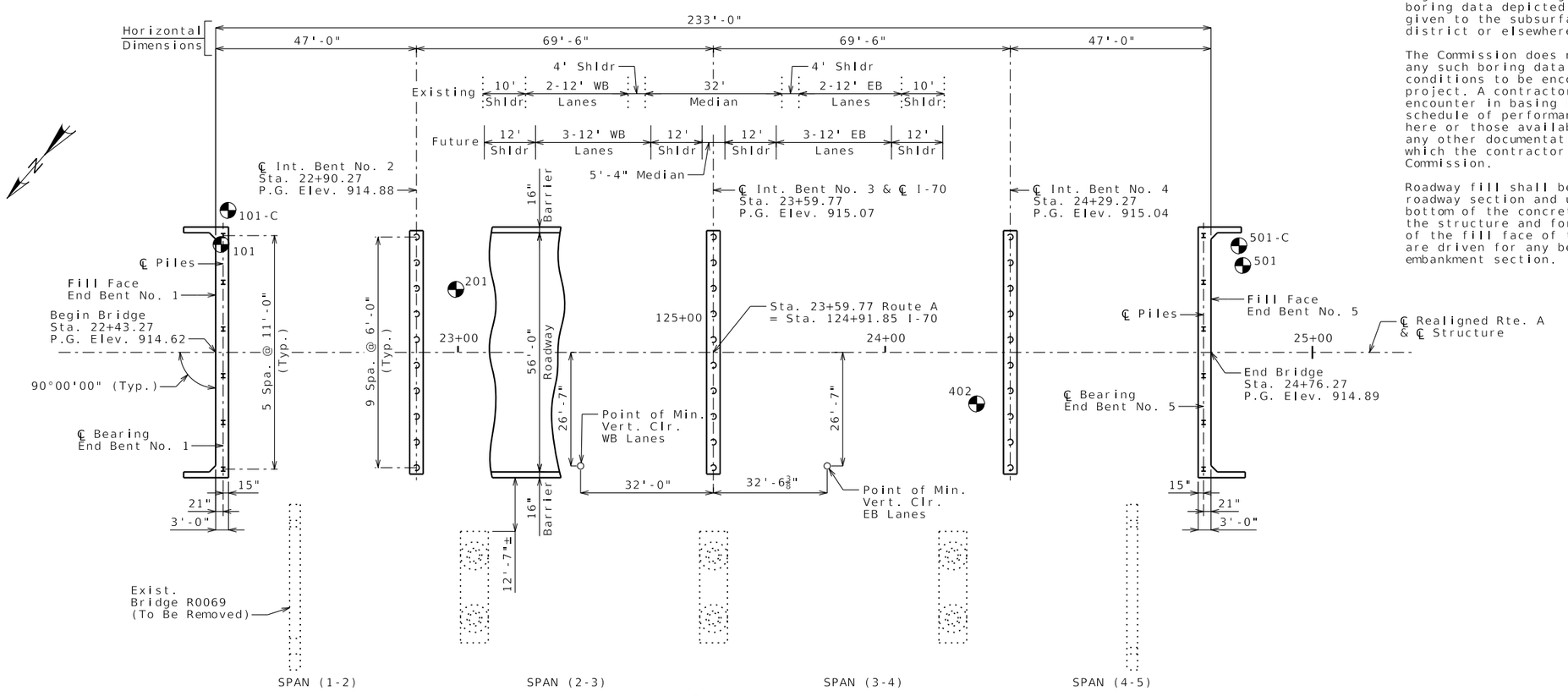
SEC/SUR 14 TWP 47 N RGE 3 W

* 2:1 (H:V) Slope (Normal) with 2'-0" Type 2 Rock Blanket and Permanent Erosion Control Geotextile, extend to drainage ditch (Roadway Item)

** Guardrail for Existing I-70 Template, Concrete Median Barrier for future Template. (Roadway Item)



ELEVATION



PLAN

Indicates location of borings.

Notice and Disclaimer Regarding Boring Log Data

The locations of all subsurface borings for this structure are shown on the plan sheet for this structure. The boring data for all locations indicated, as well as any other boring logs or other factual records of subsurface data and investigations performed by the department for the design of the project, are shown on Sheet No. 32 and may be included in the Electronic Bridge Deliverables. They will also be available from the Project Contact upon written request. No greater significance or weight should be given to the boring data depicted on the plan sheets than is given to the subsurface data available from the district or elsewhere.

The Commission does not represent or warrant that any such boring data accurately depicts the conditions to be encountered in constructing this project. A contractor assumes all risks it may encounter in basing its bid prices, time or schedule of performance on the boring data depicted here or those available from the district, or on any other documentation not expressly warranted, which the contractor may obtain from the Commission.

Roadway fill shall be completed to the final roadway section and up to the elevation of the bottom of the concrete beam within the limits of the structure and for not less than 25 feet in back of the fill face of the end bents before any piles are driven for any bents falling within the embankment section.

B.M. - ELEVATION = 911.85
CUT CROSS, WEST END WINGWALL AT SOUTHEAST CORNER ON ROUTE A BRIDGE (R0069) OVER I-70

BRIDGE: ROUTE A OVER I-70

ROUTE A FROM ROUTE W TO ROUTE 94
ABOUT 6.4 MILES SOUTH OF ROUTE W
BEG. STA. 22+43.27

Detailed July 2024
Checked Oct. 2024

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

Sheet No. 1 of 32

STATE OF MISSOURI
RODNEY D. RILEY NUMBER E-26267
REGISTERED PROFESSIONAL ENGINEER
Rodney D. Riley
12/12/2024 6:32:01 PM
Rodney D. Riley, PE
MO-026267

DATE PREPARED
12-DEC-2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
BR	1

COUNTY
WARREN

JOB NO.
J2S3438

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9374

DESCRIPTION	DATE	REV.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
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PHONE: (314) 335-4000
CERTIFICATE OF AUTHORITY #00704

General Notes:

Design Specifications:

2020 AASHTO LRFD Bridge Design Specifications (9th Ed.)
2011 AASHTO Guide Specifications for LRFD Seismic Bridge Design (2nd Ed.) and 2014 Interim Revisions (Seismic Details)
Seismic Design Category = B
Design earthquake response spectral acceleration coefficient at 1.0 second period, SD1 = 0.165g
Acceleration Coefficient (effective peak ground acceleration coefficient) As = 0.133g

Design Loading:

Vehicular = HL-93
Future Wearing Surface = 35 lb/sf
Earth = 120 lb/cf
Equivalent Fluid Pressure = 45 lb/cf (Min.)
Superstructure: Simply-Supported, Non-Composite for dead load.
Continuous Composite for live load.

Design Unit Stress:

Class B Concrete (Substructure)	f'c = 3,000 psi
Class B-2 Concrete (Superstructure, except Prestressed Girders and Barrier)	f'c = 4,000 psi
Class B-1 Concrete (Barrier)	f'c = 4,000 psi
Reinforcing Steel (ASTM A615 Grade 60)	fy = 60,000 psi
Structural Steel HP Pile (ASTM A709 Grade 50)	fy = 50,000 psi
Welded or seamless steel shell (pipe) (ASTM A252 Grade 3 Modified)	fy = 50,000 psi

For precast prestressed panel stresses, see Sheet No. 20.
For prestressed girder stresses, see Sheets No. 14 thru 17.

Neoprene Pads:

Neoprene bearing pads shall be 60 durometer and shall be in accordance with Sec 716.

Joint Filler:

All joint filler shall be in accordance with Sec 1057 for preformed sponge rubber expansion and partition joint filler, except as noted.

Reinforcing Steel:

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

Traffic Handling:

Vertical clearance for Route I-70 traffic during construction shall be 15'-6" minimum over a 24'-0" wide horizontal opening of the roadway in each direction.

Structure to be closed during construction. Traffic to be maintained on existing structure during roadway construction. See roadway plans for traffic control.

Concrete Protective Coatings:

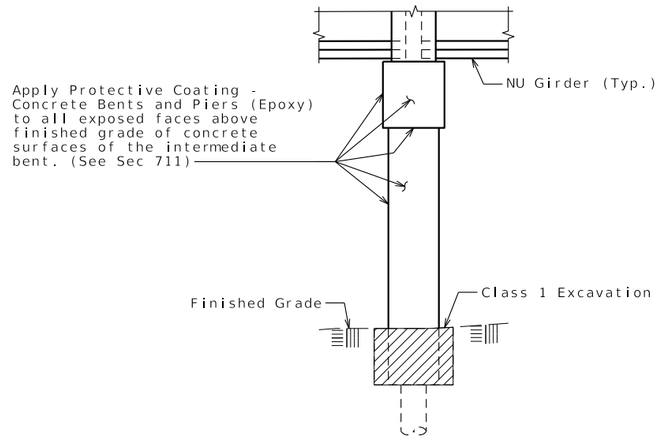
Protective coating for concrete bents (Epoxy) shall be applied as shown on the bridge plans and in accordance with Sec 711.

Miscellaneous:

MoDOT Construction personnel will indicate the type of joint filler option used under the precast panels for this structure:

☐ Constant Joint Filler
☐ Variable Joint Filler

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



PROTECTIVE COATING DETAILS AT INTERMEDIATE BENTS NO. 2, 3 AND 4

STATE OF MISSOURI
RODNEY D. RILEY NUMBER E-26267
REGISTERED PROFESSIONAL ENGINEER
12/12/2024 6:33:15 PM
Rodney D. Riley, PE
MO-026267

DATE PREPARED: 12-DEC-2024
ROUTE: A | STATE: MO
DISTRICT: BR | SHEET NO.: 3
COUNTY: WARREN
JOB NO.: J2S3438
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9374

REV.	DESCRIPTION	DATE

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

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JACOBS ENGINEERING GROUP
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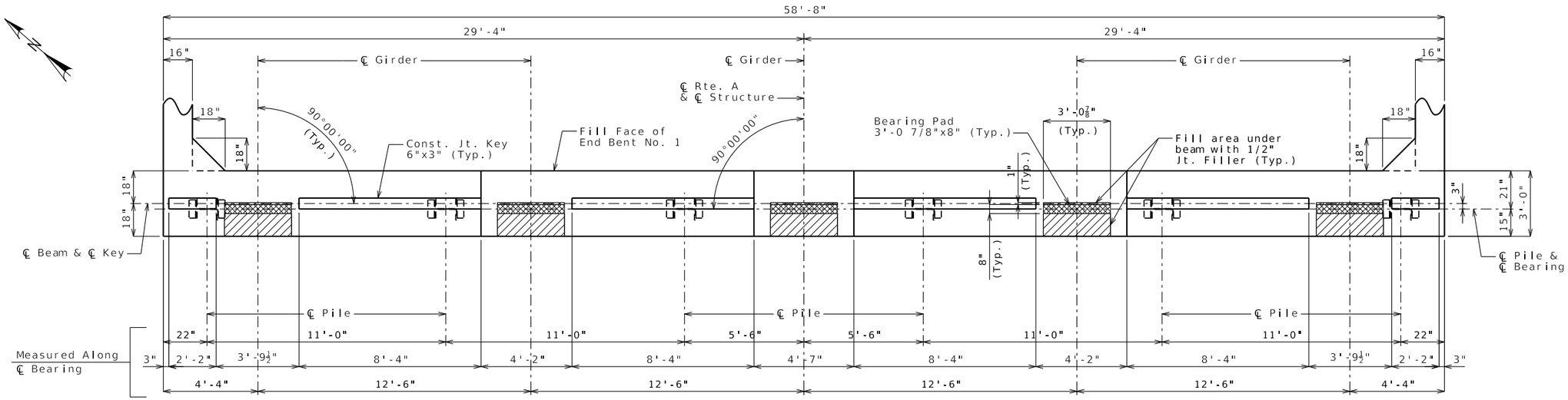
PHONE: (314) 335-4000
CERTIFICATE OF AUTHORITY #00704

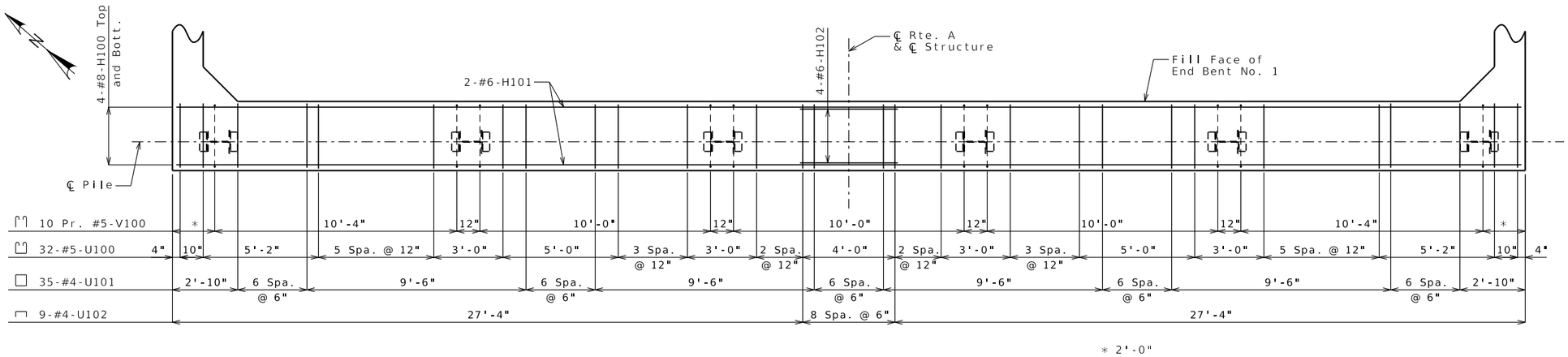
Detailed July 2024
Checked Oct. 2024

GENERAL NOTES

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

pw://jacobs-us-va-pw.bentley.com:jacobs-us-va-pw-04/Documents/F3X00900 - I-70 High Hill RR Reali/30 WIP/J2S3438/Bridge/Sheets/B_A9374_003_J2S3438_Notes-02.dgn 17:57 12-DEC-2024



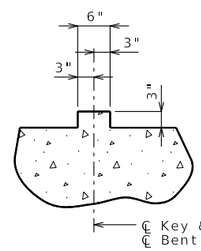


* 2'-0"

PLAN OF BEAM SHOWING REINFORCEMENT

Substructure Quantity Table for End Bent No. 1		
Item		Quantity
Galvanized Structural Steel Piles (12 in.)	linear foot	642
Dynamic Pile Testing	each	1
Pre-Bore for Piling	linear foot	116
Pile Point Reinforcement	each	6
Class B Concrete (Substructure)	cu. yard	23.1

These quantities are included in the Estimated Quantities table on Sheet No. 2.



SECTION THRU KEY

General Notes:

For details of End Bent No. 1 not shown, see Sheets No. 5 & 6.

All U-bars and Pr. V-bars shall be placed parallel to ℄ Rte. A.

All reinforcing bars shall be field adjusted to clear piles by at least 1 1/2".

For details of vertical drain at end bents, see Sheet No. 7.

For details of bridge approach slab, see Sheet No. 26.

Reinforcement of wingwall not shown for clarity.

DETAILS OF END BENT NO. 1

Detailed Aug. 2024
Checked Oct. 2024

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

STATE OF MISSOURI
RODNEY D. RILEY NUMBER E-26267
REGISTERED PROFESSIONAL ENGINEER
12/12/2024 6:33:15 PM
Rodney D. Riley, PE
MO-026267

DATE PREPARED
12-DEC-2024

ROUTE A | STATE MO
DISTRICT BR | SHEET NO. 4
COUNTY WARREN
JOB NO. J2S3438
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9374

DESCRIPTION | DATE | REV.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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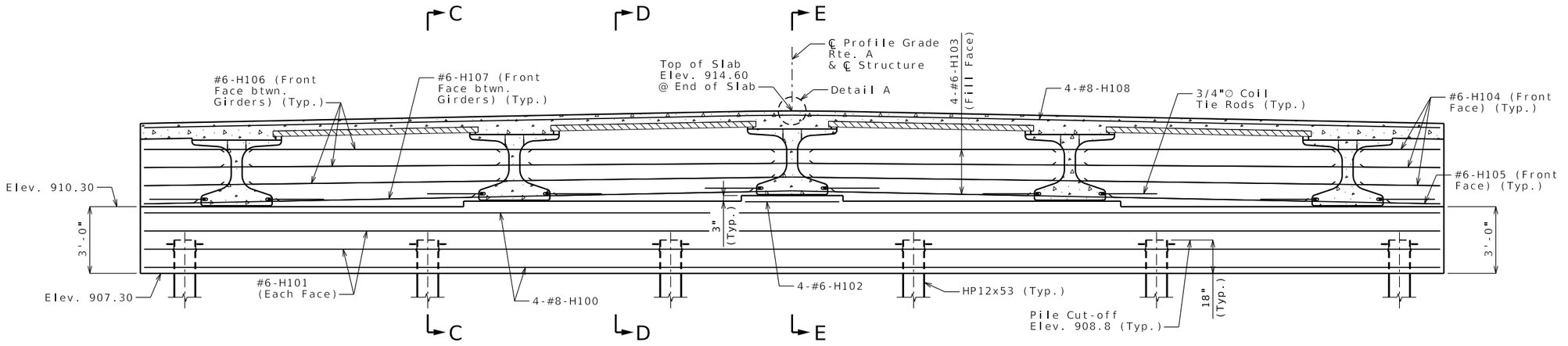
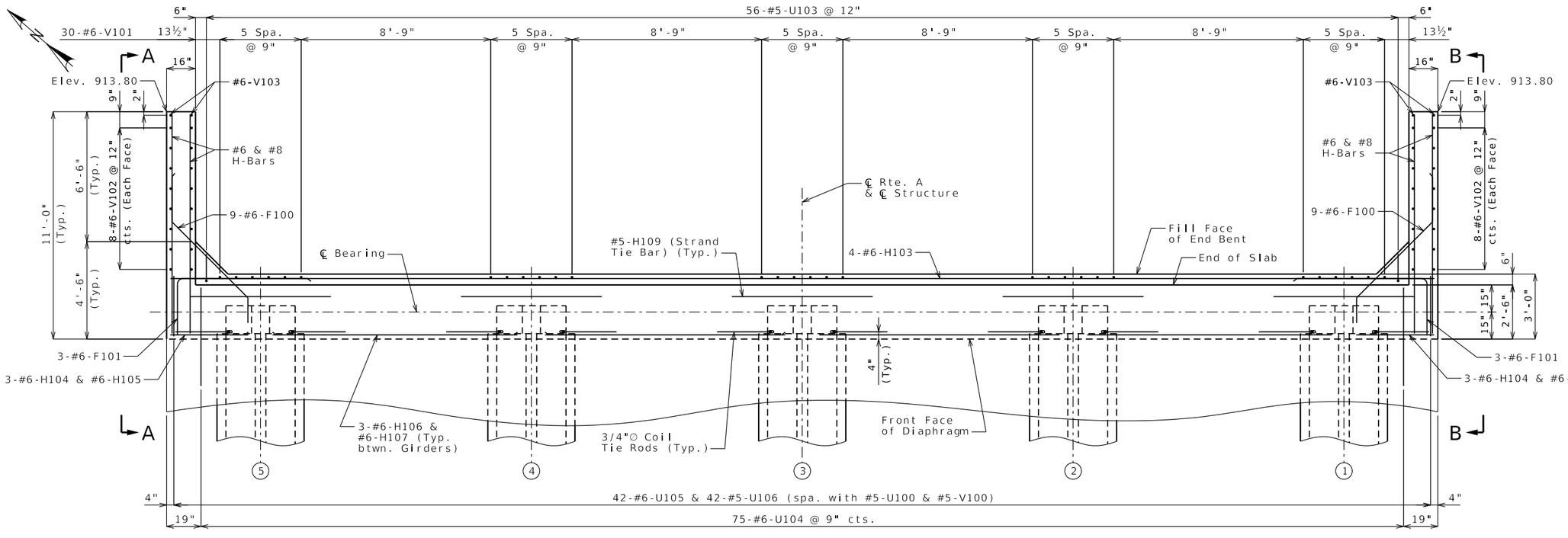
CERTIFICATE OF AUTHORITY #00704

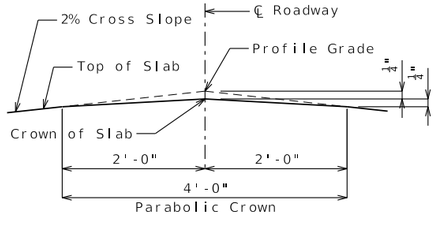


SECTION NEAR END BENT



PART PLAN

#6-H102 & #8-H108 bars not shown for clarity.



DETAIL A

Notes:

For details of End Bent No. 1 not shown, see Sheets No. 4 & 6.

For Elevations A-A, B-B & Sections C-C, D-D & E-E, see Sheet No. 6.

For location of Coil Tie Rods and #5-H109 (Strand Tie Bar), see Sheets No. 14 & 15.

The #6-F100 and #6-F101 bars shall be bent in the field to clear girders if required.

The U bars shall be placed parallel to centerline of roadway.

All concrete in the end bent above top of beam and below top of slab shall be Class B-2.

Strands at end of the girders shall be field bent or, if necessary, cut in field to maintain 1 1/2" minimum clearance to fill face of end bent.

DETAILS OF END BENT NO. 1

Detailed Aug. 2024
Checked Oct. 2024

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

Sheet No. 5 of 32

STATE OF MISSOURI
RODNEY D. RILEY
NUMBER E-26267
REGISTERED PROFESSIONAL ENGINEER

12/12/2024 6:33:16 PM
Rodney D. Riley, PE
MO-026267

DATE PREPARED
12-DEC-2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
BR	5

COUNTY
WARREN

JOB NO.
J2S3438

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9374

REV.	DATE	DESCRIPTION

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

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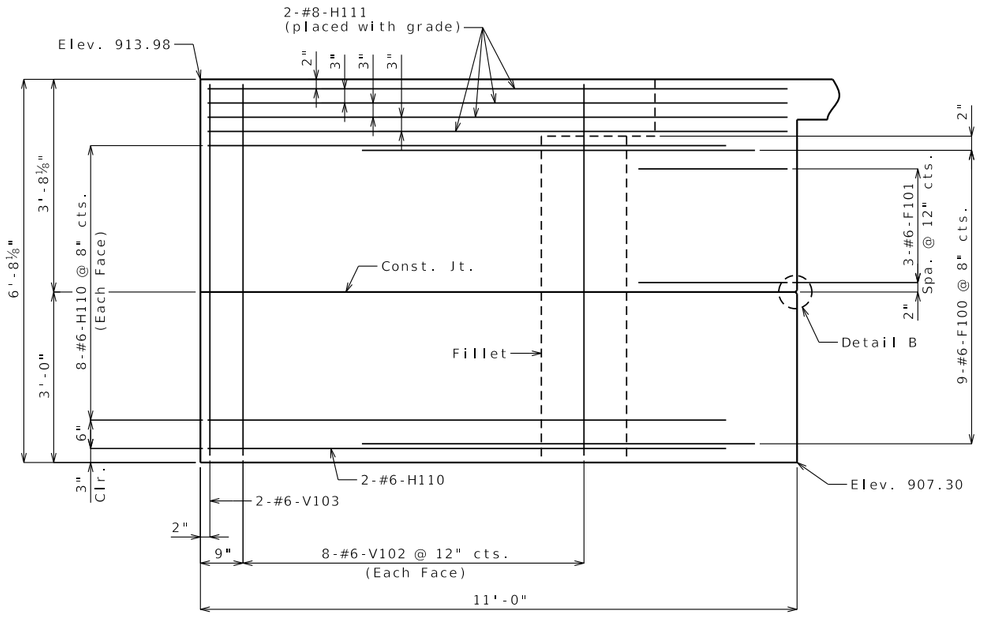
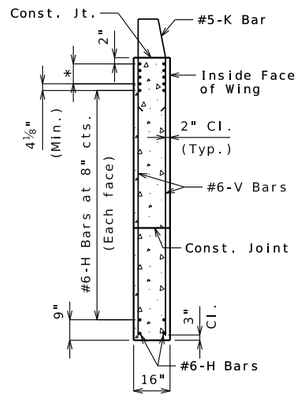
PHONE: (314) 335-4000
CERTIFICATE OF AUTHORITY
#00704

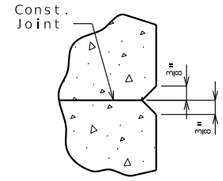


ELEVATION A-A
(ELEVATION B-B OPPOSITE HAND)

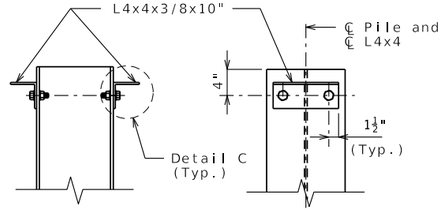


TYPICAL SECTION
THRU WING

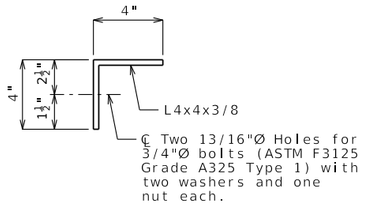
* #8-H Bars at 3" cts.
(Each face)(Place with grade)



DETAIL B

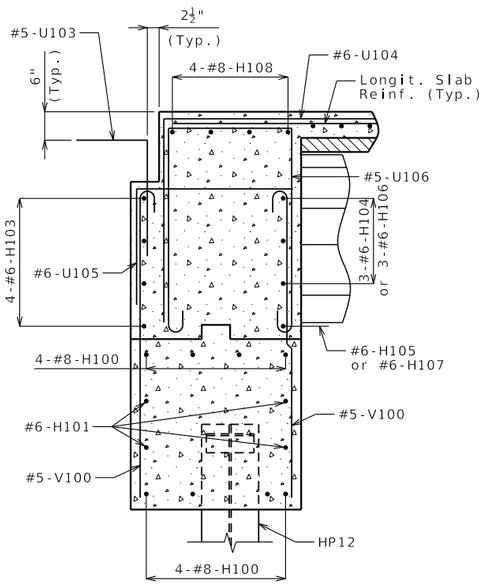


DETAILS OF HP PILE ANCHORS

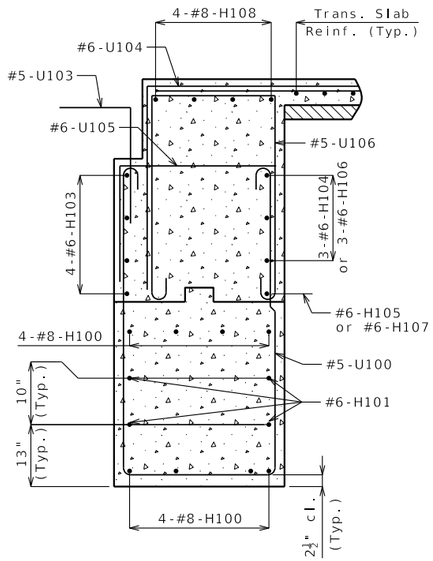


DETAIL C

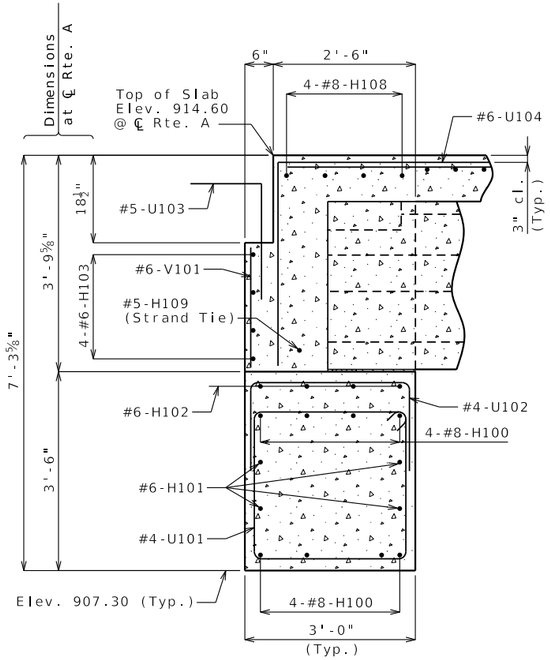
Angles shall be coated with a minimum of two coats of non-aluminum epoxy mastic primer to provide a dry film thickness of 4 mils minimum, 8 mils maximum, or galvanized in accordance with Sec 1081. Bolts, washers and nuts shall be galvanized in accordance with AASHTO M 232 (ASTM A153), Class C.



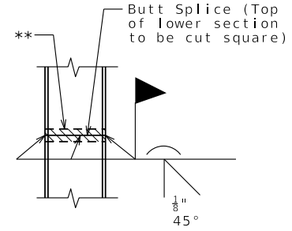
SECTION C-C



SECTION D-D



SECTION E-E



STEEL PILE SPLICE
(If required)

** Galvanizing material shall be omitted or removed one inch clear of weld locations in accordance with Sec 702.

Notes:

For location of Elevations A-A & B-B, see Sheet No. 5.

For location of Sections C-C, D-D & E-E, see Sheet No. 5.

For details of End Bent No. 1 not shown, see Sheets No. 4 & 5.

For reinforcement of the barrier, see Sheet No. 25.

DETAILS OF END BENT NO. 1

Detailed Aug. 2024
Checked Oct. 2024

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

STATE OF MISSOURI
RODNEY D. RILEY NUMBER E-26267
REGISTERED PROFESSIONAL ENGINEER
12/12/2024 6:33:17 PM
Rodney D. Riley, PE
MO-026267

DATE PREPARED
12-DEC-2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
BR	6

COUNTY
WARREN

JOB NO.
J2S3438

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9374

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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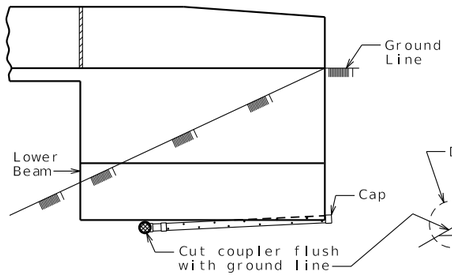
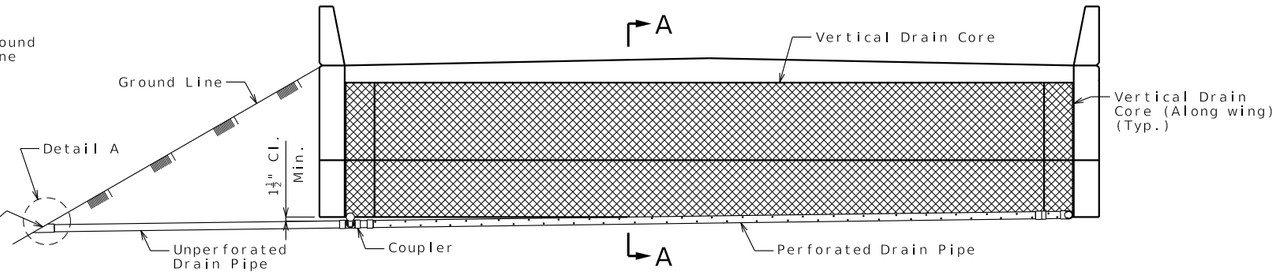
CERTIFICATE OF AUTHORITY
#00704

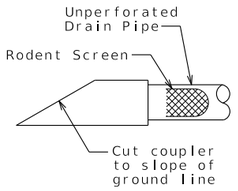
REV.



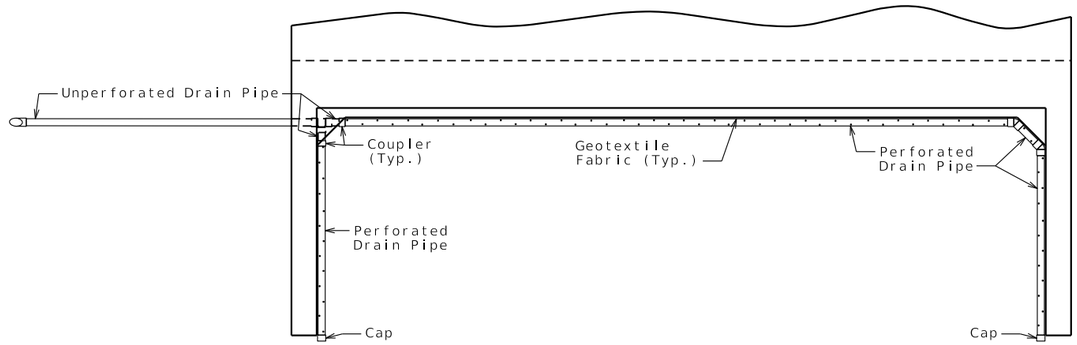
ELEVATION OF WING



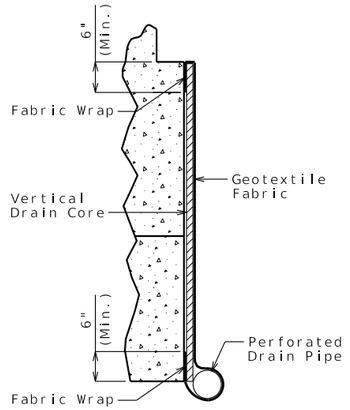
ELEVATION OF END BENT



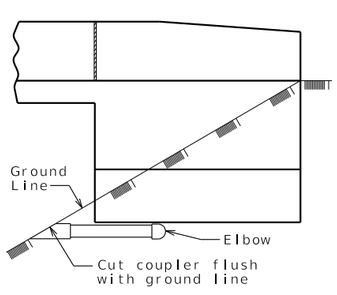
DETAIL A



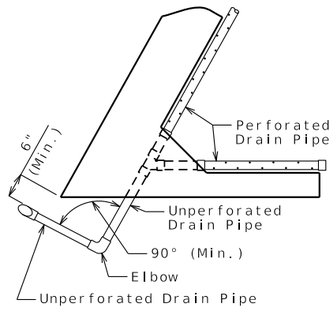
PLAN OF END BENT



PART SECTION A-A
(Section thru wing similar)



ELEVATION OF WING



PART PLAN

OPTIONAL TURNED DRAIN
(Use only when straight drain is not practical.)

General Notes:

All drain pipe shall be sloped 1 to 2 percent.

Drain pipe may be either 6-inch diameter corrugated metallic-coated steel pipe underdrain, 4-inch diameter corrugated polyvinyl chloride (PVC) drain pipe, or 4-inch diameter corrugated polyethylene (PE) drain pipe.

Drain pipe shall be placed at fill face of end bent and inside face of wings. The pipe shall slope to lowest grade of ground line, also missing the lower beam of end bent by a minimum of 1 1/2 inches.

Perforated pipe shall be placed at fill face side and inside face of wings at the bottom of end bent and plain pipe shall be used where the vertical drain ends to the exit at ground line.

VERTICAL DRAIN AT END BENTS

(Squared end bent shown, skewed end bent similar)

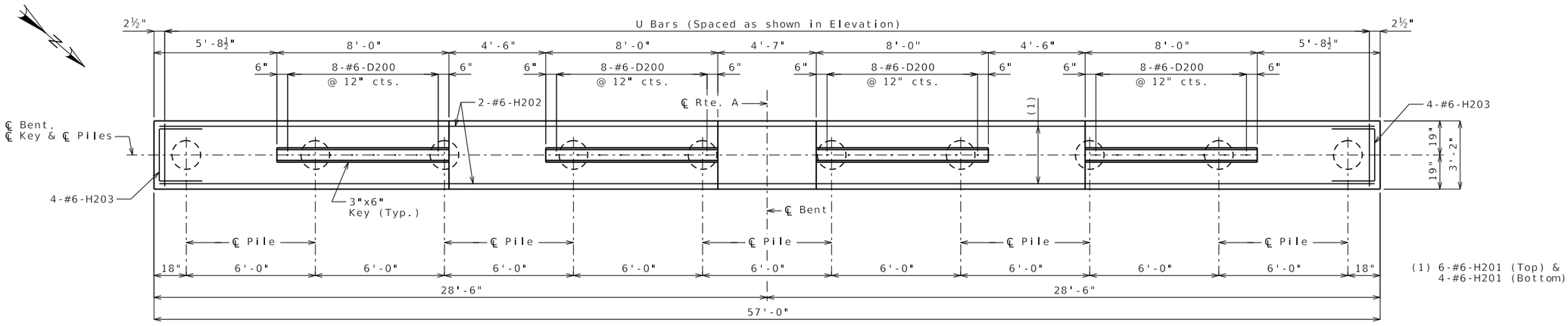
STATE OF MISSOURI
RODNEY D. RILEY NUMBER E-26267
REGISTERED PROFESSIONAL ENGINEER
12/12/2024 6:33:18 PM
Rodney D. Riley, PE
MO-026267

DATE PREPARED: 12-DEC-2024
ROUTE: A | STATE: MO
DISTRICT: BR | SHEET NO.: 7
COUNTY: WARREN
JOB NO.: J2S3438
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9374

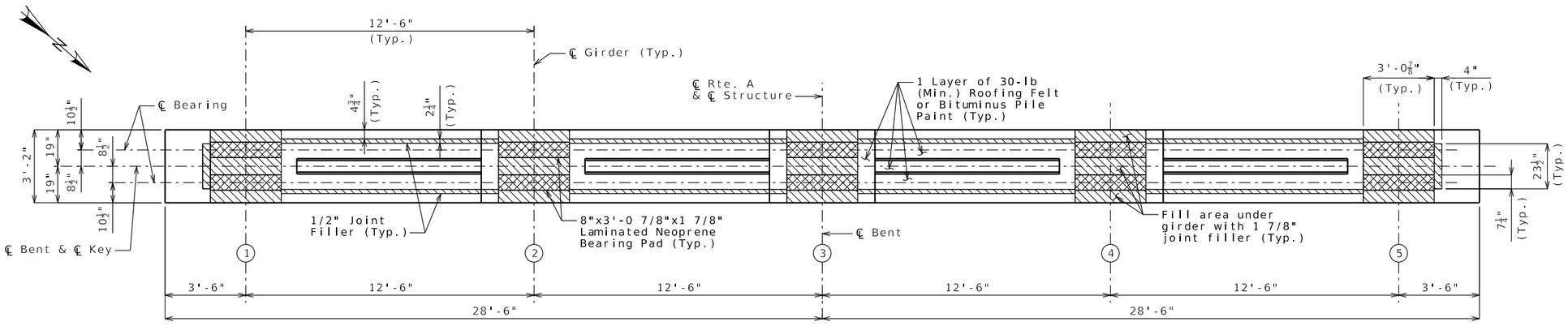
DESCRIPTION | DATE | REV.

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

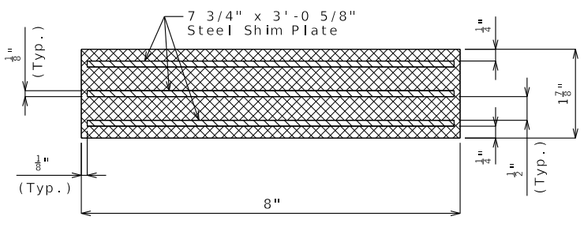
Jacobs
JACOBS ENGINEERING GROUP
1001 HIGHLANDS PLAZA DR WEST SUITE 400
ST.LOUIS, MISSOURI 63110
PHONE: (314) 335-4000
CERTIFICATE OF AUTHORITY #00704



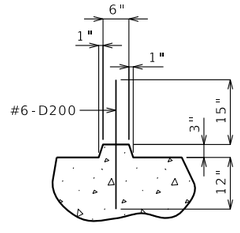
PLAN SHOWING REINFORCEMENT



PLAN OF BEAM



LAMINATED NEOPRENE BEARING PAD



SECTION THRU KEY

General Notes:
Work this sheet with Sheets No. 9 & 19.

Bar marks shown (200 series) are for Intermediate Bent 2.
Bar marks for Intermediate Bent 3 are 300 series.
Bar marks for Intermediate Bent 4 are 400 series.

For steps 2 inches or more, use 2 1/4"x1/2" joint filler up vertical face.

All reinforcing shall be field adjusted to clear piles by at least 1 1/2".

Substructure Quantity Table

Item		Int. Bent No. 2	Int. Bent No. 3	Int. Bent No. 4
		Quantity	Quantity	Quantity
Class 1 Excavation	cu. yard	60	25	30
Galvanized Cast-In-Place Concrete Pile (16 in.)	linear foot	980	980	990
Dynamic Pile Testing	each	1	1	1
Pile Point Reinforcement	each	10	10	10
Class B Concrete (Substructure)	cu. yard	116.5	101.8	101.8
Reinforcing Steel (Epoxy Coated)	pound	7,120	6,610	6,610

These quantities are included in the Estimated Quantities table on Sheet No. 2.

DETAILS OF INTERMEDIATE BENTS NO. 2, 3, & 4

Detailed Oct. 2024
Checked Oct. 2024

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

pw://jacobs-us-va-pw.bentley.com:jacobs-us-va-pw-04/Documents/F3X00900 - I-70 High Hill RR Reali/30 WIP/J2S3438/Bridge/Sheets/B_A9374_008_J2S3438_IntBent_2-1.dgn 17:59 12-DEC-2024

STATE OF MISSOURI
RODNEY D. RILEY NUMBER E-26267
REGISTERED PROFESSIONAL ENGINEER
Rodney D. Riley
12/12/2024 6:33:18 PM
Rodney D. Riley, PE
MO-026267

DATE PREPARED
12-DEC-2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
BR	8

COUNTY
WARREN

JOB NO.
J2S3438

CONTRACT ID.

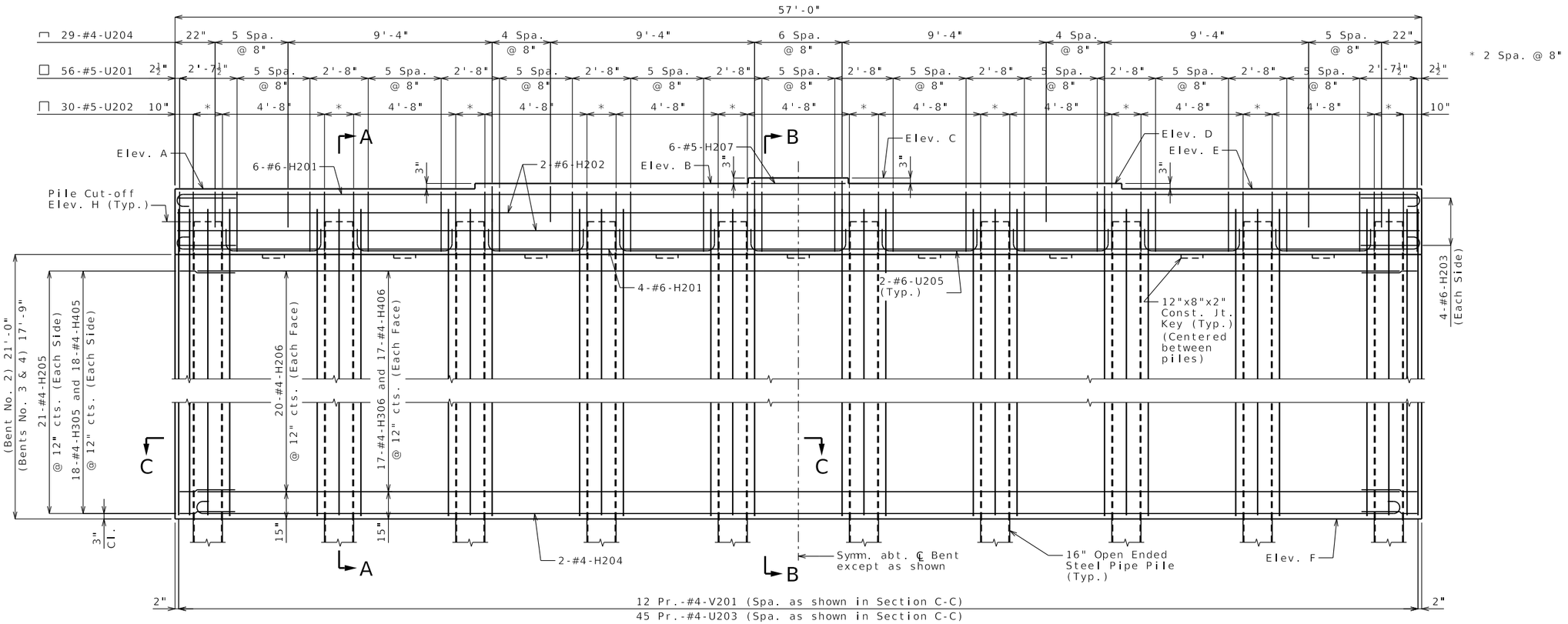
PROJECT NO.

BRIDGE NO.
A9374

DESCRIPTION | DATE | REV.

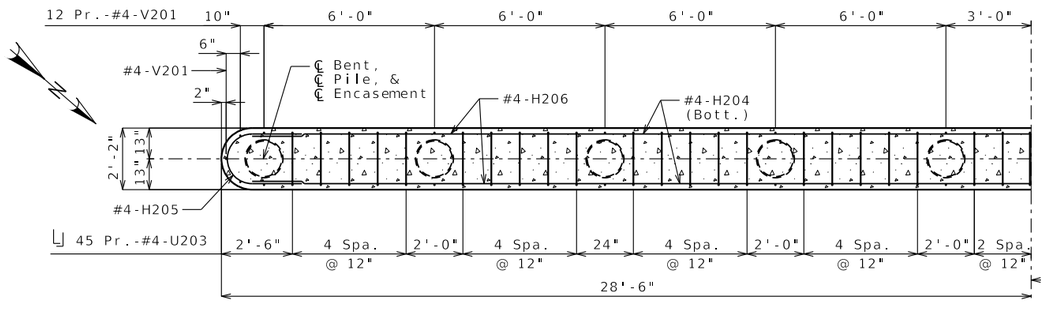
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

Jacobs
JACOBS ENGINEERING GROUP
1001 HIGHLANDS PLAZA DR. WEST, SUITE 400
ST. LOUIS, MISSOURI 63110
PHONE: (314) 335-4000
CERTIFICATE OF AUTHORITY #00704

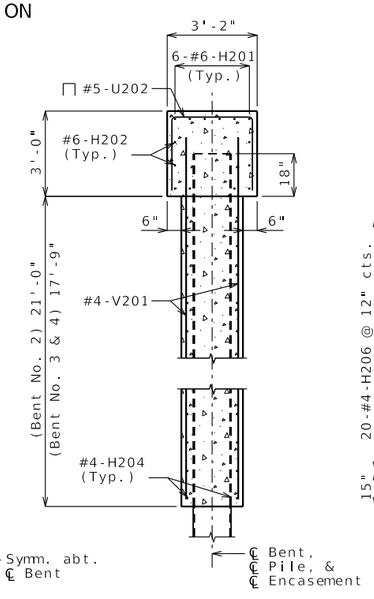


ELEVATION

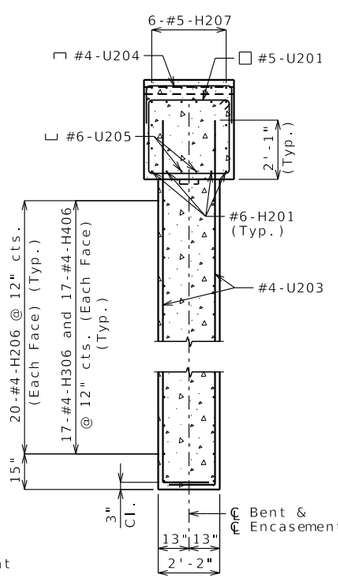
Table of Elevations							
Bent No.	Elev. A	Elev. B	Elev. C	Elev. D	Elev. E	Elev. F	Elev. H
Int. Bent No. 2	910.28	910.53	910.78	910.53	910.28	886.28	908.78
Int. Bent No. 3	910.45	910.70	910.95	910.70	910.45	889.70	908.95
Int. Bent No. 4	910.43	910.68	910.93	910.68	910.43	889.68	908.93



SECTION C-C



SECTION A-A



SECTION B-B

General Notes:
Work this sheet with Sheets No. 8 & 19.

DETAILS OF INTERMEDIATE BENTS NO. 2, 3, & 4

Detailed Oct. 2024
Checked Oct. 2024

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

Sheet No. 9 of 32

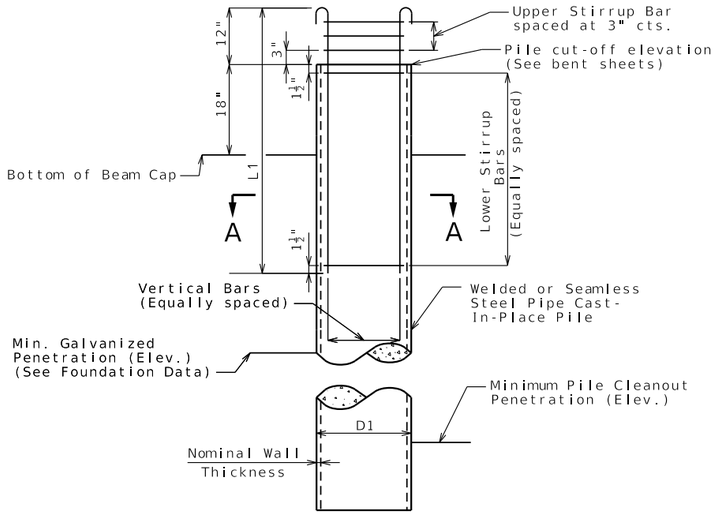
STATE OF MISSOURI
RODNEY D. RILEY NUMBER E-26267
REGISTERED PROFESSIONAL ENGINEER
Rodney D. Riley
12/12/2024 6:33:19 PM
Rodney D. Riley, PE
MO-026267

DATE PREPARED: 12-DEC-2024
ROUTE: A
STATE: MO
DISTRICT: BR
SHEET NO.: 9
COUNTY: WARREN
JOB NO.: J2S3438
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9374

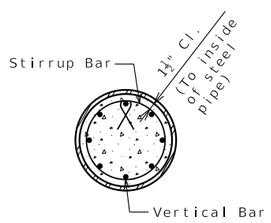
DESCRIPTION | DATE | REV.

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

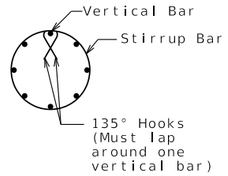
Jacobs
JACOBS ENGINEERING GROUP
1001 HIGHLANDS PLAZA DR. WEST, SUITE 400
ST. LOUIS, MISSOURI 63110
PHONE: (314) 335-4000
CERTIFICATE OF AUTHORITY #00704



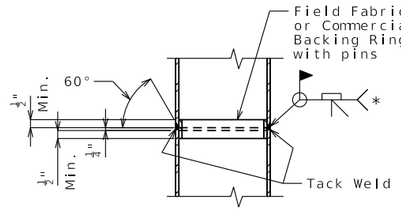
GALVANIZED OPEN ENDED CAST-IN-PLACE (OECIP) CONCRETE PILE WITHOUT PILE POINT REINFORCEMENT



SECTION A-A



DETAIL OF SEISMIC STIRRUP BAR

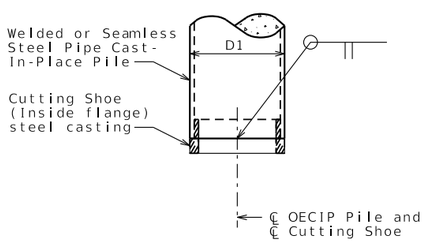


STEEL PIPE PILE SPLICE

* Galvanizing material shall be omitted or removed one inch clear of weld locations in accordance with Sec 702.

GALVANIZED OPEN ENDED CAST-IN-PLACE (OECIP) CONCRETE PILE DATA			
Bent Number	2	3	4
D1, OECIP Pile (O.D.)	16"	16"	16"
Min. Nominal Wall Thickness	1/2"	1/2"	1/2"
Pile Point Reinforcement	**	**	**
Min. Pile Cleanout Penetration (Elev.)	878.24	881.66	881.78
Vertical Bars	6-#6-V202	6-#6-V302	6-#6-V402
L1, Length of Vertical Bars	6'-0"	6'-0"	6'-0"
Upper Stirrup Bars	3-#4-P201	3-#4-P301	3-#4-P401
Lower Stirrup Bars	6-#4-P201	6-#4-P301	6-#4-P401

** Open ended cutting shoe



MANUFACTURED OPEN ENDED CUTTING SHOE (INSIDE FLANGE)

Notes:

Welded or seamless steel shell (pipe) shall be ASTM A252 Grade 3 Modified (fy = 50,000 psi) with physical and chemical requirements that meet ASTM A572 Grade 50. Pipe certification and source material shall be required.

Open ended pile shall be augered out to the minimum pile cleanout penetration elevation and filled with Class B-1 concrete.

Concrete for cast-in-place pile shall be Class B-1.

Steel casting for open ended cutting shoe pile point reinforcement shall be ASTM A148 Grade 90-60.

The minimum wall thickness of any spot or local area of any type shall not be more than 12.5% under the specified nominal wall thickness.

The contractor shall determine the pile wall thickness required to avoid damage from all driving activities, but wall thickness shall not be less than the minimum specified. No additional payment will be made for furnishing a thicker pile wall then specified on the plans.

Splices of pipe for cast-in-place pipe pile shall be made watertight and to the full strength of the pipe above and below the splice to permit hard driving without damage. Pipe damaged during driving shall be replaced without cost to the state. Pipe sections used for splicing shall be at least 5 feet in length.

The hooks of vertical bars embedded in the beam cap should not be turned outward, away from the pile core.

Reinforcing steel for cast-in-place pile is included in the Bill of Reinforcing Steel.

All reinforcement for cast-in-place pile is included in the estimated quantities for bents.

For Foundation Data table, see Sheet No. 2.

GALVANIZED OPEN ENDED CAST-IN-PLACE (OECIP) CONCRETE PILE

Detailed July 2024
Checked Oct. 2024

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

STATE OF MISSOURI
RODNEY D. RILEY NUMBER E-26267
REGISTERED PROFESSIONAL ENGINEER
12/12/2024 6:33:20 PM
Rodney D. Riley, PE
MO-026267

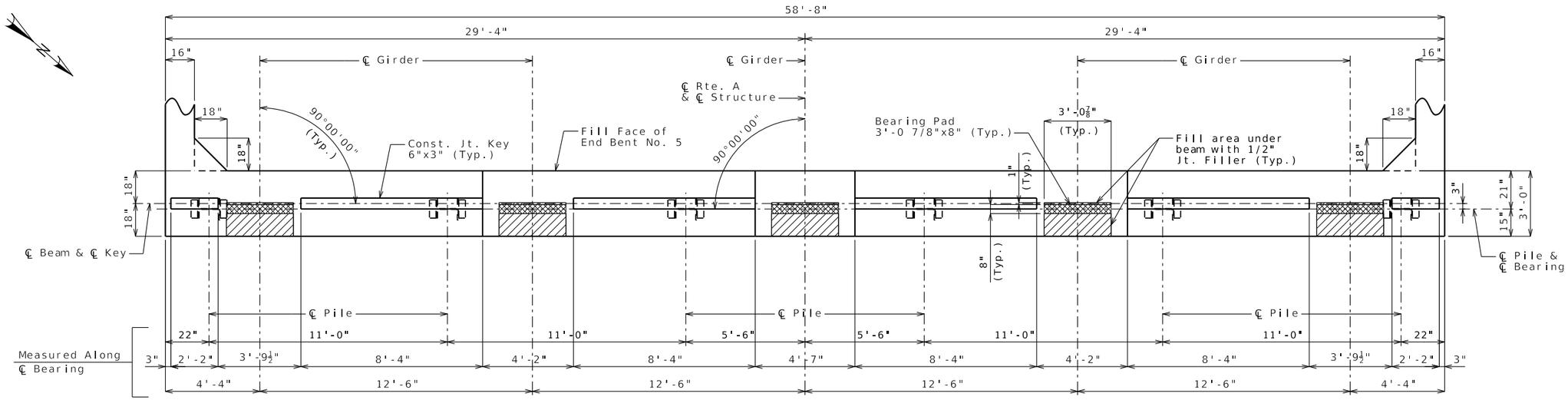
DATE PREPARED
12-DEC-2024

ROUTE A | STATE MO
DISTRICT BR | SHEET NO. 10
COUNTY WARREN
JOB NO. J2S3438
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9374

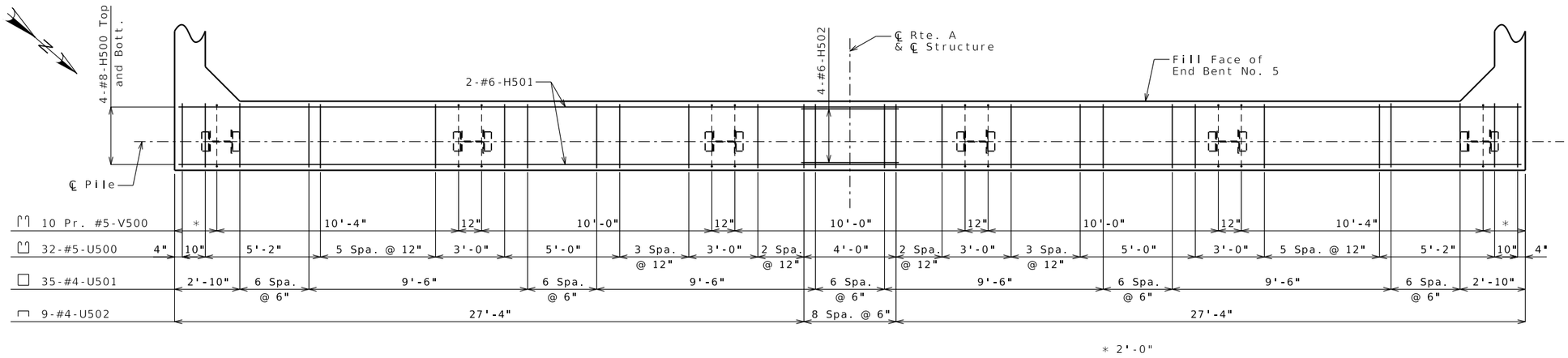
DESCRIPTION | DATE | REV.

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

Jacobs
JACOBS ENGINEERING GROUP
1001 HIGHLANDS PLAZA DR. WEST SUITE 400
ST. LOUIS, MISSOURI 63110
PHONE: (314) 335-4000
CERTIFICATE OF AUTHORITY #00704



PLAN OF BEAM SHOWING DIMENSIONS

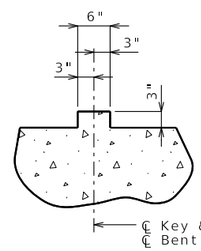


* 2'-0"

PLAN OF BEAM SHOWING REINFORCEMENT

Substructure Quantity Table for End Bent No. 5		
Item		Quantity
Galvanized Structural Steel Piles (12 in.)	linear foot	624
Dynamic Pile Testing	each	1
Pre-Bore for Piling	linear foot	100
Pile Point Reinforcement	each	6
Class B Concrete (Substructure)	cu. yard	23.1

These quantities are included in the Estimated Quantities table on Sheet No. 2.



SECTION THRU KEY

General Notes:

For details of End Bent No. 5 not shown, see Sheets No. 12 & 13.

All U-bars and Pr. V-bars shall be placed parallel to ℄ Rte. A.

All reinforcing bars shall be field adjusted to clear piles by at least 1 1/2".

For details of vertical drain at end bents, see Sheet No. 7.

For details of bridge approach slab, see Sheet No. 26.

Reinforcement of wingwall not shown for clarity.

DETAILS OF END BENT NO. 5

Detailed Aug. 2024
Checked Oct. 2024

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

STATE OF MISSOURI
RODNEY D. RILEY
NUMBER E-26267
REGISTERED PROFESSIONAL ENGINEER
12/12/2024 6:33:21 PM
Rodney D. Riley, PE
MO-026267

DATE PREPARED
12-DEC-2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
BR	11

COUNTY
WARREN

JOB NO.
J2S3438

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9374

DESCRIPTION | DATE | REV.

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

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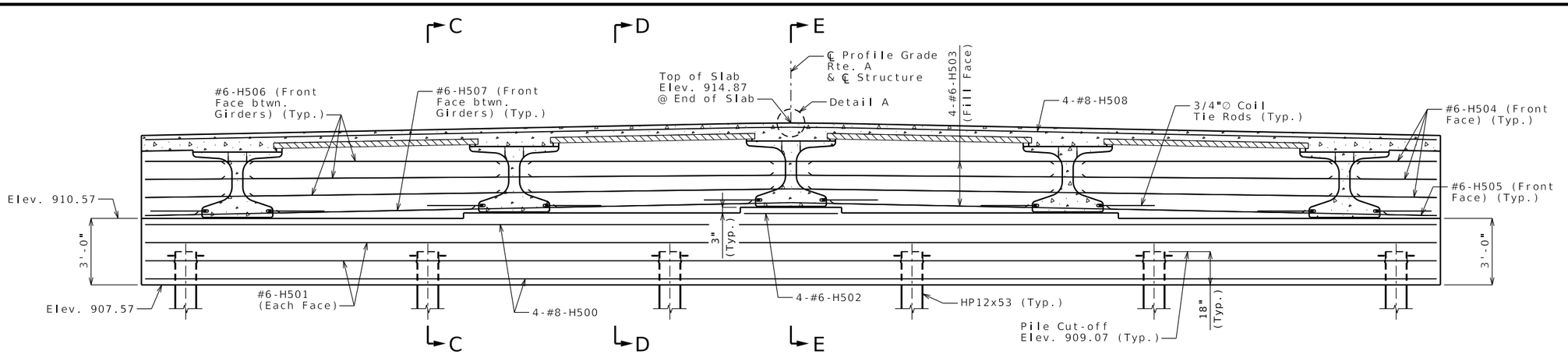
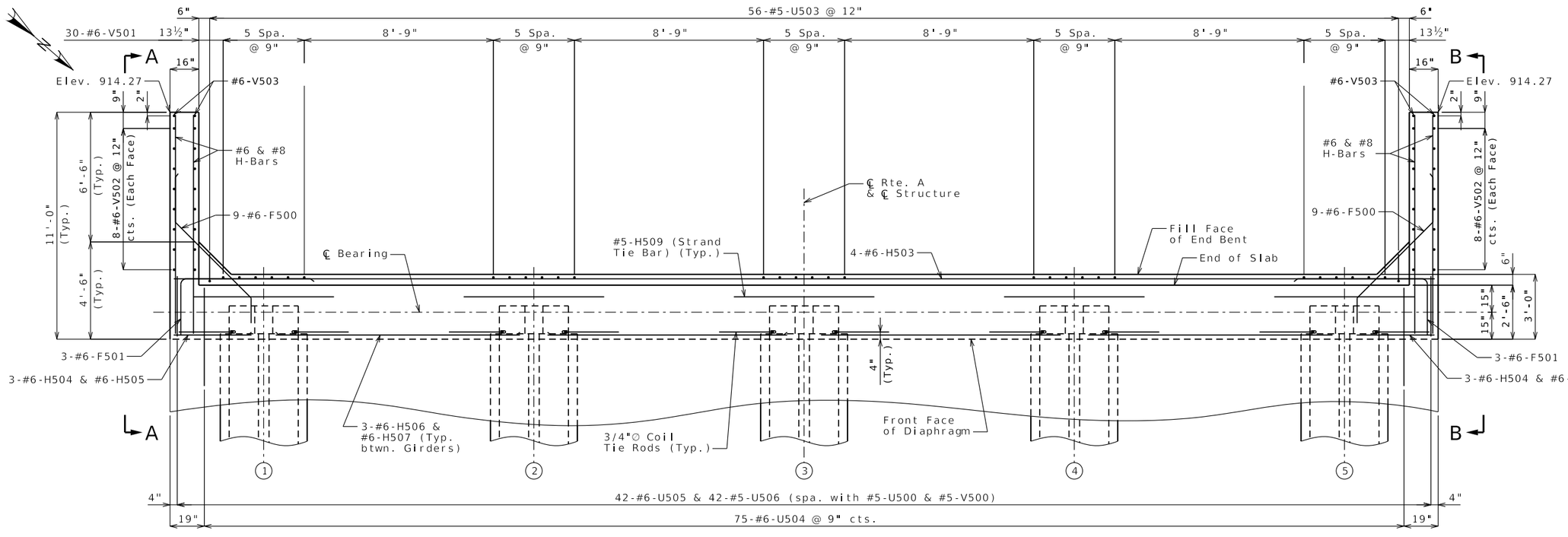
JACOBS ENGINEERING GROUP
1001 HIGHLANDS PLAZA DR.WEST, SUITE 400
ST.LOUIS, MISSOURI 63110
PHONE: (314) 335-4000
CERTIFICATE OF AUTHORITY
#00704

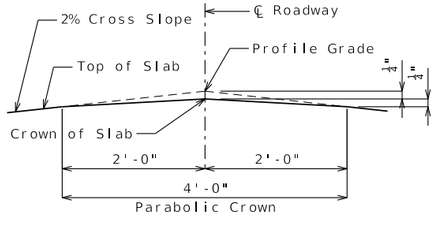


SECTION NEAR END BENT



PART PLAN

#6-H502 & #8-H508 bars not shown for clarity.



DETAIL A

Notes:

For details of End Bent No. 5 not shown, see Sheets No. 11 & 13.

For Elevations A-A, B-B & Sections C-C, D-D & E-E, see Sheet No. 13.

For location of Coil Tie Rods and #5-H509 (Strand Tie Bar), see Sheets No. 14 & 15.

The #6-F500 and #6-F501 bars shall be bent in the field to clear girders if required.

The U bars shall be placed parallel to centerline of roadway.

All concrete in the end bent above top of beam and below top of slab shall be Class B-2.

Strands at end of the girders shall be field bent or, if necessary, cut in field to maintain 1 1/2" minimum clearance to fill face of end bent.

DETAILS OF END BENT NO. 5

Detailed Aug. 2024
Checked Oct. 2024

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

STATE OF MISSOURI
RODNEY D. RILEY NUMBER E-26267
REGISTERED PROFESSIONAL ENGINEER
12/12/2024 6:33:22 PM
Rodney D. Riley, PE
MO-026267

DATE PREPARED
12-DEC-2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
BR	12

COUNTY
WARREN

JOB NO.
J2S3438

CONTRACT ID.

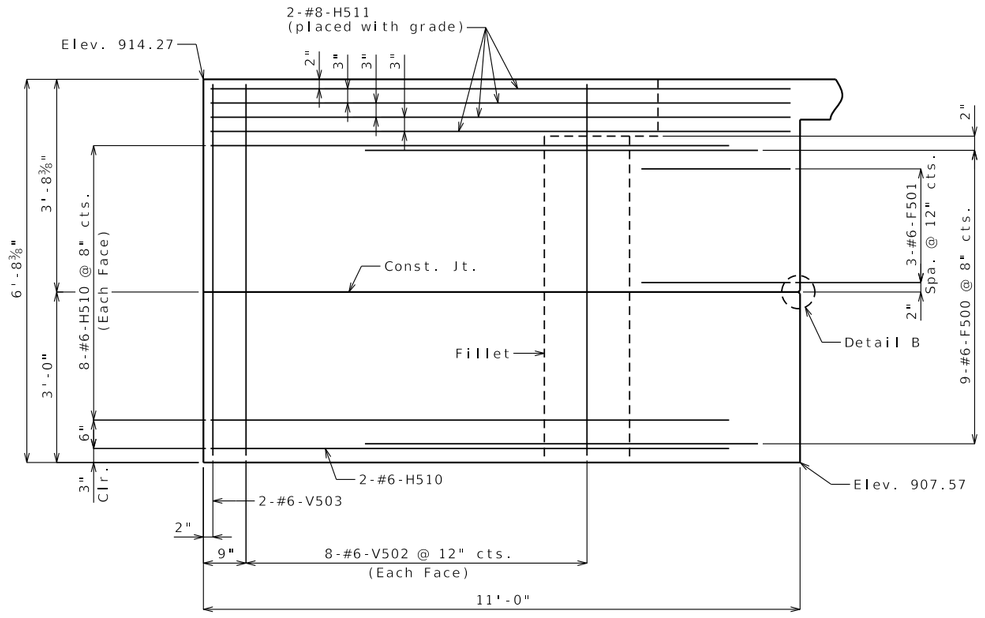
PROJECT NO.

BRIDGE NO.
A9374

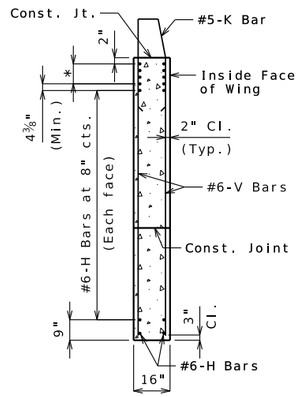
REV.	DESCRIPTION	DATE

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

Jacobs
JACOBS ENGINEERING GROUP
1001 HIGHLANDS PLAZA DR WEST, SUITE 400
ST.LOUIS, MISSOURI 63110
PHONE: (314) 335-4000
CERTIFICATE OF AUTHORITY
#00704

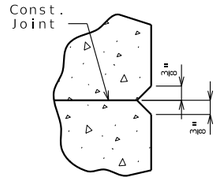


ELEVATION A-A
(ELEVATION B-B OPPOSITE HAND)

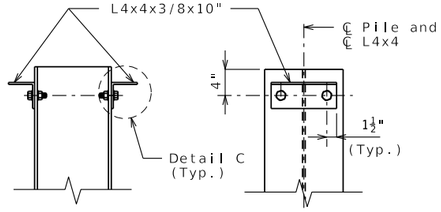


TYPICAL SECTION
THRU WING

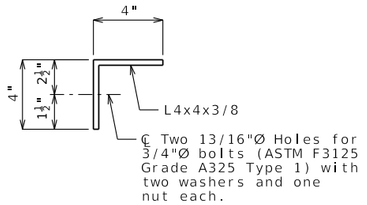
* #8-H Bars at 3" cts.
(Each face)(Place with grade)



DETAIL B

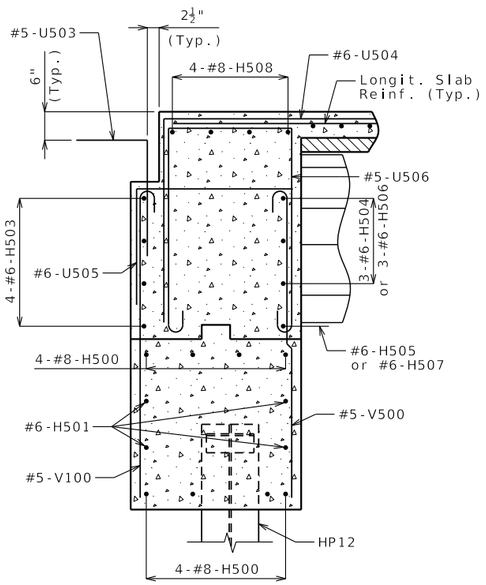


DETAILS OF HP PILE ANCHORS

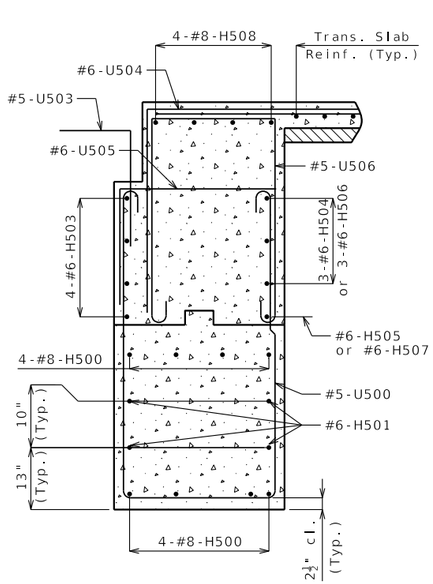


DETAIL C

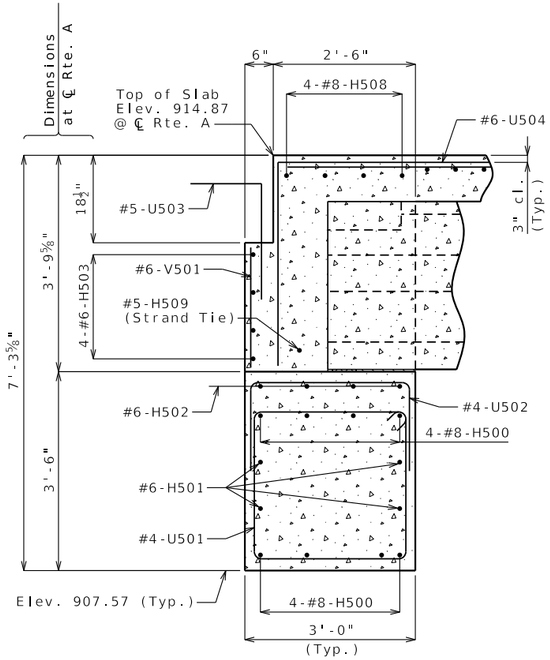
Angles shall be coated with a minimum of two coats of non-aluminum epoxy mastic primer to provide a dry film thickness of 4 mils minimum, 8 mils maximum, or galvanized in accordance with Sec 1081. Bolts, washers and nuts shall be galvanized in accordance with AASHTO M 232 (ASTM A153), Class C.



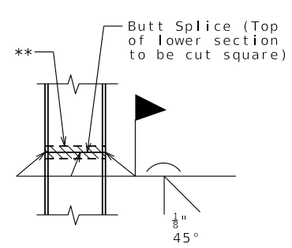
SECTION C-C



SECTION D-D



SECTION E-E



STEEL PILE SPLICE
(If required)

** Galvanizing material shall be omitted or removed one inch clear of weld locations in accordance with Sec 702.

Notes:

For location of Elevations A-A & B-B, see Sheet No. 12.

For location of Sections C-C, D-D & E-E, see Sheet No. 12.

For details of End Bent No. 5 not shown, see Sheets No. 11 & 12.

For reinforcement of the barrier, see Sheet No. 25.

DETAILS OF END BENT NO. 5

Detailed Aug. 2024
Checked Oct. 2024

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

pw://jacobs-us-va-pw.bentley.com:jacobs-us-va-pw-04/Documents/F3X00900 - I-70 High Hill RR Reali/30 WIP/J2S3438/Bridge/Sheets/B_A9374_013_J2S3438_EndBent_5-3.dgn 18:00 12-DEC-2024

STATE OF MISSOURI
RODNEY D. RILEY
NUMBER E-26267
REGISTERED PROFESSIONAL ENGINEER
12/12/2024 6:33:23 PM
Rodney D. Riley, PE
MO-026267

DATE PREPARED
12-DEC-2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
BR	13

COUNTY
WARREN

JOB NO.
J2S3438

CONTRACT ID.

PROJECT NO.

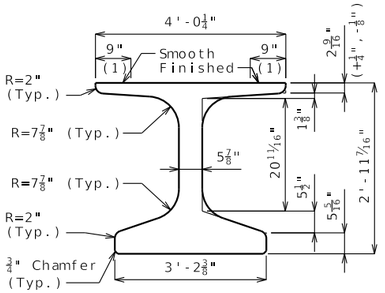
BRIDGE NO.
A9374

REV.	DESCRIPTION	DATE

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

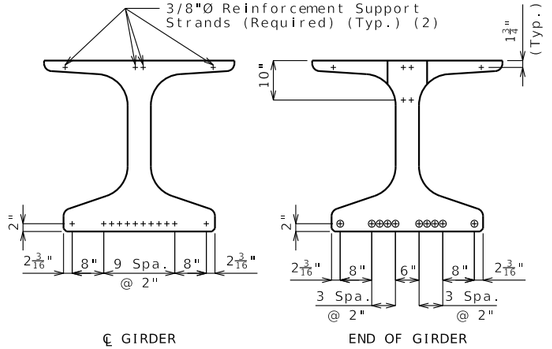
Jacobs
JACOBS ENGINEERING GROUP
1001 HIGHLANDS PLAZA DR. WEST, SUITE 400
ST.LOUIS, MISSOURI 63110
PHONE: (314) 335-4000
CERTIFICATE OF AUTHORITY
#00704

(1) Fabricator shall apply a bond breaker to this region excluding where joint filler will be applied.



DIMENSIONS

(2) Outer strands tensioned to 2.02 kips/strand and inner strands to 8 kips/strand. Placed symmetrical about ℄ Girder. May be moved laterally in pairs.

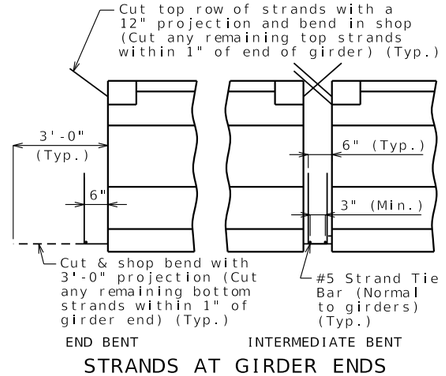


℄ GIRDER END OF GIRDER

STRAND ARRANGEMENT

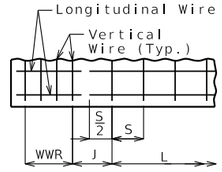
\+ Indicates prestressing strand.

o Indicates cut & shop bend with 3'-0" projection.



END BENT INTERMEDIATE BENT

STRANDS AT GIRDER ENDS



WELDED WIRE PLACEMENT

S = Vertical wire spacing

L = Length of WWR mats

J = Distance between WWR mats

Bill of Reinforcing Steel

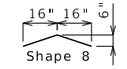
Bars Each Girder

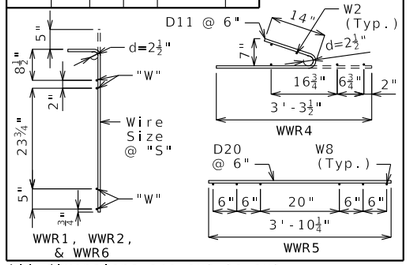
No.	Size/Mark	Length	Shape
66	3 G1	2'-10"	8
2	4 G3	3'-10¼"	20
2	4 G4	2'-3"	20
2	4 G5	2'-8⅛"	20

Welded Wire Each Girder

Mark	Size	S	W	L	J
WWR1	D31	4"	W12	6'-0"	4"
WWR2	D31	8"	W12	29'-4"	--
WWR6	D31	2"	W12	16"	2½"

Bending Diagrams





All dimensions are out to out.

Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures, Stirrup and Tie Dimensions.

Actual bar lengths are measured along centerline of bar to the nearest inch.

Minimum clearance to reinforcing shall be 1", unless otherwise shown.

All bar reinforcement shall be Grade 60.

WWR shall not be epoxy coated.

G4 and G5 not required for interior girders. G3 not required for exterior girders of intermediate spans. Half no. of G3, G4, and G5 not required for ext. girders of end spans.

General Notes:

Concrete for prestressed beams shall be Class A-1 with f'c = 8000 psi and f'ci = 6500 psi.

Use 12 strands, 0.6"Ø Grade 270, with an initial prestress force of 527 kips.

Pretensioned members shall be in accordance with Sec 1029.

Fabricator shall be responsible for location and design of lifting devices.

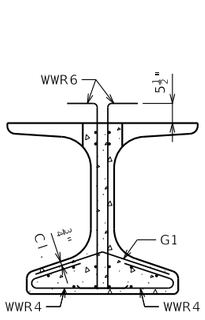
Exterior and interior girders are the same except: coil ties, top flange blockout, application of bond breaker.

The contractor shall provide bracing necessary for lateral and torsional stability of the girders during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not drill holes in the girders.

For Girder Camber Diagram, see Sheet No. 18.

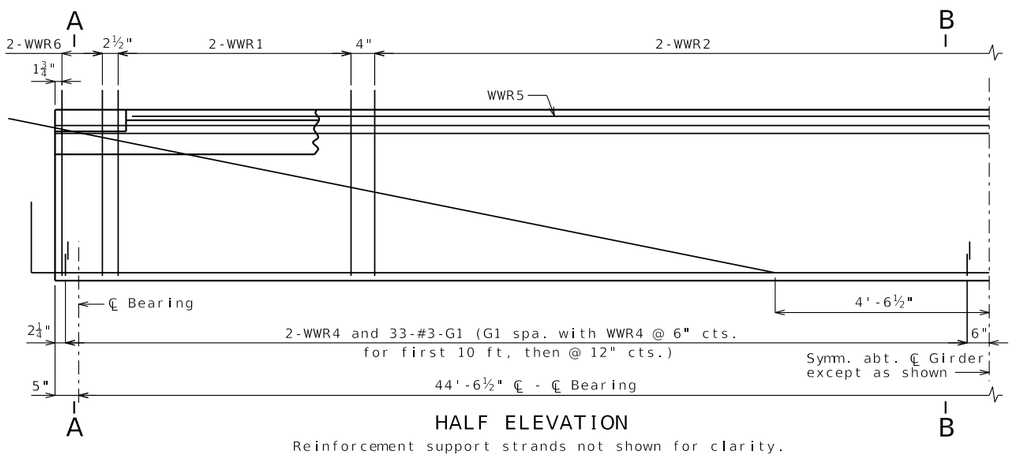
For location of coil ties at concrete diaphragms and integral bents, see Sheets No. 5, 12, and 19.

Alternate bar reinforcing steel details are provided and may be used. The same type of reinforcing steel shall be used for all girders in all spans.



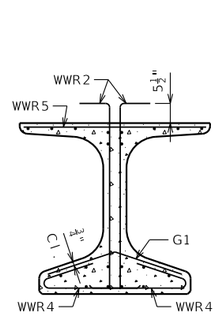
SECTION A-A

Strands not shown for clarity.



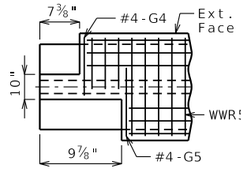
HALF ELEVATION

Reinforcement support strands not shown for clarity.



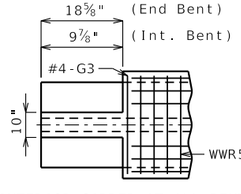
SECTION B-B

Strands not shown for clarity.



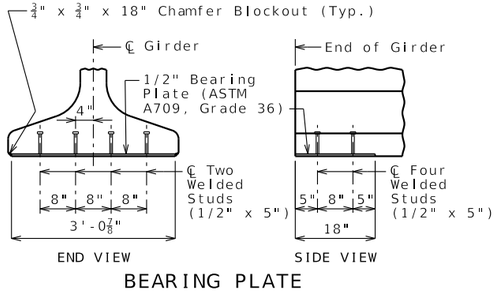
LEFT EXTERIOR GIRDER AT INTERMEDIATE BENT

Rotate 180° for right ext.



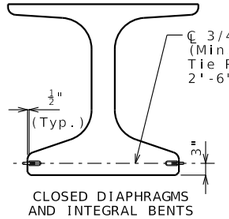
INTERIOR GIRDER AT ALL BENTS & EXTERIOR GIRDER AT END BENT

TOP FLANGE BLOCKOUT



END VIEW SIDE VIEW

BEARING PLATE



CLOSED DIAPHRAGMS AND INTEGRAL BENTS

COIL TIES

Exclude coil tie at exterior face of exterior girders except at integral end bents.

NU-GIRDERS - SPANS (1-2) AND (4-5)

Detailed July 2024
Checked Oct. 2024

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

STATE OF MISSOURI
RODNEY D. RILEY NUMBER E-26267
REGISTERED PROFESSIONAL ENGINEER
Rodney D. Riley
12/12/2024 6:33:24 PM
Rodney D. Riley, PE
MO-026267

DATE PREPARED
12-DEC-2024

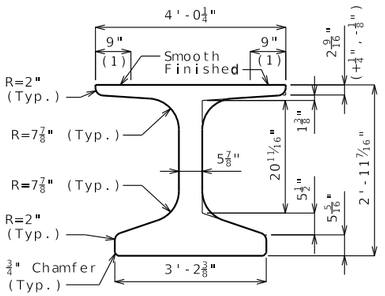
ROUTE A | STATE MO
DISTRICT BR | SHEET NO. 14
COUNTY WARREN
JOB NO. J2S3438
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9374

DESCRIPTION | DATE | REV.

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

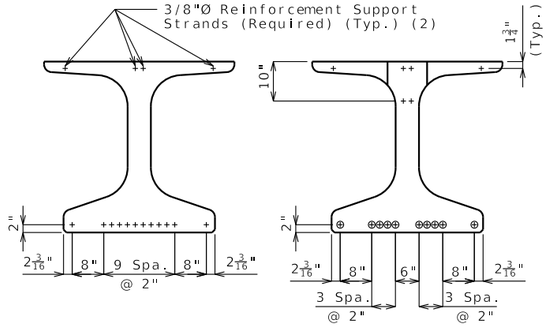
Jacobs
JACOBS ENGINEERING GROUP
1001 HIGHLANDS PLAZA DR. WEST, SUITE 400
ST.LOUIS, MISSOURI 63110
PHONE: (314) 335-4000
CERTIFICATE OF AUTHORITY #00704

(1) Fabricator shall apply a bond breaker to this region excluding where joint filler will be applied.



DIMENSIONS

(2) Outer strands tensioned to 2.02 kips/strand and inner strands to 8 kips/strand. Placed symmetrical about ℄ Girder. May be moved laterally in pairs.

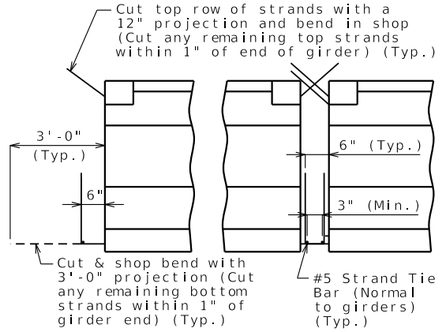


℄ GIRDER END OF GIRDER

STRAND ARRANGEMENT

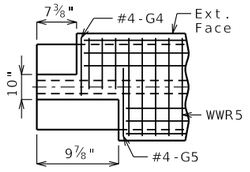
\+ Indicates prestressing strand.

o Indicates cut & shop bend with 3'-0" projection.



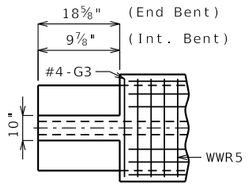
END BENT INTERMEDIATE BENT

STRANDS AT GIRDER ENDS



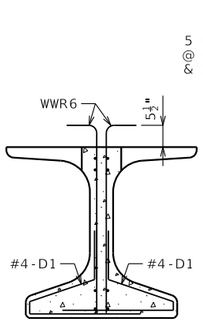
LEFT EXTERIOR GIRDER AT INTERMEDIATE BENT

Rotate 180° for right ext.



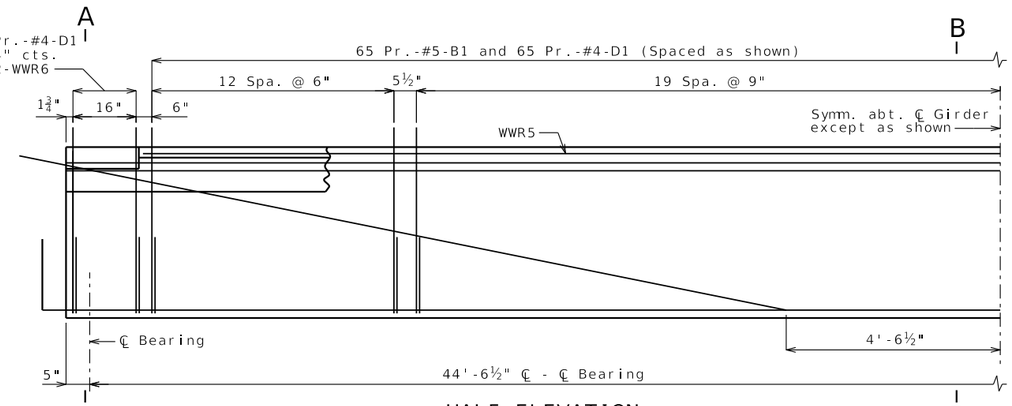
INTERIOR GIRDER AT ALL BENTS & EXTERIOR GIRDER AT END BENT

TOP FLANGE BLOCKOUT



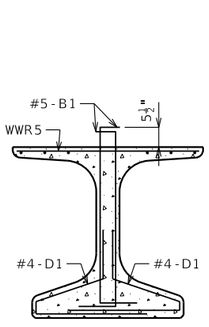
SECTION A-A

Strands not shown for clarity.



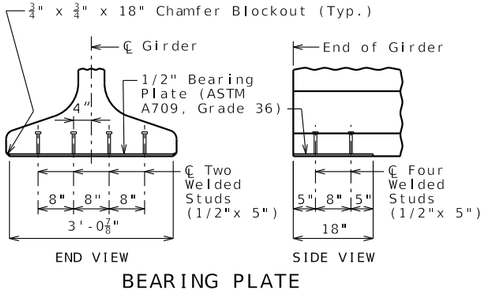
HALF ELEVATION

Reinforcement support strands not shown for clarity.

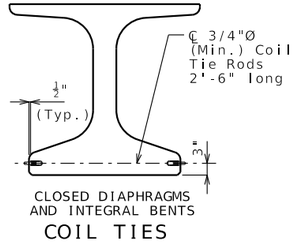


SECTION B-B

Strands not shown for clarity.



BEARING PLATE



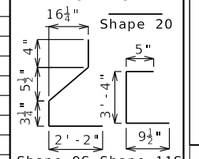
CLOSED DIAPHRAGMS AND INTEGRAL BENTS

COIL TIES

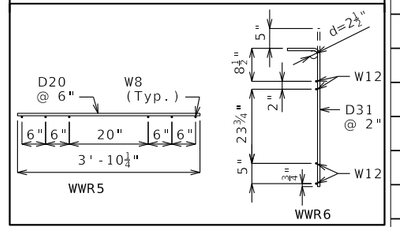
Exclude coil tie at exterior face of exterior girders except at integral end bents.

Bill of Reinforcing Steel - Each Girder			
No.	Size/ Mark	Length	Shape
130	5 B1	4'-4"	11S
150	4 D1	4'-0"	9S
2	4 G3	3'-10¼"	20
2	4 G4	2'-3"	20
2	4 G5	2'-8⅛"	20

Bending Diagrams



Welded Wire Reinforcement - Each Girder



All dimensions are out to out.

Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures, Stirrup and Tie Dimensions.

Actual bar lengths are measured along centerline of bar to the nearest inch.

Minimum clearance to reinforcing shall be one inch.

All bar reinforcement shall be Grade 60.

The two D1 bars may be furnished as one bar at the fabricator's option.

All B1 bars shall be epoxy coated.

G4 and G5 not required for interior girders. G3 not required for exterior girders of intermediate spans. Half no. of G3, G4, and G5 not required for ext. girders of end spans.

General Notes:

Concrete for prestressed girders shall be Class A-1 with f'c = 8000 psi and f'ci = 6500 psi.

Use 12 strands, 0.6"Ø Grade 270, with an initial prestress force of 527 kips.

Pretensioned members shall be in accordance with Sec 1029.

Fabricator shall be responsible for location and design of lifting devices.

Exterior and interior girders are the same except: coil ties, top flange blockout, application of bond breaker.

The contractor shall provide bracing necessary for lateral and torsional stability of the girders during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not drill holes in the girders.

For Girder Camber Diagram, see Sheet No. 18.

For location of coil ties at concrete diaphragms and integral bents, see Sheets No. 5, 12, and 19.

Alternate bar reinforcing steel details are provided and may be used. The same type of reinforcing steel shall be used for all girders in all spans.

STATE OF MISSOURI
RODNEY D. RILEY NUMBER E-26267
REGISTERED PROFESSIONAL ENGINEER
Rodney D. Riley
12/12/2024 6:33:24 PM
Rodney D. Riley, PE
MO-026267

DATE PREPARED: 12-DEC-2024
ROUTE: A
STATE: MO
DISTRICT: BR
SHEET NO.: 15
COUNTY: WARREN
JOB NO.: J2S3438
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9374

DESCRIPTION
DATE
REV.

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

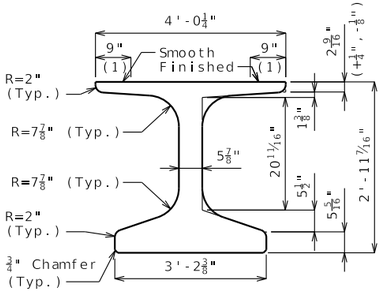
Jacobs
JACOBS ENGINEERING GROUP
1001 HIGHLANDS PLAZA DR.WEST, SUITE 400
ST.LOUIS, MISSOURI 63110
PHONE: (314) 335-4000
CERTIFICATE OF AUTHORITY #00704

Detailed July 2024
Checked Oct. 2024

NU-GIRDERS (ALTERNATE REINFORCEMENT) - SPANS (1-2) AND (4-5)

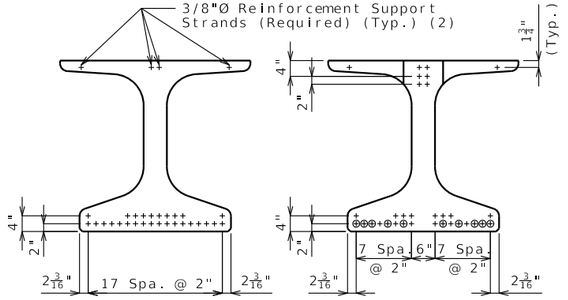
Note: This drawing is not to scale. Follow dimensions.

(1) Fabricator shall apply a bond breaker to this region excluding where joint filler will be applied.



DIMENSIONS

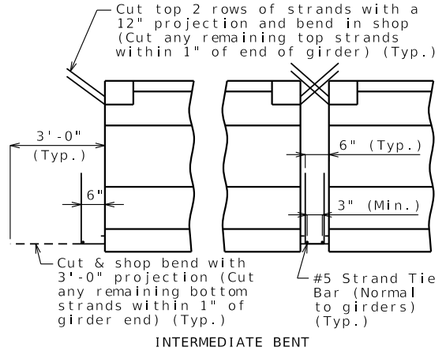
(2) Outer strands tensioned to 2.02 kips/strand and inner strands to 8 kips/strand. Placed symmetrical about ℄ Girder. May be moved laterally in pairs.



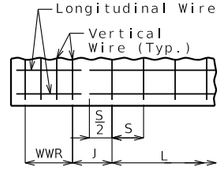
STRAND ARRANGEMENT

\+ Indicates prestressing strand.

○ Indicates cut & shop bend with 3'-0" projection.



STRANDS AT GIRDER ENDS



WELDED WIRE PLACEMENT

S = Vertical wire spacing

L = Length of WWR mats

J = Distance between WWR mats

Bill of Reinforcing Steel

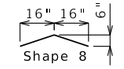
Bars Each Girder

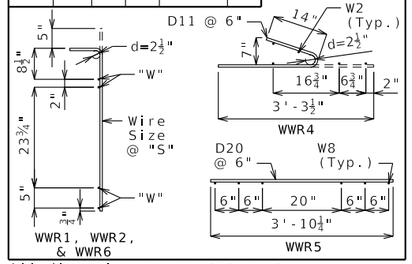
No.	Size/Mark	Length	Shape
90	3 G1	2'-10"	8
2	4 G3	3'-10¼"	20
2	4 G4	2'-3"	20
2	4 G5	2'-8⅛"	20

Welded Wire Each Girder

Mark	Size	S	W	L	J
WWR1	D31	4"	W12	6'-0"	7¾"
WWR2	D31	8"	W12	52'-0"	--
WWR6	D31	2"	W12	16"	4"

Bending Diagrams





All dimensions are out to out.

Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures, Stirrup and Tie Dimensions.

Actual bar lengths are measured along centerline of bar to the nearest inch.

Minimum clearance to reinforcing shall be 1", unless otherwise shown.

All bar reinforcement shall be Grade 60.

WWR shall not be epoxy coated.

G4 and G5 not required for interior girders. G3 not required for exterior girders of intermediate spans.

General Notes:

Concrete for prestressed beams shall be Class A-1 with f'c = 8000 psi and f'ci = 6500 psi.

Use 28 strands, 0.6"Ø Grade 270, with an initial prestress force of 1230 kips.

Pretensioned members shall be in accordance with Sec 1029.

Fabricator shall be responsible for location and design of lifting devices.

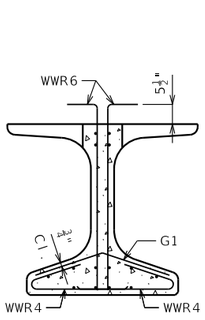
Exterior and interior girders are the same except: coil ties, top flange blockout, application of bond breaker.

The contractor shall provide bracing necessary for lateral and torsional stability of the girders during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not drill holes in the girders.

For Girder Camber Diagram, see Sheet No. 18.

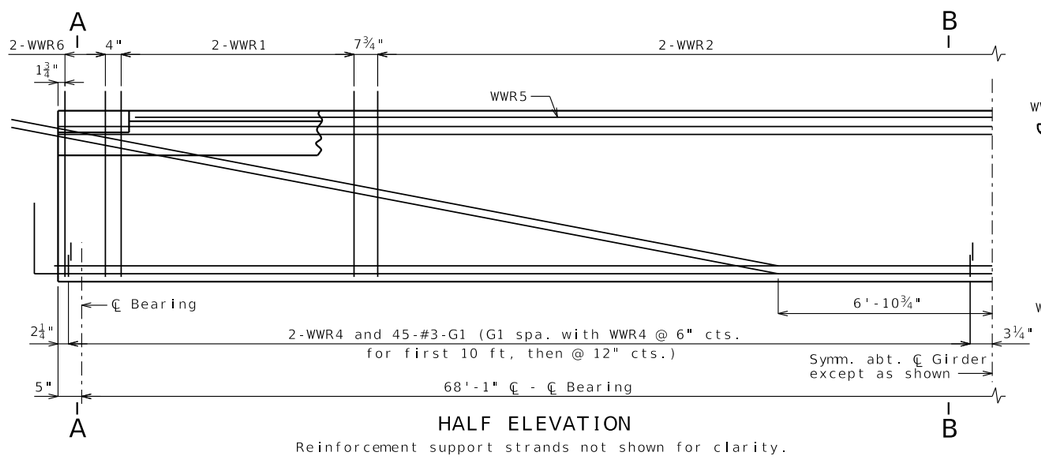
For location of coil ties at concrete diaphragms and integral bents, see Sheets No. 5, 12, and 19.

Alternate bar reinforcing steel details are provided and may be used. The same type of reinforcing steel shall be used for all girders in all spans.



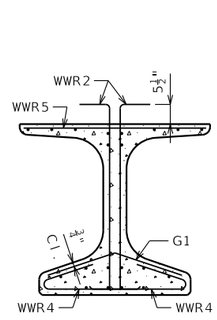
SECTION A-A

Strands not shown for clarity.



HALF ELEVATION

Reinforcement support strands not shown for clarity.



SECTION B-B

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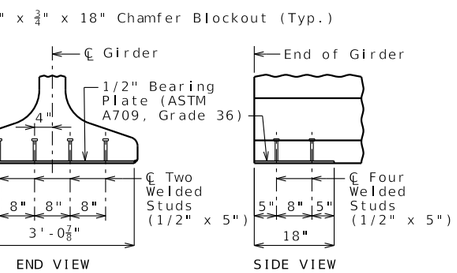
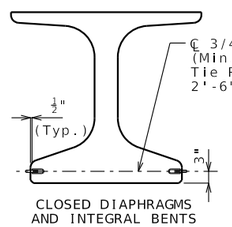


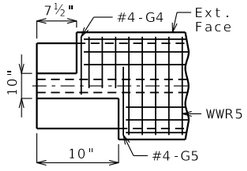
BEARING PLATE



CLOSED DIAPHRAGMS AND INTEGRAL BENTS

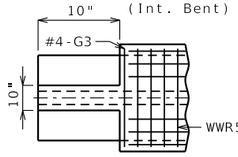
COIL TIES

Exclude coil tie at exterior face of exterior girders except at integral end bents.



LEFT EXTERIOR GIRDER AT INTERMEDIATE BENT

Rotate 180° for right ext.



INTERIOR GIRDER AT ALL BENTS

TOP FLANGE BLOCKOUT

NU-GIRDERS - SPANS (2-3) AND (3-4)

Detailed July 2024
Checked Oct. 2024

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

STATE OF MISSOURI
RODNEY D. RILEY NUMBER E-26267
REGISTERED PROFESSIONAL ENGINEER
Rodney D. Riley
12/12/2024 6:33:25 PM
Rodney D. Riley, PE
MO-026267

DATE PREPARED: 12-DEC-2024
ROUTE: A | STATE: MO
DISTRICT: BR | SHEET NO.: 16
COUNTY: WARREN
JOB NO.: J2S3438
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9374

DESCRIPTION | DATE | REV.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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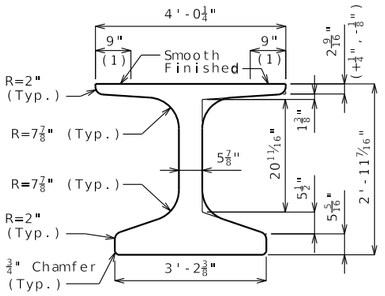
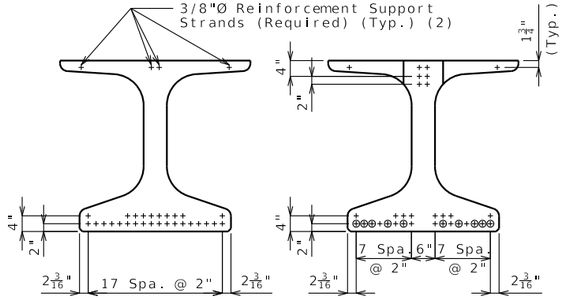
Jacobs
JACOBS ENGINEERING GROUP
1001 HIGHLANDS PLAZA DR. WEST, SUITE 400
ST. LOUIS, MISSOURI 63110
PHONE: (314) 335-4000
CERTIFICATE OF AUTHORITY #00704

(1) Fabricator shall apply a bond breaker to this region excluding where joint filler will be applied.



DIMENSIONS

(2) Outer strands tensioned to 2.02 kips/strand and inner strands to 8 kips/strand. Placed symmetrical about ℄ Girder. May be moved laterally in pairs.

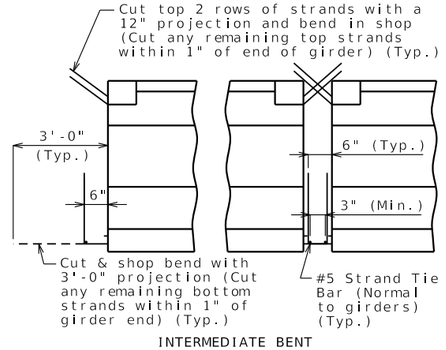


℄ GIRDER END OF GIRDER

STRAND ARRANGEMENT

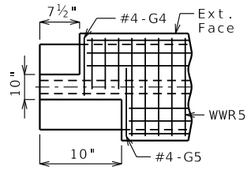
\+ Indicates prestressing strand.

o Indicates cut & shop bend with 3'-0" projection.



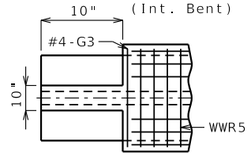
INTERMEDIATE BENT

STRANDS AT GIRDER ENDS



LEFT EXTERIOR GIRDER AT INTERMEDIATE BENT

Rotate 180° for right ext.

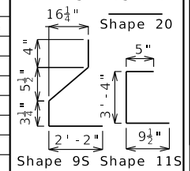


INTERIOR GIRDER AT ALL BENTS

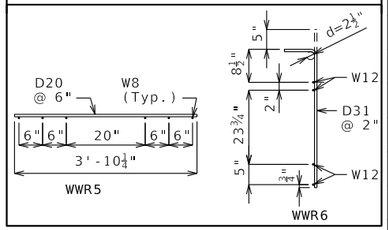
TOP FLANGE BLOCKOUT

Bill of Reinforcing Steel - Each Girder			
No.	Size/ Mark	Length	Shape
194	5 B1	4'-4"	11S
214	4 D1	4'-0"	9S
2	4 G3	3'-10¼"	20
2	4 G4	2'-3"	20
2	4 G5	2'-8⅛"	20

Bending Diagrams



Welded Wire Reinforcement - Each Girder



All dimensions are out to out.

Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures, Stirrup and Tie Dimensions.

Actual bar lengths are measured along centerline of bar to the nearest inch.

Minimum clearance to reinforcing shall be one inch.

All bar reinforcement shall be Grade 60.

The two D1 bars may be furnished as one bar at the fabricator's option.

All B1 bars shall be epoxy coated.

G4 and G5 not required for interior girders. G3 not required for exterior girders of intermediate spans.

General Notes:

Concrete for prestressed girders shall be Class A-1 with f'c = 8000 psi and f'ci = 6500 psi.

Use 28 strands, 0.6"Ø Grade 270, with an initial prestress force of 1230 kips.

Pretensioned members shall be in accordance with Sec 1029.

Fabricator shall be responsible for location and design of lifting devices.

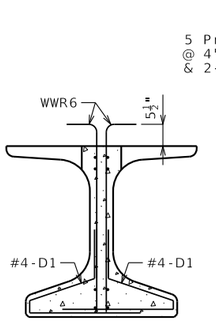
Exterior and interior girders are the same except: coil ties, top flange blockout, application of bond breaker.

The contractor shall provide bracing necessary for lateral and torsional stability of the girders during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not drill holes in the girders.

For Girder Camber Diagram, see Sheet No. 18.

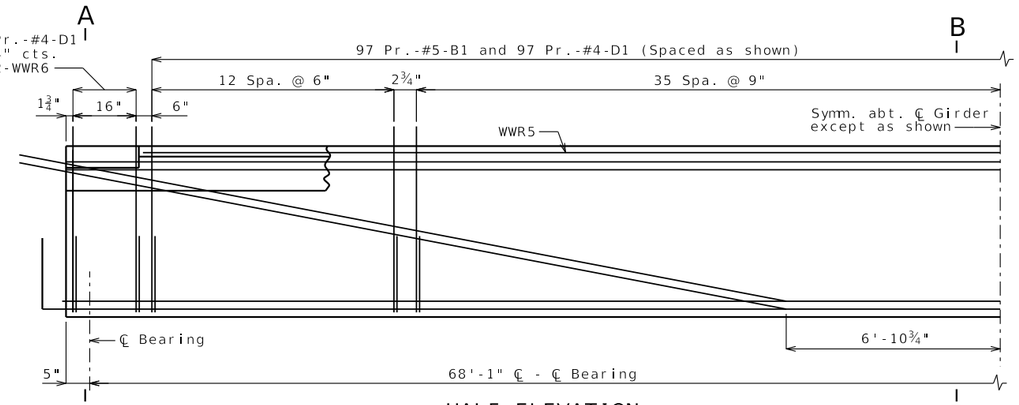
For location of coil ties at concrete diaphragms and integral bents, see Sheets No. 5, 12, and 19.

Alternate bar reinforcing steel details are provided and may be used. The same type of reinforcing steel shall be used for all girders in all spans.



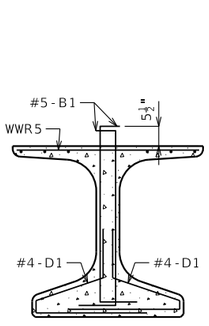
SECTION A-A

Strands not shown for clarity.



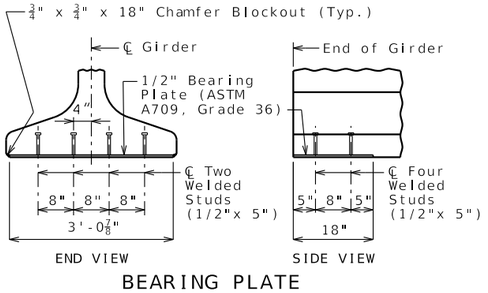
HALF ELEVATION

Reinforcement support strands not shown for clarity.

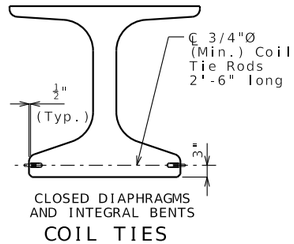


SECTION B-B

Strands not shown for clarity.



BEARING PLATE



CLOSED DIAPHRAGMS AND INTEGRAL BENTS

COIL TIES

Exclude coil tie at exterior face of exterior girders except at integral end bents.

NU-GIRDERS (ALTERNATE REINFORCEMENT) - SPANS (2-3) AND (3-4)

Detailed July 2024
Checked Oct. 2024

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

STATE OF MISSOURI
RODNEY D. RILEY NUMBER E-26267
REGISTERED PROFESSIONAL ENGINEER

Rodney D. Riley
12/12/2024 6:33:26 PM
Rodney D. Riley, PE
MO-026267

DATE PREPARED
12-DEC-2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
BR	17

COUNTY
WARREN

JOB NO.
J2S3438

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9374

DESCRIPTION	DATE	REV.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
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1-888-ASK-MODOT (1-888-275-6636)

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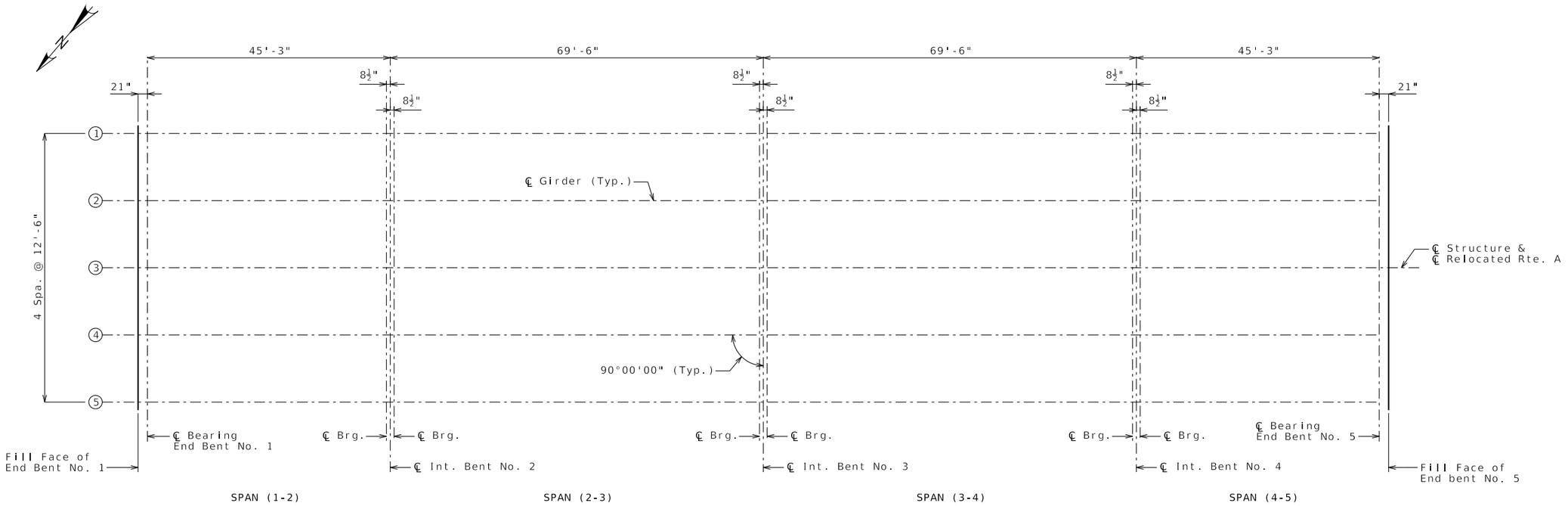
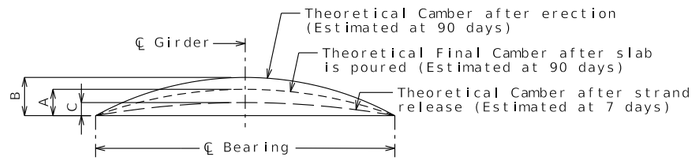
ST.LOUIS, MISSOURI 63110
PHONE: (314) 335-4000
CERTIFICATE OF AUTHORITY #00704



PLAN SHOWING LAYOUT OF PRESTRESSED GIRDERS

(Longitudinal dimensions are horizontal)



Girder	Span (1-2)			Span (2-3)			Span (3-4)			Span (4-5)		
	A	B	C	A	B	C	A	B	C	A	B	C
Exterior	3/8"	1/2"	3/8"	1 3/4"	2 3/4"	1 1/2"	1 3/4"	2 3/4"	1 1/2"	3/8"	1/2"	3/8"
Interior	3/8"			1 1/2"			1 1/2"			3/8"		

GIRDER CAMBER DIAGRAM

Conversion Factors for Girder Camber (Estimated at 90 days):

0.25 pt. = 0.7125 x 0.5 pt.

Notes:

If girder camber is different from that shown in the camber diagram, in order to maintain minimum slab thickness, an adjustment of the slab haunches, an increase in slab thickness or a raise in grade uniformly throughout the structure shall be necessary. The haunch shall be limited to ensure the projecting girder reinforcement or hairpin bar is embedded into the slab at least 2 inches. No payment will be made for additional labor or materials required for variation in haunching, slab thickness or grade adjustment.

Concrete in the slab haunches is included in the Estimated Quantities for Slab on Concrete NU-Girder.

FRAMING PLAN

Detailed Oct. 2024
Checked Oct. 2024

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

STATE OF MISSOURI
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12/12/2024 6:33:26 PM
Rodney D. Riley, PE
MO-026267

DATE PREPARED
12-DEC-2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
BR	18

COUNTY
WARREN

JOB NO.
J2S3438

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9374

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
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CERTIFICATE OF AUTHORITY
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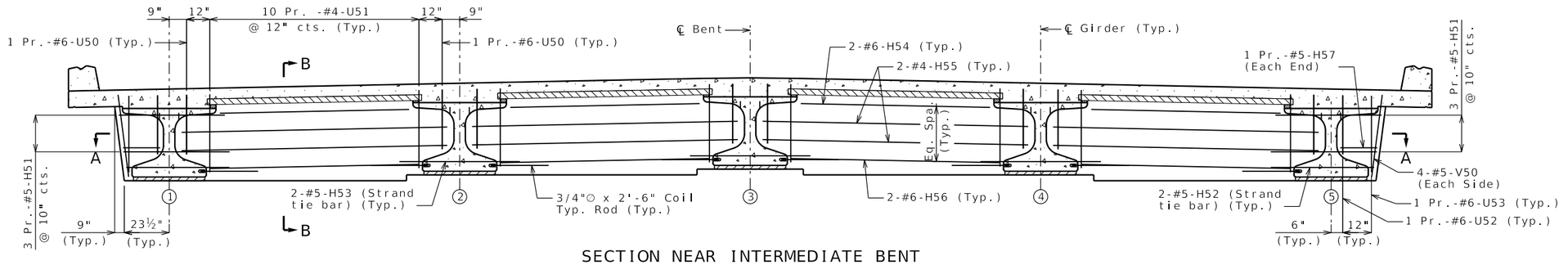
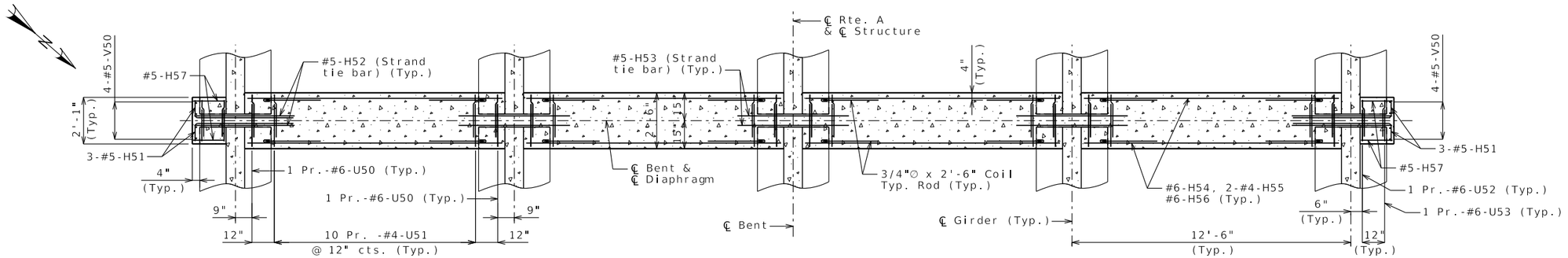
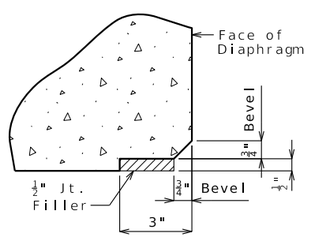
REV.



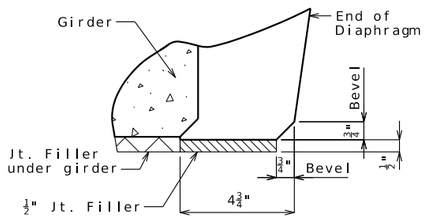
SECTION NEAR INTERMEDIATE BENT
Normal to ℄ Structure



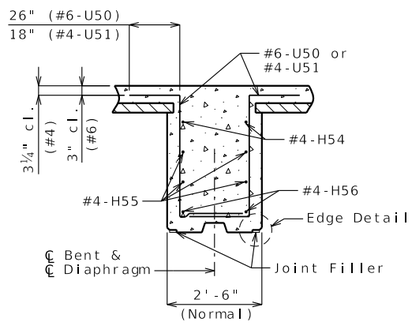
SECTION A-A



EDGE DETAIL



END DETAIL



SECTION B-B

Notes:

For location of Strand Tie Bars, see Sheet No. 14 thru 17.

For location and details of Coil Tie Rods, see Sheet No. 14 thru 17.

Diaphragms at Intermediate bents shall be built vertical.

All U-bars in diaphragms are to be placed parallel to ℄ Structure.

Work this sheet with Sheets No. 8 & 9.

CONCRETE DIAPHRAGMS AT INTERMEDIATE BENTS NO. 2, 3, & 4

Detailed Oct. 2024
Checked Oct. 2024

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

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Rodney D. Riley
12/12/2024 6:33:27 PM
Rodney D. Riley, PE
MO-026267

DATE PREPARED
12-DEC-2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
BR	19

COUNTY
WARREN

JOB NO.
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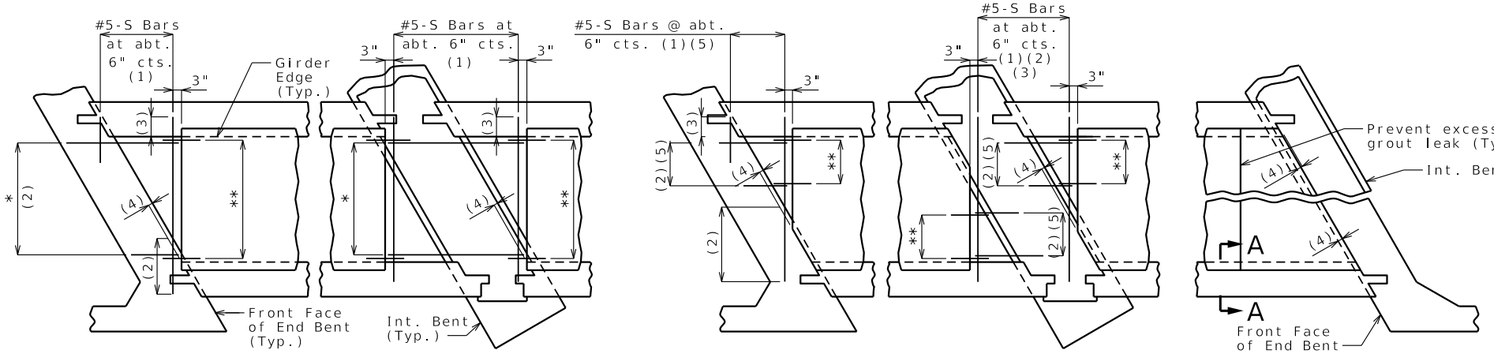
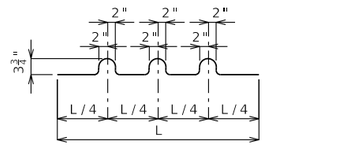
REV.



SQUARED END PANELS OR TRUNCATED END PANELS

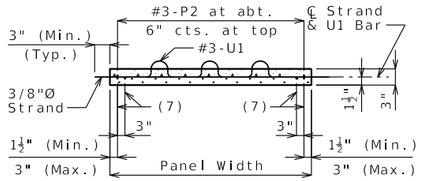
PLAN SHOWING PANEL PLACEMENT

* #5-S Bars at abt. 9" cts. (1)
** #3-P1 at 12" cts. (End panels only)

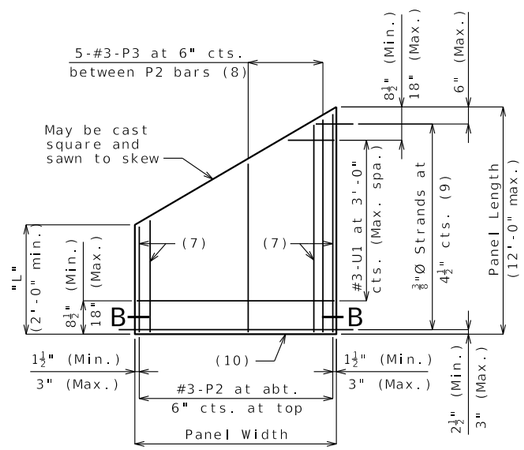


BENDING DIAGRAM FOR U1 BAR

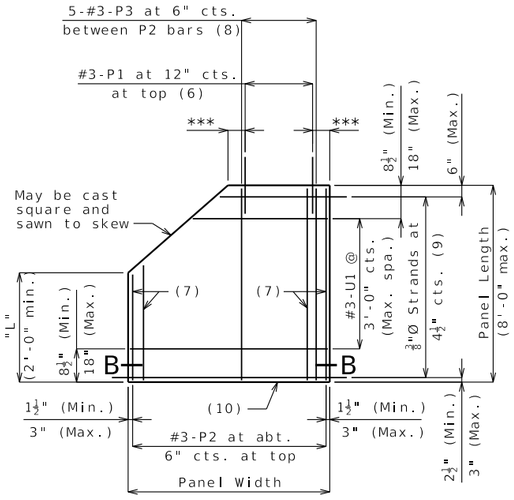
U1 Bars may be oriented at right angles to location and spacing shown. U1 Bars shall be placed between P1 bars.



SECTION B-B

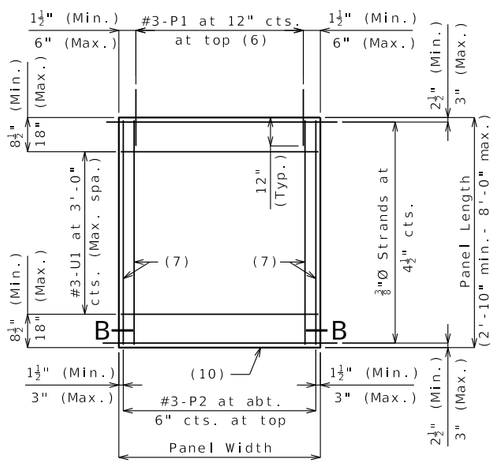


PLAN OF OPTIONAL SKEWED END PANEL



PLAN OF OPTIONAL TRUNCATED END PANEL

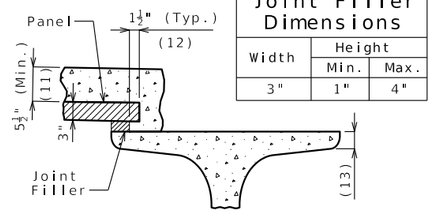
*** 3" (Min.), 6" (Max.)



PLAN OF SQUARED PANEL

SKEWED END PANELS

Joint Filler Dimensions		
Width	Height	
	Min.	Max.
3"	1"	4"



SECTION A-A

Reference Notes:

Plan of Panel Placement:
(1) S-bars shown are bottom steel in slab between panels and used with squared and truncated end panels only.

(2) Extend S-bars 18 inches beyond the front face of end bents and int. bents for squared and truncated end panels only.

(3) Extend S-bars 9 inches beyond edge of girder (Typ.).

(4) End panels shall be dimensioned 1/2" min. to 1 1/2" max. from the inside face of diaphragm.

(5) For truncated end panels, use a min. of #5-S bars at 6" crossings in openings, or min. 4x4-W7xW7.

Plans of Panels:
(6) For end panels only, P1 bars shall be 2'-0" in length and embedded 12". P1 bars will not be required for panels at squared integral end bents.

(7) #3-P2 bars near edge of panel at bottom (under strands).

(8) Use #3-P3 bars if panel is skewed 45° or greater.

(9) Any strand 2'-0" or shorter shall have a #4 reinforcing bar on each side of it, centered between strands. Strands 2'-0" or shorter may then be debonded at the fabricator's option.

(10) Optional 1/2" x 45° Chamfer one or both sides at bottom.

Section A-A:
(11) Slab thickness over prestressed panels varies due to girder camber. In order to maintain minimum slab thickness, it may be necessary to raise the grade uniformly throughout the structure. No payment will be made for additional labor or materials required for necessary grade adjustment.

(12) Contractor shall ensure proper consolidation under and between panels.

(13) At the contractor's option, the variation in slab thickness over prestressed panels may be eliminated or reduced by increasing and varying the girder top flange thickness. Dimensions shall be shown on the shop drawings.

General Notes:

Prestressed Panels:
Concrete for prestressed panels shall be Class A-1 with f'c = 6,000 psi, f'ci = 4,000 psi.

The top surface of all panels shall receive a scored finish with a depth of scoring of 1/8" perpendicular to the prestressing strands in the panels.

Prestressing tendons shall be high-tensile strength, uncoated, seven-wire, low-relaxation strands for prestressed concrete in accordance with AASHTO M 203 Grade 270, with nominal diameter of strand = 3/8" and nominal area = 0.085 sq.in. and minimum ultimate strength = 22.95 kips (270 ksi). Larger strands may be used with the same spacing and initial tension.

Initial prestressing force = 17.2 kips/strand.

The method and sequence of releasing the strands shall be shown on the shop drawings.

Suitable anchorage devices for lifting panels may be cast in panels, provided the devices are shown on the shop drawings and approved by the engineer. Panel lengths shall be determined by the contractor and shown on the shop drawings.

When squared end panels are used at skewed bents, the skewed portion shall be cast full depth. No separate payment will be made for additional concrete and reinforcing required.

Support from diaphragm forms is required under the optional skewed end until cast-in-place concrete has reached 3,000 psi compressive strength.

Prestressed panels shall be brought to saturated surface-dry (SSD) condition just prior to the deck pour. There shall be no free standing water on the panels or in the area to be cast.

The prestressed panel quantities are not included in the table of estimated quantities for the slab.

Reinforcing Steel:
All dimensions are out to out.

Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures, Stirrup and Tie Dimensions.

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

If U1 bars interfere with placement of slab steel, U1 loops may be bent over, as necessary, to clear slab steel.

Deformed welded wire reinforcement (WWR) providing a minimum area of reinforcing perpendicular to strands of 0.22 sq in./ft, with spacing parallel to strands sufficient to ensure proper handling, may be used in lieu of the #3-P2 bars shown. Wire diameter shall not be larger than 0.375 inch. The above alternative reinforcement criteria may be used in lieu of the #3-P3 bars, when required, and placed over a width not less than 2 feet.

The following reinforcing steel shall be tied securely to the strands with the following maximum spacing in each direction:
#3-P2 bars at 16 inches.
WWR at 24 inches.

The #3-U1 bars shall be tied securely to #3-P2 bars, to WWR or to strands (when placed between P1 bars) at about 3-foot centers.

Minimum reinforcement steel length shall be 2'-0".

All reinforcement other than prestressing strands shall be epoxy coated.

Precast panels may be in contact with stirrup reinforcing in diaphragms.

S-bars are not listed in the bill of reinforcing.

Cost of S-bars will be considered completely covered by the contract unit price for the slab.

Joint Filler:
Joint filler shall be preformed fiber expansion joint material in accordance with Sec 1057 or expanded or extruded polystyrene bedding material in accordance with Sec 1073.

Use Slab Haunching Diagram on Sheet No. 21 for determining thickness of joint filler within the limits noted in the table of Joint Filler Dimensions.

Thicker material may be used on one or both sides of the girder to reduce cast-in-place concrete thickness to within tolerances.

The same thickness of preformed fiber expansion joint material shall be used under any one edge of any panel except at locations where top flange thickness may be stepped. The maximum change in thickness between adjacent panels shall be 1/2 inch. The polystyrene bedding material may be cut with a transition to match haunch height above top of flange.

Joint filler shall be glued to the girder. When thickness exceeds 1 1/2 inches, the joint filler shall be glued top and bottom. The glue used shall be the type recommended by the joint filler manufacturer.

Edges of panels shall be uniformly seated on the joint filler before slab reinforcement is placed.

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12-DEC-2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
BR	20

COUNTY
WARREN

JOB NO.
J2S3438

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9374

REV.	DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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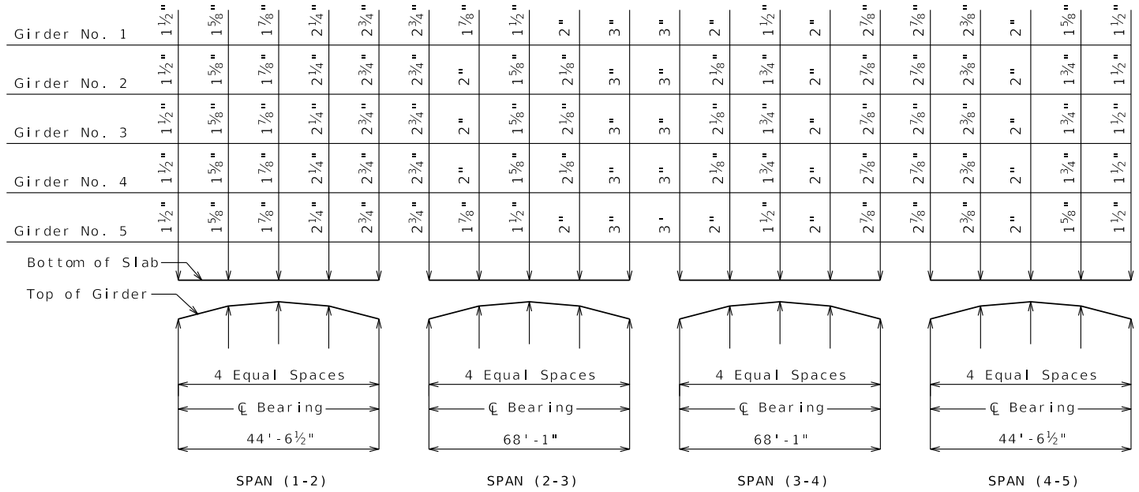
PRESTRESSED PANELS

Detailed July 2024
Checked Oct. 2024

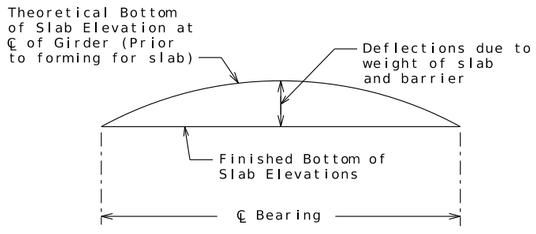
Note: This drawing is not to scale. Follow dimensions.



THEORETICAL SLAB HAUNCHING DIAGRAM (ESTIMATED AT 90 DAYS)

If girder camber is different from that shown in the camber diagram, in order to maintain minimum slab thickness, an adjustment of the slab haunches, an increase in slab thickness or a raise in grade uniformly throughout the structure shall be necessary. No payment will be made for additional labor or materials required for variation in haunching, slab thickness or grade adjustment.

Concrete in the slab haunches is included in the Estimated Quantities for Slab on Concrete Girder.



TYPICAL SLAB ELEVATIONS DIAGRAM

Theoretical Bottom of Slab Elevations at Centerline of Girder (Prior to forming for slab) (Estimated at 90 days)

Girder Number	Span (1-2) (44'-6½" ℄ Brg. - ℄ Brg.)					Span (2-3) (68'-1" ℄ Brg. - ℄ Brg.)					Span (3-4) (68'-1" ℄ Brg. - ℄ Brg.)					Span (4-5) (44'-6½" ℄ Brg. - ℄ Brg.)				
	℄ Brg.	.25	.50	.75	℄ Brg.	℄ Brg.	.25	.50	.75	℄ Brg.	℄ Brg.	.25	.50	.75	℄ Brg.	℄ Brg.	.25	.50	.75	℄ Brg.
1	913.42	913.50	913.57	913.62	913.67	913.67	913.80	913.88	913.90	913.86	913.86	913.94	913.96	913.92	913.83	913.83	913.81	913.79	913.74	913.69
2	913.67	913.75	913.82	913.88	913.92	913.92	914.06	914.15	914.16	914.11	914.11	914.20	914.23	914.18	914.08	914.08	914.07	914.04	914.00	913.94
3	913.90	913.98	914.05	914.11	914.15	914.15	914.29	914.38	914.39	914.34	914.34	914.43	914.46	914.41	914.31	914.31	914.30	914.27	914.23	914.17
4	913.67	913.75	913.82	913.88	913.92	913.92	914.06	914.15	914.16	914.11	914.11	914.20	914.23	914.18	914.08	914.08	914.07	914.04	914.00	913.94
5	913.42	913.50	913.57	913.62	913.67	913.67	913.80	913.88	913.90	913.86	913.86	913.94	913.96	913.92	913.86	913.86	913.81	913.79	913.74	913.69

Elevations are based on a constant slab thickness of 8 1/2" and include allowance for theoretical dead load deflections due to weight of slab (including precast panel) and barrier.

SLAB HAUNCH AND ELEVATION DATA

Detailed July 2024
Checked Oct. 2024

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

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12-DEC-2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
BR	21

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WARREN

JOB NO.
J2S3438

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9374

REV.	DESCRIPTION	DATE

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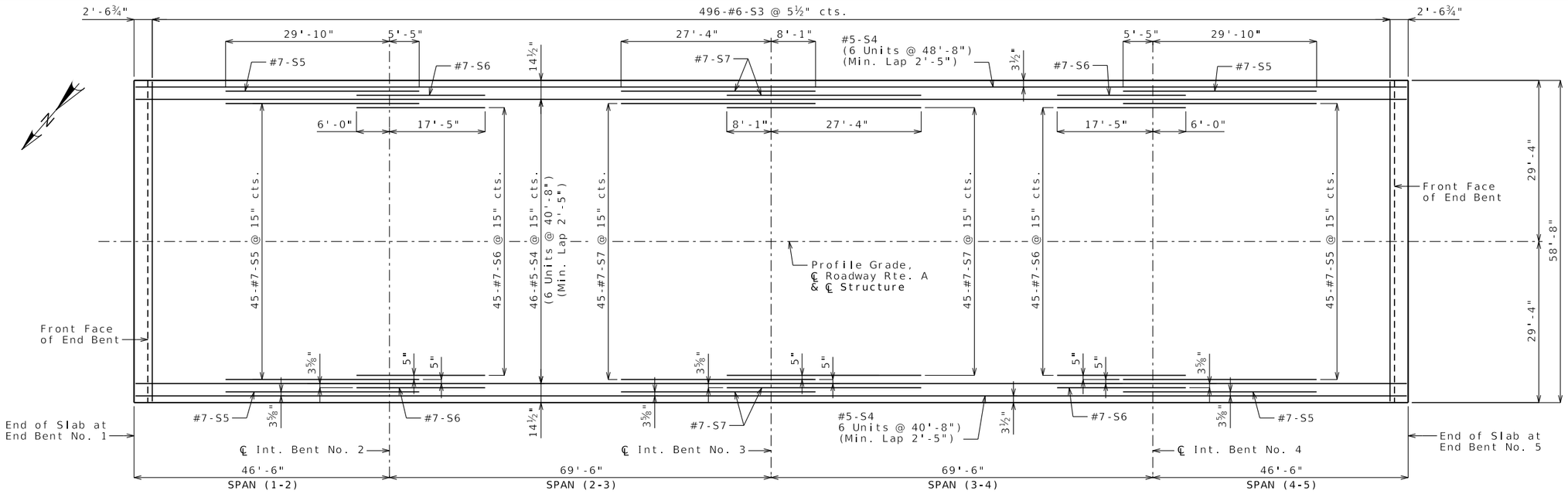
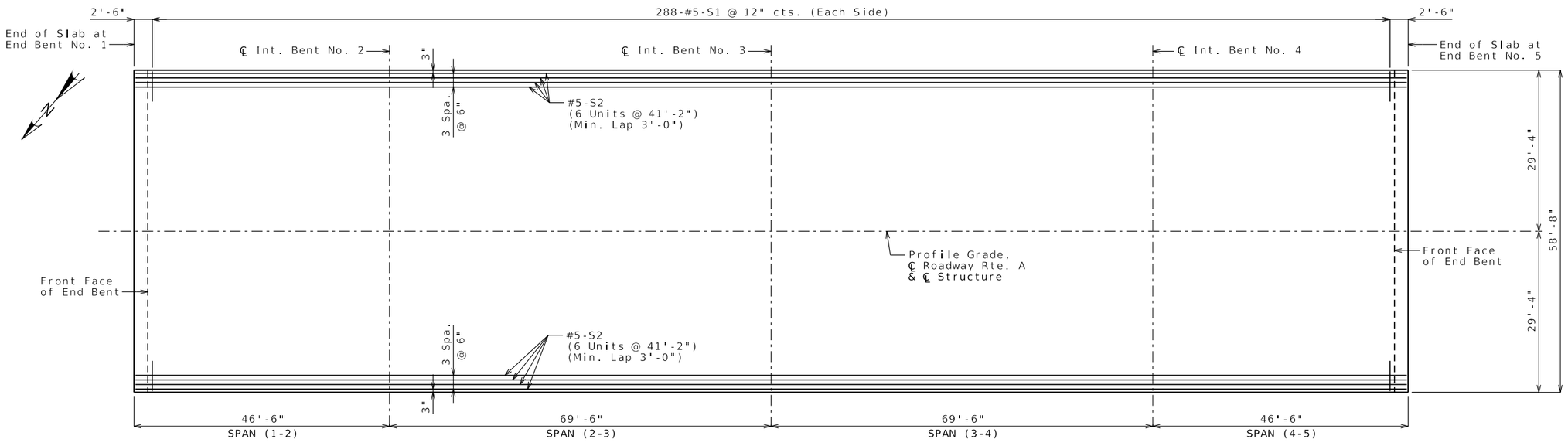


PLAN OF SLAB SHOWING TOP REINFORCEMENT



PLAN OF SLAB SHOWING BOTTOM REINFORCEMENT

General Notes:

Longitudinal dimensions shown are horizontal.

For Section Thru Slab, and Slab Pouring Sequence, see Slab Details, Sheet No. 23.

For Details and Reinforcement of Type D Barrier not shown, see Sheet No. 24.

For Details of Precast Prestressed Panels, see Sheet No. 20.

For Theoretical Slab Haunching Diagram, see Sheet No. 21.

For Theoretical Bottom of Slab Elevations, see Sheet No. 21.

PLAN OF SLAB SHOWING REINFORCEMENT

Detailed Aug. 2024
Checked Oct. 2024

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

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DATE PREPARED
12-DEC-2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
BR	22

COUNTY
WARREN

JOB NO.
J2S3438

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
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REV.	DESCRIPTION	DATE

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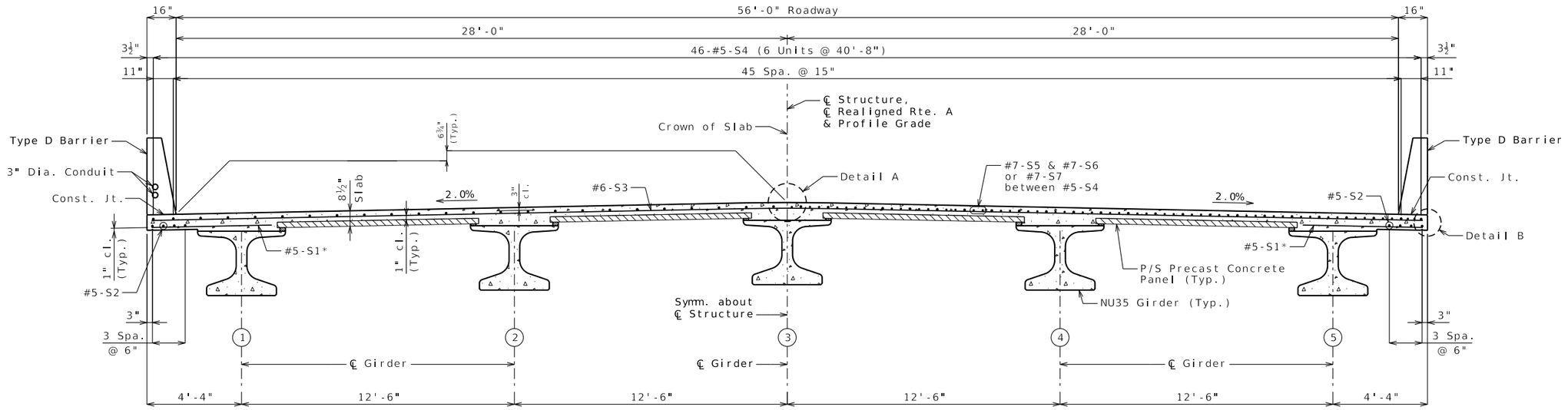


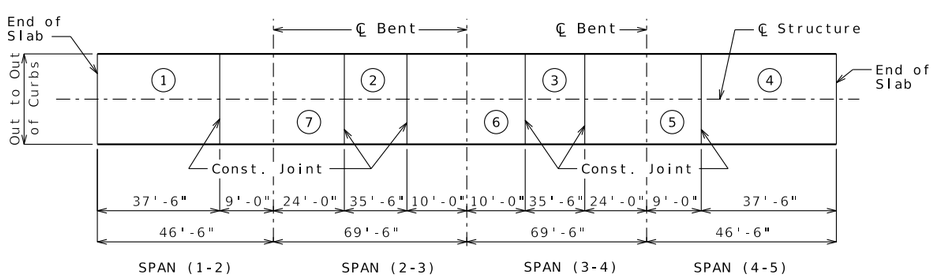
HALF SECTION NEAR MIDSPAN

HALF SECTION NEAR INTERMEDIATE BENT

TYPICAL SECTION

(Looking Upstation)

* Alternate bar shape available, see barrier sheet.

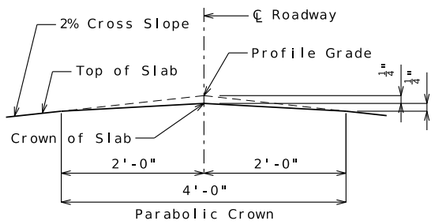


	Sequence of Pours							Min. Rate of Pour Cu. Yds./Hr.
	Direction							With Retarder
Basic Sequence	1	2	3	4	5	6	7	25
	Either Direction							
Alternate pours to the basic sequence are subject to the approval of the engineer in accordance with Sec 703.								
Alternate A Pours	1		7 + 2		6 + 3		5 + 4	25
	End to 7		1 to 6		2 to 5		3 to End	
Alternate B Pours	1 + 7 + 2			6 + 3			5 + 4	25
	End to 6			2 to 5			3 to End	
Alternate C Pours	1 + 7 + 2				6 + 3 + 5 + 4			25
	End to 6				2 to End			
Alternate D Pours	1 + 7 + 2 + 6 + 3 + 5 + 4							25
	End to End							

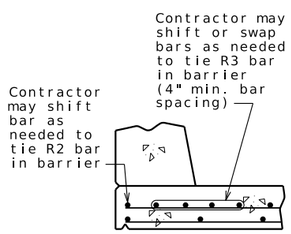
The contractor shall furnish an approved retarder to retard the set of the concrete to 2.5 hours, and shall pour and satisfactorily finish the slab pours at the rate given.

The concrete diaphragm at the intermediate bents and integral end bents shall be poured a minimum of 30 minutes and a maximum of 2 hours before the slab is poured.

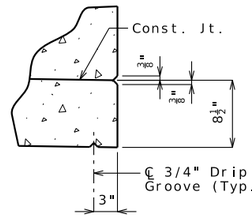
SLAB POURING SEQUENCE



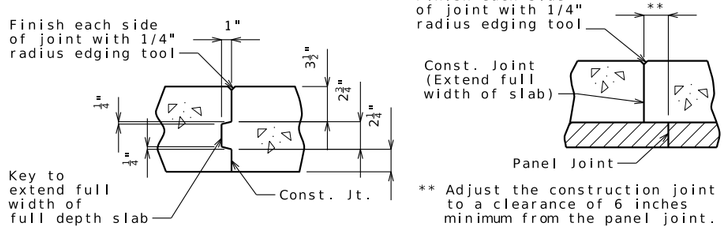
DETAIL A



OPTIONAL SHIFTING TOP BARS AT BARRIER



DETAIL B



FULL DEPTH SLAB

SLAB ON PANELS

** Adjust the construction joint to a clearance of 6 inches minimum from the panel joint.

SLAB CONSTRUCTION JOINT

Notes:

For General Notes, see Sheet No. 2.

All Horizontal Dimensions are perpendicular to ℄ Rte. A.

For details of precast prestressed panels, see Sheet No. 20.

For reinforcement of barrier not shown, see Sheet No. 24.

For Theoretical Bottom of Slab Elevations, Girder Camber Diagram and Theoretical Slab Haunching Diagram, see Sheet No. 21.

For Plan of Slab Showing Reinforcement, Details and Notes not shown here, see Sheet No. 22.

For details of Conduit System in Barrier, see Sheet No. 27.

SLAB DETAILS

Detailed July 2024
Checked Oct. 2024

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

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DATE PREPARED: 12-DEC-2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
BR	23

COUNTY: WARREN
JOB NO.: J2S3438
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9374

REV.	DESCRIPTION	DATE

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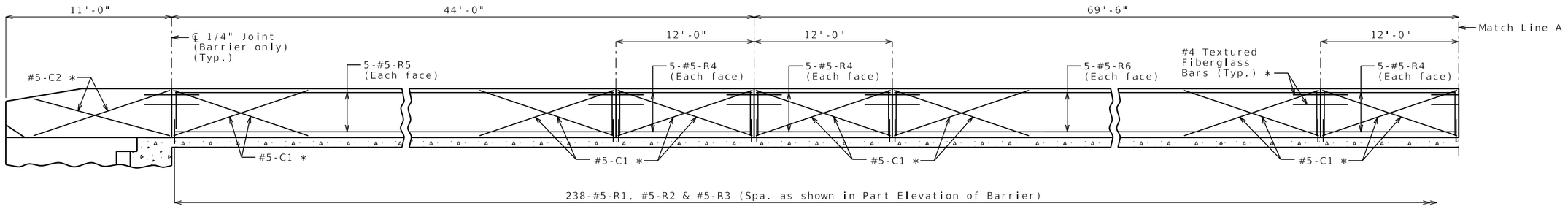
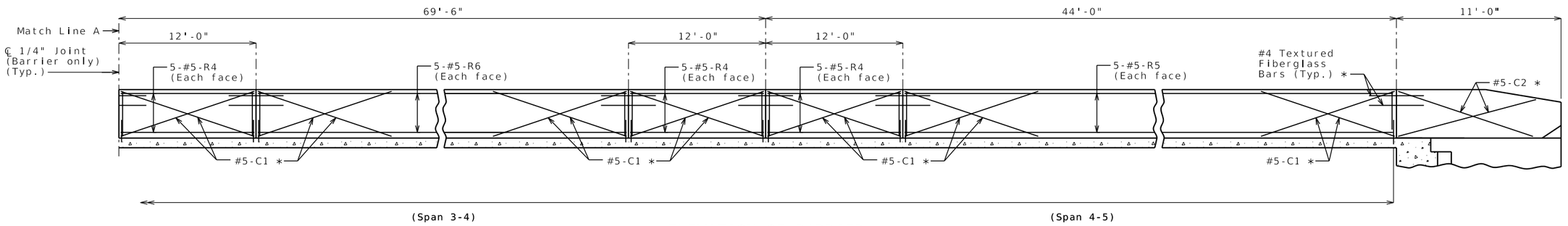
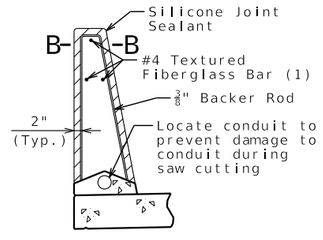


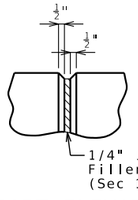


ELEVATION OF BARRIER

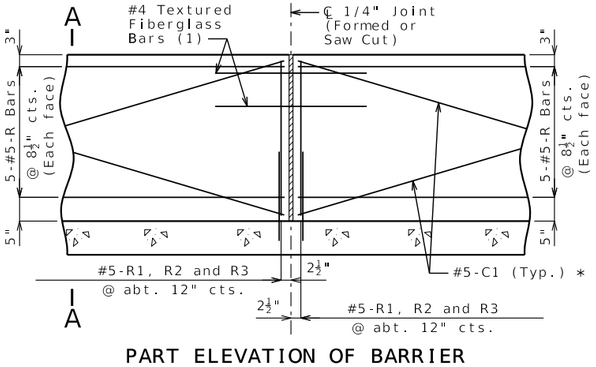
(Left barrier shown, right barrier similar)
Longitudinal dimensions are horizontal.



SECTION THRU SAW CUT JOINT

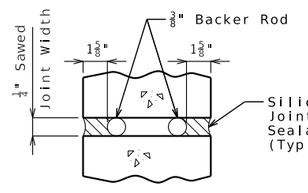


PART ELEVATION AT FORMED JOINT

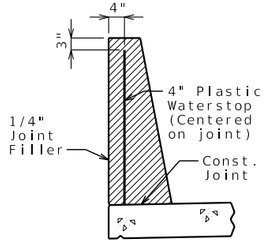


PART ELEVATION OF BARRIER

(1) Four feet long, centered on joint, slip-formed option only



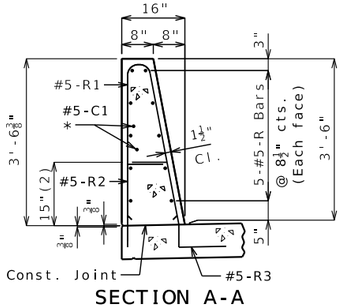
SECTION B-B



WATERSTOP DETAIL

Plastic waterstop shall be placed in all formed joints, except structures with superelevation, use on lower joints only.

Cost of plastic waterstop, complete in place, will be considered completely covered by the contract unit price for Type D Barrier.

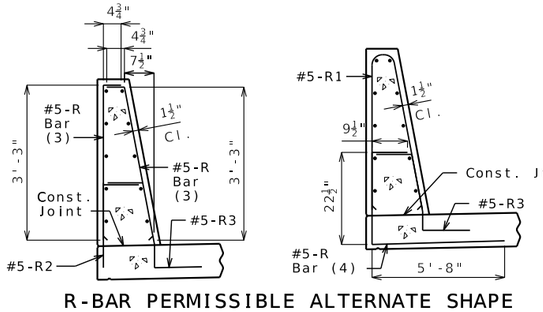


SECTION A-A

Use a minimum lap of 3'-1" for #5 horizontal barrier bars.

The cross-sectional area above the slab is 3.52 square feet.

(2) To top of bar



R-BAR PERMISSIBLE ALTERNATE SHAPE

(3) The R1 bar may be separated into two bars as shown, at the contractor's option, only when slip forming is not used. (All dimensions are out to out.)

(4) The R2 bar and #5 bottom transverse slab bar in cantilever (prestressed panels only) combination may be furnished as one bar as shown, at the contractor's option.

General Notes:

* Slip-formed option only.

Conventional forming or slip forming may be used. Saw cut joints may be used with conventional forming.

Top of barrier shall be built parallel to grade and barrier joints (except at end bents) normal to grade.

All exposed edges of barrier shall have either a 1/2-inch radius or a 3/8-inch bevel, unless otherwise noted.

Payment for all concrete and reinforcement, complete in place, will be considered completely covered by the contract unit price for Type D Barrier per linear foot.

Concrete in barrier shall be Class B-1.

Measurement of barrier is to the nearest linear foot for each structure, measured along the outside top of slab from end of wing to end of wing.

Concrete traffic barrier delineators shall be placed on top of the barrier as shown on Missouri Standard Plan 617.10 and in accordance with Sec 617. Delineators on bridges with two-lane, two-way traffic shall have retroreflective sheeting on both sides. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for Type D Barrier.

Joint sealant and backer rods shall be in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

For slip-formed option, both sides of barrier shall have a vertically broomed finish and the top shall have a transversely broomed finish.

Plastic waterstop shall not be used with saw cut joints.

Conduit System in Left Barrier not shown for clarity. For details of Conduit System, see Sheet No. 27.

TYPE D BARRIER

Detailed July 2024
Checked Oct. 2024

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

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REGISTERED PROFESSIONAL ENGINEER
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DATE PREPARED: 12-DEC-2024
ROUTE: A | STATE: MO
DISTRICT: BR | SHEET NO.: 24
COUNTY: WARREN
JOB NO.: J2S3438
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9374

REV.	DESCRIPTION	DATE

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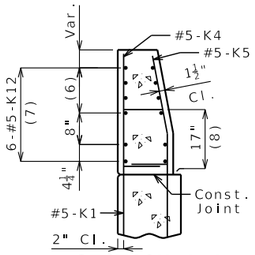
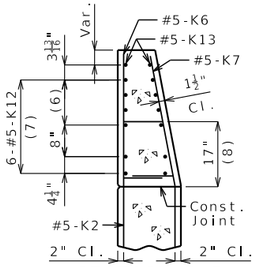
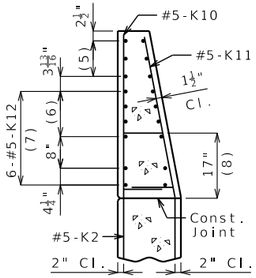


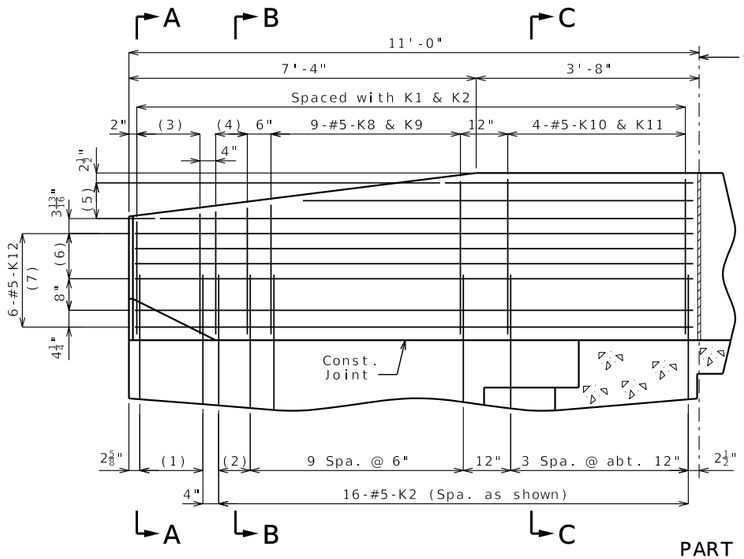
SECTION A-A

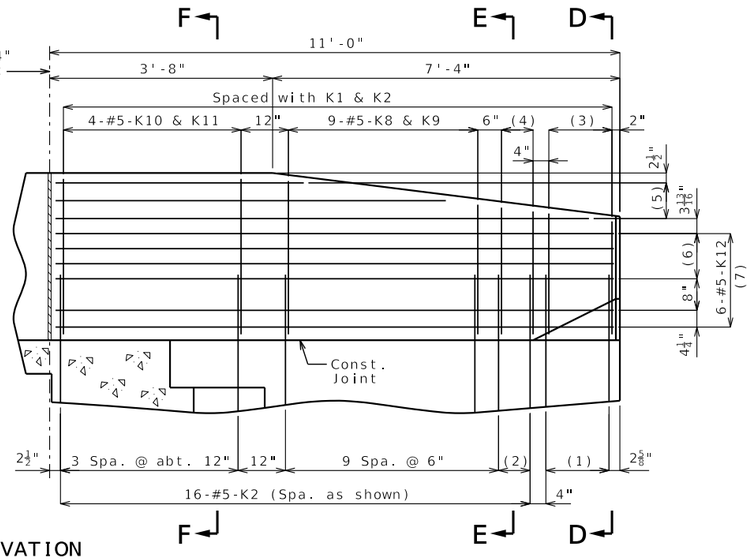


SECTION B-B

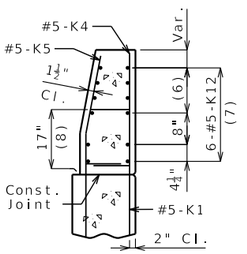


SECTION C-C





PART ELEVATION



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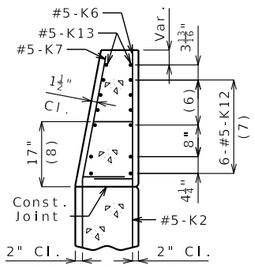
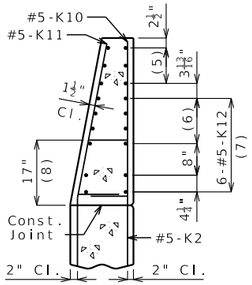


SECTION E-E



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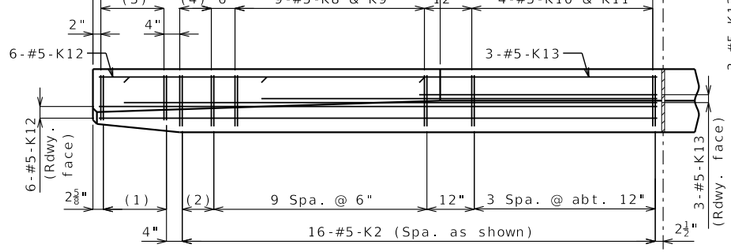
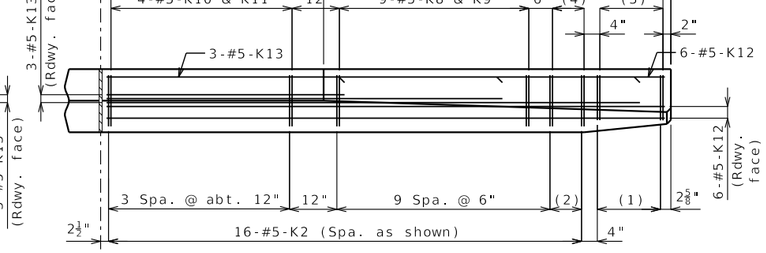
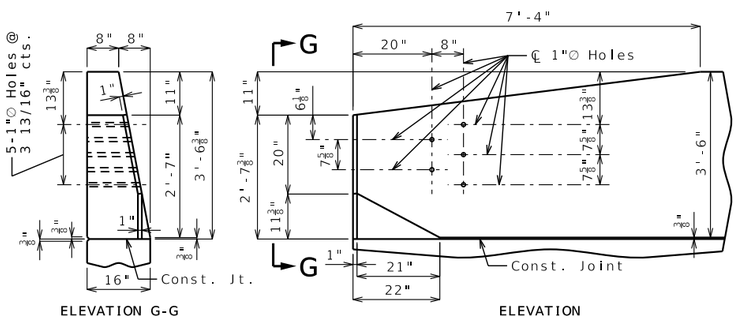


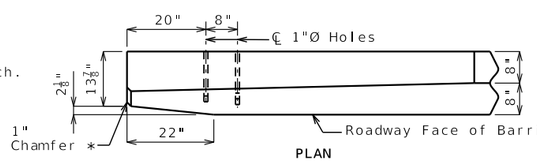


PART PLAN



ELEVATION G-G ELEVATION

* Transition to zero at Type A curb for gutter lines to match.



PLAN

DETAILS OF GUARD RAIL ATTACHMENT

(1) 5-#5-K1 @ 4" cts.

(2) 2 spaces @ 4"

(3) 5-#5-K4 & K5

(4) 3-#5-K6 & K7

(5) 3-#5-K13 @ 4½" cts., each face

(6) 3 spaces @ 3 13/16"

(7) Spaced as shown, each face

(8) To top of bar

General Notes:

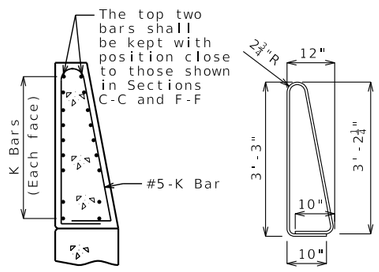
Concrete traffic barrier delineators shall be placed on top of the barrier as shown on Missouri Standard Plan 617.10 and in accordance with Sec 617. Delineators on bridges with two-lane, two-way traffic shall have retroreflective sheeting on both sides. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for Type D Barrier.

Reinforcing Steel:
Minimum clearance to reinforcing steel shall be 1 1/2" except as shown for bars embedded into end bent.

Conduit system in Left Barrier not shown for clarity. For details of Conduit System, see Sheet No. 27.

TYPE D BARRIER AT END BENTS

(Left barrier shown, right barrier similar)



K10-K11 BAR PERMISSIBLE ALTERNATE SHAPE

(Other K bars not shown for clarity)

The K10-K11 bar combination may be furnished as one bar as shown, at the contractor's option.

All dimensions are out to out.

Detailed July 2024
Checked Oct. 2024

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

STATE OF MISSOURI
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Rodney D. Riley, PE
MO-026267

DATE PREPARED
12-DEC-2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
BR	25

COUNTY
WARREN

JOB NO.
J2S3438

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9374

DESCRIPTION | DATE | REV.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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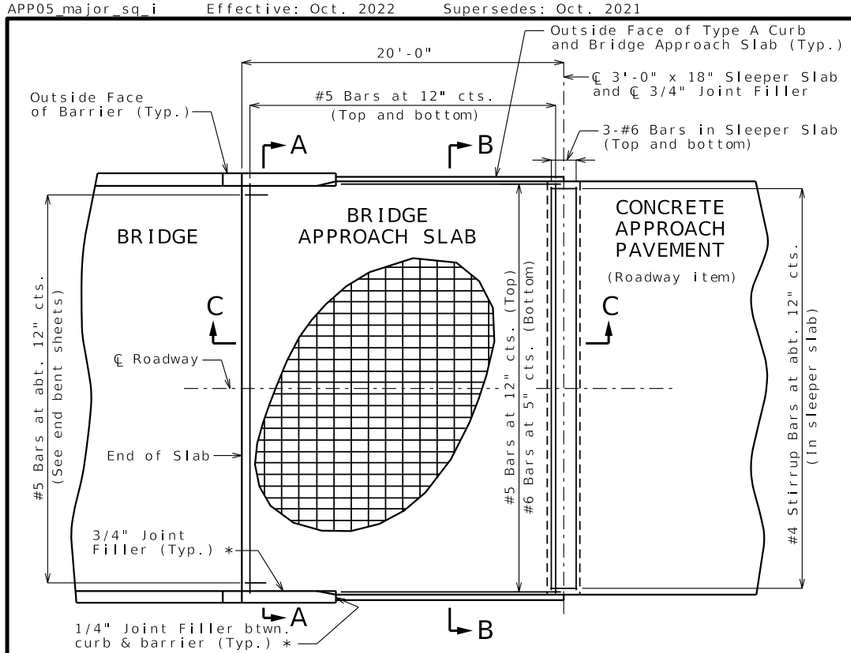
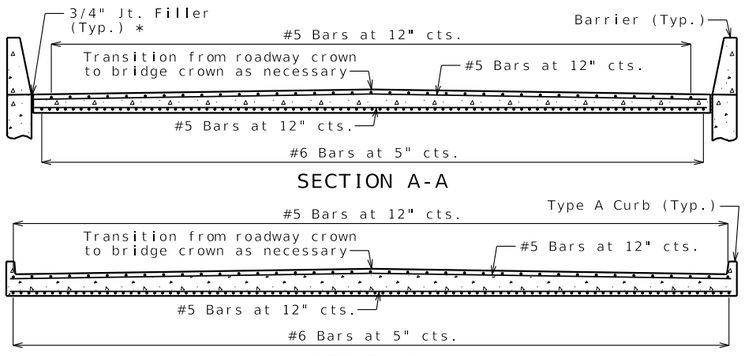
CERTIFICATE OF AUTHORITY #00704



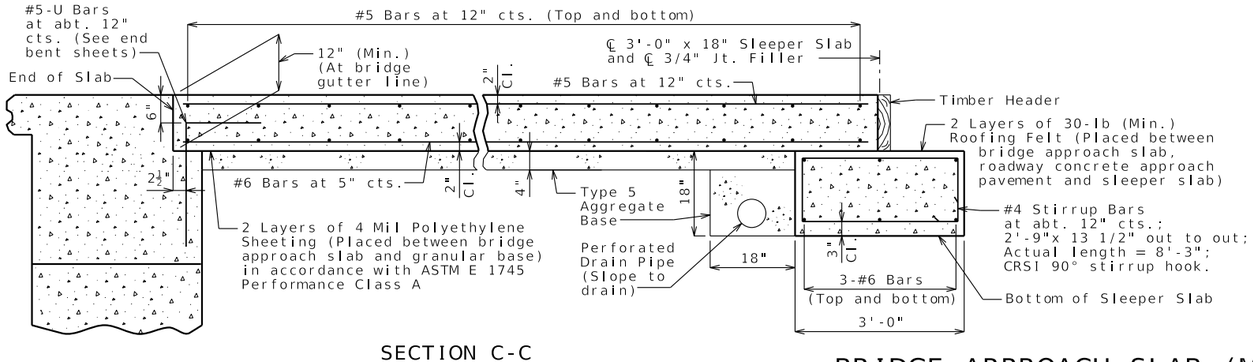
PART PLAN SHOWING REINFORCEMENT



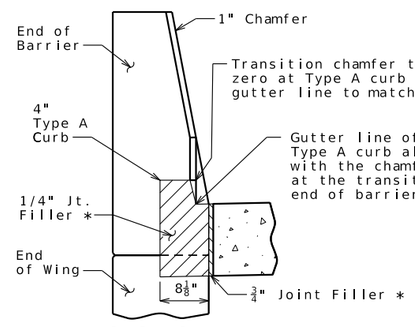
SECTION A-A

SECTION B-B

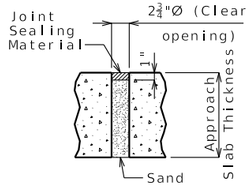
With the approval of the engineer, the contractor may crown the bottom of the approach slab to match the crown of the roadway surface.



SECTION C-C

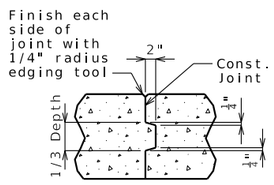


SECTION BETWEEN CURB AND BARRIER

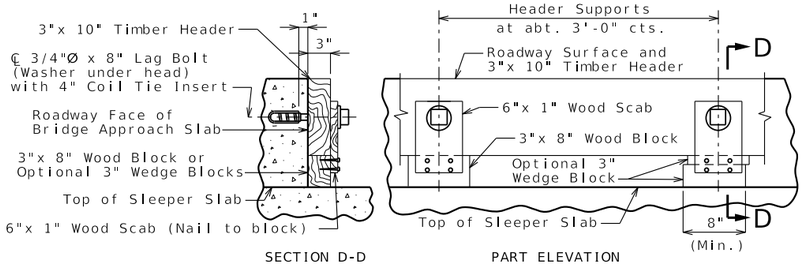


UNDERSEAL ACCESS HOLE DETAIL

(If required)



CONSTRUCTION JOINT DETAIL



SECTION D-D PART ELEVATION

DETAILS OF TIMBER HEADER

Remove timber header when concrete pavement is placed.

General Notes:

All concrete for the bridge approach slab and sleeper slab shall be in accordance with Sec 503 (f'c = 4,000 psi).

The reinforcing steel in the bridge approach slab and the sleeper slab shall be epoxy coated Grade 60 with fy = 60,000 psi.

Drain pipe may be either 6" diameter corrugated metallic-coated pipe underdrain, 4" diameter corrugated polyvinyl chloride (PVC) drain pipe, or 4" diameter corrugated polyethylene (PE) drain pipe.

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

The reinforcing steel in the bridge approach slab and the sleeper slab shall be continuous. The transverse reinforcing steel may be made continuous by providing a minimum lap splice of 29 inches for #5 bars and 44 inches for #6 bars, or by mechanical bar splice.

Mechanical bar splices shall be in accordance with Sec 710.

All joint filler shall be in accordance with Sec 1057 for preformed fiber expansion joint filler except as noted.

The contractor shall pour and satisfactorily finish the bridge slab before placing the bridge approach slab.

Longitudinal construction joints in approach slab and sleeper slab shall be aligned with longitudinal construction joints in bridge slab.

For concrete approach pavement details, see roadway plans.

See Missouri Standard Plan 609.00 for details of Type A curb.

Payment for furnishing all materials, labor and excavation necessary to construct the approach slab, including the timber header, sleeper slab, underdrain, Type 5 aggregate base, joint filler and all other appurtenances and incidental work as shown on this sheet, complete in place, will be considered completely covered by the contract unit price for Bridge Approach Slab (Major) per square yard.

* Seal joint between vertical face of approach slab and wing with sealant in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

STATE OF MISSOURI
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DATE PREPARED
12-DEC-2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
BR	26

COUNTY
WARREN

JOB NO.
J2S3438

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9374

REV.	DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
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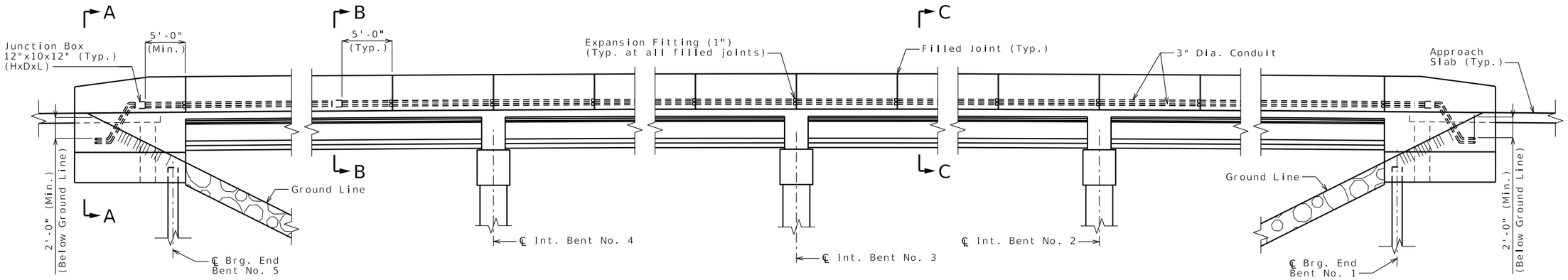
CERTIFICATE OF AUTHORITY #00704

Detailed July 2024
Checked Oct. 2024

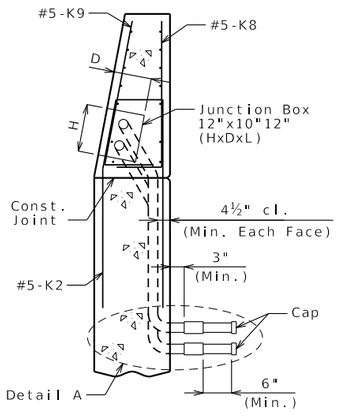
BRIDGE APPROACH SLAB (MAJOR)

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

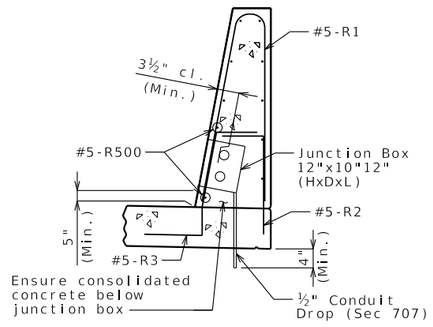


PART ELEVATION OF BARRIER SHOWING LOCATION OF CONDUIT

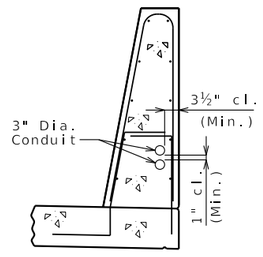
(Left Barrier Only)



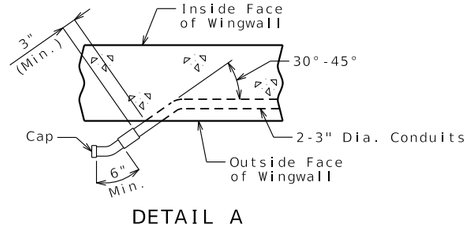
SECTION A-A



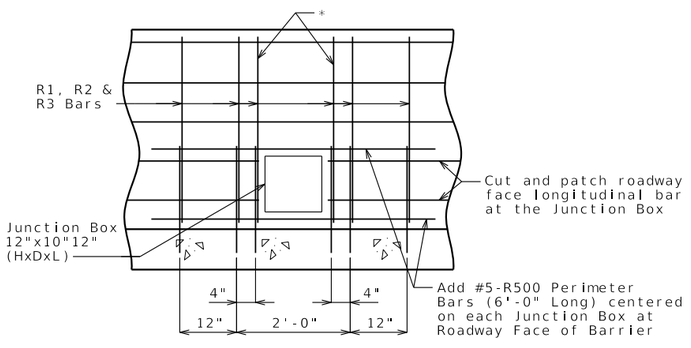
SECTION B-B



SECTION C-C



DETAIL A



PART ELEVATION OF SAFETY BARRIER CURB SHOWING PERIMETER STEEL AT JUNCTION BOXES

* At each Junction Box, add 1 set of #5-R1, #5-R2 and #5-R3 bars in the Roadway Barriers or 1 set of #5-K2, #5-K8 and #5-K9 bars in the Wingwall Barriers and shift bars to clear Junction Boxes.

Conduit System Notes:

All conduit shall be rigid non-metalic schedule 40 heavy wall polyvinyl chloride (PVC), in accordance with Sec 1060, with 3" minimum cover in concrete. Each section of conduit shall bear the Underwriters Laboratories (UL) label.

All conduit fittings for PVC conduits shall be in accordance with Sec 1060. All conduit clamps, if required, shall be commercially-available, nonmetalic conduit clamps and approved by the Engineer.

Shift reinforcing steel in field where necessary to clear conduit and junction boxes.

Expansion fittings shall be placed as shown and set in accordance with the manufacturer's requirements and based on the air temperature at the time of setting given an estimated total expansion movement as shown using a maximum temperature range of 120 degrees F and a maximum temperature of 110 degrees F.

Minimum clearance preferred between conduits placed in the barrier shall be 1".

All end bent and barrier junction boxes shall be PVC molded in accordance with Sec 1062 and designed for flush mounting. The conduit terminations shall be permanent or separable. The terminations and covers shall be watertight construction and shall meet requirements for NEMA 4 enclosures.

Placement of junction boxes and covers, complete in place, shall be flush with the roadway face of the barrier. Junction boxes and covers may be recessed up to 1/4".

Drainage shall be provided at low points or other critical locations of all conduits and all junction boxes in accordance with Sec 707. All conduits shall be sloped to drain where possible.

Junction box size shown on plan may require special order. No other size may be substituted.

MoDOT Construction Personnel: Indicate in field and on bridge plans for future work the exact location of buried conduit at ends of bridge that are capped and not immediately used.

Maximum junction box spacing is 250 ft. Junction Boxes shall not be placed within 5 ft. of an open, closed or filled joint in the barrier.

Deflection couplings at the end of the wings shall be required for probable thermal movements of the structure and ground movements. Expected thermal movement at each deflection coupling is equal to 5/8" of rise and fall from a setting temperature of 60 degrees F.

Payment for furnishing and installing Conduit System, complete in place, will be considered completely covered by the contract lump sum price for Conduit System on Structure.

Junction boxes shall be placed in and at the roadway face of barrier.

Wiring and fixtures shall be furnished and installed by others.

DETAILS OF CONDUIT SYSTEM

Detailed Aug. 2024
Checked Oct. 2024

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

Sheet No. 27 of 32

STATE OF MISSOURI
RODNEY D. RILEY NUMBER E-26267
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MO-026267

DATE PREPARED: 12-DEC-2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
BR	27

COUNTY: WARREN
JOB NO.: J2S3438
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9374

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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CERTIFICATE OF AUTHORITY #00704

REV.

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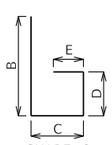

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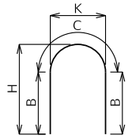

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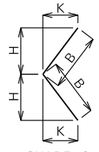

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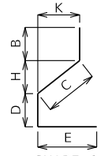

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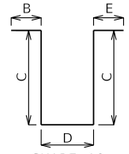

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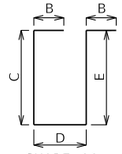

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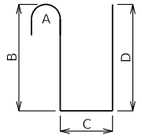

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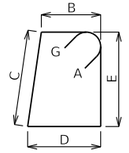

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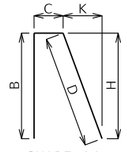

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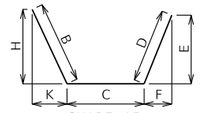

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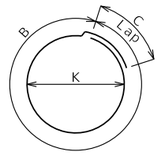

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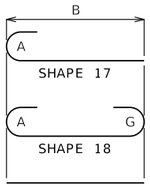
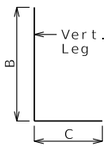


SHAPE 17
SHAPE 18
SHAPE 20



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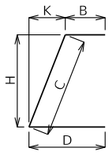

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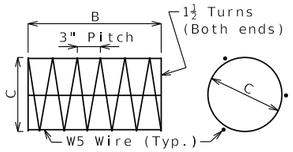
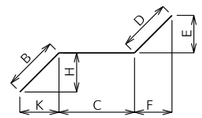
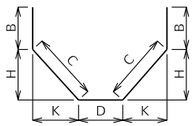


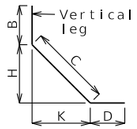
SHAPE 22



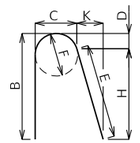
SHAPE 23
or 23S



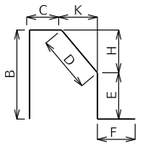
SHAPE 24
or 24S



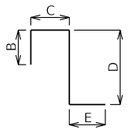
SHAPE 25
or 25S



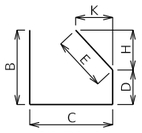
SHAPE 26



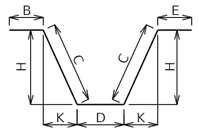
SHAPE 27S



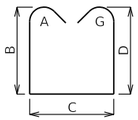
SHAPE 28
or 28S



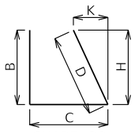
SHAPE 29
or 29S



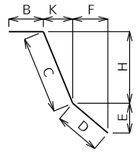
SHAPE 30
or 30S



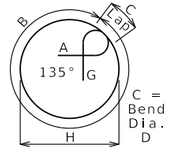
SHAPE 31S



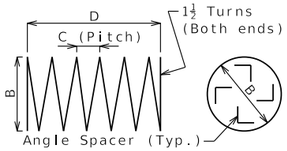
SHAPE 32
or 32S



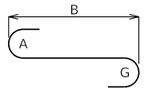
SHAPE 33
or 33S



SHAPE 34S



SHAPE 35 (1)

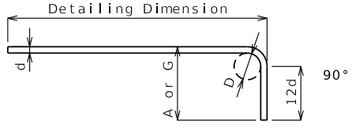


SHAPE 36

Finished Bend Diameters D and Hook Dimensions

Standard Pin Bend Shapes

Size	Case	D	A or G		J
			90°	180°	180°
#4	1	3"	8"	6"	4"
#5	1	3¾"	10"	7"	5"
#6	1	4½"	12"	8¼"	6"
#7	2	5¼"	14"	9¾"	7"
	3	7"	15"	11½"	8¾"
#8	2	6"	16"	11"	8"
	3	8"	17"	13¼"	10"
#9	1	9½"	19½"	15½"	11¾"
#10	1	10¾"	22"	17½"	13¼"
#11	1	12"	24½"	19½"	14⅞"
#14	1	18¼"	31¼"	27½"	21⅝"
#18	1	24"	41½"	36¾"	28½"

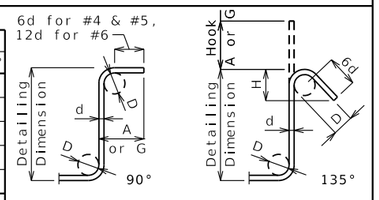


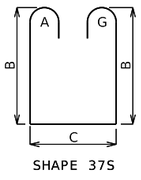
Stirrup Pin Bend Shapes (S)

Size	Case	D	A or G			H	J
			90°	135°	180°	135°	180°
#4	2	2"	4½"	4½"	5"	2⅝"	3"
	3	3"	5"	5¼"	6"	3"	4"
#5	2	2½"	5¾"	5¾"	5¾"	3⅝"	3¾"
	3	3¾"	6¼"	6½"	7"	3⅞"	5"
#6	1	4½"	12"	7¾"	8¼"	4⅝"	6"

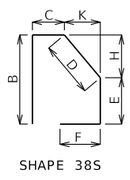
Applicable for all grades of steel.

Case 1 applies to all reinforcement. Case 2 applies to all reinforcement except for galvanized bars. Case 3 applies to galvanized bars only.





SHAPE 37S



SHAPE 38S

BENDING DIAGRAMS

All dimensions are out to out.

Shapes ending with an S shall be bent in accordance with stirrup pin bend shapes.

Unless otherwise noted, finished bending diameter D is the same for all bends of a shape.

(1) Shall be a deformed or plain spiral bar or wire.

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 Totals (Pounds)

		Substructure		Superstructure				Entire Bridge	
				Slab			Slip		
	Size	Plain	Epoxy	Plain	Epoxy	Barrier	Form	Plain	Epoxy
By Size	W5	0	0	0	0	0	0	0	0
	4	0	10,947	0	2,078	0	0	0	13,025
	5	0	2,952	0	19,731	12,953	774	0	36,410
	6	0	6,447	0	51,605	0	0	0	58,052
	7	0	0	0	18,077	0	0	0	18,077
	8	0	0	0	4,650	0	0	0	4,650
	9	0	0	0	0	0	0	0	0
	10	0	0	0	0	0	0	0	0
	11	0	0	0	0	0	0	0	0
	14	0	0	0	0	0	0	0	0
	18	0	0	0	0	0	0	0	0
By Type		0	20,346	0	96,141	12,953	774	0	130,214

All superstructure reinforcing steel shall be epoxy coated unless otherwise specified.

BENDING DIAGRAMS AND REINFORCING STEEL TOTALS

Detailed Sep. 2024
Checked Oct. 2024

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

STATE OF MISSOURI
RODNEY D. RILEY
NUMBER E-26267
REGISTERED PROFESSIONAL ENGINEER
12/12/2024 6:33:34 PM
Rodney D. Riley, PE
MO-026267

DATE PREPARED 12-DEC-2024
ROUTE A | STATE MO
DISTRICT BR | SHEET NO. 28
COUNTY WARREN
JOB NO. J2S3438
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9374

DESCRIPTION | DATE | REV.

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

Jacobs
JACOBS ENGINEERING GROUP
1001 HIGHLANDS PLAZA DR. WEST, SUITE 400
ST. LOUIS, MISSOURI 63110
PHONE: (314) 335-4000
CERTIFICATE OF AUTHORITY #00704

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.	Nom. Length ft in.	Actual Length ft in.	Weight lbs
		SUBSTRUCTURE													
		INT BENT 2													
32	6D200	CAP	E	20		2-6							2-6	2-6	120
10	6H201	CAP	E	18		56-8							58-1	58-1	872
4	6H202	CAP	E	20		56-8							56-8	56-8	340
8	6H203	CAP	E	10S			1-0	2-9.75					4-10	4-6	54
2	4H204	WALL	E	18		54-10							55-10	55-10	75
42	4H205	WALL	E	7		2-6	2-10.5				3-5	1-10	7-11	7-10	220
40	4H206	WALL	E	20		54-10							54-10	54-10	1,465
6	5H207	CAP	E	20		4-4							4-4	4-4	27
90	4P201	PILE	E	34S		3-1.75	0-4.5				1-0		4-3.50	4-1.50	248
56	5U201	CAP	E	13S		2-11	2-9	2-11	2-9				12-4	12-0	701
30	5U202	CAP	E	10S			2-9	2-11					8-5	8-2	256
90	4U203	WALL	E	19S		22-10	1-10						24-8	24-7	1,478
29	4U204	CAP	E	10S			1-3	2-11					5-5	5-3	102
18	6U205	CAP	E	10S			1-0	4-4					6-4	6-0	162
26	4V201	WALL	E	20		22-10							22-10	22-10	397
60	6V202	PILE	E	17		6-0							6-8	6-8	601
		INT BENT 3													
32	6D300	CAP	E	20		2-6							2-6	2-6	120
10	6H301	CAP	E	18		56-8							58-1	58-1	872
4	6H302	CAP	E	20		56-8							56-8	56-8	340
8	6H303	CAP	E	10S			1-0	2-9.75					4-10	4-6	54
2	4H304	WALL	E	18		54-10							55-10	55-10	75
36	4H305	WALL	E	7		2-6	2-10.5				3-5	1-10	7-11	7-10	188
34	4H306	WALL	E	20		54-10							54-10	54-10	1,245
6	5H307	CAP	E	20		4-4							4-4	4-4	27
90	4P301	PILE	E	34S		3-1.75	0-4.5				1-0		4-3.50	4-1.50	248
56	5U301	CAP	E	13S		2-11	2-9	2-11	2-9				12-4	12-0	701
30	5U302	CAP	E	10S			2-9	2-11					8-5	8-2	256
90	4U303	WALL	E	19S		19-7	1-10						21-5	21-4	1,283
29	4U304	CAP	E	10S			1-3	2-11					5-5	5-3	102
18	6U305	CAP	E	10S			1-0	4-4					6-4	6-0	162
26	4V301	WALL	E	20		19-7							19-7	19-7	340
60	6V302	PILE	E	17		6-0							6-8	6-8	601
		INT BENT 4													
32	6D400	CAP	E	20		2-6							2-6	2-6	120
10	6H401	CAP	E	18		56-8							58-1	58-1	872
4	6H402	CAP	E	20		56-8							56-8	56-8	340
8	6H403	CAP	E	10S			1-0	2-9.75					4-10	4-6	54
2	4H404	WALL	E	18		54-10							55-10	55-10	75
36	4H405	WALL	E	7		2-6	2-10.5				3-5	1-10	7-11	7-10	188
34	4H406	WALL	E	20		54-10							54-10	54-10	1,245
6	5H407	CAP	E	20		4-4							4-4	4-4	27
90	4P401	PILE	E	34S		3-1.75	0-4.5				1-0		4-3.50	4-1.50	248
56	5U401	CAP	E	13S		2-11	2-9	2-11	2-9				12-4	12-0	701
30	5U402	CAP	E	10S			2-9	2-11					8-5	8-2	256
90	4U403	WALL	E	19S		19-7	1-10						21-5	21-4	1,283
29	4U404	CAP	E	10S			1-3	2-11					5-5	5-3	102
18	6U405	CAP	E	10S			1-0	4-4					6-4	6-0	162
26	4V401	WALL	E	20		19-7							19-7	19-7	340
60	6V402	PILE	E	17		6-0							6-8	6-8	601

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.	Nom. Length ft in.	Actual Length ft in.	Weight lbs
		SUPERSTRUCTURE													
		END BENT 1													
18	6F100	WING BRACE	E	23		2-3	4-2	1-2	0-9.875	0-9.875	1-7.125	1-7.125	7-7	7-6	203
6	6F101	DIAPH	E	19		6-2	2-6.75						8-9	8-7	77
8	8H100	CAP BEAM	E	20		58-4							58-4	58-4	1,246
4	6H101	CAP BEAM	E	20		58-4							58-4	58-4	350
4	6H102	DIAPH	E	20		4-3							4-3	4-3	26
4	6H103	DIAPH	E	20		58-4							58-4	58-4	350
6	6H104	DIAPH	E	20		3-1							3-1	3-1	28
2	6H105	DIAPH	E	20		2-4.875							2-5	2-5	7
12	6H106	DIAPH	E	20		10-4.375							10-4	10-4	186
4	6H107	DIAPH	E	20		8-11.625							9-0	9-0	54
4	8H108	SLAB	E	20		58-4							58-4	58-4	623
5	5H109	STRAND TIE	E	20		5-9							5-9	5-9	30
36	6H110	WING	E	20		9-9.5							9-10	9-10	532
16	8H111	WING	E	20		10-8							10-8	10-8	456
32	5U100	CAP BEAM	E	37S		5-4.625	2-9						14-6	14-5	481
35	4U101	CAP BEAM	E	13S		2-9	2-8	2-9	2-8				11-7	11-4	265
9	4U102	CAP BEAM	E	10S		1-3	2-9						6-9	6-6	39
56	5U103	APPR NOTCH	E	19S		2-0	1-3						3-3	3-2	185
75	6U104	SLAB	E	19S		3-5.5	4-6.5						8-0	7-10	882
42	6U105	DIAPH	E	19S		1-11.5	2-8.5						4-8	4-6	284
42	5U106	DIAPH	E	37S		3-3.5	2-3						9-10	9-8	423
20	5V100	DIAPH	E	17		5-4.625							6-0	6-0	125
30	6V101	DIAPH	E	20		2-0.125							2-0	2-0	90
32	6V102	WING	E	20		6-3.5							6-4	6-4	304
4	6V103	WING	E	20		6-3.5							6-4	6-4	38
		END BENT 5													
18	6F500	WING BRACE	E	23		2-3	4-2	1-2	0-9.875	0-9.875	1-7.125	1-7.125	7-7	7-6	203
6	6F501	DIAPH	E	19		6-2	2-6.75						8-9	8-7	77
8	8H500	CAP BEAM	E	20		58-4							58-4	58-4	1,246
4	6H501	CAP BEAM	E	20		58-4							58-4	58-4	350
4	6H502	DIAPH	E	20		4-3							4-3	4-3	26
4	6H503	DIAPH	E	20		58-4							58-4	58-4	350
6	6H504	DIAPH	E	20		3-1							3-1	3-1	28
2	6H505	DIAPH	E	20		2-4.875							2-5	2-5	7
12	6H506	DIAPH	E	20		10-4.375							10-4	10-4	186
4	6H507	DIAPH	E	20		8-11.625							9-0	9-0	54
4	8H508	SLAB	E	20		58-4							58-4	58-4	623
5	5H509	STRAND TIE	E	20		5-9							5-9	5-9	30
36	6H510	WING	E	20		9-9.5							9-10	9-10	532
16	8H511	WING	E	20		10-8							10-8	10-8	456
32	5U500	CAP BEAM	E	37S		5-4.625	2-9						14-6	14-5	481
35	4U501	CAP BEAM	E	13S		2-9	2-8	2-9	2-8				11-7	11-4	265
9	4U502	CAP BEAM	E	10S		1-3	2-9						6-9	6-6	39
56	5U503	APPR NOTCH	E	19S		2-0	1-3						3-3	3-2	185
75	6U504	SLAB	E	19S		3-5.5	4-6.5						8-0	7-10	882
42	6U505	DIAPH	E	19S		1-11.5	2-8.5						4-8	4-6	284
42	5U506	DIAPH	E	37S		3-3.5	2-3						9-10	9-8	423
20	5V500	DIAPH	E	17		5-4.625							6-0	6-0	125
30	6V501	DIAPH	E	20		2-0.125							2-0	2-0	90
32	6V502	WING	E	20		6-3.5							6-4	6-4	304
4	6V503	WING	E	20		6-3.5							6-4	6-4	38
		INT. DIAPH													
36	5H51	DIAPH	E	28S		1-1	0-11	5-0					7-0	6-9	253
12	5H52	STRAND TIE	E	20		4-10							4-10	4-10	60
18	5H53	STRAND TIE	E	20		5-9							5-9	5-9	108
24	6H54	DIAPH	E	20		8-2							8-2	8-2	294
48	4H55	DIAPH	E	20		11-8							11-8	11-8	374
24	6H56	DIAPH	E	20		8-11.625							9-0	9-0	324

Nominal lengths are based on out to out dimensions shown in bending diagrams and are listed to the nearest inch for fabricator's use. Actual lengths are measured along centerline bar to the nearest inch. Weights are based on actual lengths.

For bending diagrams and steel reinforcing totals, see Sheet No. 28.

Detailed Oct. 2024
Checked Oct. 2024

All bars shall be Grade 60.

Codes: C = Required coatings, where E = Epoxy Coated and G = Galvanized.

SH = Required shape, see bending diagrams.

V = Sets of varied bars and number of bars of each length. Bar dimensions vary in equal increments between dimensions shown on this line and the following line and the actual length dimension shown on this line and the following line vary by the specified increment.

BILL OF REINFORCING STEEL

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

STATE OF MISSOURI
RODNEY D. RILEY NUMBER E-26267
REGISTERED PROFESSIONAL ENGINEER
Rodney D. Riley
12/12/2024 6:33:35 PM
Rodney D. Riley, PE
MO-026267

DATE PREPARED 12-DEC-2024

ROUTE	STATE
A	MO

DISTRICT	SHEET NO.
BR	29

COUNTY: WARREN

JOB NO.: J2S3438

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.: A9374

DESCRIPTION	DATE

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

Jacobs
JACOBS ENGINEERING GROUP
1001 HIGHLANDS PLAZA DR WEST SUITE 400
ST.LOUIS, MISSOURI 63110
PHONE: (314) 335-4000
CERTIFICATE OF AUTHORITY #00704

REV.

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	Codes SH	Codes V	Dimensions B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.	Nom. Length ft in.	Actual Length ft in.	Weight lbs
48	6U50	DIAPH	E	28S			2-2	2-8	2-2				7-0	6-8	481
240	4U51	DIAPH	E	28S			1-6	3-4	2-2				7-0	6-10	1,096
12	6U52	DIAPH	E	28S			2-2	2-0	1-9				5-11	5-7	101
12	6U53	DIAPH	E	28S			2-2	3-4	1-9				7-3	6-11	125
24	5V50	DIAPH	E	20		3-6							3-6	3-6	88
		SLAB													
456	5S1	SLAB	E	20		5-1.5							5-2	5-2	2,457
48	5S2	SLAB	E	20		41-2							41-2	41-2	2,061
496	6S3	SLAB	E	20		58-4							58-4	58-4	43,458
288	5S4	SLAB	E	20		40-8							40-8	40-8	12,216
94	7S5	SLAB	E	20		35-3							35-3	35-3	6,773
94	7S6	SLAB	E	20		23-5							23-5	23-5	4,499
94	7S7	SLAB	E	20		35-5							35-5	35-5	6,805
		BARRIER													
20	5K1	WING	E	27S		3-8	0-9.25	0-5.375	3-2.75		0-5.25	0-1	8-1	7-11	165
66	5K2	WING	E	27S		3-8	0-9.25	1-2.5	2-5.75		1-2.25	0-2.75	8-2	7-11	545
	K3	NOT USED													
20	5K4	BARRIER	E	19S	4	2-4.25	0-10						3-2	3-1	66
		INCR.=				2-6.25	0-10						3-4	3-3	
		0.5 in													
20	5K5	BARRIER	E	38S	4			1-6.5	0-9.5	0-8.25	1-6	0-4	3-0	2-11	63
		INCR.=						1-8.5	0-9.5	0-8.25	1-8	0-4.5	3-2	3-1	
		0.5 in													
12	5K6	BARRIER	E	19S		2-6.75	0-10						3-5	3-4	42
12	5K7	BARRIER	E	21S			2-6.625	0-10			2-6	0-6.25	3-5	3-3	41
20	5K8	LT BARRIER	E	19S	4	2-8.5	0-10						3-7	3-5	76
		INCR.=				3-2.5	0-10						4-1	3-11	
		1.5 in													
18	5K8	RT BARRIER	E	19S	4	2-8.5	0-10						3-7	3-5	69
		INCR.=				3-2.5	0-10						4-1	3-11	
		1.75 in													
20	5K9	LT BARRIER	E	21S	4		2-8.5	0-10			2-7.75	0-6.75	3-7	3-5	76
		INCR.=					3-2.5	0-10			3-1.75	0-7.75	4-1	3-11	
		1.5 in													
18	5K9	RT BARRIER	E	21S	4		2-8.5	0-10			2-7.75	0-6.75	3-7	3-5	69
		INCR.=					3-2.5	0-10			3-1.75	0-7.75	4-1	3-11	
		1.75 in													
16	5K10	BARRIER	E	19S		3-3	0-10						4-1	4-0	67
16	5K11	BARRIER	E	21S			3-3	0-10			3-2.25	0-7.75	4-1	3-11	65
48	5K12	BARRIER	E	20		10-9							10-9	10-9	538
24	5K13	BARRIER	E	20	8	4-0							4-0	4-0	175
		INCR.=				10-0							10-0	10-0	
		36. in													
476	5R1	BARRIER	E	26		3-3	0-5.5	0-2.25	3-1.375	0-5.5	3-0.75	0-6.75	6-10	6-9	3,351
476	5R2	BARRIER	E	19S		1-8.5	0-9.5						2-6	2-5	1,200
476	5R3	BARRIER	E	27S			0-9.5	1-3.25	0-5	1-0	1-3	0-3	3-6	3-4	1,655
120	5R4	BARRIER	E	20		11-8							11-8	11-8	1,460
40	5R5	BARRIER	E	20		31-8							31-8	31-8	1,321
40	5R6	BARRIER	E	20		45-2							45-2	45-2	1,884
4	5R500	JUNCT BOX	E	20		6-0							6-0	6-0	25
		SLIP FORM													
56	5C1	BARRIER	E	20		12-0							12-0	12-0	701
8	5C2	BARRIER	E	20		8-9							8-9	8-9	73

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	Codes SH	Codes V	Dimensions B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.	Nom. Length ft in.	Actual Length ft in.	Weight lbs

Nominal lengths are based on out to out dimensions shown in bending diagrams and are listed to the nearest inch for fabricator's use. Actual lengths are measured along centerline bar to the nearest inch. Weights are based on actual lengths.

For bending diagrams and steel reinforcing totals, see Sheet No. 28.

Detailed Oct. 2024
Checked Oct. 2024

All bars shall be Grade 60.

Codes: C = Required coatings, where E = Epoxy Coated and G = Galvanized.

SH = Required shape, see bending diagrams.

V = Sets of varied bars and number of bars of each length. Bar dimensions vary in equal increments between dimensions shown on this line and the following line and the actual length dimension shown on this line and the following line vary by the specified increment.

BILL OF REINFORCING STEEL

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

STATE OF MISSOURI
RODNEY D. RILEY NUMBER E-26267
REGISTERED PROFESSIONAL ENGINEER

Rodney D. Riley
12/12/2024 6:33:36 PM
Rodney D. Riley, PE
MO-026267

DATE PREPARED
12-DEC-2024

ROUTE	STATE
A	MO

DISTRICT	SHEET NO.
BR	30

COUNTY
WARREN

JOB NO.
J2S3438

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9374

REV.	DESCRIPTION	DATE

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

Jacobs
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1001 HIGHLANDS PLAZA DR WEST SUITE 400
ST.LOUIS, MISSOURI 63110
PHONE: (314) 335-4000
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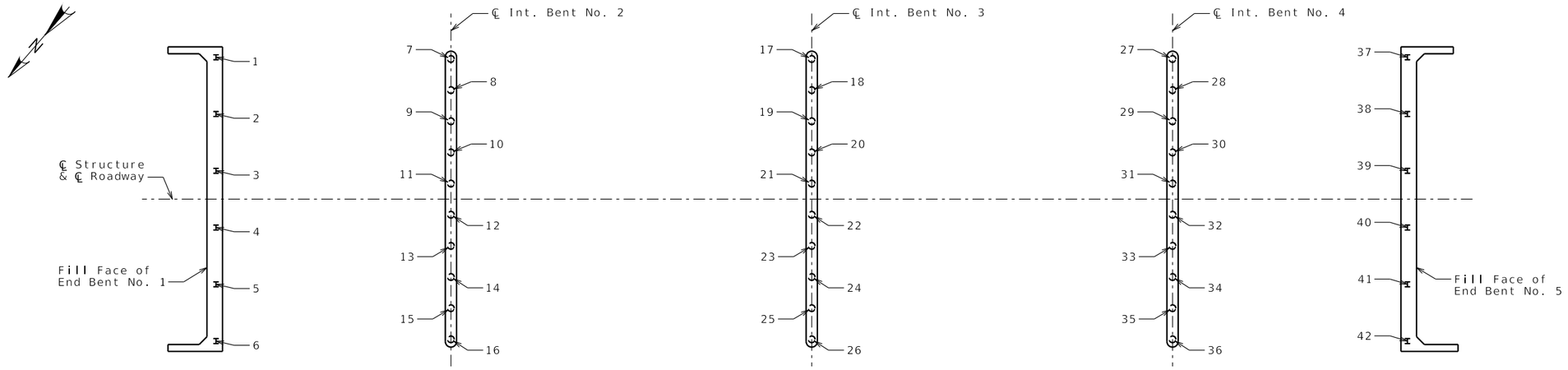
#00704



PART PLAN SHOWING PILE NUMBERING FOR RECORDING AS-BUILT PILE DATA

As-Built Pile Data

Pile No.	Length in Place (ft)	PDA Nom. Axial Compressive Resistance (kips)	PDA End of Drive Blow Count (blows/in.)	Actual End of Drive Blow Count (blows/in.)	Remarks
End Bent No. 1					
1					
2					
3					
4					
5					
6					
Int. Bent No. 2					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

As-Built Pile Data

Pile No.	Length in Place (ft)	PDA Nom. Axial Compressive Resistance (kips)	PDA End of Drive Blow Count (blows/in.)	Actual End of Drive Blow Count (blows/in.)	Remarks
Int. Bent No. 3					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
Int. Bent No. 4					
27					
28					
29					
30					
31					
32					
33					

As-Built Pile Data

Pile No.	Length in Place (ft)	PDA Nom. Axial Compressive Resistance (kips)	PDA End of Drive Blow Count (blows/in.)	Actual End of Drive Blow Count (blows/in.)	Remarks
Int. Bent No. 4 (Cont.)					
34					
35					
36					
End Bent No. 5					
37					
38					
39					
40					
41					
42					

Note:
Indicate in remarks column:
A. Pile type and grade
B. Batter
C. Driven to practical refusal
D. PDA test pile
E. Minimum tip elevation controlled
(Use when actual blow count is less than PDA blow count due to minimum tip elevation requirement. A plus sign (+) shall be placed after the PDA nominal axial compressive resistance value indicating actual value is higher than PDA value.)

This sheet to be completed by MoDOT construction personnel.

Detailed Oct. 2024
Checked Oct. 2024

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

STATE OF MISSOURI
RODNEY D. RILEY
NUMBER E-26267
REGISTERED PROFESSIONAL ENGINEER

12/12/2024 6:33:36 PM
Rodney D. Riley, PE
MO-026267

DATE PREPARED
12-DEC-2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
BR	31

COUNTY
WARREN

JOB NO.
J2S3438

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9374

DESCRIPTION	DATE

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105 WEST CAPITOL
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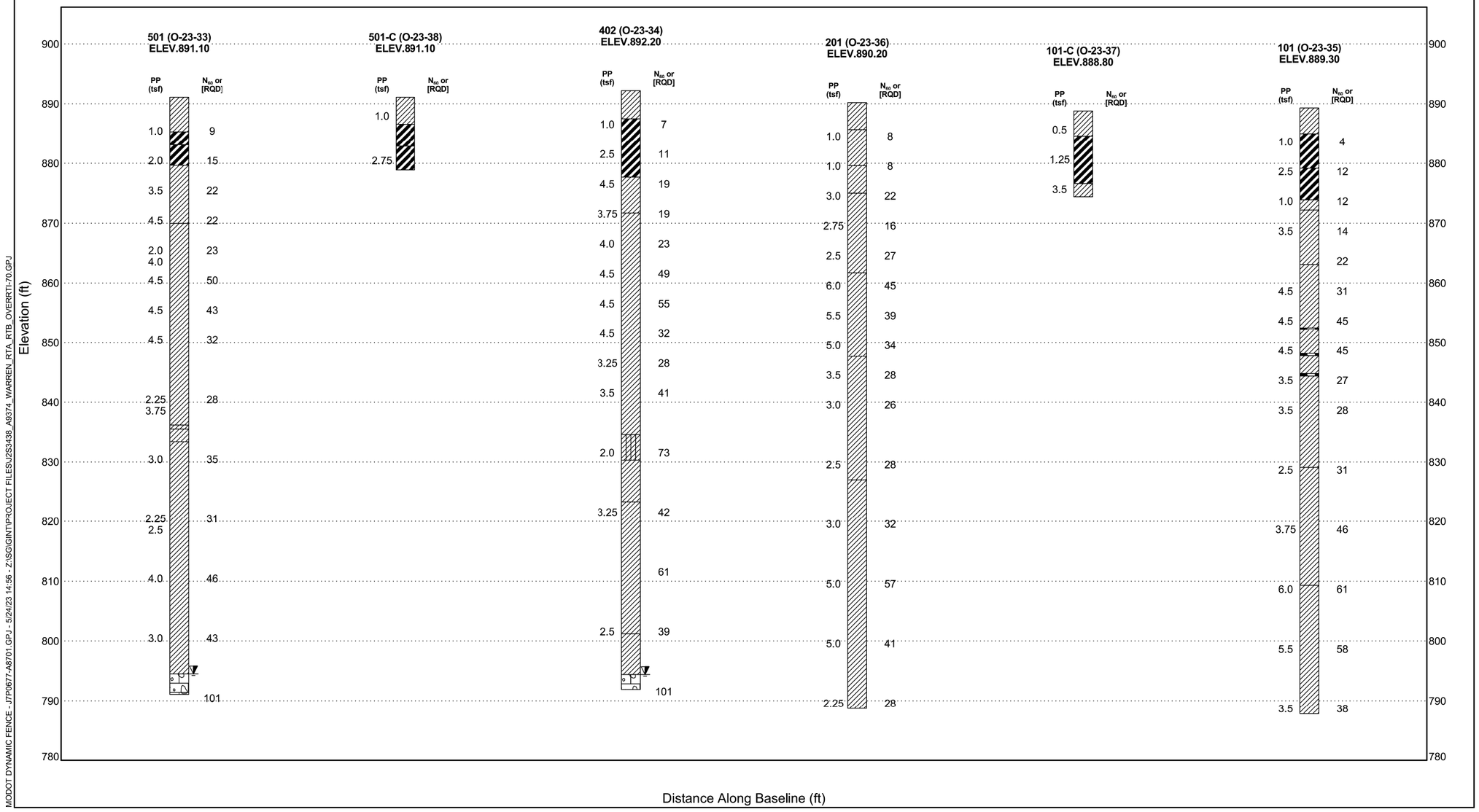
REV.

MoDOT-Geotechnical Section
1617 Missouri Blvd.
Jefferson City, MO 65109

SUBSURFACE DIAGRAM

PROJECT NAME Bridge Replacement
PROJECT LOCATION Over I-70
CLIENT
PROJECT NUMBER J2S3438

USCS Low Plasticity Clay
USCS High Plasticity Clay
Boulders and cobbles
USCS Low Plasticity Silty Clay
Highly Weathered Limestone



BORING DATA

Note: For locations of borings, see Sheet No. 1.

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

Sheet No. 32 of 32

Detailed Oct. 2024
Checked Oct. 2024

STATE OF MISSOURI
RODNEY D. RILEY NUMBER E-26267
REGISTERED PROFESSIONAL ENGINEER
12/12/2024 6:33:37 PM
Rodney D. Riley, PE
MO-026267

DATE PREPARED
12-DEC-2024

ROUTE	STATE
A	MO
DISTRICT	SHEET NO.
BR	32

COUNTY
WARREN
JOB NO.
J2S3438
CONTRACT ID.
PROJECT NO.
BRIDGE NO.
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DESCRIPTION | DATE | REV.

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