DESIGN DESIGNATION

A.A.D.T. - 2026 = 1,325
A.A.D.T. - 2046 = 1,761
D.H.V. = 10.66%
T = 10.74%
V = 55 M.P.H
D = 49.4% EB / 50.6% WB
FUNCTIONAL CLASSIFICATION- RURAL MAJOR COLLECTOR

NORMAL RIGHT OF WAY

CONVENTIONAL SYMBOLS
(USED IN PLANS)

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

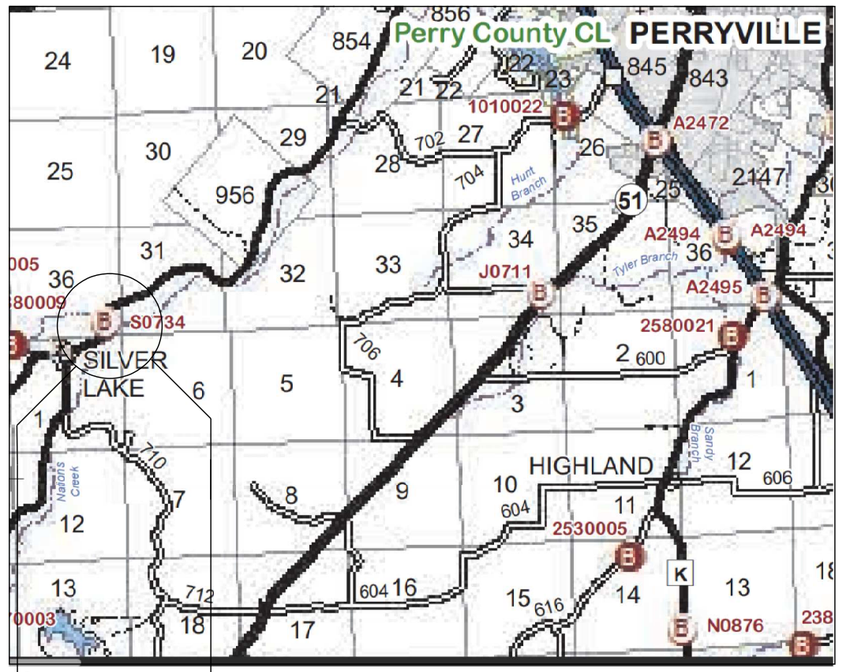
NOTE: DASHED OR OPEN SYMBOLS INDICATE EXISTING FEATURES

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
FINAL PLANS FOR PROPOSED
STATE HIGHWAY T
PERRY COUNTY

KEY MAP
SHOWING LOCATION OF COUNTY

NOT TO SCALE

S36 T35N R9E



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

INDEX OF SHEETS

LENGTH OF PROJECT

BEGINNING OF PROJECT	STA. 406+90.00	
END OF PROJECT	STA. 417+70.00	
APPARENT LENGTH	1080.00	FEET
EQUATIONS AND EXCEPTIONS:		
STATION EQUATION	STA. 417+48.83 BK = STA. 417+62.17 AH	
TOTAL CORRECTIONS	-13.34	FEET
NET LENGTH OF PROJECT	1066.66	FEET
STATE LENGTH	0.202	MILES
FOR INFORMATION ONLY ESTIMATED DISTURBED ACRES	1.77	ACRES

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 10/15/2025
ROUTE: T | STATE: MO
DISTRICT: SE | SHEET NO.: 1
COUNTY: PERRY
JOB NO.: J9S3670
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

DESCRIPTION	DATE

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

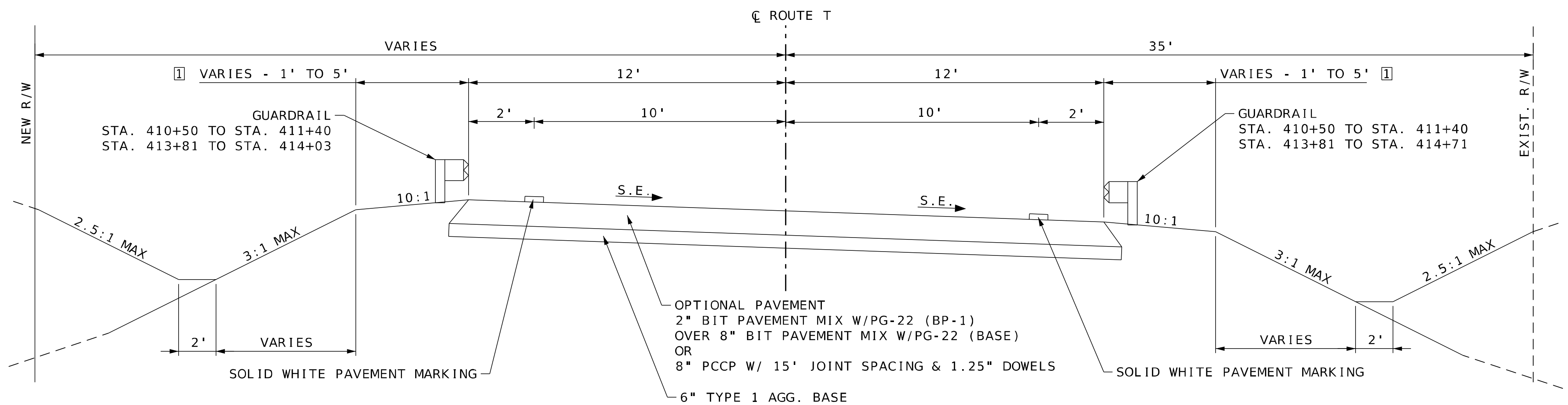
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

OATES ASSOCIATES
Collinsville: 100 Lanter Court, Suite 1, Collinsville, IL 62234, 618.345.2200
St. Louis: 720 Olive, Suite 700, St. Louis, MO 63101, 314.588.8281
St. Charles: 820 South Main, Suite 309, St. Charles, MO 63301, 636.493.6277
Belleville: 1 South Church, Suite 200, Belleville, IL 62220, 618.416.4688
www.oatesassociates.com
MISSOURI DESIGN FIRM PE-001166

1 EARTH SHOULDER TRANSITIONS FROM 1' TO 5' FROM STA. 410+25 TO STA. 410+40 (LT/RT)

5' EARTH SHOULDER FROM STA. 413+92.25 TO 414+51.40 RT(START OF ENTRANCE ON RT). 1' EARTH SHOULDER FROM 415+31.83 RT(END OF ENTRANCE ON RT) TO 417+70 (END OF PROJECT)

5' EARTH SHOULDER FROM STA. 413+92.25 TO 414+73.67 LT(START OF ENTRANCE ON LT). 1' EARTH SHOULDER FROM 415+22.42 LT(END OF ENTRANCE ON LT) TO 417+70 (END OF PROJECT)



PROPOSED SECTION ON SUPERELEVATED CURVE

PROPOSED ROUTE T
STA. 406+90 TO STA. 417+70
(BRIDGE OMISSION STA. 411+29.75 TO STA. 413+92.25)

S.E. TABLE

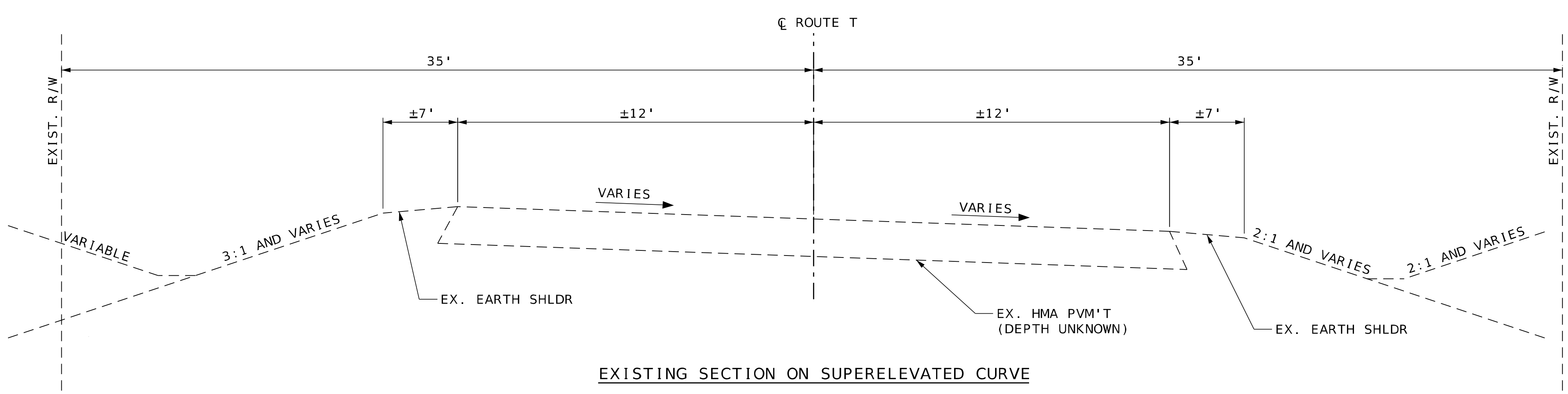
NORTH OF PROPOSED BRIDGE

STATION	DESCRIPTION	X-SLOPE RT	X-SLOPE LT
406+90.00	MATCH EX	+4.07%	-10.81%
407+45.00	BEGIN SE	+8.0%	-8.0%
409+08.80	END SE	+8.0%	-8.0%
411+03.80	NORMAL CROWN	-2.0%	-2.0%

S.E. TABLE

SOUTH OF PROPOSED BRIDGE

STATION	DESCRIPTION	X-SLOPE RT	X-SLOPE LT
413+80.94R1	NORMAL CROWN	-2.0%	-2.0%
415+17.94R1	BEGIN SE	-5.0%	+5.0%
416+84.00R1	END SE	-5.0%	+5.0%
417+70.00R2	MATCH EX	-9.91%	+6.07%



EXISTING SECTION ON SUPERELEVATED CURVE

EXISTING ROUTE T
STA. 406+90 TO STA. 417+70
(BRIDGE OMISSION STA. ± 411+48 TO STA. ± 413+67)

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	
10/15/2025	
ROUTE: T	STATE: MO
DISTRICT: SE	SHEET NO.: 2
COUNTY: PERRY	
JOB NO.: J9S3670	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

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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St. Charles
820 South Main, Suite 309
St. Charles, MO 63301
636.493.6277

www.oatesassociates.com
MISSOURI DESIGN FIRM PE-001166
OATES ASSOCIATES

REV.

TYPICAL SECTION SHEET
SHEET 1 OF 1

REMOVAL OF IMPROVEMENTS

SHEET	STATION	STATION	OFFSET	LENGTH (LF)	AREA (SQYD)	EACH (EA)	REMARKS
5	406+90		LT/RT	24			SAWCUT
5	406+90	411+46	LT/RT		1327		ASPHALT PAVEMENT
5	407+20		RT			1	SIGN (CHEVRON)
5	407+68	408+60	RT		113		GRAVEL ENTRANCE
5	408+00	411+00	LT	291			4' BARBED WIRE FENCE
5	408+11	408+19	LT		19		GRAVEL ENTRANCE
5	408+71		RT			1	SIGN (CHEVRON)
5	409+29		RT			1	SIGN (CHEVRON)
5	410+18		RT			1	SIGN (CHEVRON)
5	411+22		RT			1	SIGN (CHEVRON)
5	411+44		RT			1	SIGN (OBJECT MARKER)
5	411+45		RT			2	SIGNS (OBJECT MARKER) (CREEK NAME)
5	413+55	414+96	LT	143			4.5' VINLY FENCE
5	413+64	417+70	LT/RT		1121		ASPHALT PAVEMENT
5	413+65		RT			1	SIGN (OBJECT MARKER)
5	413+66		RT			1	SIGN (CREEK NAME)
5	413+68		RT			1	SIGN (OBJECT MARKER)
5	413+69		LT			1	SIGN (UTILITY MARKER SIGN)
5	413+69	414+87	RT	124			4' BARBED WIRE FENCE
4	414+33		RT			1	SIGN (CHEVRON)
5	414+72	415+21	RT		73		GRAVEL ENTRANCE
5	414+86	415+12	LT		78		GRAVEL ENTRANCE
5	416+11		LT/RT	75			18" HDPE PIPE
5	416+19		LT			1	SIGN (CHEVRON)
5	416+82		LT			1	SIGN (CHEVRON)
5	417+70		LT/RT	24			SAWCUT
			SUBTOTAL	681	2730	15	
			PAY TOTAL		1 LUMP SUM		

SIGNING AND POST

SHEET	STATION	STATION	OFFSET	2 IN. PSST POST - 12 GA. (LF)	DRIVEN POST ANCHOR FOR 2 IN. PSST - 12 GA. (EA)	SHF-FLAT SHEET FLUORESCENT (SQFT)	REMARKS
NA			LT/RT	72	6	30	WO1-8 (10)
			SUBTOTAL	72	6	30	
			PAYTOTAL	72	6	30	

SIGNING AND POST NOTES:
1. SIGN AND POST LOCATIONS TO BE FIELD VERIFIED BY ENGINEER

GUARDRAIL

SHEET	STATION	STATION	OFFSET	MGS BRIDGE APPROACH TRANSITION SECTION (REGULAR/NO CURB) (EA)	TYPE A CRASHWORTHY END TERMINAL (MASH) (EA)	TYPE C CRASHWORTHY END TERMINAL (MASH) (EA)	REMARKS
4	410+50	411+40	LT	1	1		NE CORNER BR#A9408
4	410+50	411+40	RT	1	1		NW CORNER BR#A9408
4	413+81	414+03	LT			1	SE CORNER BR#A9408
4	413+81	414+03	RT			1	SW CORNER BR#A9408
			SUBTOTAL	2	2	2	
			PAY TOTAL	2	2	2	

EARTHWORK

SHEET	STATION	STATION	ESTIMATED CUT (NOTE 1) (CUYD)	ESTIMATED FILL (NOTE 1) (CUYD)	EARTHWORK BALANCE WASTE (+) OR SHORTAGE (-) (NOTE 1) (CUYD)	CLASS A EXCAVATION (CUYD)	EMBANKMENT IN PLACE (CUYD)	COMPACTING EMBANKMENT (CUYD)	REMARKS
XS 1 - XS 4	406+90	411+49	485	4279	-3794	485	3915	364	NORTH SIDE OF BR#A9408
XS 5 - XS 8	413+72	417+70	178	1123	-945	178	989	134	SOUTH SIDE OF BR#A9408
					SUBTOTAL	663	4904	498	
					PAY TOTAL	663	4904	498	

EARTHWORK NOTES:
1. 25% SHRINKAGE FACTOR APPLIED.
2. EXISTING PAVEMENT THICKESS IS UNKNOWN. A THICKNESS OF 6" WAS ASSUMED ON THE CROSS-SECTIONS FOR EARTHWORK CALCULATION PURPOSES.

CLEARING AND GRUBBING

PAY TOTAL = 1 ACRE

MOBILIZATION

PAY TOTAL = 1 LUMP SUM

CONTRACTOR FURNISHED SURVEYING AND STAKING

PAY TOTAL = 1 LUMP SUM

DRAINAGE STRUCTURES

SHEET	STATION	STATION	OFFSET	18 IN. PIPE GROUP B (LF)	18 IN. OR ALLOWED SUBSTITUTE GROUP B FLARED END SECTION (EA)	REMARKS
4	416+08	416+11	LT/RT	74	2	
			SUBTOTAL	74	2	
			PAY TOTAL	74	2	

POROUS BACKFILL

SHEET	STATION	STATION	OFFSET	POROUS BACKFILL (CUYD)	REMARKS
8	411+44	411+49	LT/RT	35.6	ASSUMED 5'x8'x24'
8	413+73	413+78	LT/RT	35.6	ASSUMED 5'x8'x24'
			SUBTOTAL	71.2	
			PAY TOTAL	71	

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/15/2025

ROUTE T | STATE MO

DISTRICT SE | SHEET NO. 3

COUNTY PERRY

JOB NO. J9S3670

CONTRACT ID. .

PROJECT NO. .

BRIDGE NO. .

DESCRIPTION

DATE

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

MoDOT

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636.493.3277

MISSOURI DESIGN FIRM PE-001166

OATES ASSOCIATES

SUMMARY OF QUANTITIES
SHEET 1 OF 3

H:\P\224034 - SE District Bridge Package\003-J9S3670-S0734\CADD\Microstation\CADD Drawings\003_QU_J9S3670_I1.dgn 5:18:54 PM 10/15/2025

SEEDING AND MULCHING

SHEET	STATION	STATION	OFFSET	MULCHING (ACRE)	SEEDING - COOL SEASON GRASSES (ACRE)	TEMPORARY SEEDING (ACRE)	REMARKS
15	408+12	411+00	RT	0.50	0.25	0.25	
15	406+90	408+13	LT	0.02	0.01	0.01	
15	408+23	411+30	LT	0.36	0.18	0.18	
15	415+03	417+18	LT	0.18	0.09	0.09	
15	415+03	417+70	RT	0.14	0.07	0.07	
15	413+92	414+93	LT	0.12	0.06	0.06	
15	406+90	407+90	RT	0.04	0.02	0.02	
15	414+44	414+80	RT	0.04	0.02	0.02	
			SUBTOTAL	1.40	0.70	0.70	
			TOTAL	**2.0**	**1.0**	**1.0**	

EROSION CONTROL

SHEET	STATION	STATION	OFFSET	SEDIMENT REMOVAL (CUYD)	SILT FENCE (LF)	TYPE C BERM (LF)	TYPE 2D EROSION CONTROL BLANKET (SQYD)	REMARKS
15	413+92	414+80	LT	0.9	88.0			
15	406+90	408+05	LT	1.1	109.0			
15	413+92	414+77	RT	1.0	103.0			
15	406+90	407+91	RT	1.1	112.0			
15	408+22	411+30	LT				935.1	
15	411+30	411+76	LT/RT			188.7		NORTH BRIDGE SLOPE
15	413+50	413+92	LT/RT			176.3		SOUTH BRIDGE SLOPE
15	415+09	417+16	LT	2.4	235.0			
15	408+12	411+30	LT	3.4	339.0		299.3	
15	415+03	416+84	LT				441.5	
15	408+23	411+30	RT	2.9	289.0			
15	415+03	417+70	RT	2.6	261.0			
			SUBTOTAL	15.4	1536.0	365.0	1675.9	
			PAY TOTAL	**15**	**1536**	**365**	**1676**	

EROSION CONTROL NOTES:
1. SEDIMENT REMOVAL QUANTITY ASSUMES 1 CY PER 100 LF OF SILT FENCE AND 1 CY PER DITCH CHECK.

ROCK BLANKET

SHEET	STATION	STATION	OFFSET	FURNISHING TYPE 2 ROCK BLANKET (CUYD)	PLACING TYPE 2 ROCK BLANKET (CUYD)	ROCK BLANKET EXCAVATION (NOTES 2 & 3) (CUYD)	PERMANENT EROSION CONTROL GEOTEXTILE (SQYD)	REMARKS
15	411+00	411+75	LT/RT	421.2	421.2	421.2	722.2	BRIDGE CONE
15	413+50	414+44	LT/RT	381.4	381.4	381.4	665.5	BRIDGE CONE
			SUBTOTAL	802.6	802.6	802.6	1387.7	
			PAY TOTAL	**803**	**803**	**0**	**1388**	

ROCK BLANKET NOTES:
1. ROCK QUANTITY MAY BE OBTAINED FROM REMOVED BRIDGE DECK IF BROKEN OR CRUSHED TO MEET SPECIFICATION WITH NO EXPOSED REBAR OR ASPHALT MATERIAL.
2. THE EXCAVATION QUANTITY SHOWN IS FOR INFORMATION ONLY. THE COST TO EXCAVATE THE SOIL FOR THE PLACEMENT OF THE ROCK BLANKET IS INCLUDED IN THE COST FOR PLACING TYPE 2 ROCK BLANKET.
3. THE EXCAVATION QUANTITY FOR ROCK BLANKET IS NOT INCLUDED IN THE EARTHWORK QUANTITIES. THE SUITABILITY OF THE MATERIAL FOR USE AS FILL MUST BE APPROVED BY THE ENGINEER.

TEMPORARY PAVEMENT MARKING

SHEET	STATION	STATION	OFFSET	TEMPORARY REMOVABLE MARKING TAPE 4 IN., WHITE (LF)	TEMPORARY REMOVABLE MARKING TAPE 4 IN., YELLOW (LF)	TEMPORARY REMOVABLE MARKING TAPE, 24 IN., WHITE (LF)	PAVEMENT MARKING REMOVAL (LF)	REMARKS
9	399+44	404+44	CL		1000			STAGE 1: DOUBLE YELLOW CENTERLINE
9	404+44		RT			12		STAGE 1: STOP BAR
9	404+45	420+15	LT/RT	1567				STAGE 1: SOLID WHITE EDGE LINE
9	420+16		LT			12		STAGE 1: STOP BAR
9	420+16	425+16	CL		1000			STAGE 1: DOUBLE YELLOW CENTERLINE
11	404+45	420+15	LT/RT				1567	STAGE 3: STAGE 1 REMOVALS
11	404+45	420+15	LT/RT	1570				STAGE 3: SOLID WHITE EDGE LINE
11	399+44	425+16	LT/RT				3594	STAGE 3: STAGE 3 REMOVALS
			SUBTOTAL	3137	2000	24	5161	
			PAY TOTAL	**3137**	**2000**	**24**	**5161**	

PAVEMENT AND BASE

SHEET	STATION	STATION	OFFSET	TYPE 1 AGGREGATE FOR BASE (6 IN. THICK) (SQYD)	GRAVEL (A) OR CRUSHED STONE (B) (SQYD)	OPTIONAL PAVEMENT (SQYD)	REMARKS
5	406+90	411+29	LT/RT	1270.4		1172.71	
5	407+64	408+51	RT		121.1		GRAVEL ENTRANCE
5	407+95	408+38	LT		55.3		GRAVEL ENTRANCE
5	413+92	417+70	LT/RT	1052.7		971.75	
5	414+51	415+32	RT		138.3		GRAVEL ENTRANCE
5	414+74	415+22	LT		110.0		GRAVEL ENTRANCE
5	416+95	417+69	LT		54.1		GRAVEL ENTRANCE
			SUBTOTAL	2323.1	478.8	2144.46	
			PAY TOTAL	**2323**	**479**	**2144.5**	

PAVEMENT NOTES:
1. SEE TYPICAL SECTIONS FOR OPTIONAL PAVEMENT DESIGN.

PERMANENT PAVEMENT MARKING

SHEET	STATION	STATION	OFFSET	4 IN. WHITE CLASS 1 PAVEMENT MARKING PAINT (18-MIL, TYPE P BEADS) (LF)	4 IN. YELLOW CLASS 1 PAVEMENT MARKING PAINT (18-MIL, TYPE P BEADS) (LF)	REMARKS
N/A	406+90	417+70	CL		2133	DOUBLE SOLID CENTERLINE
N/A	406+90	417+70	LT	1061		SOLID EDGE LINE
N/A	406+90	417+70	RT	1072		SOLID EDGE LINE
			SUBTOTAL	2133	2133	
			PAY TOTAL	**2133**	**2133**	

STEEL POST - FURNISH AND INSTALL

SHEET	STATION	STATION	OFFSET	6 IN. STEEL POST (EA)	REMARKS
5	411+40		LT	1	NE WINGWALL, LOC. DETERMINED BY ENGINEER
5	411+40		RT	1	NW WINGWALL, LOC. DETERMINED BY ENGINEER
5	413+80		RT	1	SW WINGWALL, LOC. DETERMINED BY ENGINEER
			SUBTOTAL	3	
			PAY TOTAL	**3**	

STEEL POST - FURNISH AND INSTALL NOTES:
1. SEE JSP'S

SUMMARY OF QUANTITIES
SHEET 2 OF 3

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/15/2025
ROUTE T | STATE MO
DISTRICT SE | SHEET NO. 3
COUNTY PERRY
JOB NO. J9S3670
CONTRACT ID. .
PROJECT NO. .
BRIDGE NO. .

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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www.oatesassociates.com
MISSOURI DESIGN FIRM PE-001166

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL AREA SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NO.	DESCRIPTION
WARNING SIGNS								
WO1-1L	48X48	16.00						TURN (SYMBOL LEFT)
WO1-1R	48X48	16.00						TURN (SYMBOL RIGHT)
WO1-2L	48X48	16.00						CURVE (SYMBOL LEFT)
WO1-2R	48X48	16.00						CURVE (SYMBOL RIGHT)
WO1-3L	48X48	16.00						REVERSE TURN (SYMBOL LEFT)
WO1-3R	48X48	16.00						REVERSE TURN (SYMBOL RIGHT)
WO1-4L	48X48	16.00						REVERSE CURVE (SYMBOL LEFT)
WO1-4R	48X48	16.00						REVERSE CURVE (SYMBOL RIGHT)
WO1-4bL	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL LEFT)
WO1-4bR	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL RIGHT)
WO1-4cL	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL LEFT)
WO1-4cR	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL RIGHT)
WO1-6	60X30	12.50						HORIZONTAL ARROW (SYMBOL)
WO1-6a	72X36	18.00						HORIZ. ARROW (SYMBOL ON PERMANENT BARRICADE)
WO1-7	60X30	12.50						DOUBLE HEAD HORIZONTAL ARROW (SYMBOL)
WO1-7a	72X36	18.00						DOUBLE HEAD HORIZ. ARROW (SYMBOL ON PERM. BARR.)
WO1-8	18X24	3.00						CHEVRON (SYMBOL)
WO1-8a	30X36	7.50						CHEVRON (SYMBOL FOR DIVIDED HIGHWAYS)
WO3-1	48X48	16.00						STOP AHEAD (SYMBOL)
WO3-2	48X48	16.00						YIELD AHEAD (SYMBOL)
WO3-3	48X48	16.00	2	32.00				SIGNAL AHEAD (SYMBOL)
WO3-4	48X48	16.00	2	32.00				BE PREPARED TO STOP
WO3-5	48X48	16.00						SPEED LIMIT AHEAD
WO4-1L	48X48	16.00						MERGE (SYMBOL FROM LEFT)
WO4-1R	48X48	16.00						MERGE (SYMBOL FROM RIGHT)
WO4-1aL	48X48	16.00						MERGE (LEFT)
WO4-1aR	48X48	16.00						MERGE (RIGHT)
WO5-1	48X48	16.00						ROAD/BRIDGE/RAMP NARROWS
WO5-3	48X48	16.00	2	32.00				ONE LANE BRIDGE
WO5-5	48X48	16.00						NARROW LANES
WO6-1	48X48	16.00						DIVIDED HIGHWAY (SYMBOL)
WO6-2	48X48	16.00						DIVIDED HIGHWAY END (SYMBOL)
WO6-3	48X48	16.00						TWO WAY TRAFFIC (SYMBOL)
WO7-3a	30X24	5.00						NEXT XX MILES (PLAQUE)
WO8-1	48X48	16.00						BUMP
WO8-2	48X48	16.00						DIP
WO8-3	48X48	16.00						PAVEMENT ENDS
WO8-4	48X48	16.00						SOFT SHOULDER
WO8-5	48X48	16.00						SLIPPERY WHEN WET (SYMBOL)
WO8-6	48X48	16.00						TRUCK CROSSING
WO8-6c	48X48	16.00						TRUCK ENTRANCE
WO8-7	36X36	9.00						LOOSE GRAVEL
WO8-7a	36X36	9.00						FRESH OIL / LOOSE GRAVEL
WO8-9	48X48	16.00						LOW SHOULDER
WO8-11	48X48	16.00						UNEVEN LANES
WO8-12	48X48	16.00						NO CENTER LINE
WO8-15	48X48	16.00						GROOVED PAVEMENT
WO8-15P	30X24	5.00						MOTORCYCLE (PLAQUE)
WO8-17L	48X48	16.00						SHOULDER DROP-OFF (SYMBOL LEFT)
WO8-17R	48X48	16.00						SHOULDER DROP-OFF (SYMBOL RIGHT)
WO8-17P	30X24	5.00						SHOULDER DROP-OFF (PLAQUE)
W10-1	42RND.	9.62						RAILROAD CROSSING
WO12-1	24X24	4.00						DOUBLE DOWN ARROW (SYMBOL)
WO12-2	48X48	16.00						LOW CLEARANCE (SYMBOL)
WO12-2x	24X18	3.00						LOW CLEARANCE (PLAQUE)
WO12-2a	84X24	14.00						OVERHEAD LOW CLEARANCE (FEET AND INCHES)
WO12-4	120X60	50.00						LOW CLEARANCE XX FT XX IN XX MILES AHEAD
WO12-5	120X60	50.00						WIDTH RESTRICTION XX FT XX IN XX MILES AHEAD
WO13-1	30X30	6.25	2	12.50				ADVISORY SPEED (PLAQUE)
WO16-2	30X24	5.00						XXX FEET (PLAQUE)
WO16-3	30X24	5.00						X MILE (PLAQUE)
WO20-1	48X48	16.00	2	32.00				ROAD/BRIDGE/RAMP WORK AHEAD
WO20-2	48X48	16.00						DETOUR AHEAD
WO20-3	48X48	16.00						ROAD CLOSED AHEAD (AHEAD-2, 500 FT-2)
WO20-4	48X48	16.00	2	32.00				ONE LANE ROAD AHEAD
WO20-5	48X48	16.00						RIGHT/CENTER/LEFT LANE CLOSED AHEAD
WO20-5a	48X48	16.00						2 RIGHT/CENTER/LEFT LANES CLOSED AHEAD
WO20-6a	48X48	16.00						RIGHT/CENTER/LEFT LANE CLOSED
WO20-7a	48X48	16.00	2	32.00				FLAGGER (SYMBOL)
WO21-2	36X36	9.00						FRESH OIL
WO21-5	48X48	16.00	2	32.00				SHOULDER WORK / SHOULDER WORK AHEAD
WO22-1	48X48	16.00						BLASTING ZONE AHEAD
WO22-2	42X36	10.50						TURN OFF 2-WAY RADIO AND PHONE
WO22-3	42X36	10.50						END BLASTING ZONE
GO22-1	21X15	2.19	4	8.76				WET PAINT (ARROW PIVOTS)

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NO.	DESCRIPTION
GUIDE SIGNS								
E05-1	36X48	12.00						GORE EXIT
E05-2	48X36	12.00						EXIT OPEN
E05-2a	48X36	12.00						EXIT CLOSED
GO20-1	60X24	10.00						ROAD WORK NEXT XX MILES
GO20-2	48X24	8.00						END ROAD WORK
GO20-4	36X18	4.50						PILOT CAR FOLLOW ME
GO20-4a	42X30	8.75						PILOT CAR IN USE WAIT & FOLLOW
GO20-4a	18X12	1.50						PILOT CAR IN USE WAIT & FOLLOW
GO20-5aP	36X24	6.00						WORK ZONE (PLAQUE)
MO4-8a	24X18	3.00						END DETOUR
MO4-9L	48X36	12.00						DETOUR (LEFT)
MO4-9R	48X36	12.00						DETOUR (RIGHT)
MO4-9P	48X12	4.00						STREET NAME (PLAQUE)
MO4-10L	48X18	6.00						DETOUR ARROW (LEFT)
MO4-10R	48X18	6.00						DETOUR ARROW (RIGHT)
REGULATORY SIGNS								
R1-1	48X48	13.25						STOP
R1-2	48TRI.	6.93						YIELD
R1-2a	36X36	9.00						TO ONCOMING TRAFFIC (PLAQUE)
R1-3P	30X12	2.50						ALL WAY (PLAQUE)
R2-1	36X48	12.00						SPEED LIMIT XX
R3-1	48X48	16.00						NO RIGHT TURN (SYMBOL)
R3-2	48X48	16.00						NO LEFT TURN (SYMBOL)
R3-3	36X36	9.00						NO TURNS
R3-4	48X48	16.00						NO U-TURN (SYMBOL)
R3-7L	30X30	6.25						LEFT LANE MUST TURN LEFT
R3-7R	30X30	6.25						RIGHT LANE MUST TURN RIGHT
R4-1	36X48	12.00						DO NOT PASS
R4-2	36X48	12.00						PASS WITH CARE
R4-7a	36X48	12.00						KEEP RIGHT (HORIZONTAL ARROW)
R4-8a	36X48	12.00						KEEP LEFT (HORIZONTAL ARROW)
R5-1	30X30	6.25						DO NOT ENTER
R5-1a	36X24	6.00						WRONG WAY
R6-1L	54X18	6.75						ONE WAY ARROW (LEFT)
R6-1R	54X18	6.75						ONE WAY ARROW (RIGHT)
R6-2L	24X30	5.00						ONE WAY (LEFT)
R6-2R	24X30	5.00						ONE WAY (RIGHT)
R9-9	24X12	2.00						SIDEWALK CLOSED
R9-11L	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW LEFT) CROSS HERE
R9-11R	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW RIGHT) CROSS HERE
R10-6	24X36	6.00	2	12.00				STOP HERE ON RED (45^ ARROW)
R11-2	48X30	10.00						ROAD CLOSED
R11-3a	60X30	12.50						ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY (1 MI, 5 MI)
R11-4	60X30	12.50						ROAD CLOSED TO THRU TRAFFIC
CONST-3A	60X48	20.00						FINE SIGN
CONST-3X	56X12	4.67						SPEEDING/PASSING (PLATE)
MISCELLANEOUS SIGNS								
CONST-5	48X36	12.00						POINT OF PRESENCE
CONST-5	96X48	32.00						POINT OF PRESENCE
CONST-8	48X36	12.00						WORK ZONE NO PHONE ZONE
SPECIAL	96X48	32.00						ROUTE K CLOSED 1 MILES AHEAD
M1-5a	24X12	2.00						STATE ROUTE K
M5-1	21X15	2.20						ADVANCE STRAIGHT ARROW
MO4-8	24X12	2.00						DETOUR
M5-1L	21X15	2.20						ADVANCE TURN ARROW (90° LEFT)
M5-1R	21X15	2.20						ADVANCE TURN ARROW (90° RIGHT)
M6-1L	21X15	2.20						LEFT TURN ARROW
M6-1R	21X15	2.20						RIGHT TURN ARROW
M3-1	24X12	2.00						CARDINAL DIRECTION NORTH
M3-3	24X12	2.00						CARDINAL DIRECTION SOUTH

	TOTAL
616-10.05 CONSTRUCTION SIGNS	258
616-10.10 RELOCATED SIGNS	* *

* * NO DIRECT PAY FOR RELOCATING TEMPORARY TRAFFIC CONTROL DEVICES

EFFECTIVE: 07-01-2025

ITEM NUMBER	TOTAL QTY	DESCRIPTION
6122008		IMPACT ATTENUATOR 40 MPH (SAND BARRELS)
6122009		IMPACT ATTENUATOR 45 MPH (SAND BARRELS)
6122010		IMPACT ATTENUATOR 50 MPH (SAND BARRELS)
6122012		IMPACT ATTENUATOR 55 MPH (SAND BARRELS)
6122014		IMPACT ATTENUATOR 60 MPH (SAND BARRELS)
6122017		IMPACT ATTENUATOR 65 MPH (SAND BARRELS)
6122019		IMPACT ATTENUATOR 70 MPH (SAND BARRELS)
6122020		REPLACEMENT SAND BARREL
6122030		IMPACT ATTENUATOR (RELOCATION)
6122040	2	WORK ZONE CRASH CUSHION (NARROW)
6122041		WORK ZONE CRASH CUSHION (RELOCATION)
6123001		TRUCK MOUNTED ATTENUATOR (TMA)
6161012		BUOYS (BOATS KEEP OUT)
6161013		BUOYS (NO WAKE)
6161014		SPECIAL SIGN ASSEMBLY (BOATS KEEP OUT)
6161020		CHANNELIZER (DRUM-LIKE)
6161022		CHANNELIZER (CONE)
6161025	45	CHANNELIZER (TRIM-LINE)
6161026		CHANNELIZER (VERTICAL PANEL)
6161030	6	TYPE 3 MOVEABLE BARRICADE
6161033		DIRECTION INDICATOR BARRICADE
6161040		FLASHING ARROW PANEL
6161047		TYPE 3 OBJECT MARKER
6161055		SEQUENTIAL FLASHING WARNING LIGHT
6161070		TUBULAR MARKER
6161095		RADAR SPEED ADVISORY SYSTEM
6161096		CHANGEABLE MESSAGE SIGN, COMMISSION FURNISHED/RETAINED
6161098A	2	CHANGEABLE MESSAGE SIGN WITHOUT COMM. INTERFACE, CONTRACTOR FURNISHED/RETAINED
6161099		CHANGEABLE MESSAGE SIGN WITH COMM. INTERFACE, CONTRACTOR FURNISHED/RETAINED
6162000A	1	WORK ZONE TRAFFIC SIGNAL SYSTEM
6162002		TEMPORARY LONG-TERM RUMBLE STRIPS
6173600D	108	TEMPORARY TRAFFIC BARRIER, CONTRACTOR FURNISHED/RETAINED
6173700B		TEMP. TRAFFIC BARRIER ANCHORED, CONTRACTOR FURNISHED/RETAINED
6173706		TEMP. TRAFFIC BARRIER STIFFNESS TRANSITION CONTRACTOR FURNISHED/RETAINED
6174000A		TEMP. TRAFFIC BARRIER HEIGHT TRANSITION, CONTRACTOR FURNISHED/RETAINED
6175010A		RELOCATING TEMPORARY TRAFFIC BARRIER
6175011B		RELOCATING TEMP. TRAFFIC BARRIER ANCHORED
6175013		RELOCATING TEMP. TRAFFIC BARRIER STIFFNESS
6175020A		RELOCATING TEMP. TRAFFIC BARRIER HEIGHT
6208064A		TEMPORARY RAISED PAVEMENT MARKER
9029400		TEMPORARY TRAFFIC SIGNALS
9029401		TEMPORARY TRAFFIC SIGNALS AND LIGHTING

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	
10/15/2025	
ROUTE: T	STATE: MO
DISTRICT: SE	SHEET NO.: 3
COUNTY: PERRY	
JOB NO.: J9S3670	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

DESCRIPTION | DATE

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

OATES ASSOCIATES
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618.416.4688
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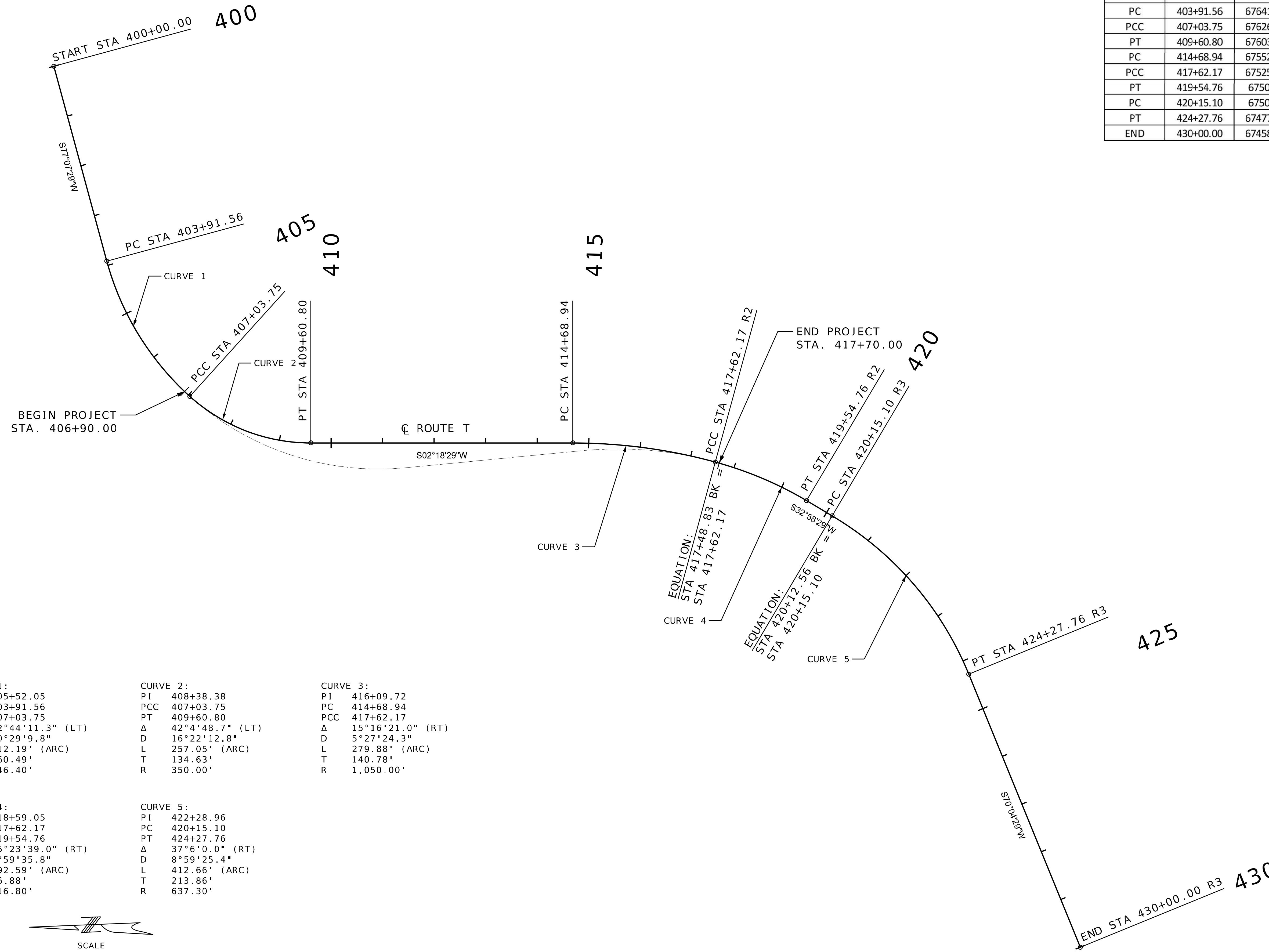
St. Louis, MO 63101
314.588.8381
St. Charles
820 South Main, Suite 309
St. Charles, MO 63301
636.493.6277
MISSOURI DESIGN FIRM PE-001166

SUMMARY OF QUANTITIES
SHEET 3 OF 3

REV.

ELEMENT	STATION	NORTHING	EASTING
START	400+00.00	676502.128	970471.608
PC	403+91.56	676414.876	970089.893
PCC	407+03.75	676264.429	969821.181
PT	409+60.80	676033.694	969721.581
PC	414+68.94	675525.968	969701.118
PCC	417+62.17	675251.105	969652.928
PT	419+54.76	675077.48	969570.939
PC	420+15.10	675028.99	969539.48
PT	424+27.76	674776.703	969222.031
END	430+00.00	674581.686	968684.047



CURVE 1:
PI 405+52.05
PC 403+91.56
PCC 407+03.75
Δ 32°44'11.3" (LT)
D 10°29'9.8"
L 312.19' (ARC)
T 160.49'
R 546.40'

CURVE 2:
PI 408+38.38
PCC 407+03.75
PT 409+60.80
Δ 42°4'48.7" (LT)
D 16°22'12.8"
L 257.05' (ARC)
T 134.63'
R 350.00'

CURVE 3:
PI 416+09.72
PC 414+68.94
PCC 417+62.17
Δ 15°16'21.0" (RT)
D 5°27'24.3"
L 279.88' (ARC)
T 140.78'
R 1,050.00'

CURVE 4:
PI 418+59.05
PCC 417+62.17
PT 419+54.76
Δ 15°23'39.0" (RT)
D 7°59'35.8"
L 192.59' (ARC)
T 96.88'
R 716.80'

CURVE 5:
PI 422+28.96
PC 420+15.10
PT 424+27.76
Δ 37°6'0.0" (RT)
D 8°59'25.4"
L 412.66' (ARC)
T 213.86'
R 637.30'

SCALE
0 100 200 300 400 500

ALIGNMENT SHEET
SHEET 1 OF 1

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 10/15/2025
ROUTE: T | STATE: MO
DISTRICT: SE | SHEET NO.: 4
COUNTY: PERRY
JOB NO.: J9S3670
CONTRACT ID.
PROJECT NO.
BRIDGE NO.

DESCRIPTION
DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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MISSOURI DESIGN FIRM PE-001166
OATES ASSOCIATES

CURVE 2
PI 408+38.38
PC 407+03.75
PT 409+60.80
Δ 42°4'48.7" (LT)
D 16°22'12.8"
L 257.05' (ARC)
T 134.63'
R 350.00'
SE 8.00%

LEGEND
CONSTRUCTION LIMITS

BEGIN PROJECT
STA. 406+90

EX BOX CULVERT (UIP)
T.B.M "C"
24' SAWCUT
EX R/W
PCC STA 407+03.75
+50 34'LT
STA 408+15 8" W AGG GRADE: 21.4%
4-5' BARB WIRE FENCE (KNOCKED DOWN)
FENCE GATE
+00 50'LT
PT STA 409+60.80
410
+05 50'LT
BARBED WIRE FENCE (R&R)
TREES AND BRUSH (R TO CONST. LIMITS)
STA. 410+50 TO 411+40
1 MASH TYPE A C.E.T
1 MGS BRIDGE APPROACH
TRANSITION SECTION
NEW R/W
℄ ROUTE T
S02°18'26"W
(R) SIGN
PP (UIP)
(R) 3 SIGNS
(R) 4 SIGNS
EX PAVEMENT (R)
BARBED WIRE FENCE (UIP)
EX ESM'T
T.B.M "B"
STA. 410+50 TO 411+40
1 MASH TYPE A C.E.T
1 MGS BRIDGE APPROACH
TRANSITION SECTION
EX BRIDGE #S0734 (REMOVE)
STA. 412+57.73
220'-0"X25'-0" SQUARE
STA. 413+81 TO 414+03
1 MASH TYPE C C.E.T
EX PAVEMENT (R)
BARBED WIRE FENCE (R&R)
SALINE CREEK
BRIDGE #A9408
STA. 412+61.00
110'-110' PRESTRESSED CONC NU-GIRDER BRIDGE
24'-0" ROADWAY
DA=21.2 SQ MI
STA. 413+81 TO 414+03
1 MASH TYPE C C.E.T
415
PC STA 414+68.94
STA 414+98 11' W AGG GRADE: 14.6%
(DND) BUILDING
VINYL FENCE (R)
TCE
DRIVE GATE
4-5' VINYL FENCE (R)
PP (REL)
STA 414+91 21' W GRAVEL GRADE: 8.0%
+71 47'LT
+00 50'LT
18" GROUP B PIPE FL 523.43
STA 417+27 19' W AGG GRADE: 12.3%
BURIED CABLE SIGN (UIP)
(R) SIGN
EX BOX CULVERT (UIP)
+00 29'LT
PC STA 417+62.17 R2
END PROJECT
STA. 417+70.00
24' SAWCUT
EX R/W
4- BARBED WIRE FENCE
18" GROUP B PIPE FL 524.46
18" HDPE (R)
EX ESM'T
T.B.M "A"
EQUATION STA 417+48.83 BK = STA 417+62.17 AH
CURVE 3
PI 416+09.72
PC 414+68.94
PT 417+62.17
Δ 15°16'21.0" (RT)
D 5°27'24.3"
L 279.88' (ARC)
T 140.78'
R 1,050.00'
SE 5.00%

N/F BIERK FARMS, LLC
76-12-7.0-036-000-000-001
9436 HIGHWAY T
DOC NO. 2007R04589

N/F LEON-GEILE, LLC
76-12-7.0-036-000-000-007
9577 HIGHWAY T
DOC NO. 2007R02333

N/F BIERK FARMS, LLC
76-12-7.0-036-000-000-001
9436 HIGHWAY T
DOC NO. 2007R04589

N/F BIERK FARMS, LLC
76-12-7.0-036-000-000-001
9436 HIGHWAY T
DOC NO. 2007R04589

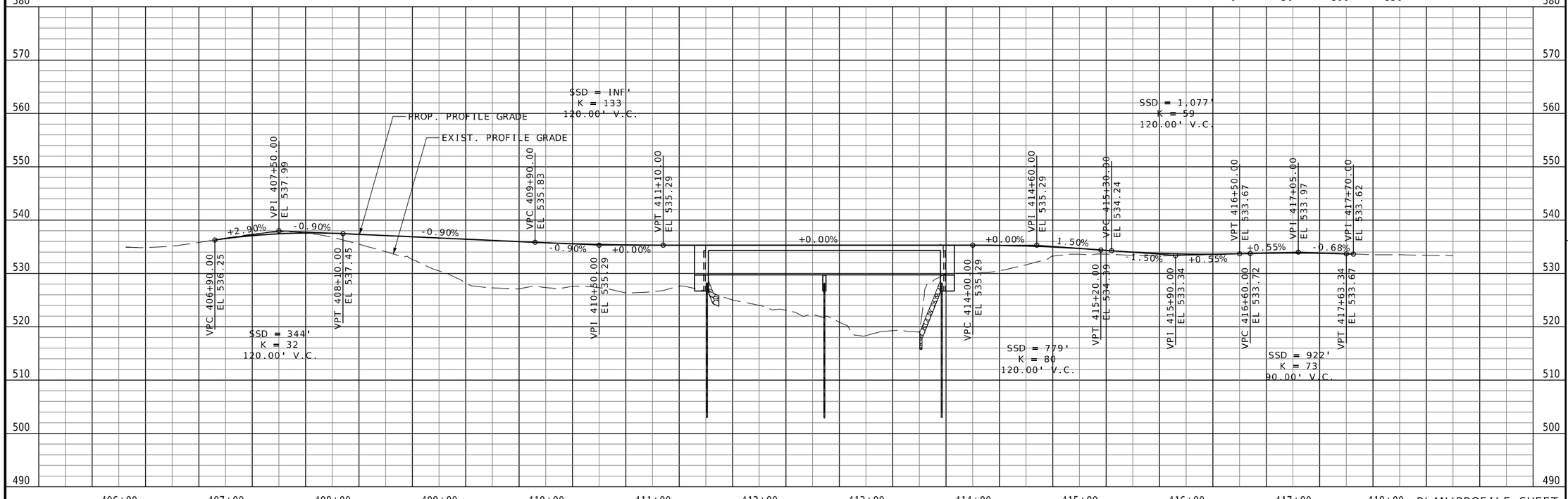
STA 408+04 25' W GRAVEL GRADE: 5.3%

T.B.M. "A" - CUT SQUARE ON TOP OF CONCRETE BOX CULVERT
STA. 417+07.81, 19.38'RT
ELEV. 531.72

T.B.M. "B" - CUT SQUARE ON TOP OF NORTHEAST WINGWALL
STA. 411+45.13, 35.29'RT
ELEV. 535.65

T.B.M. "C" - CUT SQUARE ON TOP OF CONCRETE BOX CULVERT
STA. 406+69.45, 17.05'RT
ELEV. 535.10

SCALE
0 50 100 150



PLAN/PROFILE SHEET
SHEET 1 OF 1

H:\P\224034 - SE District Bridge Package\003-J9S3670-S0734\CADD\Microstation\CADD Drawings\005_PP_J9S3670_150.dgn 5:53:45 PM 10/15/2025

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
10/15/2025

ROUTE	STATE
T	MO
DISTRICT	SHEET NO.
SE	5

COUNTY
PERRY

JOB NO.
J9S3670

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
.

DATE	DESCRIPTION
.	.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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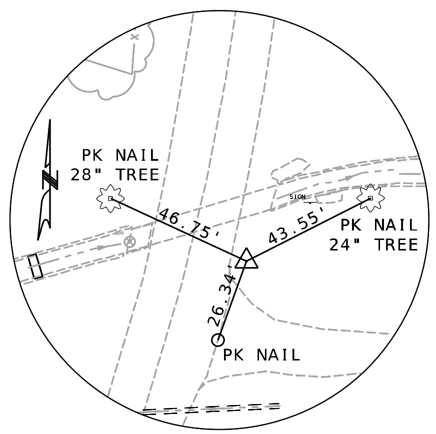
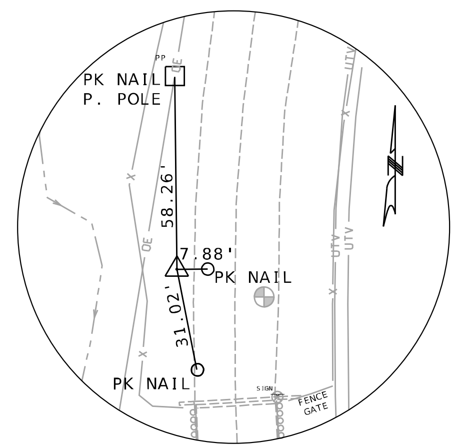
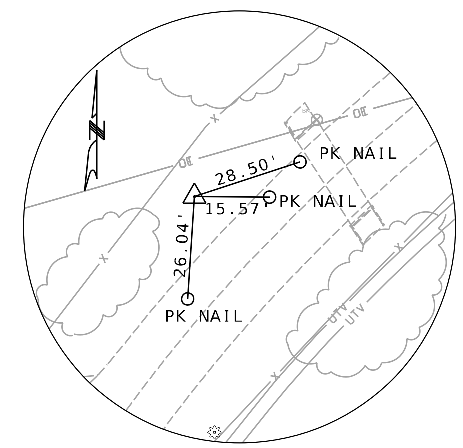
MISSOURI DESIGN FIRM PE-001166



CONTROL POINT #1
SET IRON BAR WITH ALUMINUM CAP
17'± EAST OF CL OF ROUTE T & 22 NORTH OF
THE CL OF GRAVEL ROAD TO WOODEN BRIDGE
& CAMP GROUND AREA & 340'±
SOUTH OF SOUTH END OF BRIDGE J9S3670
N: 675289.5470
E: 969682.3546
ELEV: 533.91



CONTROL POINT #2
SET IRON BAR WITH ALUMINUM CAP
17'± WEST OF THE CL ROUTE T & 37'±
NORTH OF THE NORTH END OF BRIDGE J9S3670
N: 675889.5650
E: 969648.4902
ELEV: 533.98



CONTROL POINT #3
SET IRON BAR WITH ALUMINUM CAP
25'± WEST OF THE CL ROUTE T 35'± SOUTH
OF THE CL OF CONC. BOX CULVERT & 100'±
NORTH OF THE CL OF GRAVEL DRIVE TO HOUSES
N: 676277.5840
E: 969797.4037
ELEV: 538.664

HORIZONTAL AND VERTICAL CONTROL STATEMENT

HORIZONTAL CONTROL STATEMENT: STATE PLANE COORDINATES ON THIS PROJECT WERE ESTABLISHED UTILIZING THE MISSOURI HIGHWAYS AND TRANSPORTATION COMISSION GLOBAL NAVIGATION SATELLITE REAL TIME NETWORK FOR CONTINUOUSLY OPERATING REFERENCE STATIONS DURING JULY, 2024 AND ARE BASED ON THE MISSOURI COORDIANTE SYSTEM OF 1983, EAST ZONE. THE AVERAGE COMBINED PROJECT GRID FACTOR IS 0.999937902.

PROJECT COORDINATES ARE MODIFIED MISSOURI STATE PLANE COORDINATES AND WERE ESTABLISHED BY APPLYING THE INVERSE OF THE PROJECT GRID FACTOR (1.0000621019) ABOUT THE ORIGIN (0,0)

VERTICAL DATUM IS NAVD 88. AN ELEVATION WAS ESTABLISHED ON CONTROL POINT 2, USING A TRIMBLE R12i ROVER AND BASED ON THE MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION GLOBAL NAVIGATION SATELLITE REAL TIME NETWORK FOR CONTINUOUS OPERATING REFERENCE STATIONS.

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/15/2025	
ROUTE T	STATE MO
DISTRICT SE	SHEET NO. 6
COUNTY PERRY	
JOB NO. J9S3670	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

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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MISSOURI DESIGN FIRM PE-001166

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COORDINATE POINTS SHEET
SHEET 1 OF 2

H:\P\224034 - SE District Bridge Package\003-J9S3670-S0734\CADD\Microstation\CADD Drawings\006.1_CP_J9S3670_I1.dgn 11:26:55 AM 10/15/2025

ALL PROJECT COORDINATES HAVE BEEN PROJECTED FROM THE MISSOURI STATE PLANE COORDINATE (SPC) SYSTEM OF 1983 USING AN AVERAGE PROJECT PROJECTION (GRID TO GROUND) FACTOR. TO GET BACK TO STATE PLANE COORDINATES MULTIPY THE PROJECT COORDINATES BY THE AVERAGE GRID FACTOR AS SHOWN IN THE "REFERENCE CONTROL INFORMATION" PORTION OF THIS TABLE.

PROJECT COORDINATE INFORMATION

COORDINATE SYSTEM	MOD. MO STATE PLANE (GROUND)
HORIZONTAL DATUM	NAD-83
VERTICAL DATUM	NAVD-88
GEOID MODEL	GEOID 18
ELEVATIONS DETERMINED BY	GPS AND DIFFERENTIAL LEVELING
PROJECT PROJECTION FACTOR	1.0000621019

REFERENCE CONTROL INFORMATION

COORDINATE SYSTEM	COORDINATE SYSTEM OF 1983
CONTROL STATION	MODOT VRS
DESIGNATION	MOPT PATTON CORS GRP
CORS_ID	MOPT
PID	DR7393
LATITUDE	N37°31'27.91539"
LONGITUDE	W090°00'47.19032"
NORTHING (M)	187761.666
EASTING (M)	293036.844
ZONE	2401 (MO-EAST)
PROJECT AVERAGE GRID FACTOR	0.99992558

EXAMPLE OF PROJECT COORDINATE TO S.P.C.

PROJECT NORTHING X AVERAGE GRID FACTOR
= STATE PLANE NORTHING
PROJECT EASTING X AVERAGE GRID FACTOR
= STATE PLANE EASTING

EXAMPLE: CONTROL POINT #_1_
N 675289.5470 X 0.999937902 = N 675247.61
E 969682.3546 X 0.999937902 = E 969622.13

LINEAR UNIT CONVERSION

1 METER = 3.280833333 US SURVEY FEET (USFT)

COORDINATE POINT LISTING

SHEET NO	STATION	LOCATION	OFFSET (USFT)	MODIFIED STATE PLANE (GROUND) NORTHING (US SURVEY FT)	EASTING (US SURVEY FT)	ELEVATION (US SURVEY FT)	DESCRIPTION	GPK POINT ID
PROJECT CONTROL POINTS								
5	471+04.02	RTE T	17.41 LT	675289.5470	969682.3546	533.91	SET IRON BAR WITH ALUMINUM CAP	CP#1
5	411+07.71	RTE T	67.27 RT	675889.5650	969648.4902	533.98	SET IRON BAR WITH ALUMINUM CAP	CP#2
5	407+10.48	RTE T	26.26 RT	676277.5840	969797.4037	538.664	SET IRON BAR WITH ALUMINUM CAP	CP#3
ALIGNMENTS								
	407+03.75	RTE T	CL	676264.429	969821.181		PC CURVE #2	
	408+38.38	RTE T	CL	676168.218	969727.003		PI CURVE #2	
	409+60.80	RTE T	CL	676033.694	969721.581		PT CURVE #2	
	414+68.94	RTE T	CL	675525.968	969701.118		PC CURVE #3	
	416+09.72	RTE T	CL	675385.306	969695.449		PI CURVE #3	
	417+62.17	RTE T	CL	675251.105	969652.928		PT CURVE #3	

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	10/15/2025
ROUTE	T
STATE	MO
DISTRICT	SE
SHEET NO.	7
COUNTY	PERRY
JOB NO.	J9S3670
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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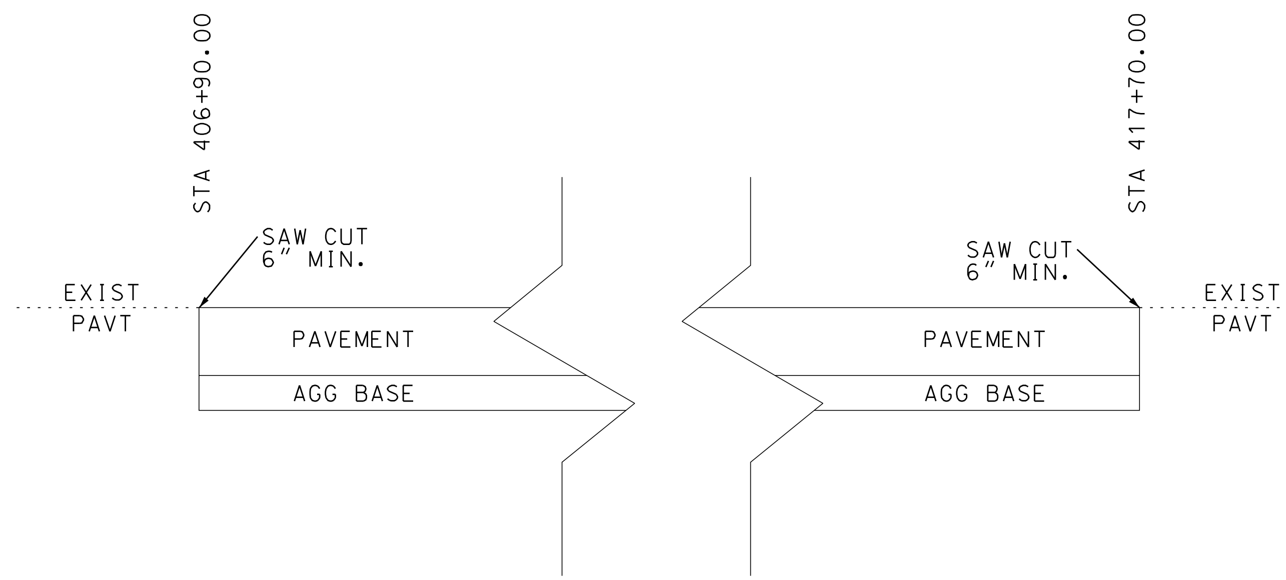
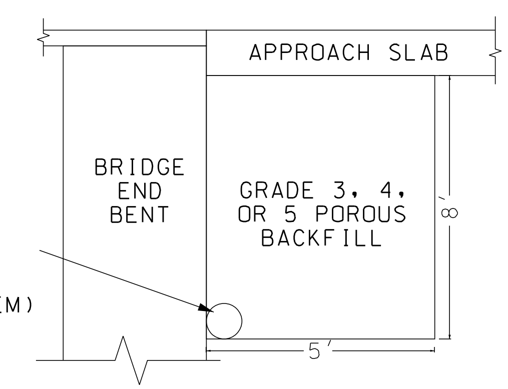
COORDINATE POINTS SHEET
SHEET 2 OF 2



SAW CUT



POROUS BACKFILL

SPECIAL SHEETS
SHEET 1 OF 1

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

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DATE PREPARED	
10/15/2025	
ROUTE: T	STATE: MO
DISTRICT: SE	SHEET NO.: 8
COUNTY: PERRY	
JOB NO.: J9S3670	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

DESCRIPTION

DATE

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MISSOURI DESIGN FIRM PE-001166

LEGEND

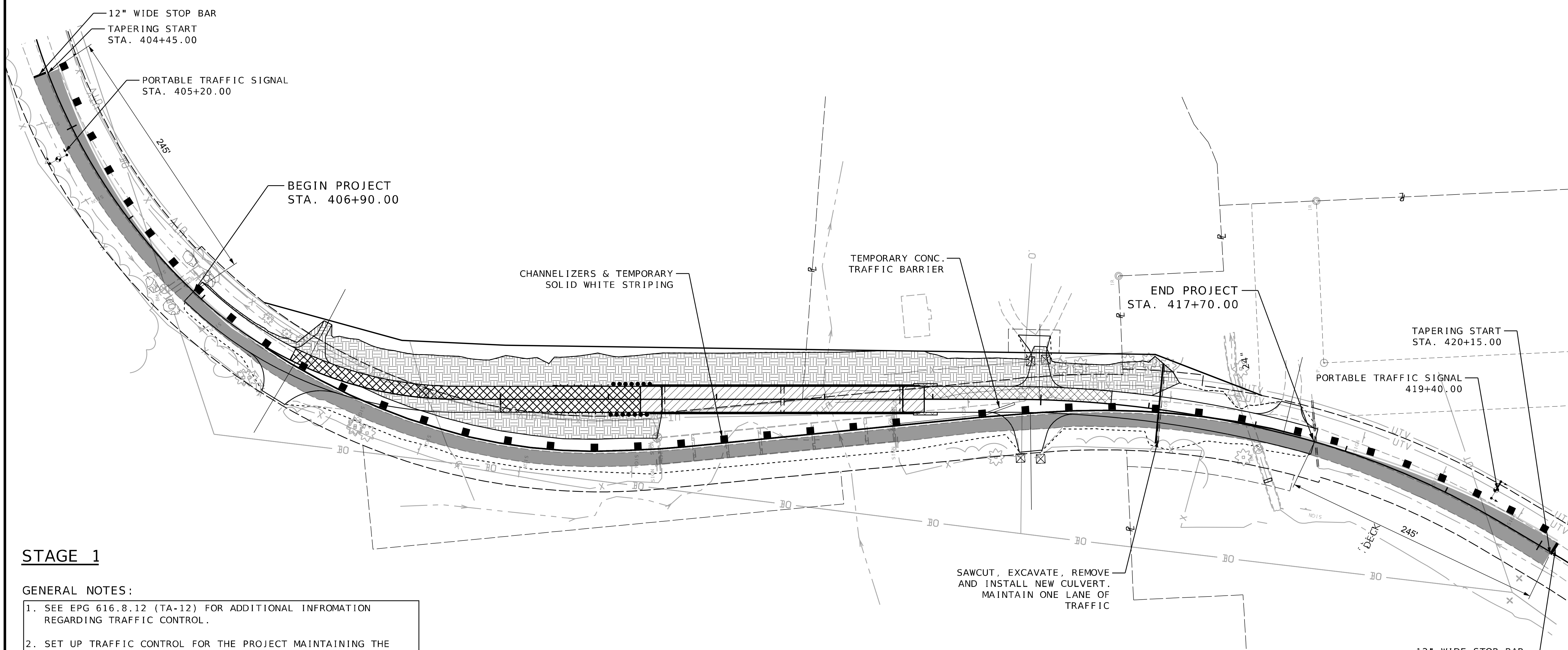
SINGLE TRAVEL LANE

CONSTRUCTION

GRADING

GRADING OF NEW ROADWAY SECTION

CHANNELIZER (TRIMLINE)



STAGE 1

GENERAL NOTES:

1. SEE EPG 616.8.12 (TA-12) FOR ADDITIONAL INFROMATION REGARDING TRAFFIC CONTROL.
2. SET UP TRAFFIC CONTROL FOR THE PROJECT MAINTAINING THE SOUTHBOUND LANE FOR TRAFFIC.
3. PRIOR TO CLOSURE FOR ONE LANE TRAFFIC, SAW CUT, EXCAVATE, REMOVE AND INSTALL NEW CULVERT AT STA. 416+10. MAINTAIN ONE LANE OF TRAFFIC AT ALL TIMES USING TRAFFIC CONTROL AND FLAGGERS AS NEEDED.
4. EXISTING PAVEMENT MARKING SHALL BE REMOVED AS NEEDED AND EXISTING SIGNS THAT CONFLICT WITH THE TEMPORARY TRAFFIC CONTROL SHALL BE COVERED AS REQUIRED.
5. PERFORM REMOVALS AS NEEDED AND BEGIN CONSTRCUTION OF THE NEW BRDIGE.
6. CONTRACTOR TO PROVIDE TEMPORARY ACCESS TO DRIVEWAYS.

SCALE

0 50 100 150

TRAFFIC CONTROL SHEETS
SHEET 1 OF 6

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	
10/15/2025	
ROUTE: T	STATE: MO
DISTRICT: SE	SHEET NO.: 9
COUNTY: PERRY	
JOB NO.: J9S3670	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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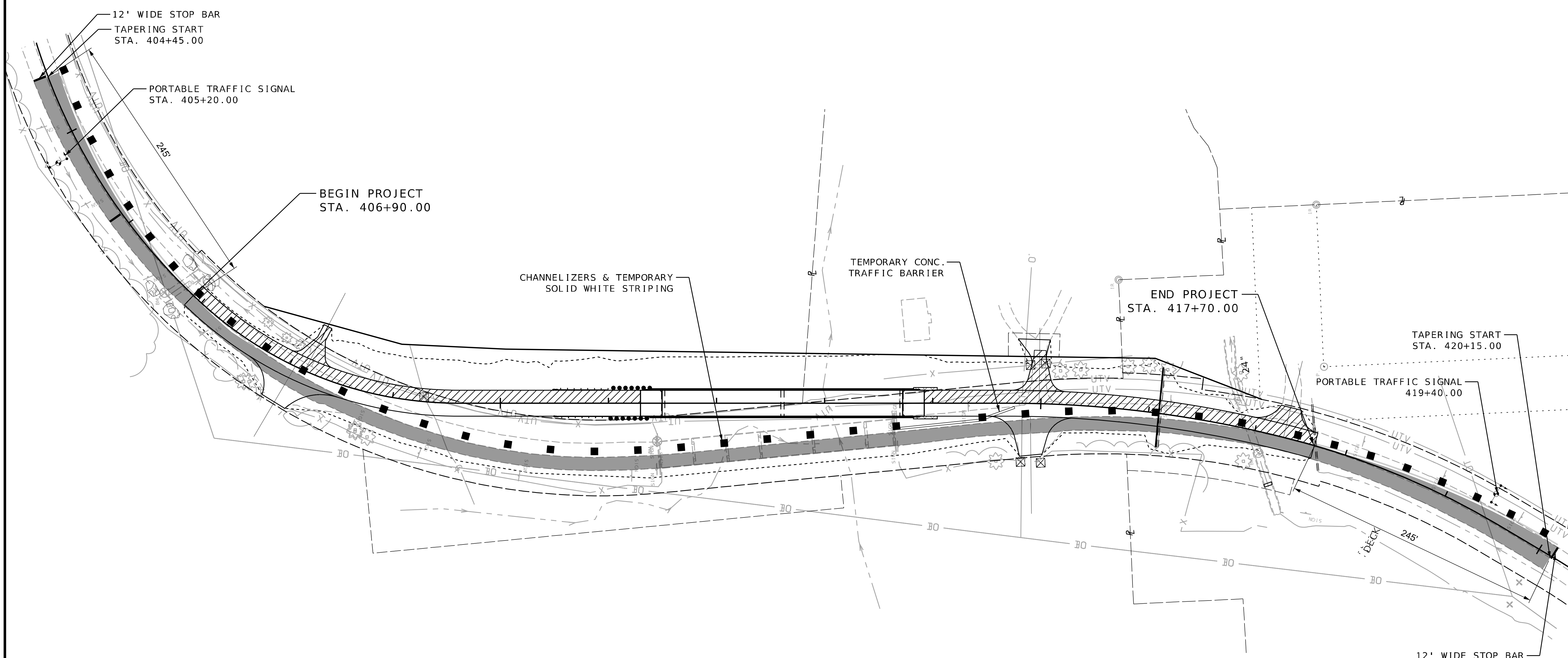
LEGEND

(shaded)	SINGLE TRAVEL LANE
(hatched)	CONSTRUCTION
■	CHANNELIZER (TRIMLINE)



STAGE 2

GENERAL NOTES:

1. REMOVE TEMPORARY CONCRETE BARRIER AFTER BRIDGE CONSTRUCTION AND ROUGH GRADING.
2. COMPLETE FINAL GRADING FOR NORTHBOUND LANE AND INSTALL TYPE 5 AGG. BASE AND THEN EITHER 8" BIT. (BASE OR 8" CONCRETE PAVEMENT.
3. USE FLAGGERS AS NECESSARY.

SCALE

0 50 100 150

TRAFFIC CONTROL SHEETS
SHEET 2 OF 6

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	
10/15/2025	
ROUTE: T	STATE: MO
DISTRICT: SE	SHEET NO. 10
COUNTY: PERRY	
JOB NO.: J9S3670	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

DESCRIPTION

DATE

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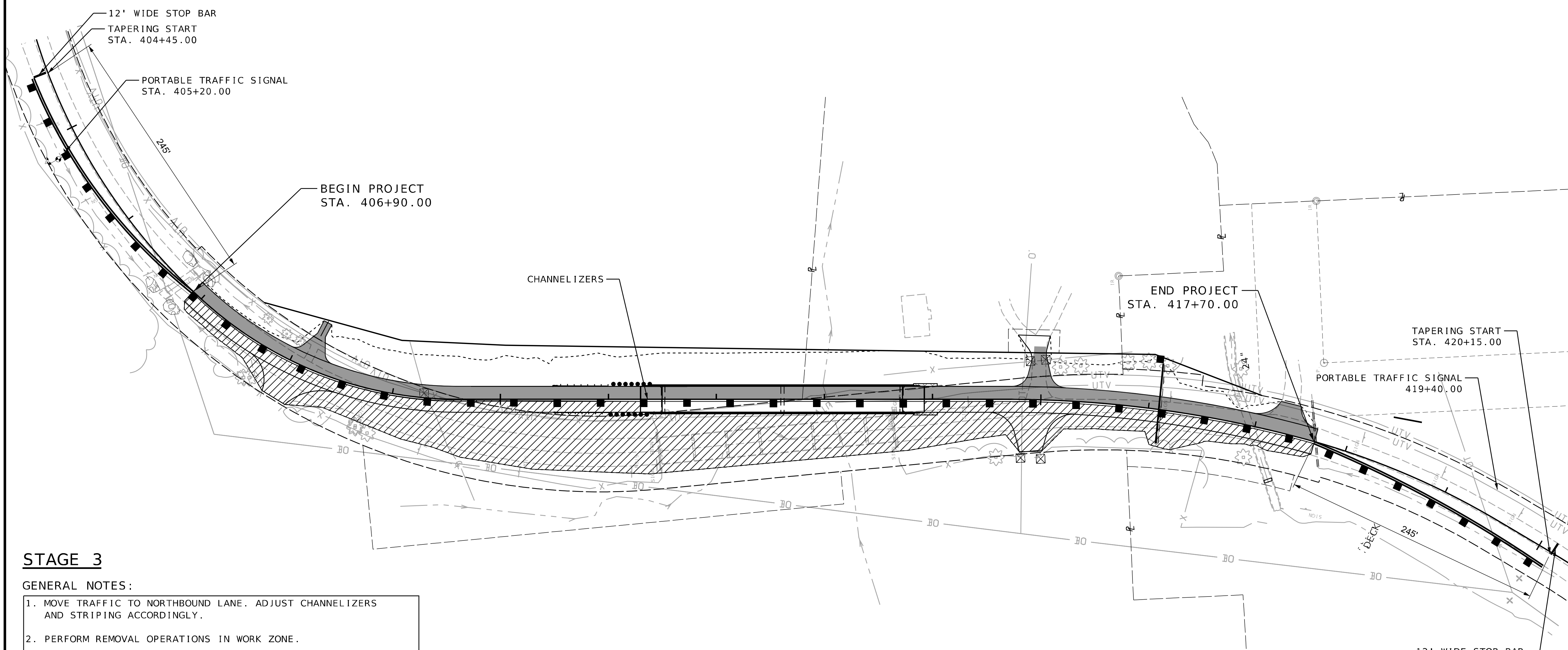
LEGEND

SINGLE TRAVEL LANE

CONSTRUCTION

■ CHANNELIZER (TRIMLINE)



STAGE 3

GENERAL NOTES:

1. MOVE TRAFFIC TO NORTHBOUND LANE. ADJUST CHANNELIZERS AND STRIPING ACCORDINGLY.
2. PERFORM REMOVAL OPERATIONS IN WORK ZONE.
3. COMPLETE PAVING FOR 8" BIT. (BASE) OR 8" CONC. PAVEMENT.
4. COMPLETE FINAL GRADING, SHAPING, SEEDING AND MULCHING ON DISTURBED AREAS.
5. COMPLETE PAVING FOR 2" BIT. PAVEMENT MIX (IF NECESSARY) OVER ALL BIT. BASE.
6. COMPLETE SIGNING AND STRIPING.
7. REMOVE TRAFFIC CONTROL AND OPEN TO TRAFFIC.
8. CONTRACTOR TO PROVIDE TEMPORARY ACCESS TO ALL DRIVEWAYS.

SCALE

0 50 100 150

TRAFFIC CONTROL SHEETS
SHEET 3 OF 6

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

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DATE PREPARED 10/15/2025	
ROUTE T	STATE MO
DISTRICT SE	SHEET NO. 1·1
COUNTY PERRY	
JOB NO. J9S3670	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

DESCRIPTION

DATE

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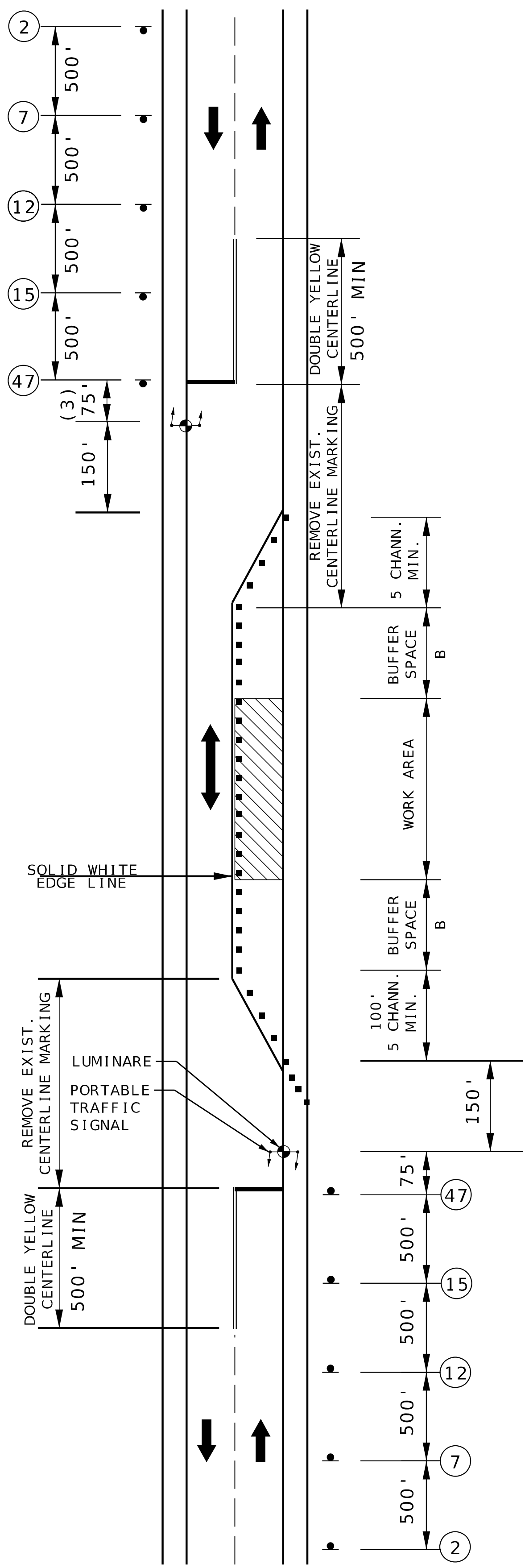
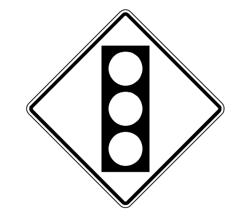


LANE CLOSURE ON TWO-LANE ROAD USING TRAFFIC CONTROL SIGNALS

W020-1
W13-1P
(2)

W3-4
(7)

W5-3
(12)



W3-3
(15)

R10-6
(47)

TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- CHANNELIZER (TRIM-LINE)
- WORK AREA
- PORTABLE TRAFFIC SIGNAL & LUMINARE
- 12" WIDE STOP BAR

NOT TO SCALE

NOTES:

TEMPORARY TRAFFIC CONTROL SIGNALS SHALL BE INSTALLED AND OPEARTED IN ACCORDANCE WITH THE PROVISIONS OF PART 4. TEMPORARY TRAFFIC CONTROL SIGNALS SHALL MEET THE PHYSICAL DISPLAY AND OPERATIONAL REQUIREMENTS OF CONVENTIONAL TRAFFIC CONTROL SIGNLAS.

TEMPORARY TRAFFIC CONTROL SIGNAL TIMING SHALL BE ESTABLISHED BY AUTHORIZED OFFICIALS. DURATIONS OF RED CLEARANCE INTERVALS SHALL BE ADEQUATE TO CLEAR THE ONE LANW SECTION OF CONFLICTING VEHICLES.

WHEN THE TEMPORARY TRAFFIC CONTROL SIGNAL IS CHANGED TO THE FLASHING MODE, EITHER MANUALLY OR AUTOMATICALLY, RED SIGNAL INDICATIONS SHALL BE FLASHED TO BOTH APPROACHES.

STOP LINES SHALL BE INSTALLED WITH TEMPORARY TRAFFIC CONTROL SIGNALS FOR INTERMEDIATE AND LONG-TERM CLOSURES. EXISTING CONFLICTING PAVEMENT MARKINGS AND RAISED PAVEMENT MARKER REFLECTORS BETWEEN THE ACTIVITY AREA AND THE STOP LINE SHALL BE REMOVED. AFTER THE TEMPORARY TRAFFIC CONTROL SIGNAL IS REMOVED, THE STOP LINES AND OTHER TEMPORARY PAVEMENT MARKINGS SHALL BE REMOVED AND THE PERMANENT PAVEMENT MARKINGS RESTORED.

SAFEGUARDS SHALL BE INCORPORATED TO AVOID THE POSSIBILITY OF CONFLICTING SIGNAL INDICATIONS AT EACH END OF THE TTC ZONE.

TRAFFIC CONTROL SHEETS
SHEET 4 OF 6

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

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DATE PREPARED 10/15/2025	
ROUTE T	STATE MO
DISTRICT SE	SHEET NO. 12
COUNTY PERRY	
JOB NO. J9S3670	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. .	

DESCRIPTION

DATE

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MISSOURI DESIGN FIRM PE-001166

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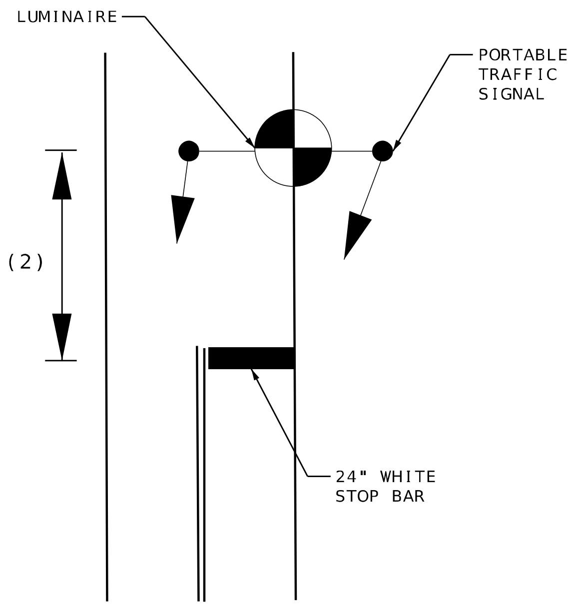
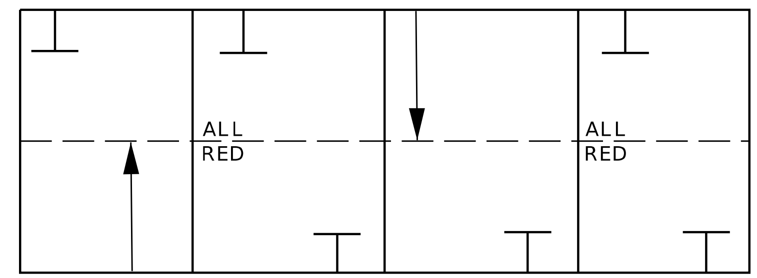
PORTABLE TRAFFIC SIGNAL, TEMPORARY TRAFFIC SIGN, AND CONCRETE BARRIER DETAILS



PORTABLE TRAFFIC SIGNAL DETAIL (1)



PHASE A AND B SHALL ALWAYS BE FOLLOWED BY AN ALL RED PHASE OF INTERVAL.

NOTES:

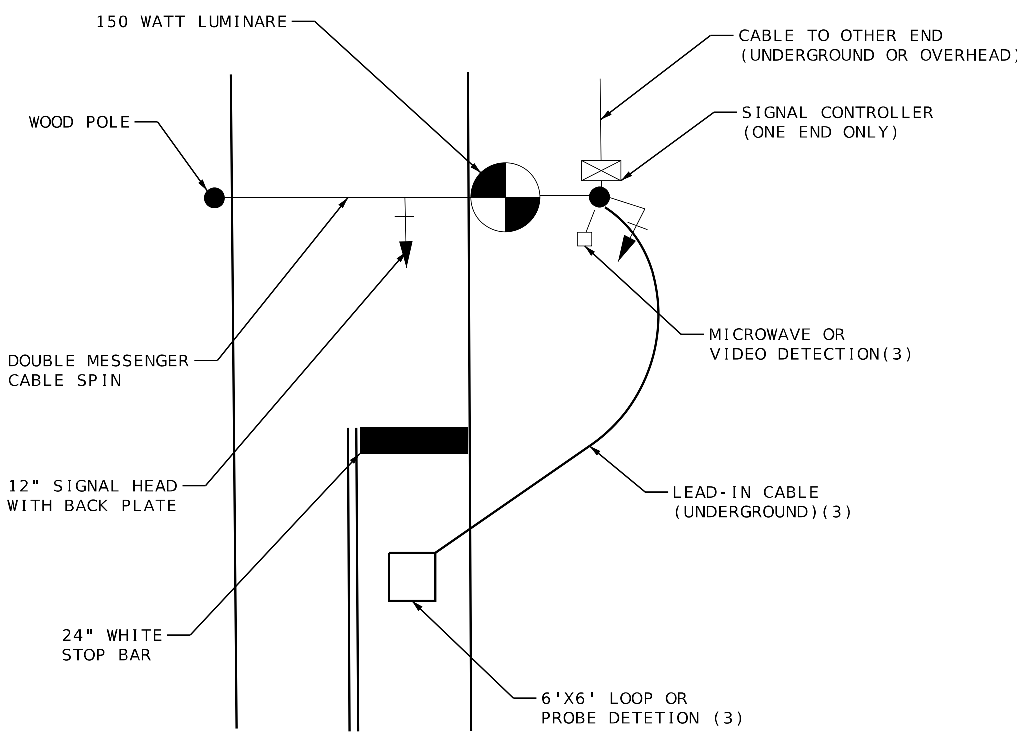
(1) SIGNING AND PAVEMENT MARKING IDENTICAL ON BOTH APPROACHES.

(2) 75 FEET RECOMMENDED SPACING. SPACING MAY BE BETWEEN 40 FEET AND 150 FEET.

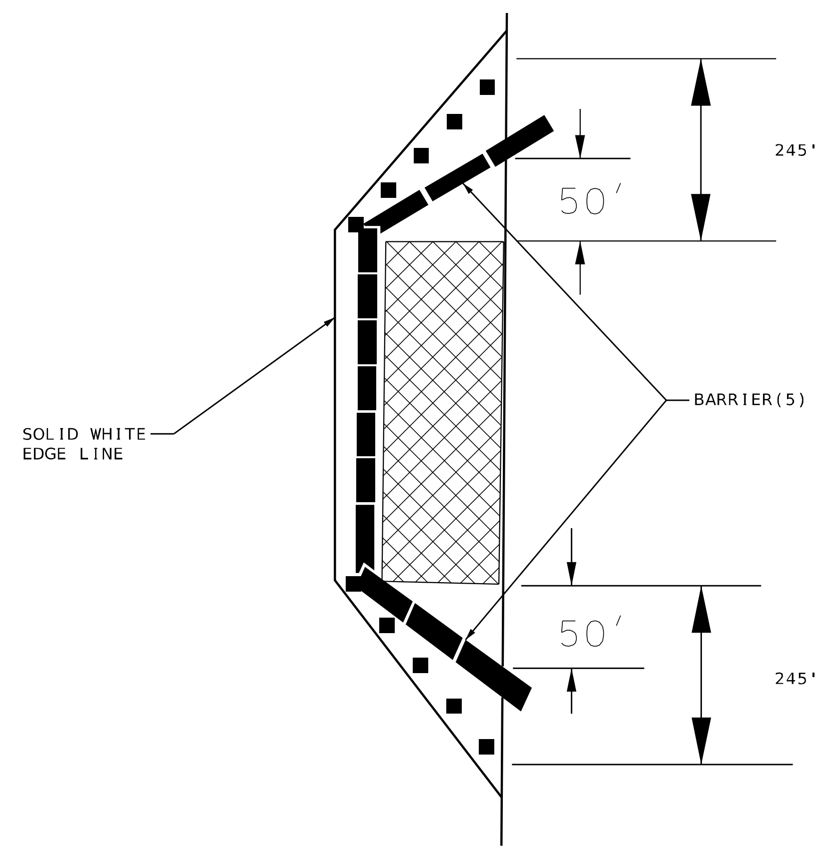
(3) NON-INTRUSIVE DETECTION IS PREFERRED. HOWEVER, IF OTHER VEHICLE INTERFERENCE IS PRESENT (ie PARKING LOTS OR SIDE ROAD ACTIVITY), THEN OTHER DETECTION METHODS MAY BE USED.

(4) IF SIDE ROADS OR DRIVEWAYS OCCUR WITHIN THE LIMITS OF THE STOP BARS, ADDITIONAL INDICATIONS AND PHASING ARE REQUIRED. FURTHERMORE, RIGHT TURNS SHALL BE PROHIBITED FROM THESE ACCESS POINTS DURING THE RED INTERVAL.

(5) FLARE BARRIER TO EXTEND BEYOND CLEAR ZONE OR FLARE BARRIER TO EDGE LINE AND USE APPROVED END TREATMENT.



TEMPORARY TRAFFIC SIGNAL DETAIL (1)



TEMPORARY TRAFFIC SIGNAL DETAIL WITH BARRIER (1)

NOT TO SCALE

TRAFFIC CONTROL SHEETS
SHEET 5 OF 6

STATE OF MISSOURI ★ BENTLEY M. GEDRIS NUMBER PE-2019017818 ★ PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	
10/15/2025	
ROUTE: T	STATE: MO
DISTRICT: SE	SHEET NO.: 13
COUNTY: PERRY	
JOB NO.: J9S3670	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

DESCRIPTION

DATE

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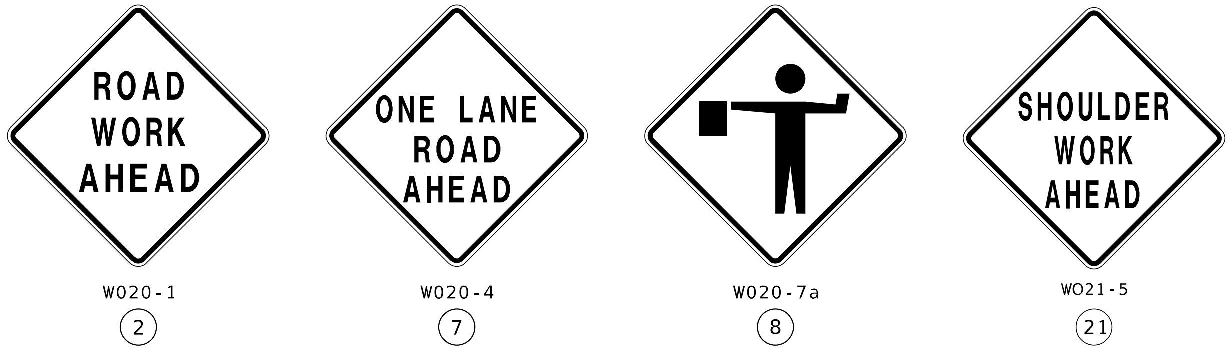
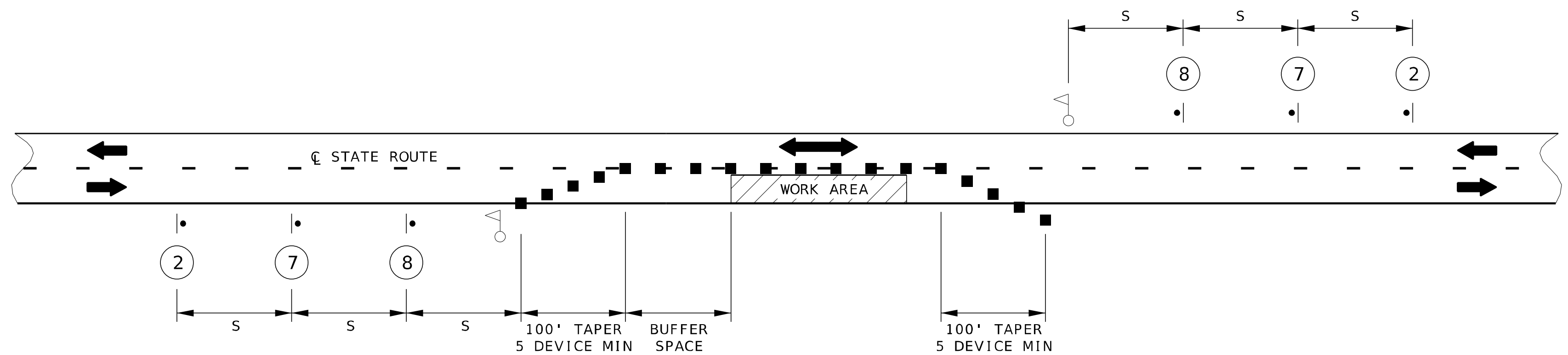
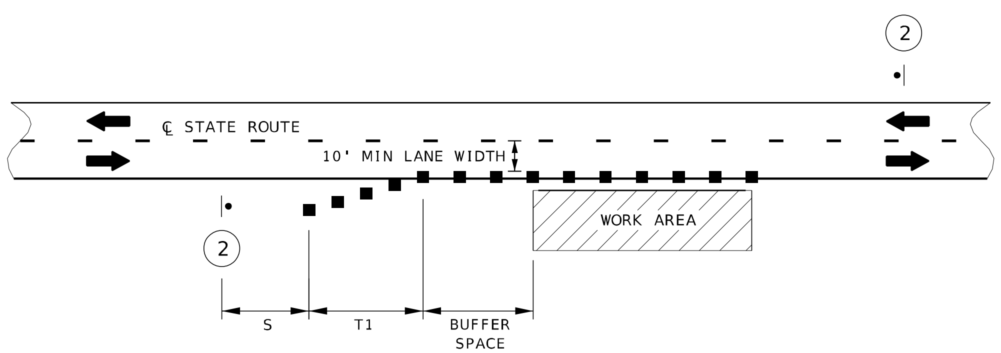


TRAFFIC CONTROL LEGEND

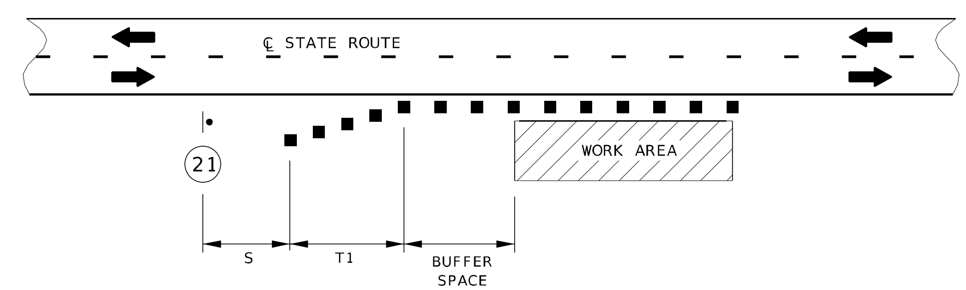
- SIGN (SINGLE SIDED)
- CHANNELIZER
- FLAGGER



LANE CLOSURE WITH FLAGGER CONTROL



SHOULDER WORK WITH MINOR ENCROACHMENT



SHOULDER WORK

NOTES:

DAYLIGHT FLAGGING OPERATIONS ONLY.

DISTANCE MAY BE ADJUSTED ACCORDING TO FIELD CONDITIONS.

NO PAYMENT WILL BE MADE FOR RELOCATION OF CONSTRUCTION SIGNS.

ANY EXISTING SIGNING THAT CONFLICTS WITH THE TRAFFIC CONTROL SIGNING SHALL BE COMPLETELY COVERED OR REMOVED.

AUTOMATED FLAGGER ASSISTANCE DEVICES AND PORTABLE SIGNAL FLAGGING DEVICES MAY BE USED AS AN ALTERNATIVE FLAGGING OPERATION.

FOR ADDITIONAL TRAFFIC CONTROL PLANS FOR THIS PROJECT, USE STANDARD PLANS 616.20 (SHEETS 1 THROUGH 5).

DRAWING NOT TO SCALE. FOLLOW DIMENSIONS.

PERMANENT POSTED SPEED (MPH)	SIGN SPACING (1) (FT)	
	NON-DIVIDED HIGHWAYS (S)	DIVIDED HIGHWAYS (S)
0 - 35	200 FT	200 FT
40 - 45	350 FT	500 FT
50 - 55	500 FT	1000 FT
60 - 70	1000 FT	SA - 1000 FT SB - 1500 FT SC - 2640 FT

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

TAPER LENGTH AND SPACING

PERMANENT POSTED SPEED (MPH)	TAPER LENGTH T1 SHOULDER (1)	TAPER LENGTH L FOR LATERAL SHIFTS (2)			BUFFER SPACE LENGTH	CHANNELIZER SPACING (3)	
		10 FT	11 FT	12 FT		TAPERS	BUFFER SPACE WORK AREA
0 - 35	70 FT	205 FT	225 FT	245 FT	280 FT	35 FT (4)	40 FT (4)
40 - 45	150 FT	450 FT	495 FT	540 FT	400 FT	40 FT (4)	80 FT (4)
50 - 55	185 FT	550 FT	605 FT	660 FT	560 FT	50 FT (5)	80 FT (5)
60 - 70	235 FT	700 FT	770 FT	840 FT	840 FT	60 FT (5)	120 FT (5)

(1) SHOULDER TAPER LENGTH BASED ON 10' (STANDARD SHOULDER WIDTH) OFFSET.

(2) TAPER LENGTHS MAY BE ADJUSTED TO ACCOMMODATE CROSSROADS, CURVES, RAMPS, INTERSECTIONS, OR OTHER GEOMETIC FEATURES.

(3) SPACING MAY BE REDUCED TO DISCOURAGE TRAFFIC ENCROACHMENT.

(4) SPACING REDUCED TO ONE-HALF AT INTERSECTIONS.

(5) SPACING MAY BE REDUCED TO ONE-HALF AT INTERSECTIONS.

TRAFFIC CONTROL SHEETS
6 OF 6

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 10/15/2025	
ROUTE T	STATE MO
DISTRICT SE	SHEET NO. 1·4
COUNTY PERRY	
JOB NO. J9S3670	
CONTRACT ID. .	
PROJECT NO. .	
BRIDGE NO. .	

DESCRIPTION
DATE

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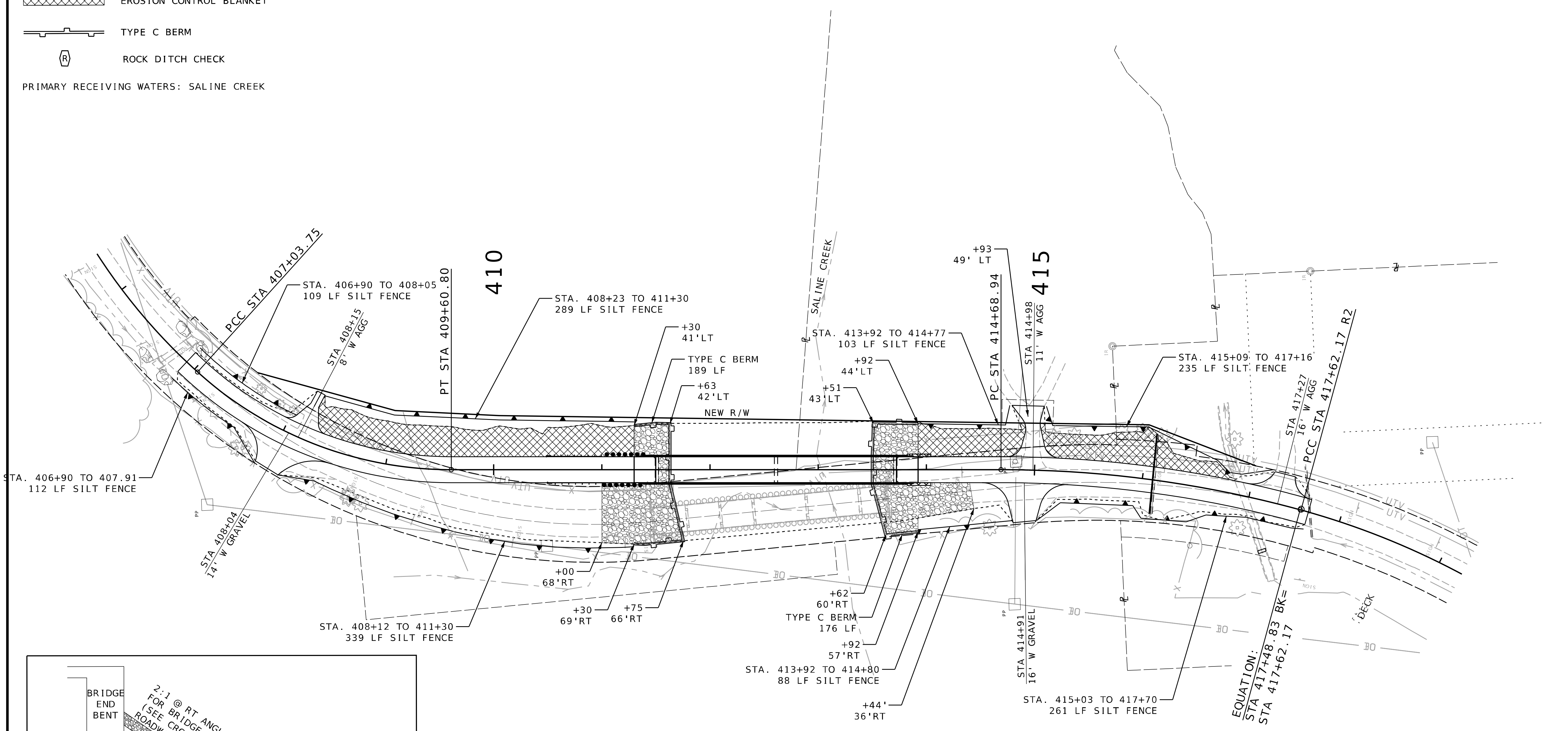
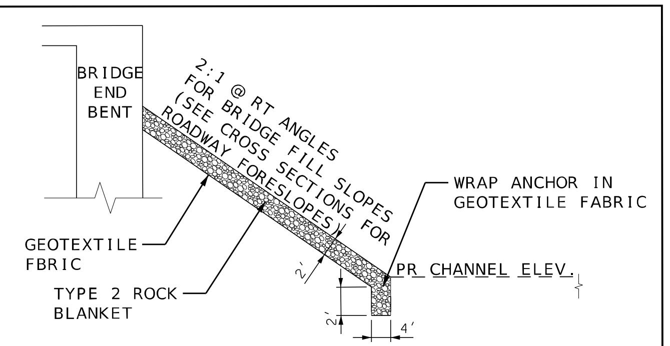
TEMPORARY EROSION CONTROL LEGEND

- SILT FENCE
- 2' TYPE 2 ROCK BLANKET W/PERMANENT EROSION CONTROL GEOTEXTILE
- TYPE 2D HEAVY DOUBLE-NET EROSION CONTROL BLANKET
- TYPE C BERM
- ROCK DITCH CHECK

PRIMARY RECEIVING WATERS: SALINE CREEK





ROCK BLANKET DETAIL

SCALE
0 50 100 150

EROSION CONTROL SHEET
SHEET 1 OF 1

STATE OF MISSOURI
BENTLEY M. GEDRIS
NUMBER PE-2019017818
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	10/15/2025
ROUTE T	STATE MO
DISTRICT SE	SHEET NO. 15
COUNTY	PERRY
JOB NO.	J9S3670
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	.

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

MoDOT

OATES ASSOCIATES
MISSOURI DESIGN FIRM PE-001166

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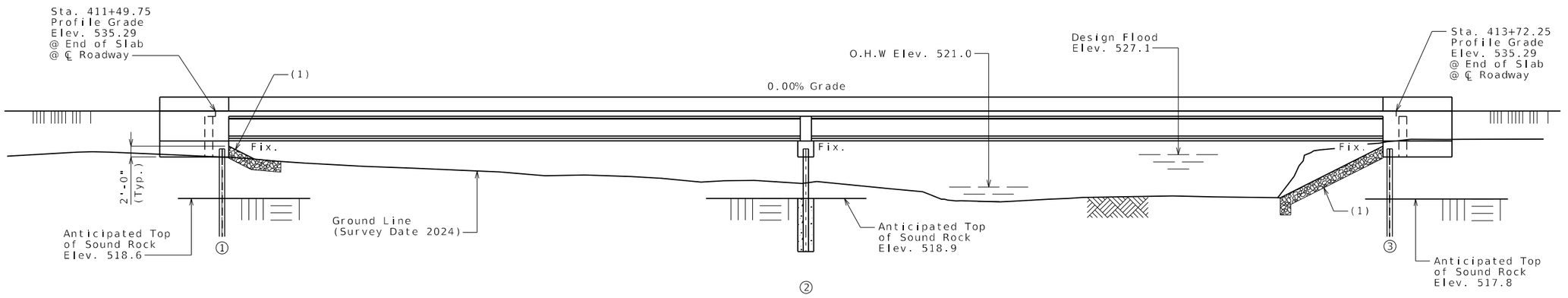
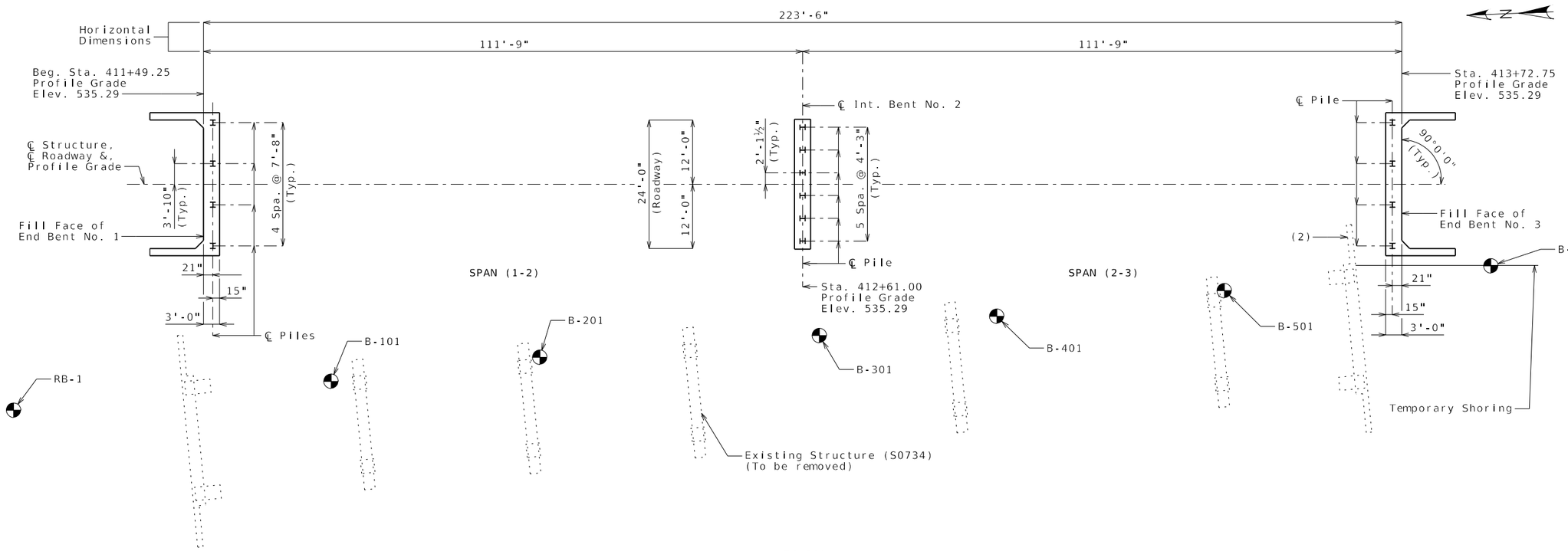
SEC/SUR 36 TWP 35N RGE 9E

(110'-110') PRESTRESSED CONCRETE NU-GIRDER SPANS



GENERAL ELEVATION

(Existing bents on existing alignment, not shown)



PLAN

◔ Indicates location of borings.

Notice and Disclaimer Regarding Boring Log Data

The locations of all subsurface borings for this structure are shown on this sheet. 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 Sheets No. 24-29 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.

Reference Notes;
(1) 2:1 Slope (Normal) with 2'-0" thick Type 2 Rock Blanket with Permanent Erosion Control Geotextile (Roadway Item).
(2) Existing wingwall to be removed to accommodate construction of new structure.

T.B.M. "B" - CUT SQUARE ON TOP OF NORTHEAST WINGWALL
STA. 411+45.13, 35.29' RT.
ELEV. 535.65

BRIDGE: ROUTE T OVER SALINE CREEK

ROUTE T FROM ROUTE CC TO ROUTE N
ABOUT 0.5 MILES EAST OF ROUTE CC
BEGINNING STA. 411+49.25

Designed Dec. 2024
Detailed Dec. 2024
Checked Mar. 2025

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

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/18/2025
ROUTE T | STATE MO
DISTRICT BR | SHEET NO. 1
COUNTY PERRY
JOB NO. J9S3670
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9408

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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Bellville 1 South Church, Suite 200 Belleville, IL 62220 618.416.4588
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Estimated Quantities

Item		Substr.	Superstr.	Total
Class 1 Excavation	cu. yard	41		41
Temporary Shoring	lump sum			1
Removal of Bridges (S0734)	lump sum			1
Bridge Approach Slab (Minor)	sq. yard		108	108
Galvanized Structural Steel Piles (14 in)	linear foot	250		250
Pre-Bore for Piling	linear foot	203		203
Pile Point Reinforcement	each	14		14
Class B Concrete (Substructure)	cu. yard	32.8		32.8
Type H Barrier	linear foot		487	487
Slab on Concrete NU-Girder	sq. yard		659	659
NU 53, Prestressed Concrete NU-Girder	linear foot		661	661
Reinforcing Steel (Bridges)	pound	1,290		1,290
Steel Intermediate Diaphragm for P/S Concrete Girders	each		8	8
Slab Drain	each		40	40
Vertical Drain at End Bents	each	2		2
Plain Neoprene Bearing Pad	each		6	6
Laminated Neoprene Bearing Pad	each		6	6

All concrete above the construction joint in the end bents is included in the Estimated Quantities for Slab on Concrete NU-Girder.

All reinforcement in the end bents is included in the Estimated Quantities for Slab on Concrete NU-Girder.

All reinforcement in the intermediate bent concrete diaphragms except reinforcement embedded in the beam cap is included in the Estimated Quantities for Slab on Concrete NU-Girder.

All concrete above the intermediate beam cap is included in the Estimated Quantities for Slab on Concrete NU-Girder.

Cost of ∠4x4 ASTM A709 Grade 36 HP pile anchor and 3/4-inch diameter ASTM F3125 Grade A325 Type 1 bolts, complete in place, will be considered completely covered by the contract unit price for Galvanized Structural Steel Pile (14 in).

Estimated Quantities for Slab on Concrete NU-Girder

Item		Total
Class B-2 Concrete	cu. yard	193
Reinforcing Steel (Epoxy Coated)	pound	63,440

The table of Estimated Quantities for Slab on Concrete NU-Girder represents the quantities used by the State in preparing the cost estimate for concrete slabs. The area of the concrete slab will be measured to the nearest square yard longitudinally from end of slab to end of slab and transversely from out to out of bridge slab (or with the horizontal dimensions as shown on the plan of slab). Payment for prestressed panels, conventional forms, all concrete and epoxy coated reinforcing steel will be considered completely covered by the contract unit price for the slab. Variations may be encountered in the estimated quantities but the variations cannot be used for an adjustment in the contract unit price.

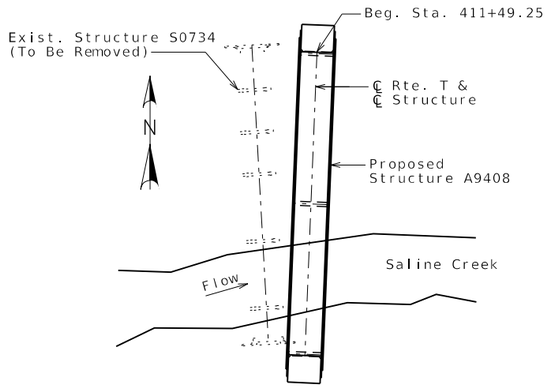
Method of forming the slab shall be as shown on the plans and in accordance with Sec 703. All hardware for forming the slab to be left in place as a permanent part of the structure shall be coated in accordance with ASTM A123 or ASTM B633 with a thickness class SC 4 and a finish type I, II or III.

Class B-2 Concrete quantity is based on minimum top of flange thickness and minimum joint material thickness.

The prestressed panel quantities are not included in the table of Estimated Quantities of Slab on Concrete NU-Girder.

Hydrologic Data

Drainage Area = 21.2 mi^2
Design Flood Frequency = 50 years
Design Flood Discharge = 7,600 cfs
Design Flood (D.F.) Elevation = 527.1
Base Flood (100-year)
Base Flood Elevation = 528.0
Base Flood Discharge = 8,950 cfs
Estimated Backwater = 0.0 ft
Average Velocity thru Opening = 4.8 ft/s
Freeboard (50-year)
Freeboard = 2.6 ft
Roadway Overtopping
Overtopping Flood Discharge > N/A cfs
Overtopping Flood Frequency > 500 years
500 Year Flood Elevation = 529.3



LOCATION SKETCH

Foundation Data

Type	Design Data		Bent Number 1	Bent Number 2	Bent Number 3
Load Bearing Pile	Pile Type and Size		HP 14x73	HP 14x73	HP 14x73
	Number	ea	4	6	4
	Approximate Length Per Each	ft	17	19	17
	Pile Point Reinforcement	ea	ALL	ALL	ALL
	Min. Galvanized Penetration (Elev.)	ft	Full Length	Full Length	Full Length
	Pile Driving Verification Method		DF	**	DF
	Resistance Factor		0.4	0.4	0.4
	Minimum Nominal Axial Compressive Resistance	kip	670	759	670

DF = FHWA-modified Gates Dynamic Pile Formula

Minimum Nominal Axial Compressive Resistance = Maximum Factored Loads/Resistance Factor

**All piles shall bear on rock. Piles shall be placed in predrilled holes. Ensure the piles are seated on bedrock and not rubble in bottom of the hole. The annular space around the pile shall be backfilled with Class B concrete as shown. Concrete below the water line shall be placed with tremie. Verification of pile driving is not required. Cost of Class B concrete will be completely covered by the contract unit price for Pre-Bore for Piling.

Pile point reinforcement need not be galvanized. Shop drawings will not be required for pile point reinforcement.

HP Piles are anticipated to be drived to refusal to rock. Review all boring depth of rock and restrict driving as appropriate to comply with hard rock driving criteria in accordance with Sec 702.

Prebore for piles at Bents No. 1,2 & 3 to elevations 511, 509 & 511, respectively.

General Notes:

Design Specifications:

2020 AASHTO LRFD Bridge Design Specifications (9th Ed.)
2023 AASHTO Guide Specifications for LRFD Seismic Bridge Design (3rd Ed.)
Seismic Design Category = B (Seismic Details)
Design earthquake response spectral acceleration coefficient at 1.0 second period, SD1 = 0.22g
Acceleration Coefficient (effective peak ground acceleration coefficient), As = 0.34g

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 Stresses:

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 A706 Grade 60)	fy = 60,000 psi
Structural Steel HP Pile (ASTM A709 Grade 50)	fy = 50,000 psi

For precast prestressed panel stresses, see Sheet No. 13.
For prestressed girder stresses, see Sheets No. 9 & 10.

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.

Minimum clearance between galvanized piles and uncoated (plain) reinforcing steel including bar supports shall be 1 1/2". Nylon, PVC, or polyethylene spacers shall be used to maintain clearance. Nylon cable ties shall be used to bind the spacers to the reinforcement.

Traffic Handling:

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

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

GENERAL NOTES & QUANTITIES

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/18/2025
ROUTE T | STATE MO
DISTRICT BR | SHEET NO. 2
COUNTY PERRY
JOB NO. J9S3670
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9408

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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MISSOURI DESIGN FIRM PE-001166

Detailed Feb. 2025
Checked Mar. 2025

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

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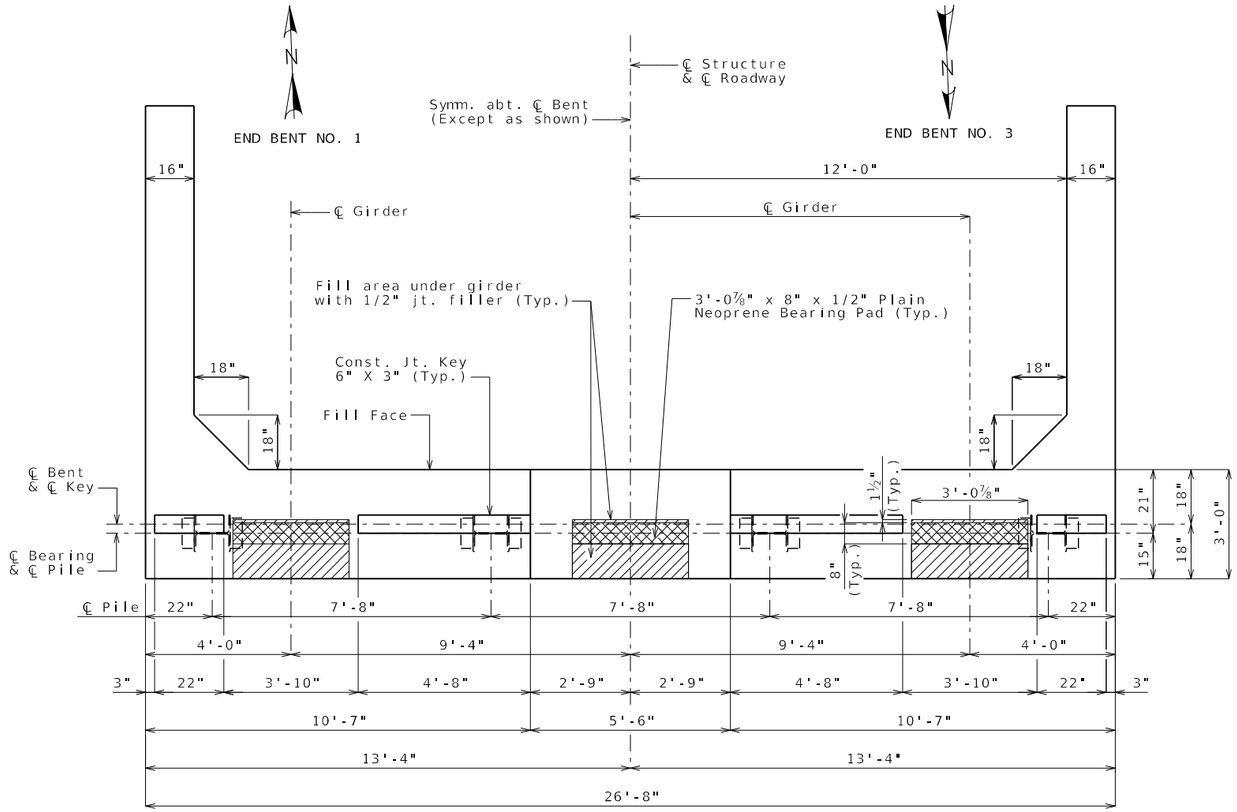
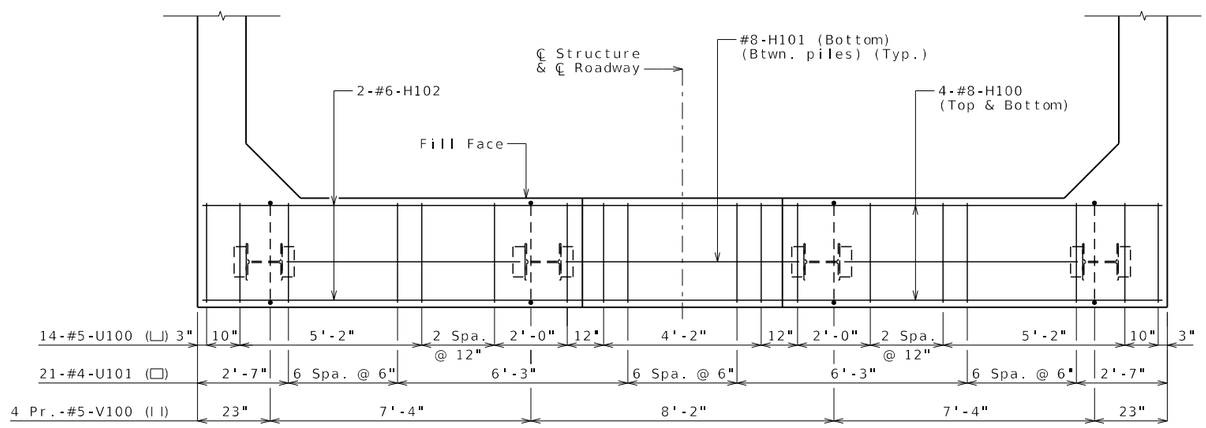
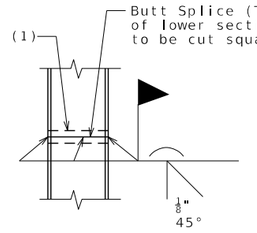


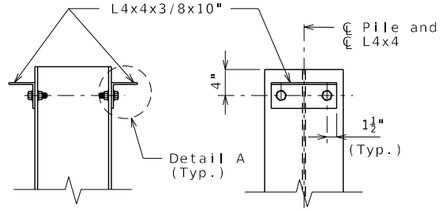
PLAN OF BEAM



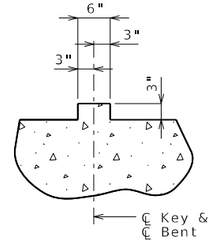
PLAN OF BEAM SHOWING REINFORCEMENT
(Keys not shown for clarity)



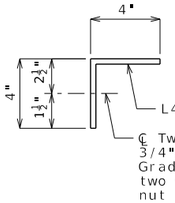
STEEL PILE SPLICE
(If required)



DETAILS OF HP PILE ANCHORS



SECTION THRU KEY



DETAIL A

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.

Reference Notes:
(1) Galvanized material shall be omitted or removed one inch clear of weld locations in accordance with Sec 702.

General Notes:
For details of End Bents No. 1 & 3 not shown, see Sheets No. 4 & 5.

Reinforcing steel shall be shifted to clear piles. U bars shall clear piles by 1 1/2 inches.

Substructure Quantity Table for Bent No. 1		
Item		Quantity
Galvanized Structural Steel Pile (14 in)	linear foot	68
Pre-Bore for Piling	linear foot	63
Pile Point Reinforcement	each	4
Class B Concrete (Substructure)	cu. yard	12.3

Substructure Quantity Table for Bent No. 3		
Item		Quantity
Class 1 Excavation	cu. yard	41
Galvanized Structural Steel Pile (14 in)	linear foot	68
Pre-Bore for Piling	linear foot	63
Pile Point Reinforcement	each	4
Class B Concrete (Substructure)	cu. yard	12.3

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

DETAILS OF END BENTS NO. 1 & 3

Detailed Feb. 2025
Checked Mar. 2025

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

H:\P\224034 - SE District Bridge Package\003-J9S3670-S0734\Bridge\Final Bridge\Microstation\B_A9408_003_J9S3670_Details of End Bents No. 1 & 3.dgn 10:53:47 AM 11/18/2025

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/18/2025
ROUTE T | STATE MO
DISTRICT BR | SHEET NO. 3
COUNTY PERRY
JOB NO. J9S3670
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9408

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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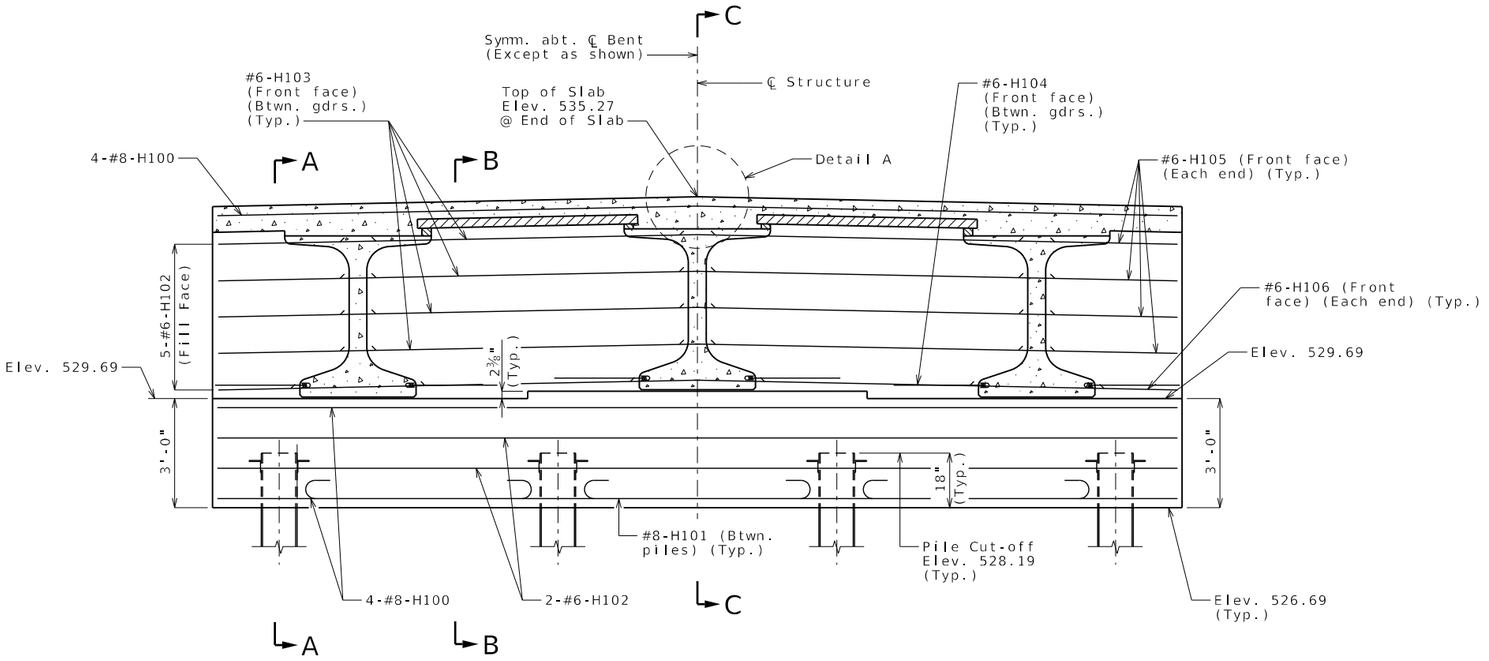
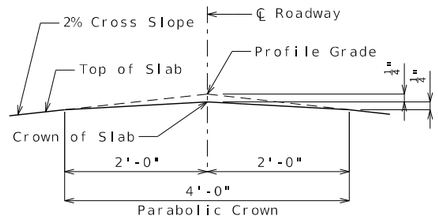
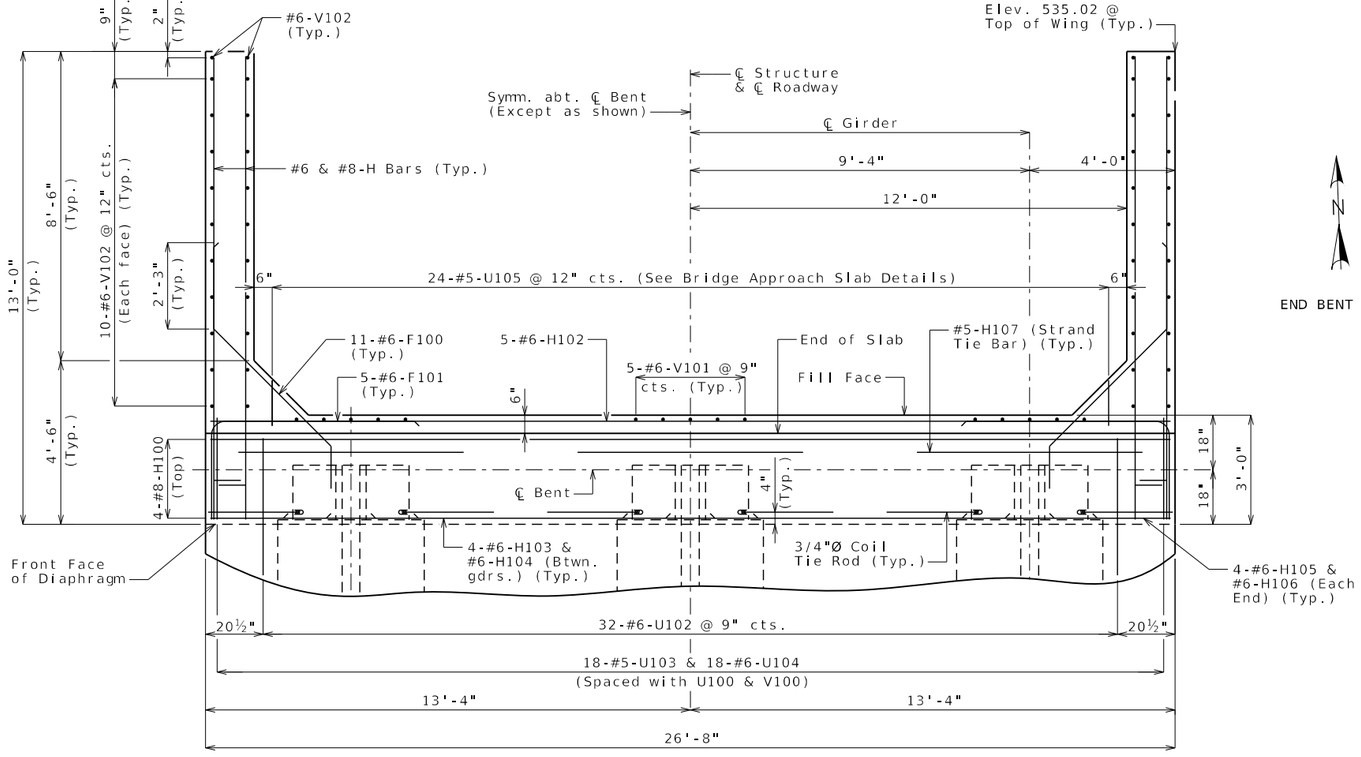


SECTION NEAR END BENT



DETAIL A



PART PLAN

N

END BENT NO. 1

N

END BENT NO. 3

General Notes:
For details of End Bents No. 1 & 3 not shown, see Sheets No. 3 & 5.

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

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

For locations of Coil Tie Rods and #5-H107 (Strand Tie Bar), see Sheets No. 9 & 10.

For details of Vertical Drain at End Bents, see Sheet No. 6.

For details of Bridge Approach Slab, see Sheet No. 20.

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

For Sections A-A, B-B & C-C, see Sheet No. 5.

DETAILS OF END BENTS NO. 1 & 3

Detailed Feb. 2025
Checked Mar. 2025

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

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
11/18/2025

ROUTE	STATE
T	MO
DISTRICT	SHEET NO.
BR	4

COUNTY
PERRY

JOB NO.
J9S3670

CONTRACT ID.

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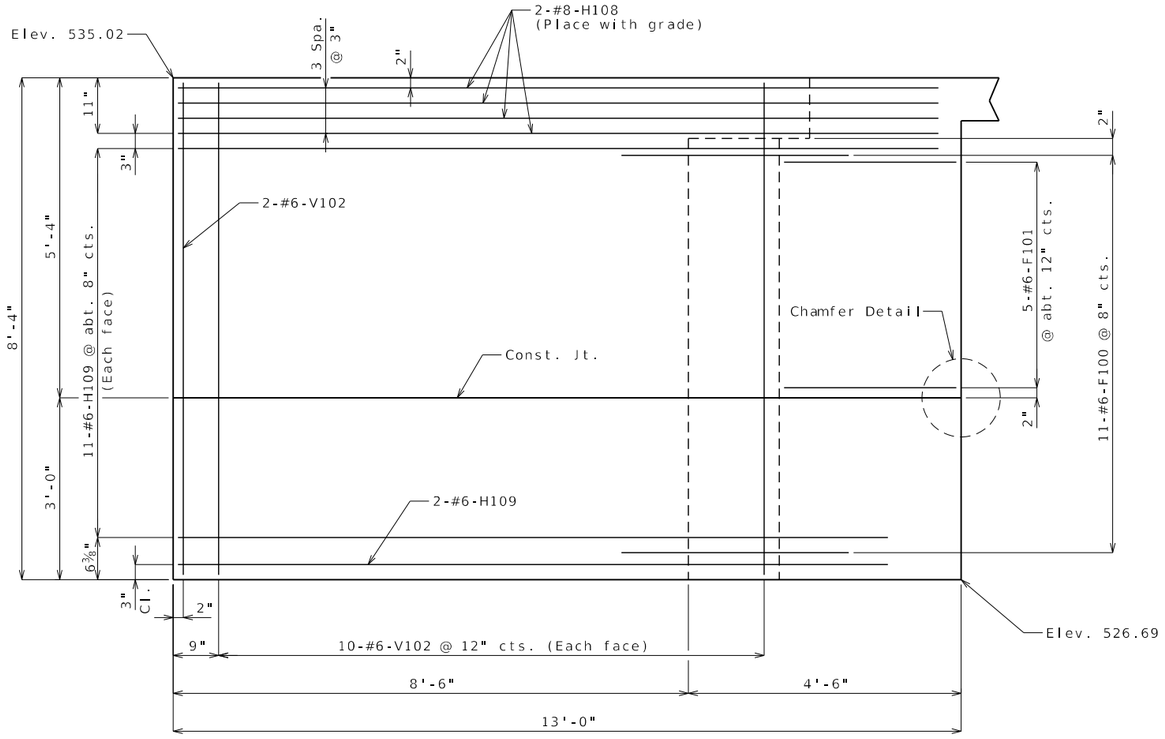
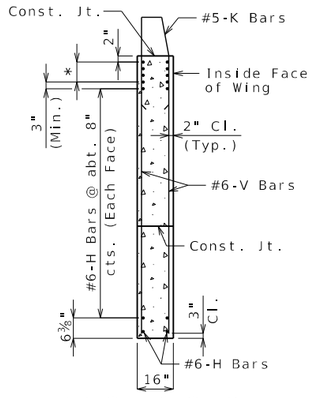
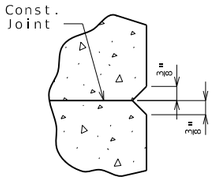


TYPICAL WINGWALL ELEVATION

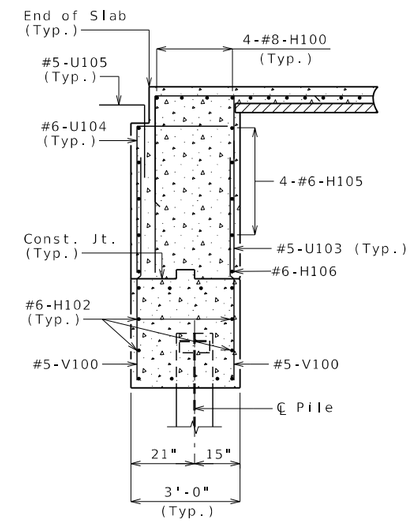


TYPICAL SECTION THRU WING

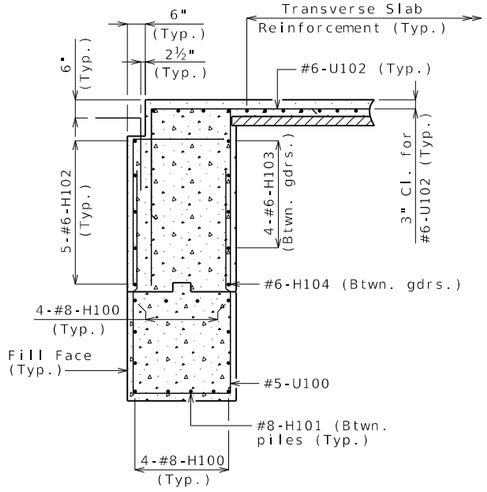
* #8-H Bars at 3" cts. (Each face) (Place with grade)



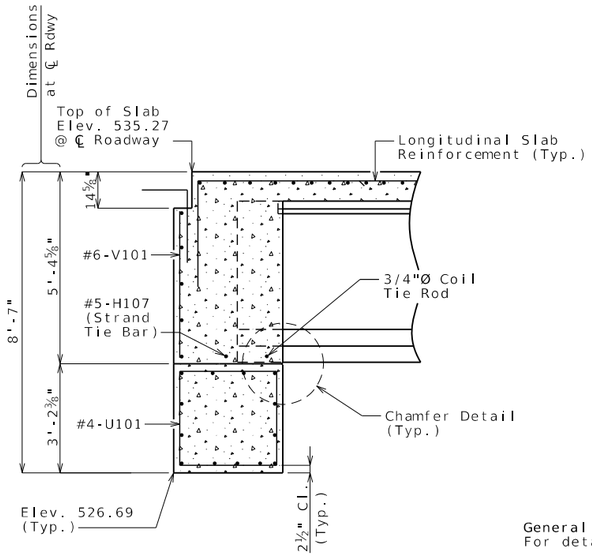
CHAMFER DETAIL



SECTION A-A



SECTION B-B



SECTION C-C

General Notes:
For details of End Bents No. 1 & 3 not shown, see Sheets No. 3 & 4.

For locations of Sections A-A, B-B, & C-C, see Sheet No. 4.

For reinforcement at the barrier, see Sheets No. 18 & 19.

DETAILS OF END BENTS NO. 1 & 3

Detailed Feb. 2025
Checked Mar. 2025

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

H:\P\224034 - SE District Bridge Package\003-J9S3670-S0734\Bridge\Final Bridge\Microstation\B_A9408_005_J9S3670_Details of End Bents No. 1 & 3.dgn 10:53:50 AM 11/18/2025

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

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BRIDGE NO. A9408

DESCRIPTION | DATE

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

OATES ASSOCIATES
MISSOURI DESIGN FIRM PE-001166
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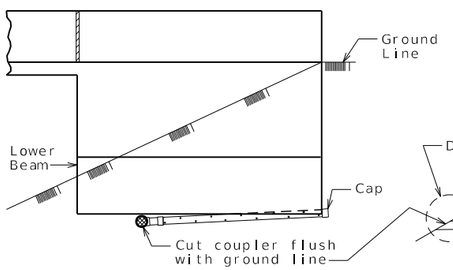
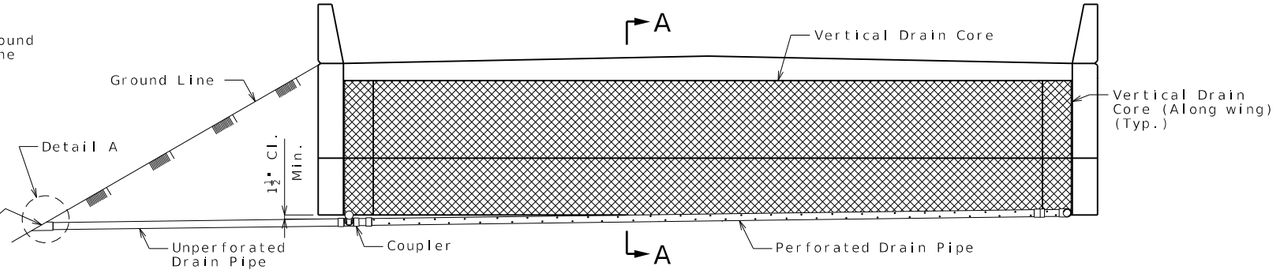
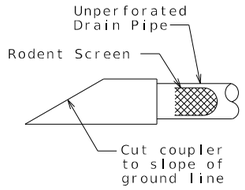


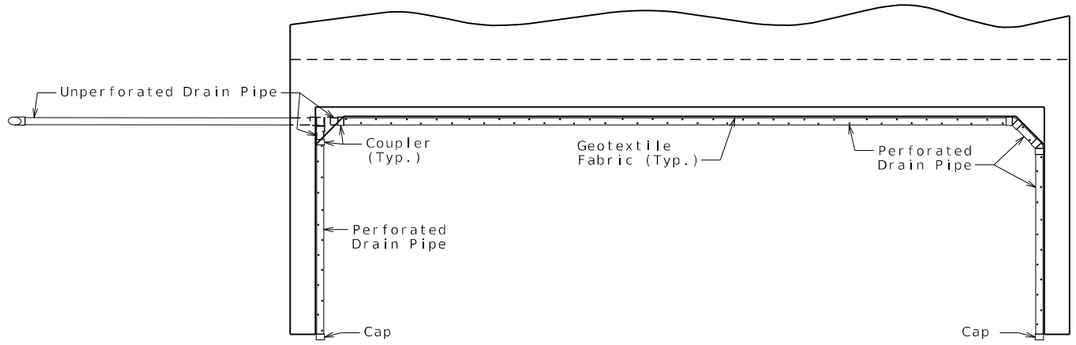
ELEVATION OF WING



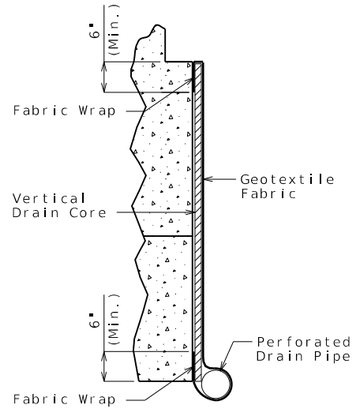
ELEVATION OF END BENT



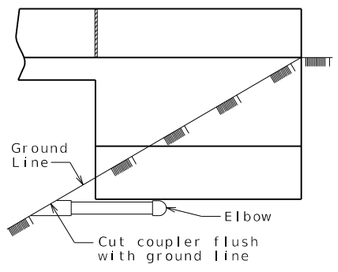
DETAIL A



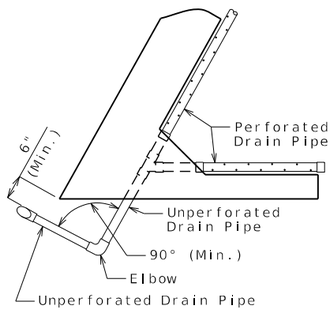
PLAN OF END BENT



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
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/18/2025
ROUTE T | STATE MO
DISTRICT BR | SHEET NO. 6
COUNTY PERRY
JOB NO. J9S3670
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9408

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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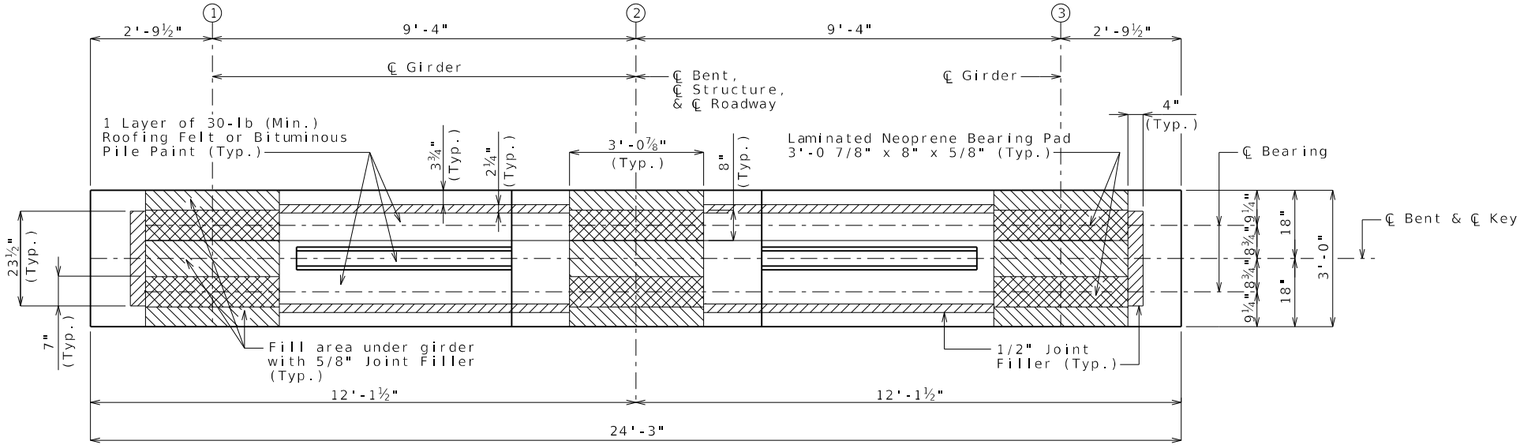
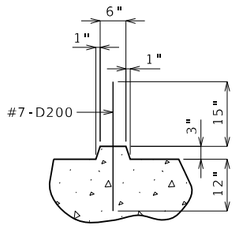
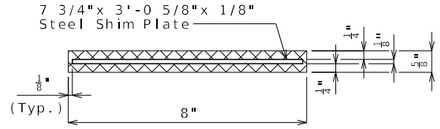


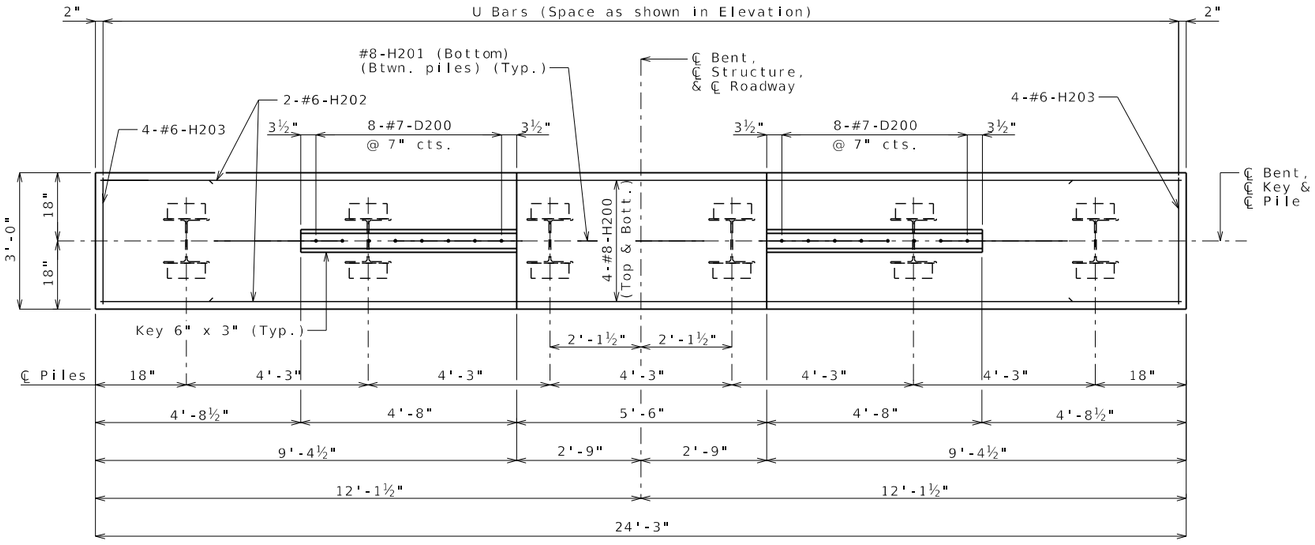
PLAN OF BEAM



SECTION THRU KEY



SECTION THRU LAMINATED
NEOPRENE BEARING PAD



PLAN OF BEAM SHOWING REINFORCEMENT

Substructure Quantity Table for Bent No. 2		
Item		Quantity
Galvanized Structural Steel Pile (14 in)	linear foot	114
Pre-Bore for Piling	linear foot	77
Pile Point Reinforcement	each	6
Class B Concrete (Substructure)	cu. yard	8.2
Reinforcing Steel (Bridges)	pound	1,290

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

General Notes:
For details of Intermediate Bent No. 2 not shown, see Sheet No. 8.

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

DETAILS OF INTERMEDIATE BENT NO. 2

Detailed Mar. 2025
Checked Mar. 2025

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

H:\P\224034 - SE District Bridge Package\003-J9S3670-S0734\Bridge\Final Bridge\Microstation\B_A9408_007_J9S3670_Details of Intermediate Bent No. 2.dgn 10:53:52 AM 11/18/2025

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/18/2025
ROUTE T | STATE MO
DISTRICT BR | SHEET NO. 7
COUNTY PERRY
JOB NO. J9S3670
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9408

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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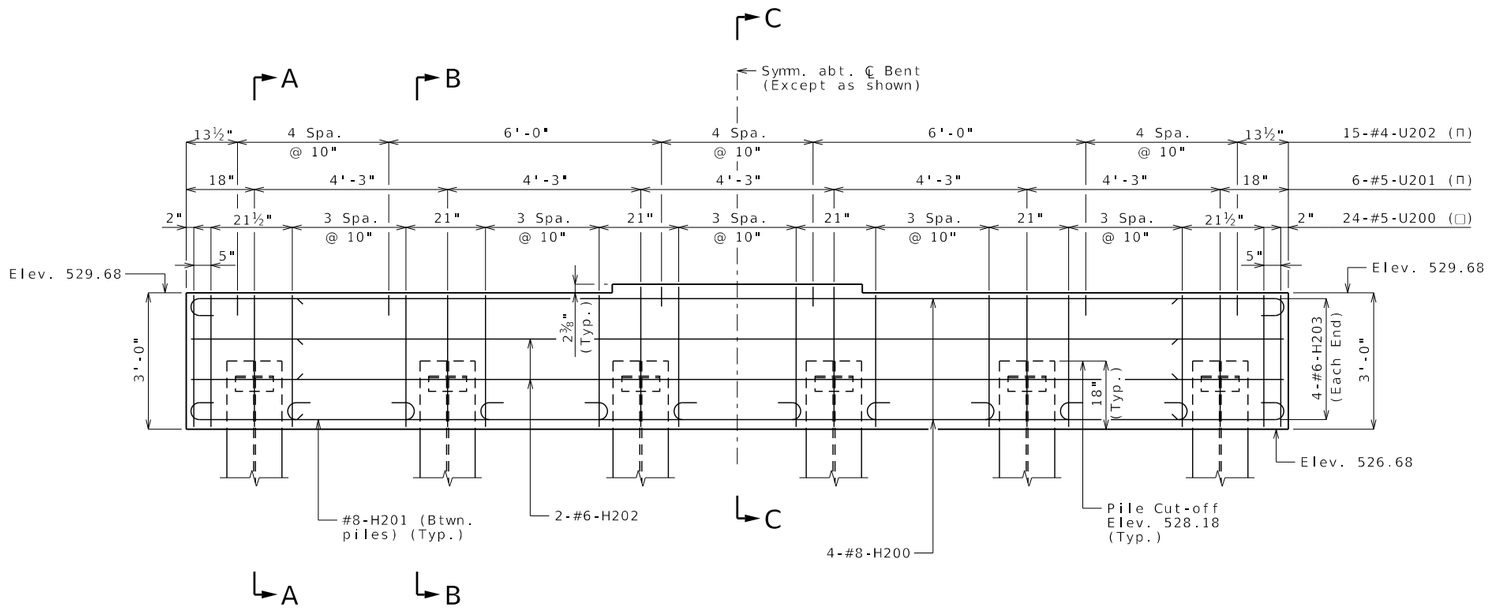
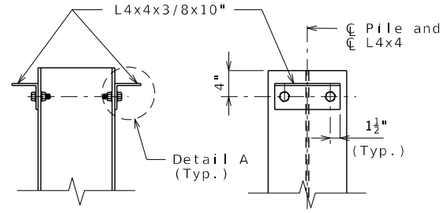
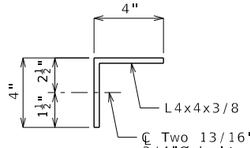


ELEVATION
(Keys not shown for clarity)

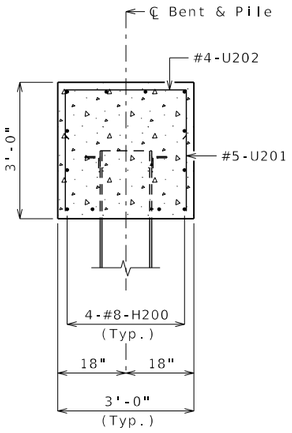


DETAILS OF HP PILE ANCHORS

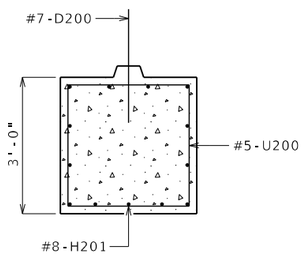


DETAIL A

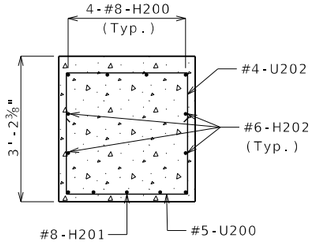
Angles shall be coated with a minimum of two coats of non-aluminum epoxy mastic primer to provide a dry film thickness of 4 mils minimum, 8 mils maximum, or galvanized in accordance with Sec 1081. Bolts, washers and nuts shall be galvanized in accordance with AASHTO M 232 (ASTM A153), Class C.



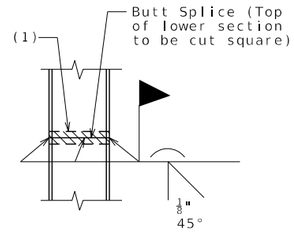
SECTION A-A



SECTION B-B



SECTION C-C



STEEL PILE SPLICE
(If required)

Reference Notes:
(1) Galvanizing materials shall be omitted or removed one inch clear of locations in accordance with Sec. 702.

General Notes:
For details of Intermediate Bent No. 2 not shown, see Sheet No. 7.

DETAILS OF INTERMEDIATE BENT NO. 2

Detailed Mar. 2025
Checked Mar. 2025

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

H:\P\224034 - SE District Bridge Package\003-J9S3670-S0734\Bridge\Final Bridge\Microstation\B_A9408_008_J9S3670_Details of Intermediate Bent No. 2.dgn 10:53:54 AM 11/18/2025

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/18/2025
ROUTE T | STATE MO
DISTRICT BR | SHEET NO. 8
COUNTY PERRY
JOB NO. J9S3670
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9408

DESCRIPTION | DATE

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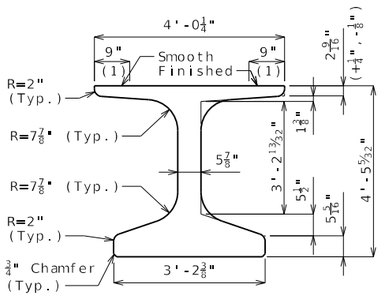
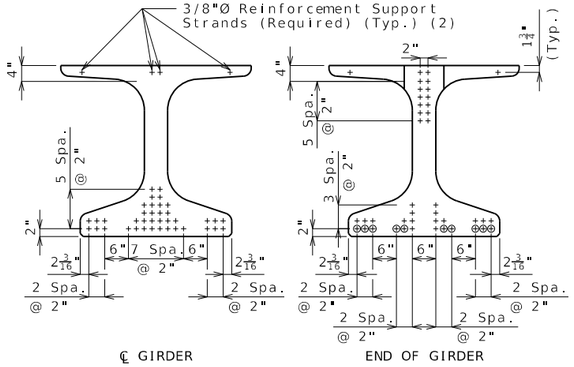
(1) Fabricator shall apply a bond breaker to this region excluding where joint filler will be applied.



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.

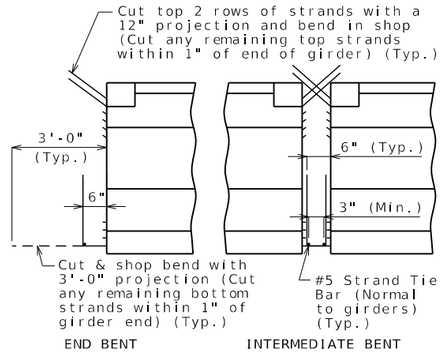


℄ GIRDER END OF GIRDER

STRAND ARRANGEMENT

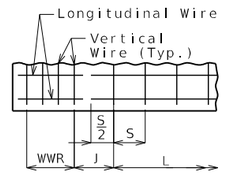
+ Indicates prestressing strand.

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

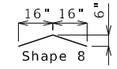
Bars Each Girder

No.	Size/Mark		Length	Shape
132	3	G1	2'-10"	8
2	4	G3	3'-10"	20
2	4	G4	2'-3"	20
2	4	G5	2'-8"	20

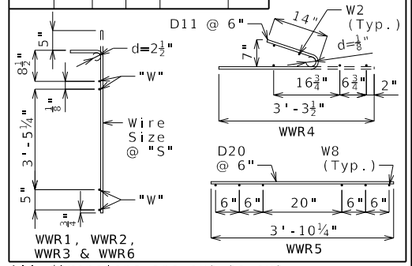
Welded Wire Each Girder

Mark	Size	S	W	L	J
WWR1	D31	4"	W12	10'-4"	4½"
WWR2	D31	8"	W12	19'-4"	10¾"
WWR3	D31	12"	W12	45'-0"	--
WWR6	D31	2"	W12	16"	2"

Bending Diagrams



Shape 20



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 girder. Half no. of G3, G4 and G5 not required for ext. girders.

General Notes:

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

Use 38 strands, 0.6"Ø Grade 270, with an initial prestress force of 1670 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, coil inserts for slab drains.

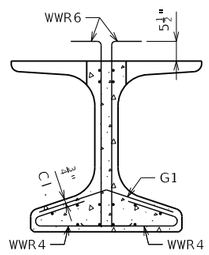
For Girder Camber Diagram, see Sheet No. 15.

The 1 1/2"Ø holes shall be cast in the web for steel intermediate diaphragms. Drilling is not allowed. For location of holes and details of steel intermediate diaphragms, see Sheet No. 11.

For location of coil inserts at slab drains, see Sheet No. 14.

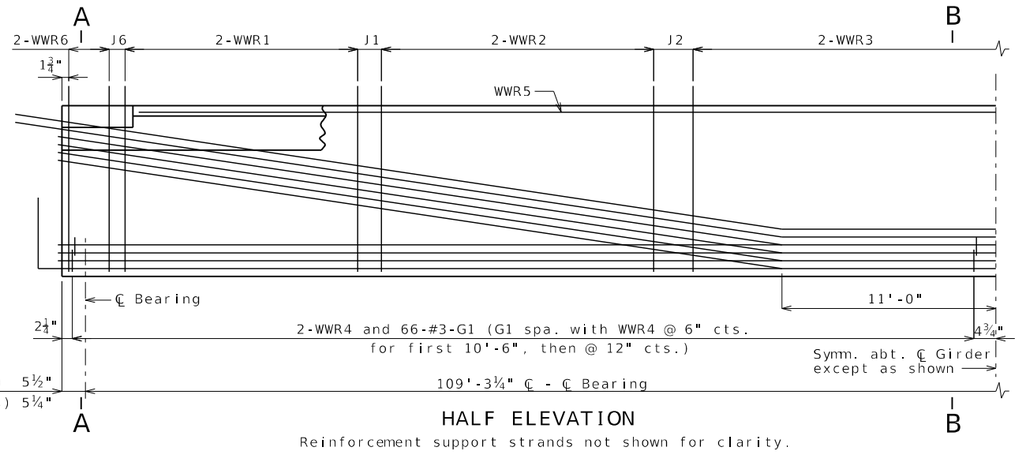
For location of coil ties at concrete diaphragms and integral bents, see Sheets No. 4 and 12.

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.



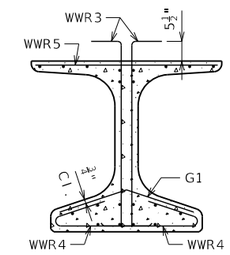
SECTION A-A

Strands not shown for clarity.



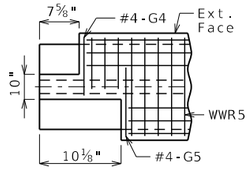
HALF ELEVATION

Reinforcement support strands not shown for clarity.



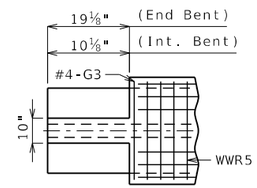
SECTION B-B

Strands not shown for clarity.



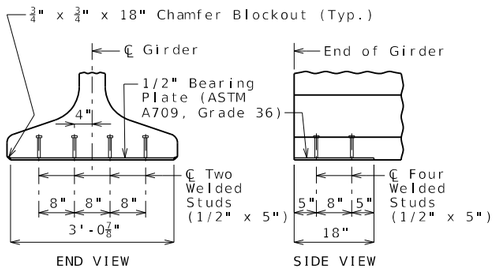
LEFT EXTERIOR GIRDER AT INTERMEDIATE BENT

Rotate 180° for right ext.

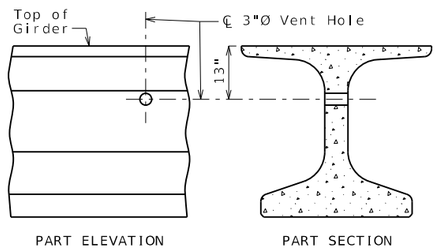


INTERIOR GIRDER AT ALL BENTS & EXTERIOR GIRDER AT END BENT

TOP FLANGE BLOCKOUT



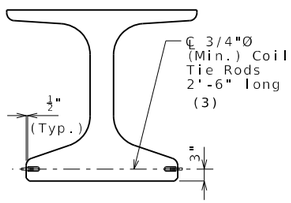
BEARING PLATE



PART ELEVATION PART SECTION

VENT HOLE

Place vent holes at or near 1/3 point of girders (one end only) and clear reinforcing steel or strands by 1 1/2" minimum andsteel intermediate diaphragm bolt connections by 6" minimum.



COIL TIES

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

(3) 2'-5" at exterior face of exterior girders at end bents

NU-GIRDERS - SPANS (1-2) AND (2-3)

Detailed Feb. 2025
Checked Mar. 2025

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

H:\P\224034 - SE District Bridge Package\003-J9S3670-S0734\Bridge\Final Bridge\Microstation\B_A9408_009_J9S3670_NU-Girders - Spans (1-2) and (2-3).dgn 10:24:41 AM 11/18/2025

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/18/2025

ROUTE T | STATE MO

DISTRICT BR | SHEET NO. 9

COUNTY PERRY

JOB NO. J9S3670

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PROJECT NO.

BRIDGE NO. A9408

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
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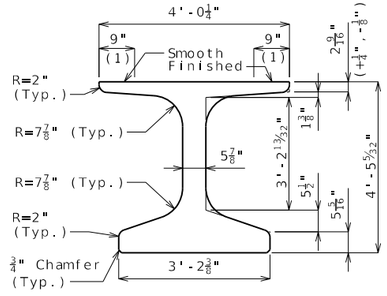
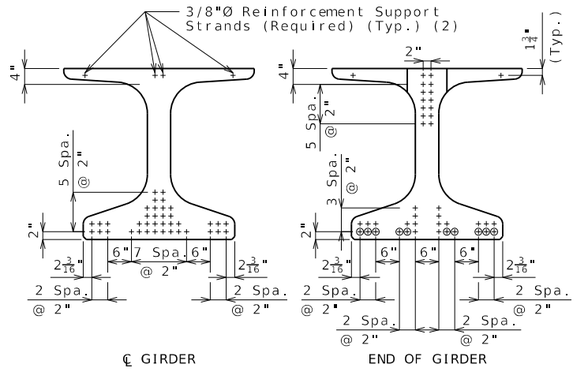
MISSOURI DESIGN FIRM PE-001166

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



DIMENSIONS

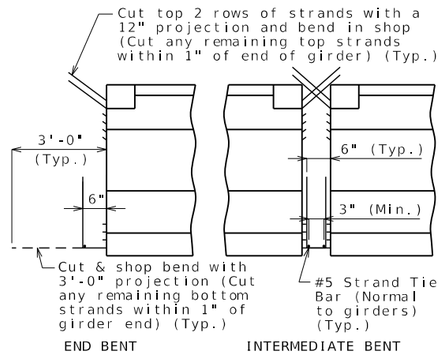
(2) Outer strands tensioned to 2.02 kips/strand and inner strands to 8 kips/strand. Placed symmetrical about ℄ Girder. May be moved laterally in pairs.



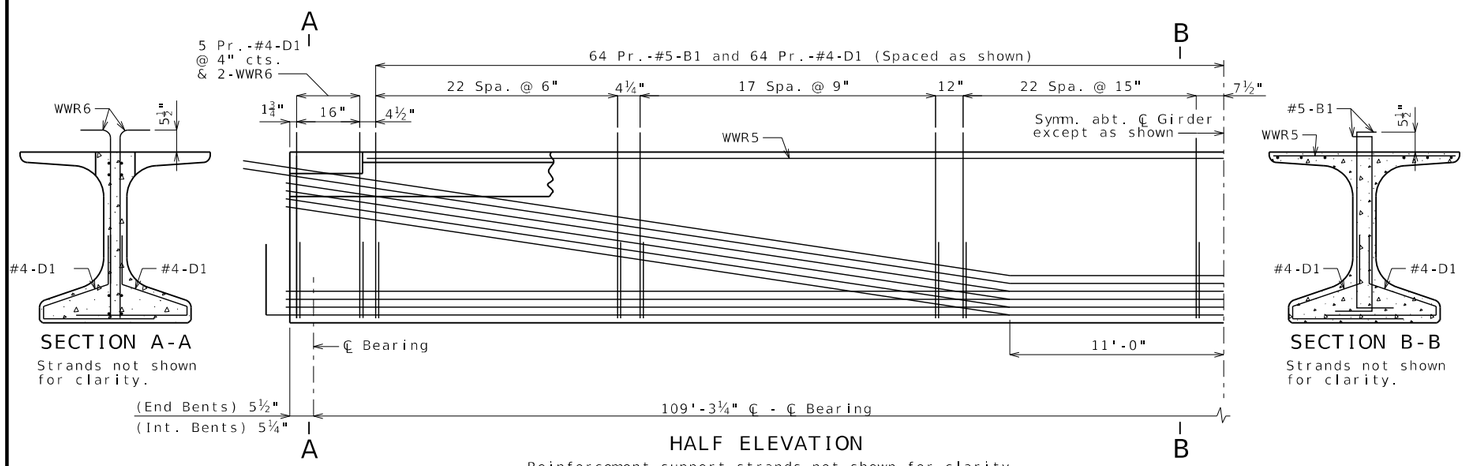
STRAND ARRANGEMENT

+ Indicates prestressing strand.

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



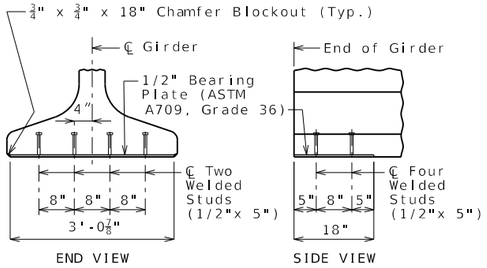
STRANDS AT GIRDER ENDS



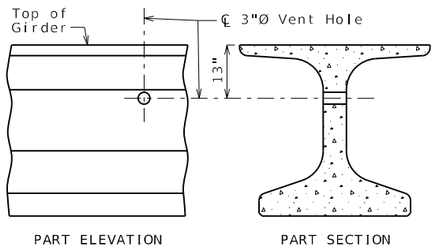
SECTION A-A
Strands not shown for clarity.

SECTION B-B
Strands not shown for clarity.

HALF ELEVATION
Reinforcement support strands not shown for clarity.

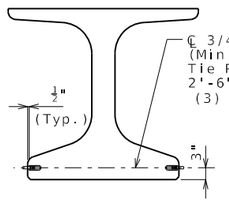


BEARING PLATE



VENT HOLE

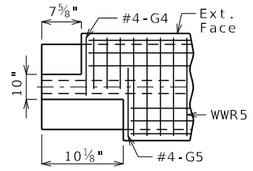
Place vent holes at or near 1/3 point of girders (one end only) and clear reinforcing steel or strands by 1 1/2" minimum and steel intermediate diaphragm bolt connections by 6" minimum.



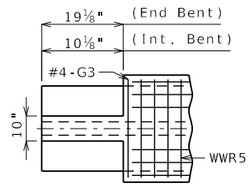
COIL TIES

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

(3) 2'-5" at exterior face of exterior girders at end bents



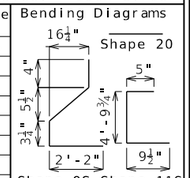
LEFT EXTERIOR GIRDER AT INTERMEDIATE BENT
Rotate 180° for right ext.



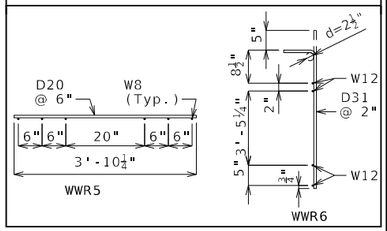
INTERIOR GIRDER AT ALL BENTS & EXTERIOR GIRDER AT END BENT
TOP FLANGE BLOCKOUT

Bill of Reinforcing Steel - Each Girder			
No.	Size/ Mark	Length	Shape
256	5 B1	5'-10"	11S
276	4 D1	4'-0"	9S
2	4 G3	3'-10"	20
2	4 G4	2'-3"	20
2	4 G5	2'-8"	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. Half no. of G3, G4 and G5 not required for ext. girders.

General Notes:

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

Use 38 strands, 0.6"Ø Grade 270, with an initial prestress force of 1670 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, coil inserts for slab drains.

For Girder Camber Diagram, see Sheet No. 15.

The 1 1/2"Ø holes shall be cast in the web for steel intermediate diaphragms. Drilling is not allowed. For location of holes and details of steel intermediate diaphragms, see Sheet No. 11.

For location of coil inserts at slab drains, see Sheet No. 14.

For location of coil ties at concrete diaphragms and integral bents, see Sheets No. 4 and 12.

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
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
11/18/2025

ROUTE	STATE
T	MO
DISTRICT	SHEET NO.
BR	10

COUNTY
PERRY

JOB NO.
J9S3670

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9408

DESCRIPTION

DATE

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Checked Mar. 2025

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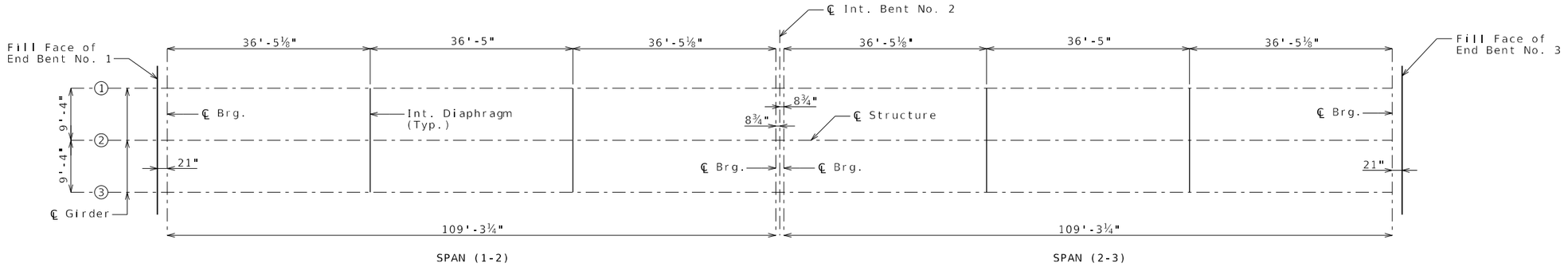
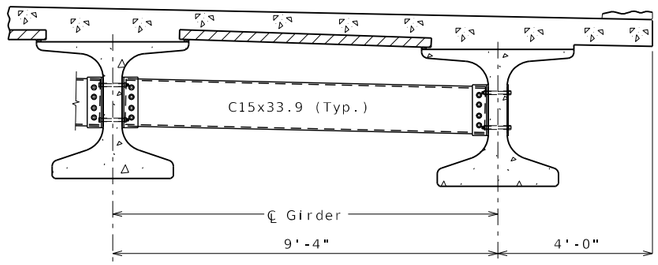
NU-GIRDERS (ALTERNATE REINFORCEMENT) - SPANS (1-2) AND (2-3)



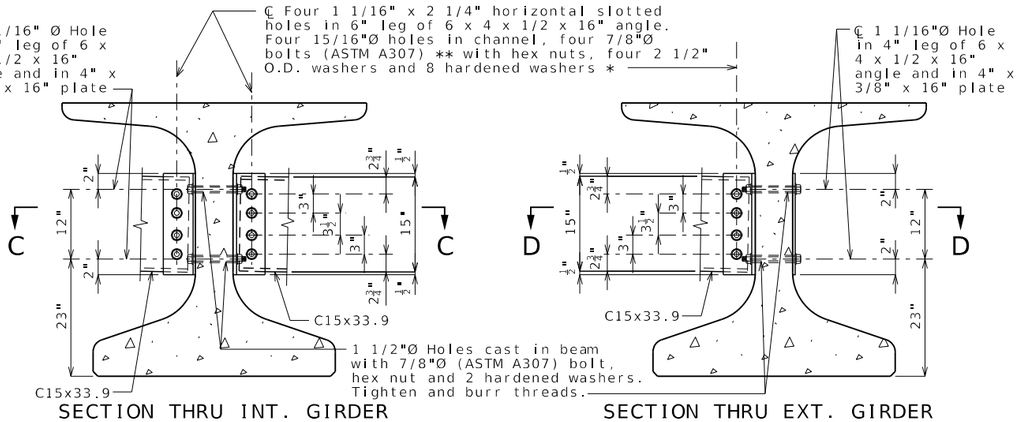
PLAN SHOWING LOCATION OF STEEL INTERMEDIATE DIAPHRAGMS

Longitudinal dimensions are horizontal.

N

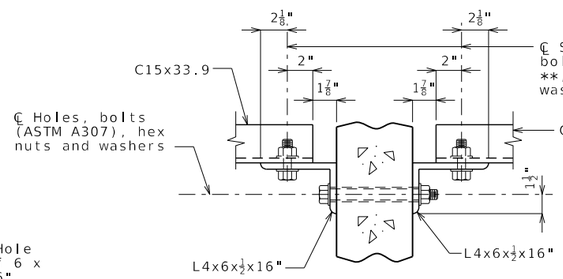


PART SECTION SHOWING INTERMEDIATE DIAPHRAGMS

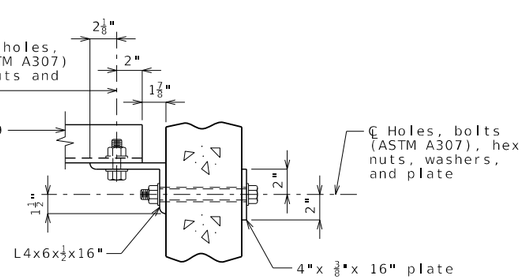


SECTION THRU INT. GIRDER AT DIAPHRAGM

SECTION THRU EXT. GIRDER AT DIAPHRAGM



SECTION C-C



SECTION D-D

STEEL DIAPHRAGM NOTES:

* In lieu of 2 1/2" outside diameter washers, contractor may substitute a 3/16" (Min. thickness) plate with four 15/16" Ø holes and one hardened washer per bolt.

** Bolts shall be tightened to provide a tension of one-half that specified in Sec 712 for high strength bolt installation. ASTM F3125 Grade A325 Type 1 bolts may be substituted for and installed in accordance with the requirements for the specified ASTM A307 bolts.

All diaphragm materials including bolts, nuts, and washers shall be galvanized.

Fabricated structural steel shall be ASTM A709 Grade 36 except as noted.

Payment for furnishing and installing steel intermediate diaphragms will be considered completely covered by the contract unit price for Steel Intermediate Diaphragm for P/S Concrete Girders.

Shop drawings will not be required for steel intermediate diaphragms and angle connections.

STEEL INTERMEDIATE DIAPHRAGMS

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DATE PREPARED 11/18/2025
ROUTE T | STATE MO
DISTRICT BR | SHEET NO. 11
COUNTY PERRY
JOB NO. J9S3670
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9408

DESCRIPTION | DATE

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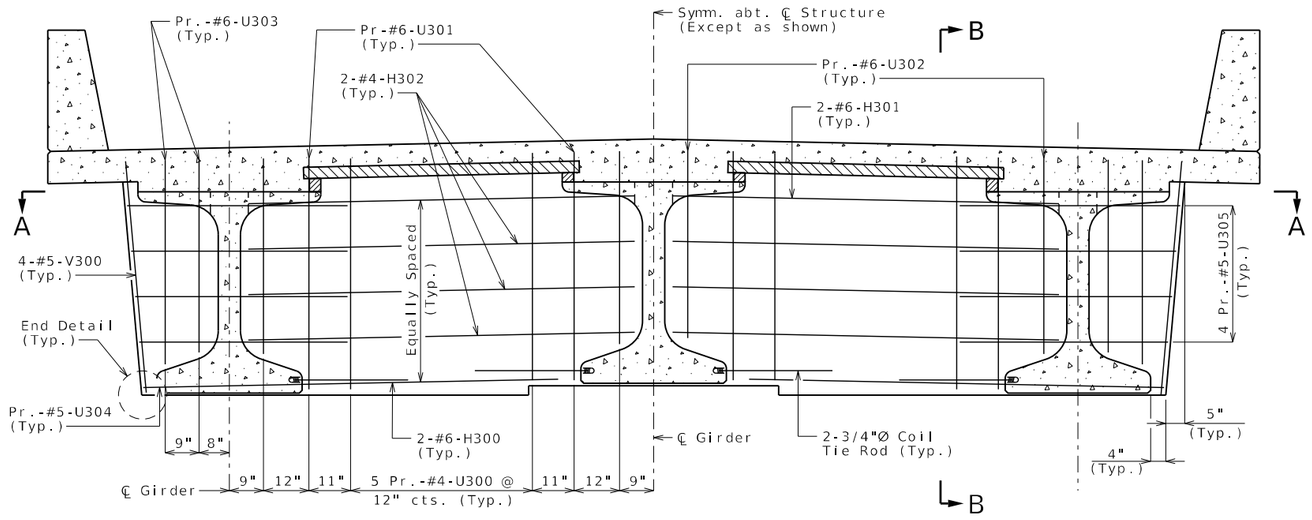
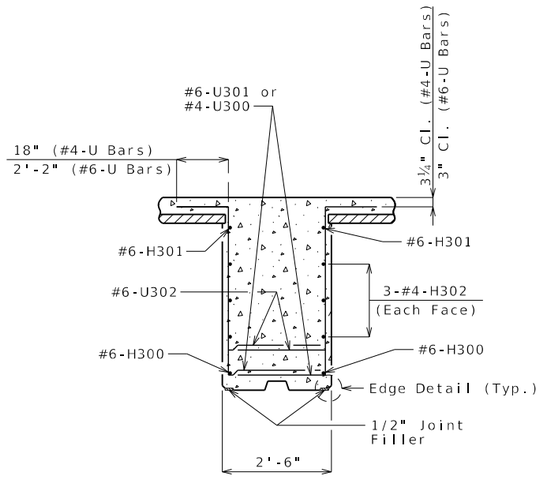
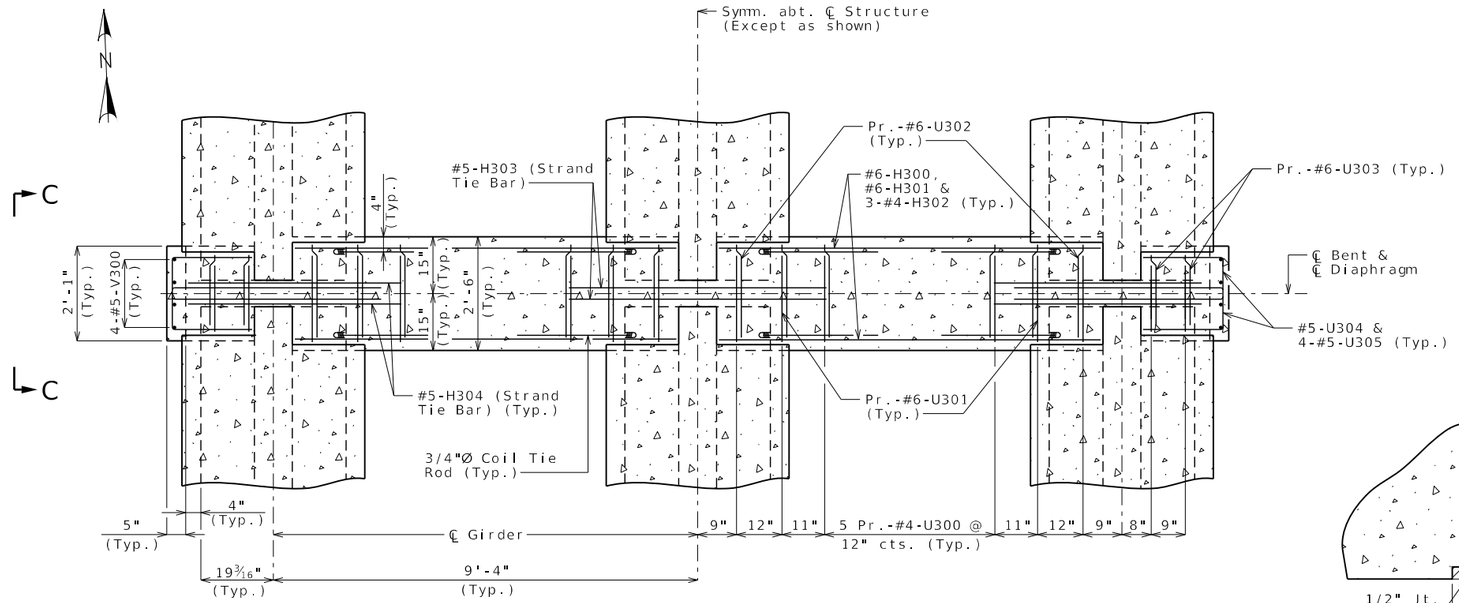


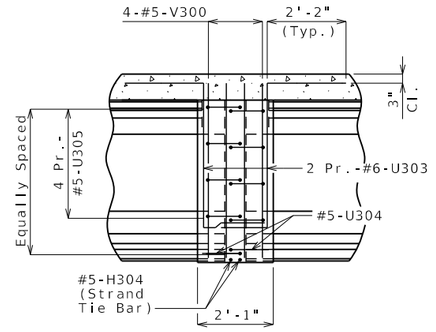
SECTION NEAR INTERMEDIATE BENT



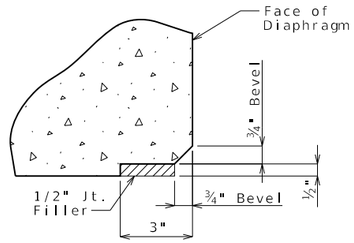
SECTION B-B



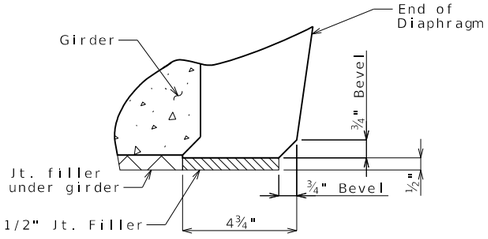
SECTION A-A



SECTION C-C



EDGE DETAIL



END DETAIL

General Notes:
For location of Strand Tie Bars and Coil Tie Rods, see Sheets No. 9 & 10.

Diaphragms at intermediate bents shall be built vertical.

DETAILS OF CONCRETE DIAPHRAGM AT INTERMEDIATE BENT NO. 2

Detailed Mar. 2025
Checked Mar. 2025

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

H:\P\224034 - SE District Bridge Package\003-J9S3670-S0734\Bridge\Final Bridge\Microstation\B_A9408_012_J9S3670_Details of Concrete Diaphragm at Intermediate Bent No. 2.dgn 10:24:46 AM 11/18/2025

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
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DATE PREPARED 11/18/2025
ROUTE T | STATE MO
DISTRICT BR | SHEET NO. 12
COUNTY PERRY
JOB NO. J9S3670
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9408

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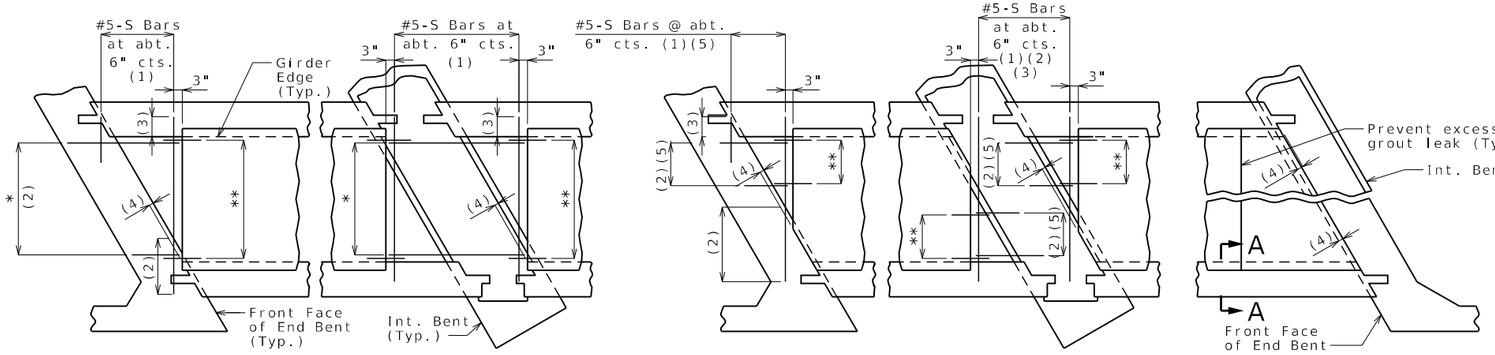
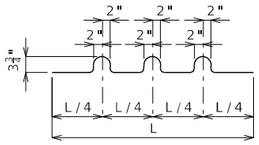
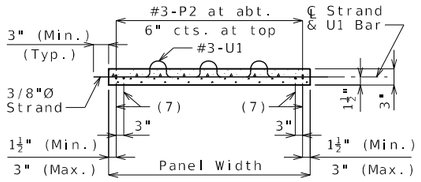




BENDING DIAGRAM FOR U1 BAR

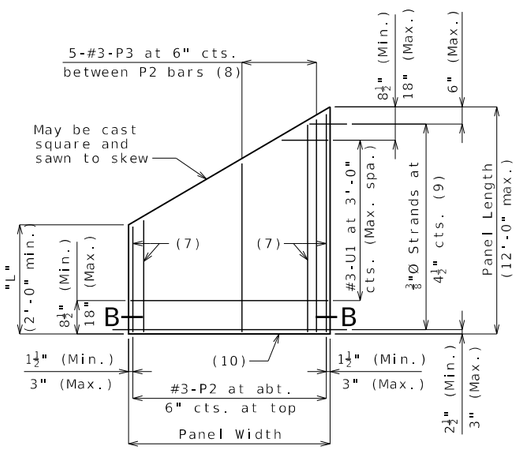
U1 Bars may be oriented at right angles to location and spacing shown. U1 Bars shall be placed between P1 bars.



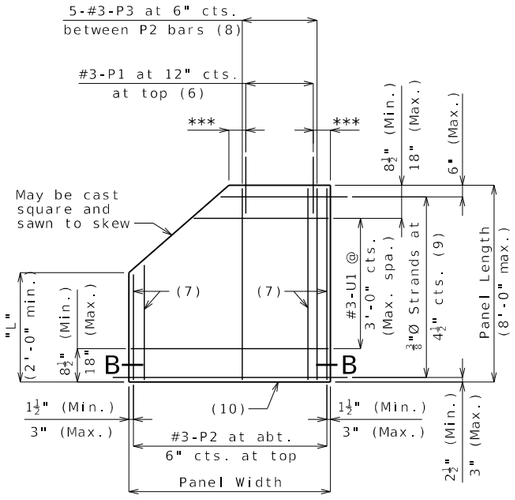
SECTION B-B

PLAN SHOWING PANEL PLACEMENT

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

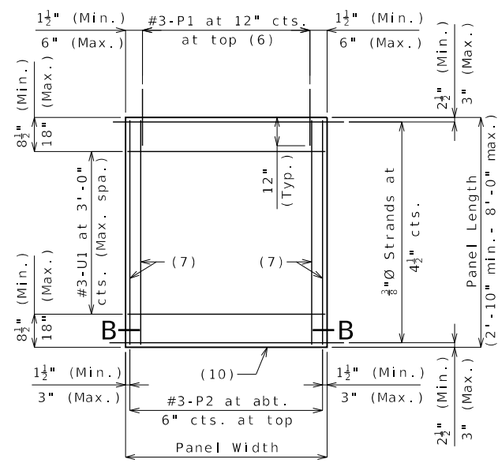


PLAN OF OPTIONAL SKEWED END PANEL



PLAN OF OPTIONAL TRUNCATED END PANEL

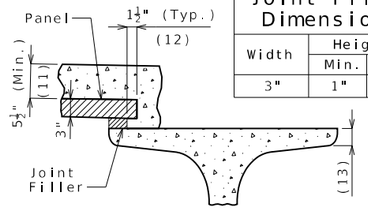
*** 3" (Min.), 6" (Max.)



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. 15 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.

STATE OF MISSOURI
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DISTRICT BR | SHEET NO. 13
COUNTY PERRY
JOB NO. J9S3670
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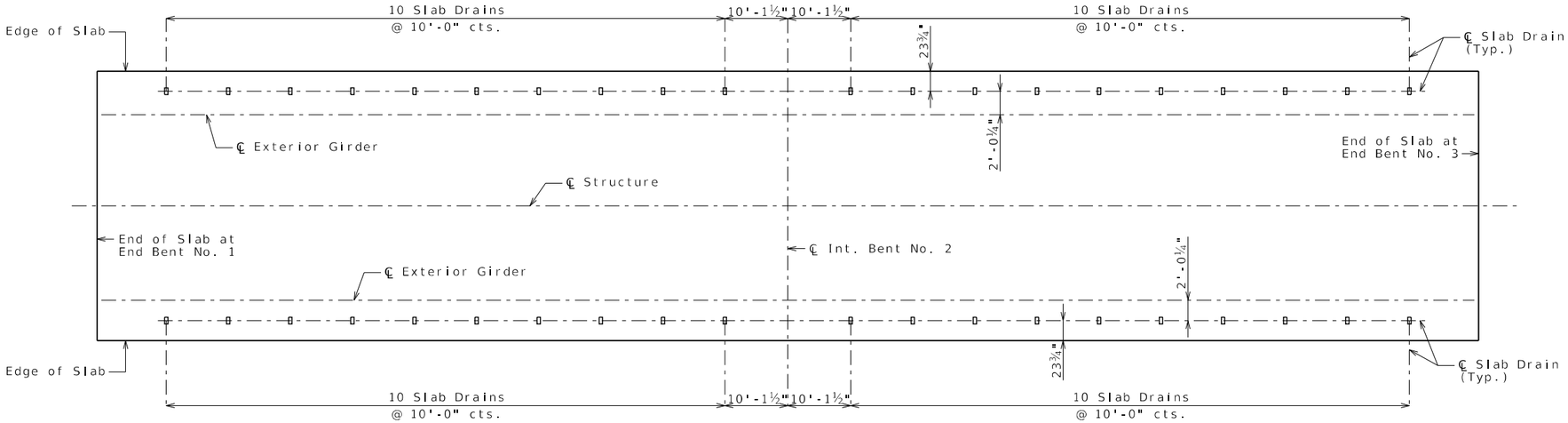
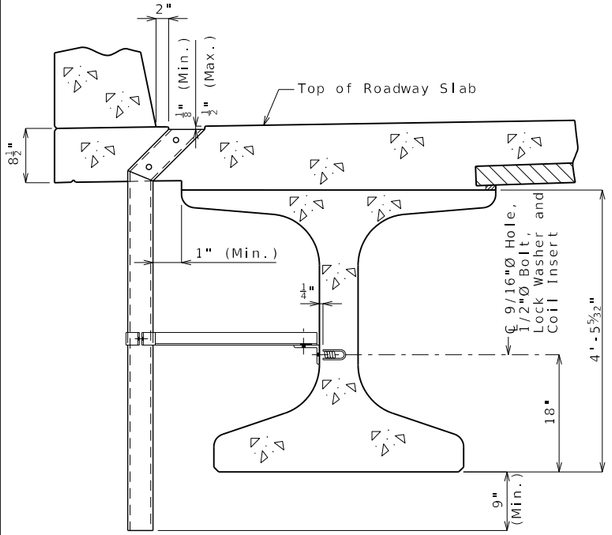
Detailed Feb. 2025
Checked Mar. 2025

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

PRESTRESSED PANELS

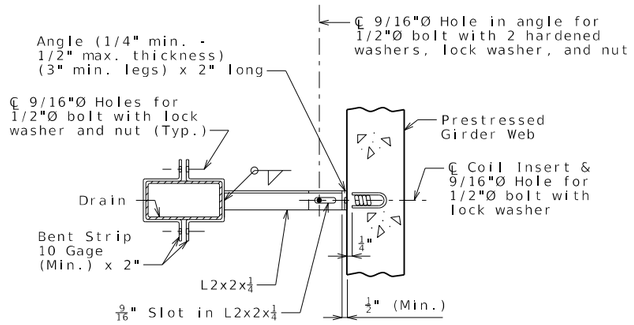


PLAN OF SLAB SHOWING SLAB DRAIN LOCATIONS

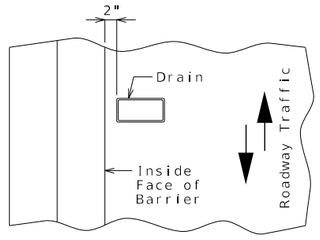


PART SECTION NEAR DRAIN

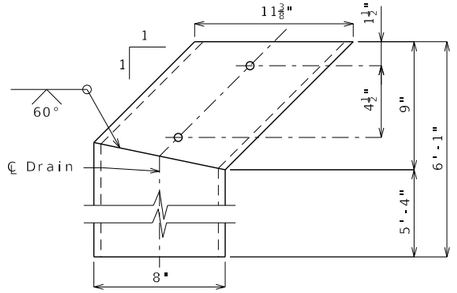
PART SECTION NEAR DRAIN



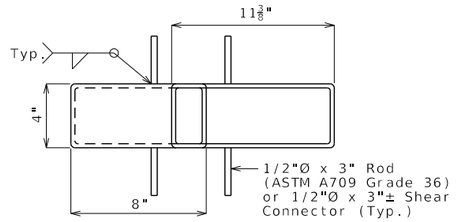
PART SECTION SHOWING BRACKET ASSEMBLY



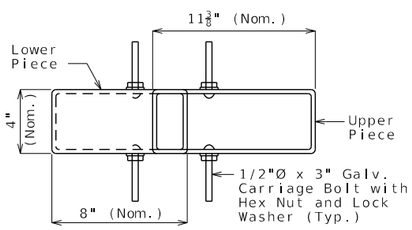
PART PLAN OF SLAB AT DRAIN



ELEVATION OF DRAIN



PLAN OF STEEL DRAIN OPTION



PLAN OF FRP DRAIN OPTION

General Notes:

Contractor shall have the option to construct either steel or FRP slab drains. All drains shall be of same type.

Slab drain bracket assembly shall be ASTM A709 Grade 36 steel.

Locate drains in slab by dimensions shown in Part Section Near Drain.

Reinforcing steel shall be shifted to clear drains.

The coil inserts and bracket assembly shall be galvanized in accordance with ASTM A123.

All bolts, hardened washers, lock washers and nuts shall be galvanized in accordance with AASHTO M 232 (ASTM A153), Class C.

All 1/2"Ø bolts shall be ASTM A307.

Shop drawings will not be required for the slab drains and the bracket assembly.

The coil insert required for the bracket assembly attachment shall be located on the prestressed girder shop drawings.

Coil inserts shall have a concrete pull-out strength (ultimate load) of at least 2,500 pounds in 5,000 psi concrete.

The bolt required to attach the slab drain bracket assembly to the prestressed girder web shall be supplied by the prestressed girder fabricator.

Notes for Steel Drain:

Slab drains may be fabricated of either 1/4" welded sheets of ASTM A709 Grade 36 steel or from 1/4" structural steel tubing ASTM A500 or A501.

Outside dimensions of drains are 8" x 4".

The drains shall be galvanized in accordance with ASTM A123.

Notes for FRP Drain:

Drains shall be machine filament-wound thermosetting resin tubing meeting the requirements of ASTM D2996 with the following exceptions:

Shape of drains shall be rectangular with outside nominal dimensions of 8" x 4".

Minimum reinforced wall thickness shall be 1/4 inch.

The resin used shall be ultraviolet (UV) resistant and/or have UV inhibitors mixed throughout. Drains may have an exterior coating for additional UV resistance.

The color of the slab drain shall be gray (Federal Standard #26373). The color shall be uniform throughout the resin and any coating used.

The combination of materials used in the manufacture of the drains shall be tested for UV resistance in accordance with ASTM D4329 Cycle A. The representative material shall withstand at least 500 hours of testing with only minor discoloration and without any physical deterioration. The contractor shall furnish the results of the required ultraviolet testing prior to acceptance of the slab drains.

At the contractor's option, drains may be field cut. The method of cutting FRP slab drain shall be as recommended by the manufacturer to ensure a smooth, chip free cut.

Both upper and lower drain pieces shall be rigidly connected to each other. Drain flow shall not be obstructed. Approval of the engineer is required.

SLAB DRAINS

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
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DATE PREPARED 11/18/2025

ROUTE	STATE
T	MO
DISTRICT	SHEET NO.
BR	14

COUNTY: PERRY
JOB NO.: J9S3670
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9408

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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Detailed Feb. 2025
Checked Mar. 2025

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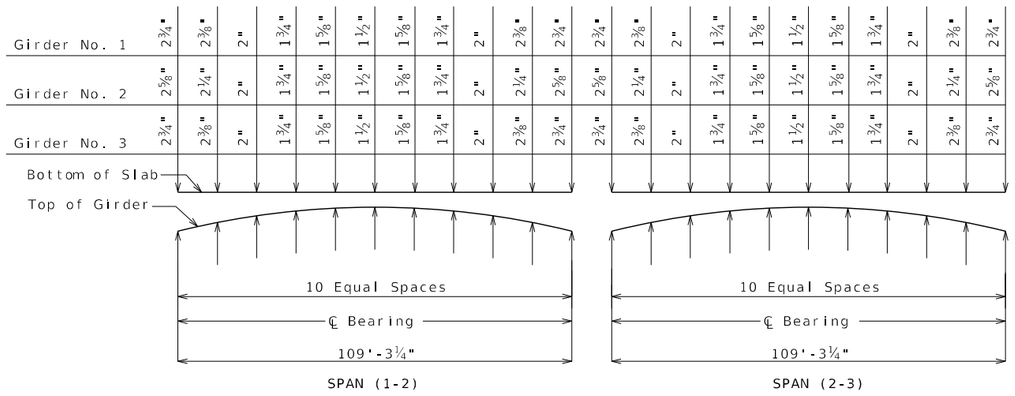
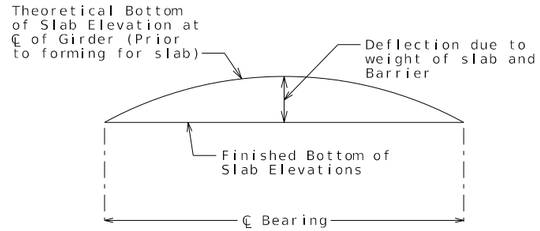


THEORETICAL SLAB HAUNCHING DIAGRAM (ESTIMATED AT 90 DAYS)

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.

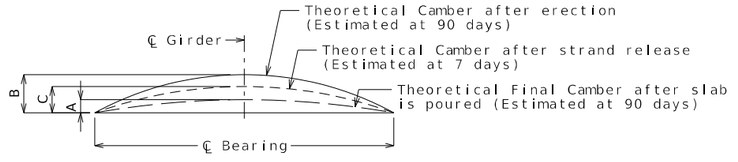
Concrete in the slab haunches is included in the Estimated Quantities for Slab on Concrete NU-Girder.



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) (109'-3 1/4" ℄ Brg. - ℄ Brg.)										
	℄ Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	℄ Brg.
1	534.39	534.45	534.50	534.54	534.56	534.57	534.56	534.53	534.49	534.45	534.39
2	534.58	534.64	534.69	534.73	534.76	534.76	534.75	534.73	534.69	534.64	534.58
3	534.39	534.45	534.50	534.54	534.56	534.57	534.56	534.53	534.49	534.45	534.39
	Span (2-3) (109'-3 1/4" ℄ Brg. - ℄ Brg.)										
	℄ Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	℄ Brg.
1	534.39	534.45	534.49	534.53	534.56	534.57	534.56	534.54	534.50	534.45	534.39
2	534.58	534.64	534.69	534.73	534.75	534.76	534.76	534.73	534.69	534.64	534.58
3	534.39	534.45	534.49	534.53	534.56	534.57	534.56	534.54	534.50	534.45	534.39

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.



Girder	Span (1-2) & (2-3)		
	A	B	C
Exterior	1¼"	3¼"	2"
Interior	1⅛"		

GIRDER CAMBER DIAGRAM

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

0.1 pt. = 0.314 x 0.5 pt.
0.2 pt. = 0.593 x 0.5 pt.
0.3 pt. = 0.813 x 0.5 pt.
0.4 pt. = 0.952 x 0.5 pt.

SLAB ELEVATIONS, HAUNCHING & CAMBER

Detailed Feb. 2025
Checked Mar. 2025

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

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STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/18/2025
ROUTE T | STATE MO
DISTRICT BR | SHEET NO. 15
COUNTY PERRY
JOB NO. J9S3670
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9408

DESCRIPTION | DATE

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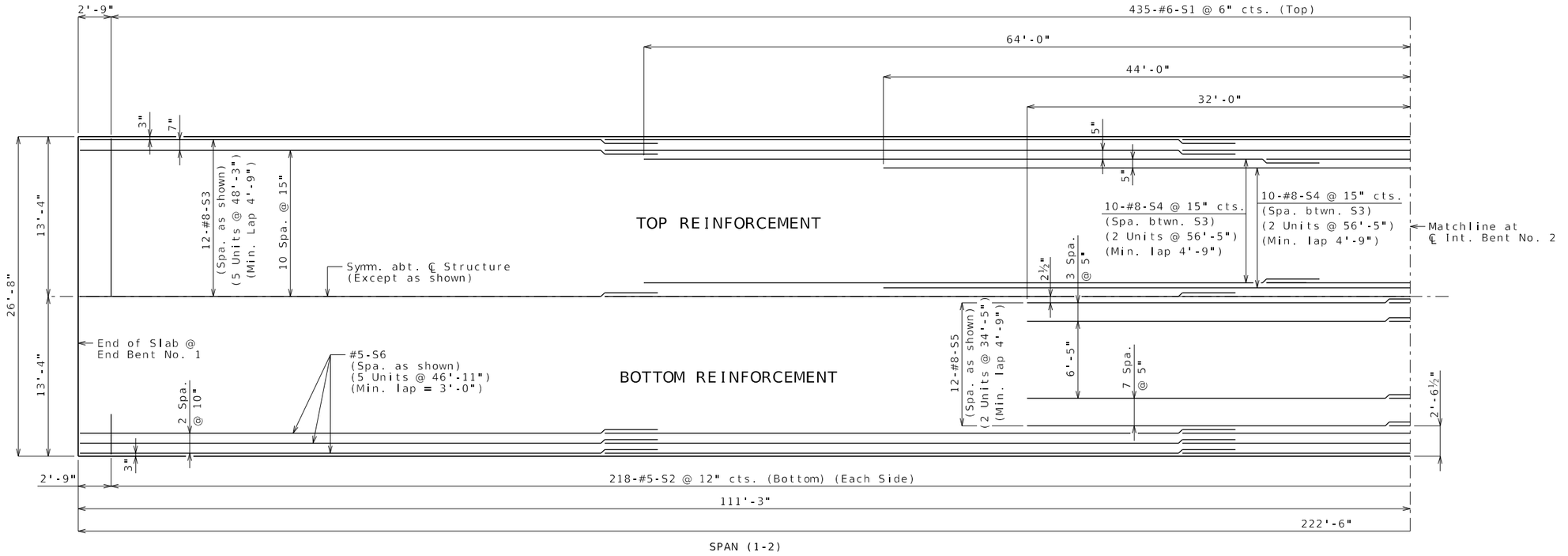

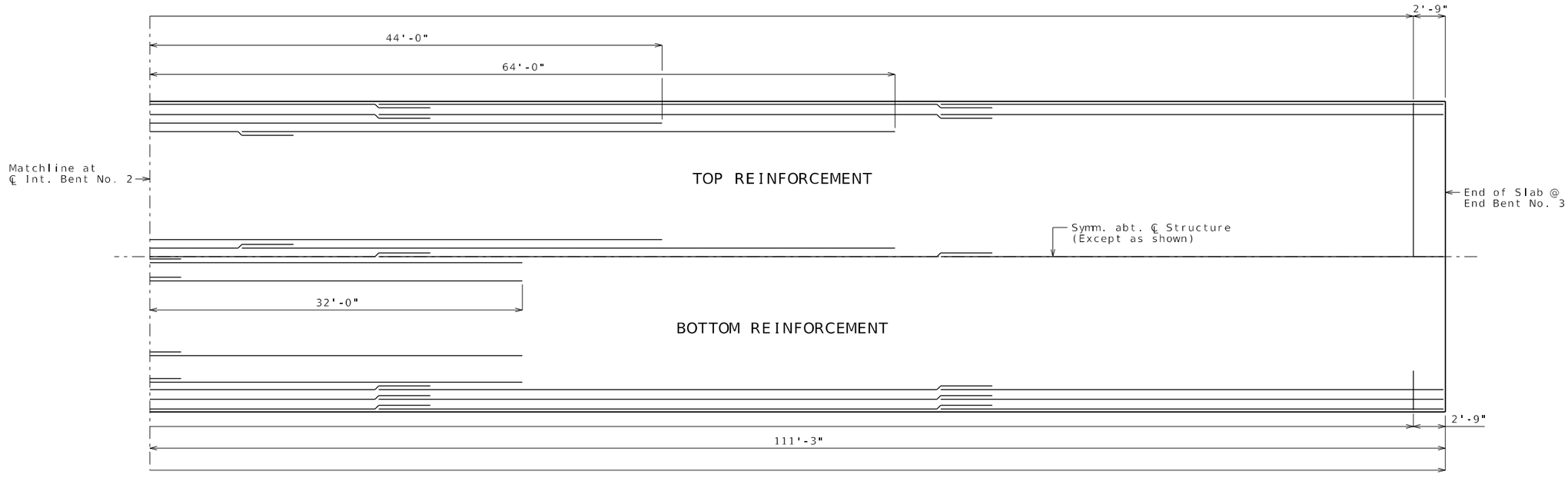

General Notes:
Longitudinal slab dimensions are measured horizontally.

For Section Thru Slab and Slab Pouring Sequence, see Sheet No. 17.

For details and reinforcement of barrier not shown, see Sheets No. 18 & 19.

For Theoretical Slab Haunching Diagram and Theoretical Bottom of Slab Elevations, see Sheet No. 15.

For details of Prestressed Panels, see Sheet No. 13.

For details and locations of Slab Drains, see Sheet No. 14.

PLAN OF SLAB SHOWING REINFORCEMENT

Detailed Feb. 2025
Checked Mar. 2025

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STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
11/18/2025

ROUTE	STATE
T	MO
DISTRICT	SHEET NO.
BR	16

COUNTY
PERRY

JOB NO.
J9S3670

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9408

DESCRIPTION

DATE

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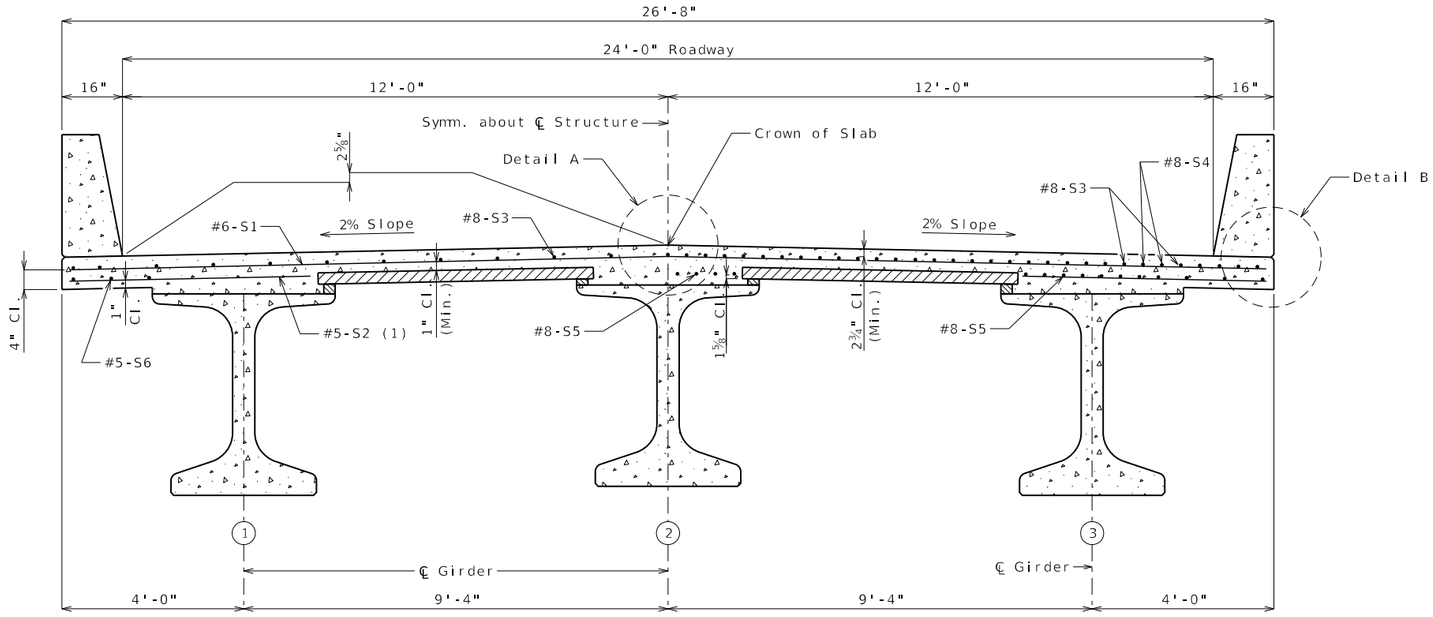
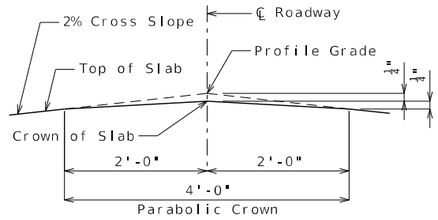


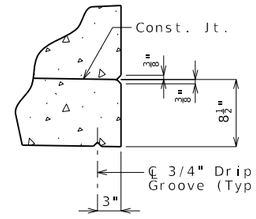
HALF SECTION NEAR END BENT

HALF SECTION NEAR INTERMEDIATE BENT

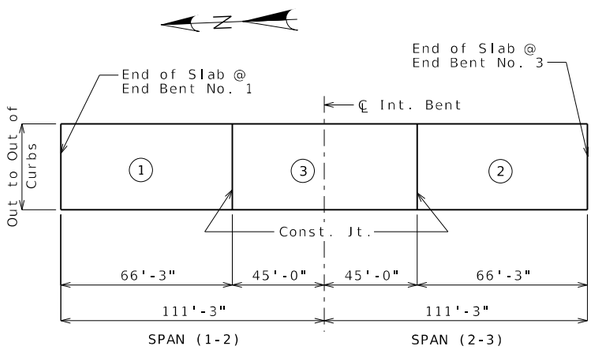
SECTION THRU SLAB



DETAIL A



DETAIL B

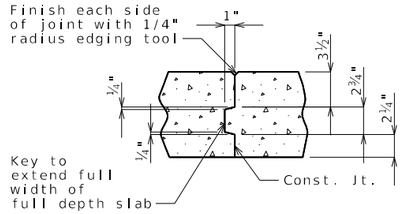


	Sequence of Pours			Min. Rate of Pour Cu. Yds./Hr.
	Direction			With Retarder
Basic Sequence	1	2	3	25
	Either Direction			
Alternate pours to the basic skip sequence are subject to the approval of the engineer in accordance with Sec 703.				
Alternate A Pours	1	3 + 2		28
	End to 3	1 to End		
Alternate B Pours	1 + 3 + 2			28
	End to End			

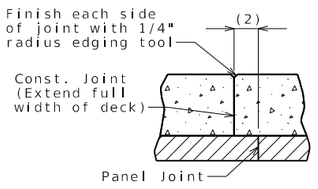
The contractor shall furnish an approved retarder to retard the set of the concrete to 2.5 hours, and shall pour and satisfactorily finish the slab pours at the rate given.

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

SLAB POURING SEQUENCE

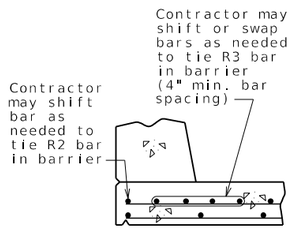


FULL DEPTH SLAB



SLAB ON PANELS

SLAB CONSTRUCTION JOINT



OPTIONAL SHIFTING TOP BARS AT BARRIER

Reference Notes:
(1) Alternate shape available, see barrier sheet.
(2) Adjust the construction joint to a clearance of 6 inches minimum from the panel joint.

General Notes:
For details of Prestressed Panels, see Sheet No. 13.

For details and reinforcement of barrier not shown, see Sheets No. 18 & 19.

For Theoretical Bottom of Slab Elevations, Girder Camber Diagram and Theoretical Slab Haunching Diagram, see Sheet No. 15.

For Plan of Slab Showing Reinforcement, see Sheet No. 16.

SLAB DETAILS

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/18/2025
ROUTE T | STATE MO
DISTRICT BR | SHEET NO. 17
COUNTY PERRY
JOB NO. J9S3670
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9408

DESCRIPTION | DATE

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Detailed Feb. 2025
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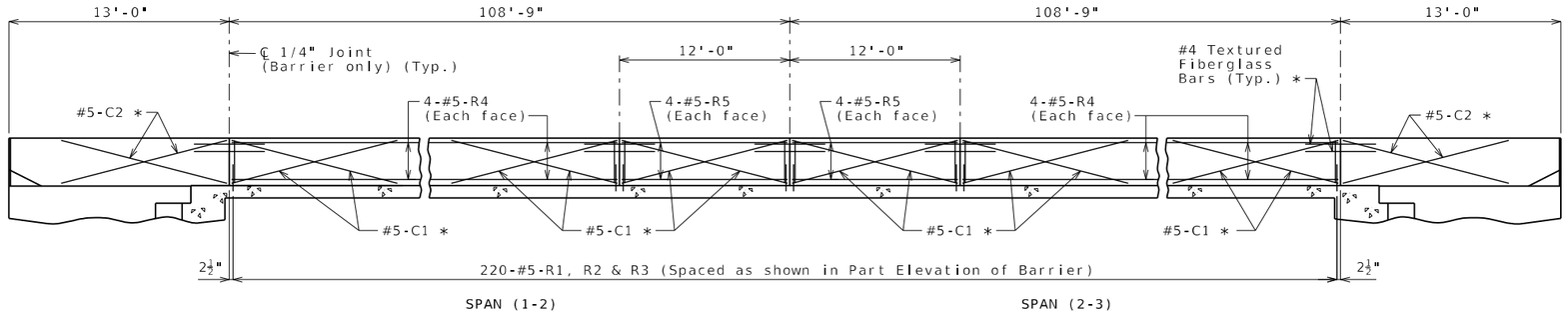
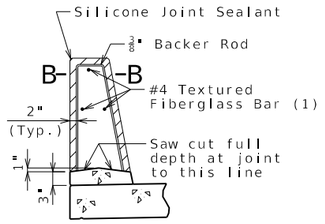
H:\P\224034 - SE District Bridge Package\003-J9S3670-S0734\Bridge\Final Bridge\Microstation\B_A9408_017_J9S3670_Slab Details.dgn 10:24:53 AM 11/18/2025



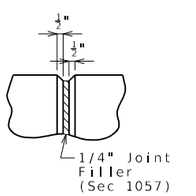
ELEVATION OF BARRIER

(Left barrier shown, right barrier similar)

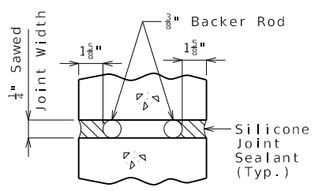
Longitudinal dimensions are horizontal.



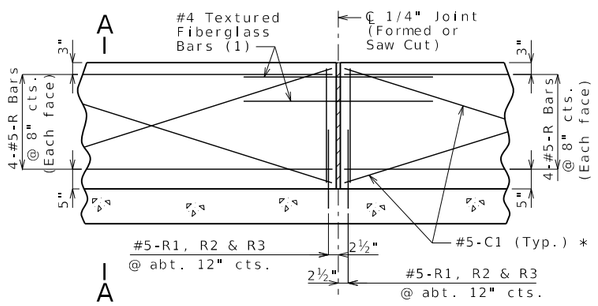
SECTION THRU SAW CUT JOINT



PART ELEVATION AT FORMED JOINT

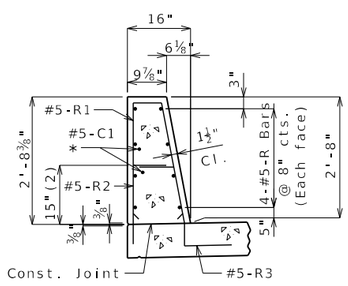


SECTION B-B



PART ELEVATION OF BARRIER

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

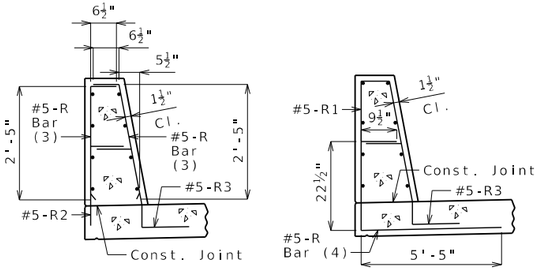


SECTION A-A

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

The cross-sectional area above the slab is 2.89 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 H 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 H 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.

TYPE H BARRIER

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
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DATE PREPARED 11/18/2025

ROUTE	STATE
T	MO
DISTRICT	SHEET NO.
BR	18

COUNTY PERRY

JOB NO. J9S3670

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9408

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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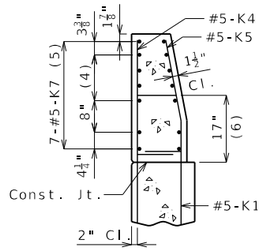
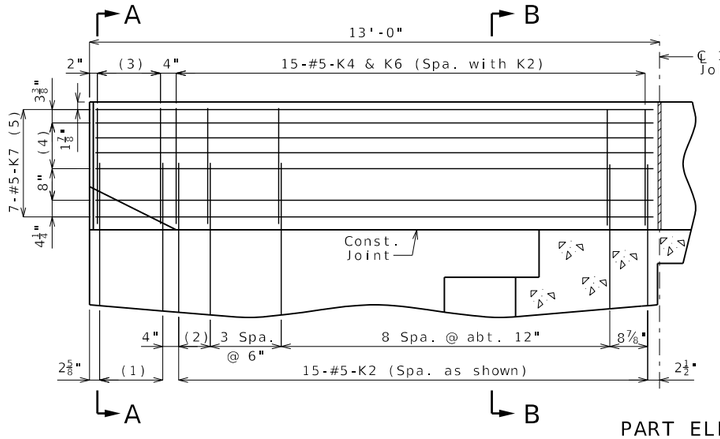
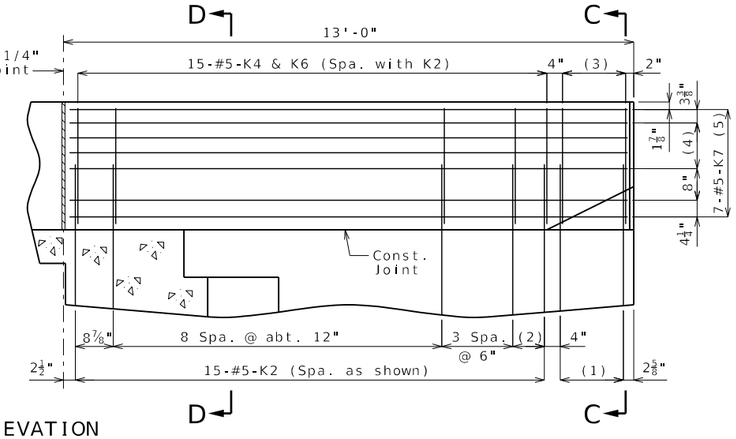
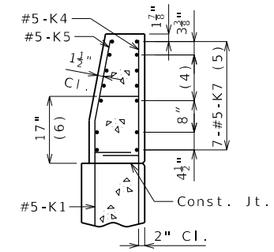


SECTION A-A





PART ELEVATION



SECTION C-C

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

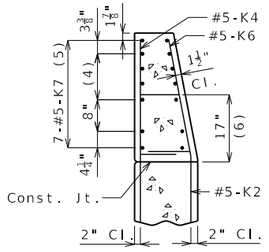
(2) 2 Spaces @ 4"

(3) 5-#5-K4 and 5-#5-K5, spaced with K1

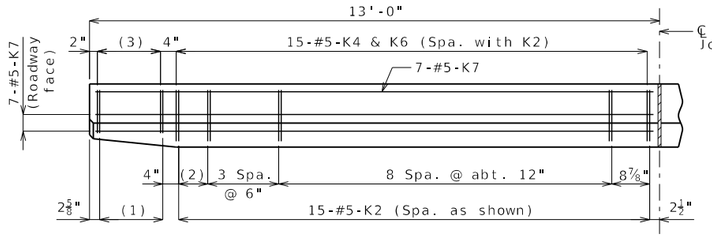
(4) 3 Spaces @ $3\frac{13}{16}$"

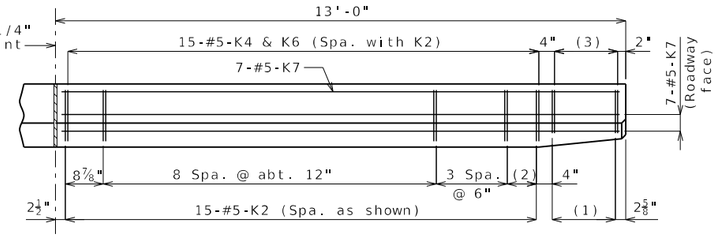
(5) Spaced as shown, each face

(6) To top of bar

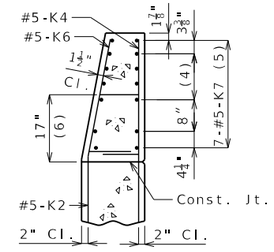


SECTION B-B

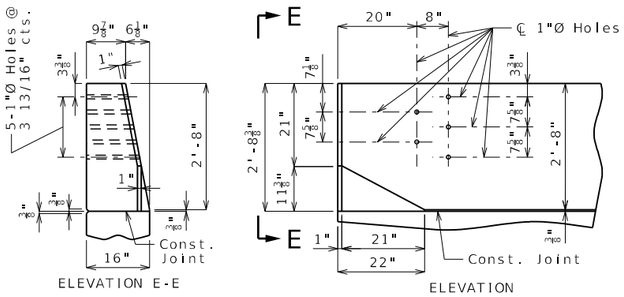




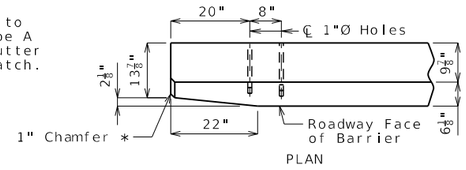
PART PLAN



SECTION D-D



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



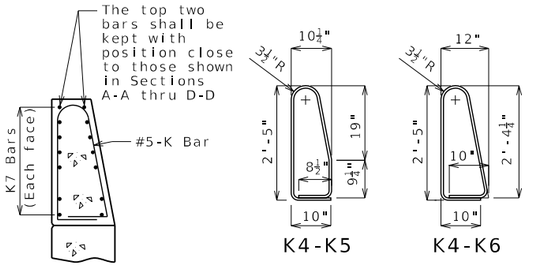
DETAILS OF GUARD RAIL ATTACHMENT

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 H Barrier.

Reinforcing Steel:

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



PERMISSIBLE ALTERNATE SHAPES

(Other K bars not shown for clarity)

The K4-K5 and K4-K6 bar combination may be furnished as one bar as shown, at the contractor's option.

All dimensions are out to out.

TYPE H BARRIER AT END BENTS

(Left barrier shown, right barrier similar)

Detailed Feb. 2025
Checked Mar. 2025

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

H:\P\224034 - SE District Bridge Package\003-J9S3670-S0734\Bridge\Final Bridge\Microstation\B_A9408_019_J9S3670_Type H Barrier at End Bents.dgn 10:24:56 AM 11/18/2025

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/18/2025

ROUTE	STATE
T	MO
DISTRICT	SHEET NO.
BR	19

COUNTY: PERRY
JOB NO.: J9S3670
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9408

DATE | DESCRIPTION

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

OATES ASSOCIATES
MISSOURI DESIGN FIRM PE-001166
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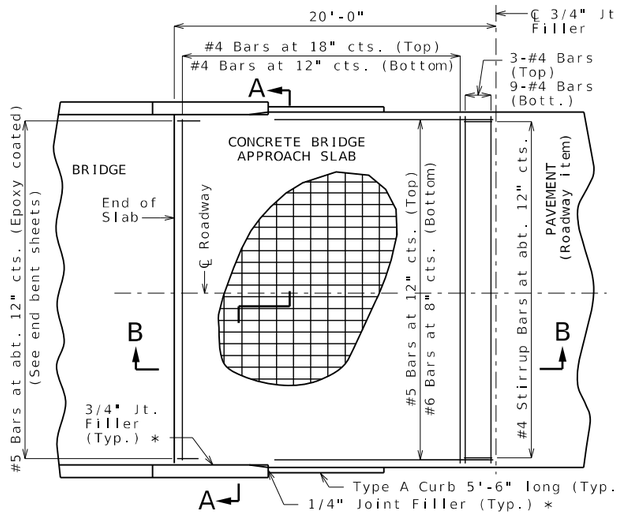
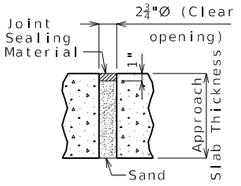
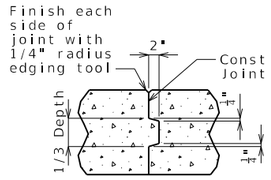
Collinsville: 100 Lenox Court, Suite 1, Collinsville, IL 62234, 618.345.2200
Belleville: 1 South Church, Suite 200, Belleville, IL 62220, 618.416.4488
www.oatesassociates.com



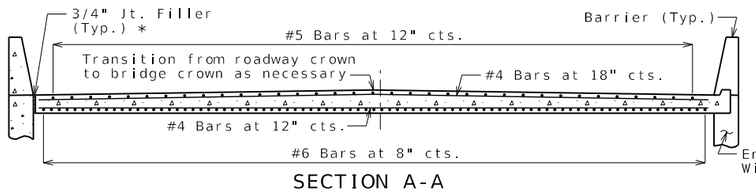
PART PLAN OF SQUARED STRUCTURE
(Skewed structure similar)



UNDERSEAL ACCESS HOLE DETAIL
(If required)

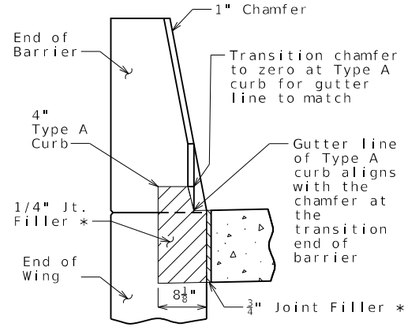


CONSTRUCTION JOINT DETAIL



SECTION A-A

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 BETWEEN CURB AND BARRIER

Notes For Concrete Slab Only:

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

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

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

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

The reinforcing steel in the bridge approach slab shall be continuous. The transverse reinforcing steel may be made continuous by providing a minimum lap splice of 23 inches for #4 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.

Payment for furnishing all materials, labor and excavation necessary to construct the concrete bridge approach slab, including the timber header, 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 (Minor) per square yard.

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

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.

* 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.

General Notes:

Contractor shall have the option to construct either slab except as noted.

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

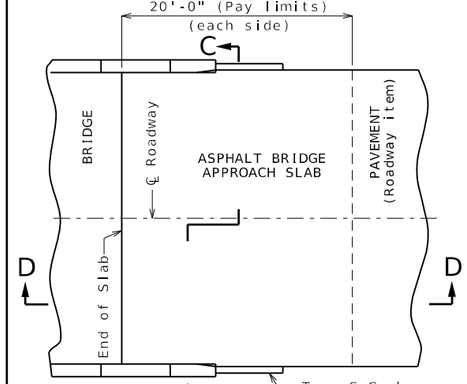
MoDOT Construction personnel will indicate the bridge approach slab used for this structure:

☐ Concrete Bridge Approach Slab
☐ Asphalt Bridge Approach Slab

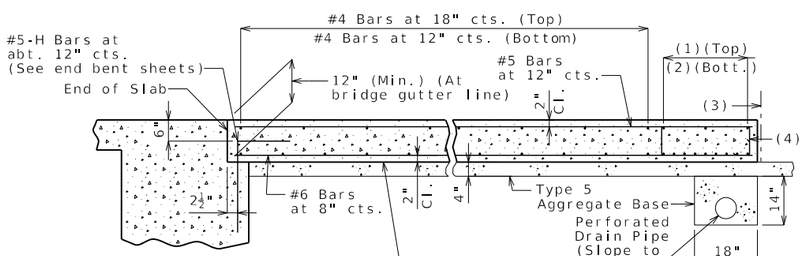
Notes For Asphalt Slab Only:

Payment for furnishing all materials, labor and excavation necessary to construct the asphalt bridge approach slab, including tack, curb, and Type 5 aggregate base within the pay limits shown, complete in place, will be considered completely covered by the contract unit price for Bridge Approach Slab (Minor) per square yard.

Application of tack is required between lifts per Sec 403.

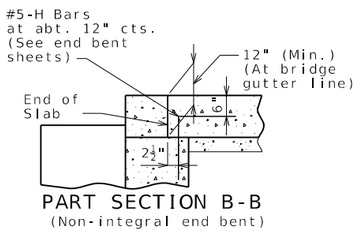


PART PLAN
(Squared structure shown, skewed structure similar)

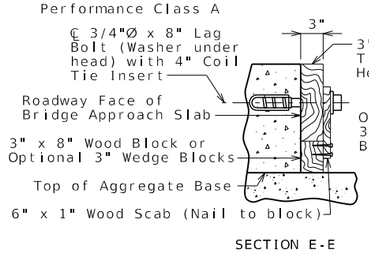


(1) 3-#4 Bars
(2) 9-#4 Bars
(3) ℄ 3/4" Jt. Filler
(4) #4 Stirrup Bars at abt. 12" cts.; 2'-0"x 8" (Min.) out to out; Actual length = 5'-10" (Min.); 90° stirrup hook at bottom; Stirrup height (8") and actual length vary due to crown.

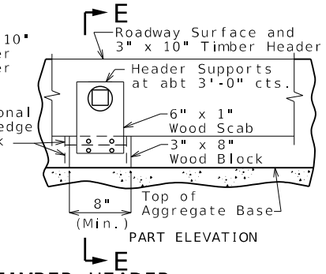
SECTION B-B
(Integral end bent)



PART SECTION B-B
(Non-integral end bent)



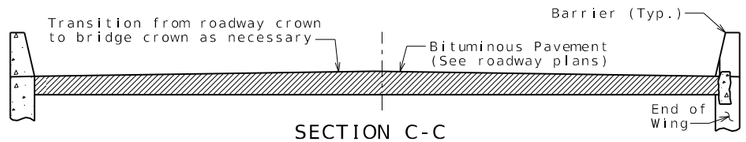
SECTION E-E



PART ELEVATION

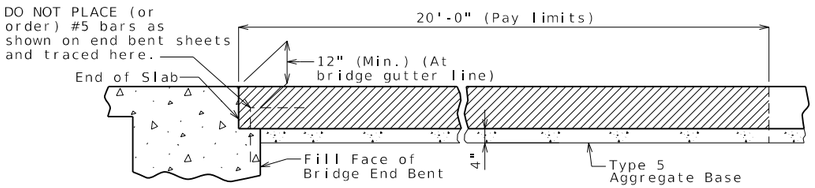
DETAILS OF TIMBER HEADER
Remove timber header when concrete pavement is placed.

OPTIONAL CONCRETE SLAB

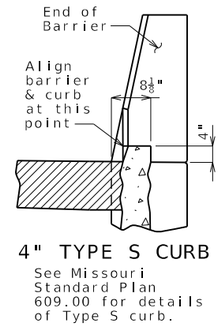


SECTION C-C

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 D-D



4" TYPE S CURB
See Missouri Standard Plan 609.00 for details of Type S curb.

OPTIONAL ASPHALT SLAB (NOT ALLOWED WITH CONCRETE PAVEMENT)

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/18/2025
ROUTE T | STATE MO
DISTRICT BR | SHEET NO. 20
COUNTY PERRY
JOB NO. J9S3670
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9408

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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JEFFERSON CITY, MO 65102
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OATES ASSOCIATES
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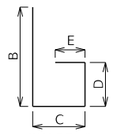
MISSOURI DESIGN FIRM PE-001166

BRIDGE APPROACH SLAB (MINOR)

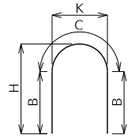
Integral end bents shown, non-integral end bent similar.

Detailed Feb. 2025
Checked Mar. 2025

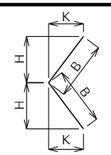
Note: This drawing is not to scale. Follow dimensions.



SHAPE 6
or 6S



SHAPE 7



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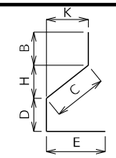
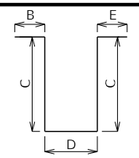
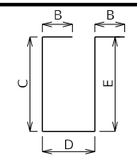
or 8S



SHAPE 9
or 9S



SHAPE 10
or 10S



SHAPE 11
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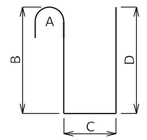
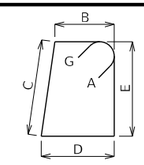
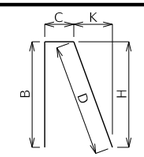


SHAPE 12



SHAPE 13S



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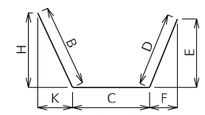

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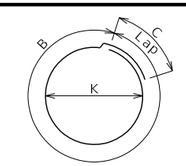

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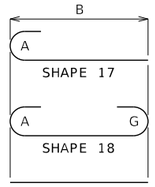
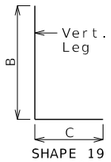


SHAPE 17
SHAPE 18
SHAPE 20



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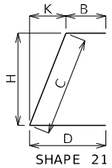

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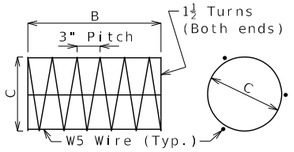

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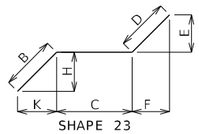

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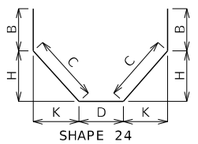

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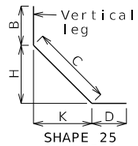

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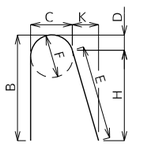

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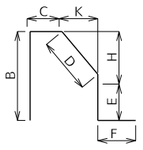
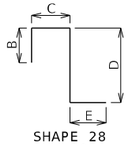


SHAPE 27S



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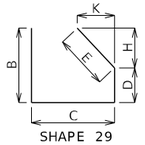

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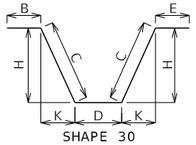

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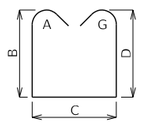

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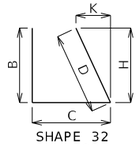
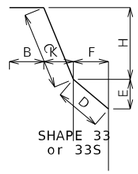
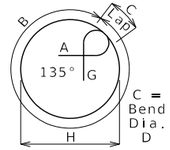


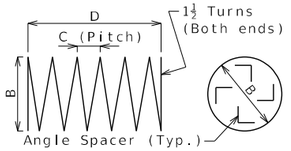
SHAPE 32
or 32S



SHAPE 33
or 33S

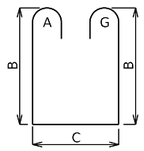


SHAPE 34S

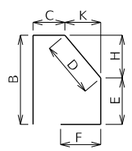


SHAPE 35 (1)

SHAPE 36



SHAPE 37S



SHAPE 38S

All dimensions are out to out.

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

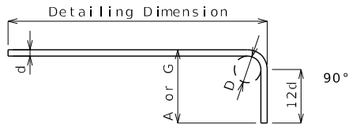
Unless otherwise noted, finished bending diameter D is the same for all bends of a shape.

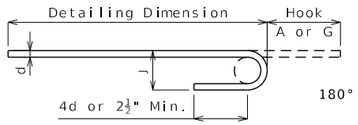
(1) Shall be a deformed or plain spiral bar or wire.

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.

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"	11¼"
#10	1	10¾"	22"	17½"	13¼"
#11	1	12"	24½"	19½"	14⅞"
#14	1	18¼"	31¼"	27½"	21⅝"
#18	1	24"	41½"	36¼"	28½"



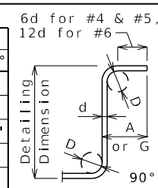


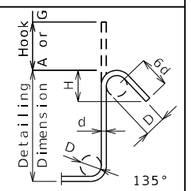
Stirrup Pin Bend Shapes (S)

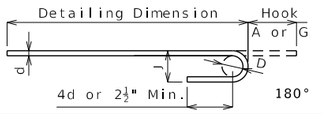
Size	Case	D	A or G			H	J
			90°	135°	180°	135°	180°
#4	2	2"	4½"	4½"	5"	2⅞"	3"
	3	3"	5"	5¼"	6"	3"	4"
#5	2	2½"	5¾"	5¾"	5¾"	3⅝"	3¾"
	3	3¾"	6¼"	6½"	7"	3⅞"	5"
#6	1	4½"	12"	7¾"	8¼"	4⅝"	6"

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.







Reinforcing Steel Totals (Pounds)

	Size	Substructure		Superstructure				Entire Bridge	
				Slab					
		Plain	Epoxy	Plain	Epoxy	Barrier	Slip Form	Plain	Epoxy
By Size	W5	0	0	0	0	0	0	0	0
	4	36	0	0	502	0	0	36	502
	5	343	0	0	5,324	10,691	388	343	16,403
	6	222	0	0	23,442	0	0	222	23,442
	7	82	0	0	0	0	0	82	0
	8	611	0	0	34,168	0	0	611	34,168
	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		1,294	0	0	63,436	10,691	388	1,294	74,515

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

All bars shall be ASTM A706 Grade 60.

BENDING DIAGRAMS AND REINFORCING STEEL TOTALS

Detailed Mar. 2025
Checked Mar. 2025

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

H:\P\224034 - SE District Bridge Package\003-J9S3670-S0734\Bridge\Final Bridge\Microstation\B_A9408_021_J9S3670_Bending Diagrams and Reinforcing Steel Totals.dgn 10:24:59 AM 11/18/2025

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/18/2025
ROUTE T
STATE MO
DISTRICT BR
SHEET NO. 21
COUNTY PERRY
JOB NO. J9S3670
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9408

DESCRIPTION
DATE

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

OATES ASSOCIATES
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St. Louis, MO 63101
314.588.8381
St. Charles
820 South Main, Suite 309
St. Charles, MO 63301
636.493.0277
www.oatesassociates.com

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 lb
		SUBSTRUCTURE													
		INT. BENT 2													
16	7 D200	BEAM		20		2 6.000							2 6	2 6	82
8	8 H200	BEAM		18		24 0.000							25 10	25 10	552
5	8 H201	BEAM		18		2 7.000							4 5	4 5	59
4	6 H202	BEAM		20		24 0.000							24 0	24 0	144
8	6 H203	BEAM		10S			2 1.000	2 7.750					6 10	6 6	78
24	5 U200	BEAM		13S		2 9.000	2 9.000	2 9.000	2 9.000				12 0	11 8	292
6	5 U201	BEAM		10S			2 9.000	2 9.000					8 3	8 1	51
15	4 U202	BEAM		10S			6.000	2 9.000					3 9	3 7	36
		SUPERSTRUCTURE													
		END BENTS 1 & 3													
44	6 F100	WING BRACE	E	23		2 3.000	4 8.000	14.000	9.875	9.875	19.125	19.125	8 1	8 0	529
20	6 F101	DIAPHRAGM	E	6		5 8.000	2 8.000						8 4	8 2	245
24	8 H100	BEAM/DIAPHRAGM	E	20		26 5.000							26 5	26 5	1693
6	8 H101	BEAM	E	18		6 3.000							8 1	8 1	130
18	6 H102	BEAM/DIAPHRAGM	E	20		26 5.000							26 5	26 5	714
16	6 H103	DIAPHRAGM	E	20		8 5.000							8 5	8 5	202
4	6 H104	DIAPHRAGM	E	20		5 10.000							5 10	5 10	35
16	6 H105	DIAPHRAGM	E	20		3 5.000							3 5	3 5	82
4	6 H106	DIAPHRAGM	E	20		2 1.000							2 1	2 1	13
6	5 H107	STRAND TIE	E	20		5 8.000							5 8	5 8	35
32	8 H108	WINGWALL	E	20		12 6.000							12 6	12 6	1068
88	6 H109	WINGWALL	E	6S		11 8.000	12.000						12 8	12 6	1652
28	5 U100	BEAM	E	10S			6 2.000	2 9.000					15 1	14 11	436
42	4 U101	BEAM	E	13S		2 9.000	2 8.000	2 9.000	2 8.000				11 7	11 4	318
64	6 U102	DIAPHRAGM	E	19S		3 2.000	4 7.000						7 9	7 7	729
36	5 U103	DIAPHRAGM	E	10S			5 0.000	2 3.000					12 3	12 1	454
36	6 U104	DIAPHRAGM	E	19S		3 11.000	2 9.000						6 8	6 6	351
48	5 U105	DIAPHRAGM	E	19S		2 0.000	15.000						3 3	3 2	159
16	5 V100	BEAM	E	20		6 2.000							6 2	6 2	103
30	6 V101	DIAPHRAGM	E	20		3 11.000							3 11	3 11	176
88	6 V102	WINGWALL	E	20		8 1.000							8 1	8 1	1068
		INT. BENT 2 DIAPH.													
4	6 H300	DIAPHRAGM	E	20		5 10.000							5 10	5 10	35
4	6 H301	DIAPHRAGM	E	20		8 3.000							8 3	8 3	50
12	4 H302	DIAPHRAGM	E	20		8 7.000							8 7	8 7	69
2	5 H303	STRAND TIE	E	20		5 8.000							5 8	5 8	12
4	5 H304	STRAND TIE	E	20		4 8.000							4 8	4 8	19
20	4 U300	DIAPHRAGM	E	28S			18.000	5 0.000	2 3.000				8 9	8 7	115
8	6 U301	DIAPHRAGM	E	28S			2 2.000	5 0.000	2 3.000				9 5	9 1	109
8	6 U302	DIAPHRAGM	E	28S			2 2.000	4 2.000	2 3.000				8 7	8 3	99
8	6 U303	DIAPHRAGM	E	28S			2 2.000	4 1.000	22.000				8 1	7 9	93
4	5 U304	DIAPHRAGM	E	6S		4 5.000	12.000						5 5	5 4	22
16	5 U305	DIAPHRAGM	E	6S	4	4 5.000	12.000	14.000					6 7	6 5	111
		INCREMENT = 1.625 INCH				4 5.000	12.000	19.000					7 0	6 10	
8	5 V300	DIAPHRAGM	E	20		5 1.000							5 1	5 1	42
		SLAB													
435	6 S1	SLAB	E	20		26 5.000							26 5	26 5	17260
436	5 S2	SLAB	E	20		5 5.000							5 5	5 5	2463
115	8 S3	SLAB	E	20		48 3.000							48 3	48 3	14815
80	8 S4	SLAB	E	20		56 5.000							56 5	56 5	12051
48	8 S5	SLAB	E	20		34 5.000							34 5	34 5	4411
30	5 S6	SLAB	E	20		46 11.000							46 11	46 11	1468

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 lb
		TYPE H BARRIER													
20	5 K1	BARRIER	E	27S		3 8.000	9.250	5.375	3 2.750		5.250	1.000	8 1	7 11	165
60	5 K2	BARRIER	E	27S		3 8.000	9.250	14.500	2 5.750		14.250	2.750	8 2	7 11	495
80	5 K4	BARRIER	E	19S		2 5.000	10.000						3 3	3 2	264
20	5 K5	BARRIER	E	38S				19.250	9.500	8.250	18.750	4.250	3 1	3 0	63
60	5 K6	BARRIER	E	21S			2 4.875	10.000			2 4.250	6.000	3 3	3 1	193
56	5 K7	BARRIER	E	20		12 9.000							12 9	12 9	745
440	5 R1	BARRIER	E	14S		2 5.000	6.500	2 5.500			2 5.000	5.500	5 5	5 3	2409
440	5 R2	BARRIER	E	19S		20.500	9.500						2 6	2 5	1109
440	5 R3	BARRIER	E	27S			9.500	15.250	5.000	12.000	15.000	3.000	3 6	3 4	1530
64	5 R4	BARRIER	E	20		49 10.000							49 10	49 10	3326
32	5 R5	BARRIER	E	20		11 9.000							11 9	11 9	392
		SLIP FORM BARRIER													
24	5 C1	BARRIER	E	20		12 0.000							12 0	12 0	300
8	5 C2	BARRIER	E	20		10 6.000							10 6	10 6	88

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. 21.

All bars shall be ASTM A706 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

Detailed Mar. 2025
Checked Mar. 2025

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

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/18/2025

ROUTE T | STATE MO

DISTRICT BR | SHEET NO. 22

COUNTY PERRY

JOB NO. J9S3670

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9408

DESCRIPTION | DATE

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

OATES ASSOCIATES
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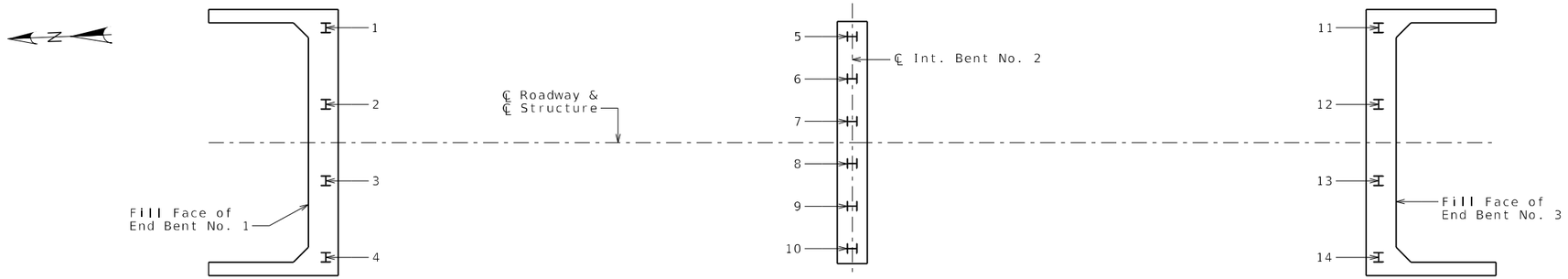

PART PLAN SHOWING PILE NUMBERING FOR RECORDING AS-BUILT PILE DATA

As-Built Pile Data			
Pile No.	Length in Place (ft)	Computed Nominal Axial Compressive Resistance (kips)	Remarks
			End Bent No. 1
1			
2			
3			
4			
			Intermediate Bent No. 2
5			
6			
7			
8			
9			
10			
			End Bent No. 3
11			
12			
13			
14			

Notes:
Indicate in remarks column:
A. Pile type and grade
B. Batter
C. Driven to practical refusal

This sheet to be completed by MoDOT construction personnel.

AS-BUILT PILE DATA

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 11/18/2025
ROUTE: T | STATE: MO
DISTRICT: BR | SHEET NO.: 23
COUNTY: PERRY
JOB NO.: J9S3670
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9408

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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MISSOURI DESIGN FIRM PE-001166

Missouri Department of Transportation
Construction and Materials

BORING NO. RB-1
Page 1 of 1

Job No.: J9S3670 (SCI No. 2024-0652.12) **County:** Perry **Route:** T
Design: A9408 **Skew:** N/A **Location:** 0.5 miles E of Rt CC/Rt T intersection
Bent: North Abutment **Logged By:** Patrick Szopinski **Operator:** Midwest Drilling, Inc.
Station: 411+13.83 **Northing:** 675882.49 **Date of Work:** 07/29/24
Offset: 42.16' RT **Easting:** 969673.29 **Depth to Water:** 16.0
Elevation: 534.6 **Requested Northing:** N/A **Depth Hole Open:** 16.0
Requested Station: N/A **Requested Easting:** N/A **Time Change:** 0
Requested Offset: N/A **Equipment:** CME 750 ,Split-Spoon Sampler, Shelby Tube, NQ
Requested Elevation: **Location Note:** Drilled on the northbound lane
Drill No.: 255648 **Hammer Efficiency:** 93.7% **Drilling Method:** Hollow Stem Auger

Depth (ft)	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0	0.0-0.5' 6" ASPHALTIC CONCRETE 0.5-1.0' 6" CRUSHED ROCK							
	1.0-5.5' (FILL) Brown, LEAN CLAY, trace fine-grained sand			72	3-4-5 (14)		PP = 2.75 tsf	MC = 14.3%
5		530		72	2-2-3 (8)		PP = 1.75 tsf	LL = 40 PL = 19 MC = 17.3%
	5.5-14.0' (CL) Brown, LEAN CLAY, trace fine- to coarse-grained sand			63		Qu Test Results UCS = 1.80 ksf MC = 17.2% γ_{moist} = 126.2244 pcf		LL = 33 PL = 19
10	9.0' Becomes dark brown	525		44	2-3-3 (9)		PP -- tsf	MC = 19.8%
15	14.0-16.0' (SP) Brown, GRAVELLY SAND, fine- to coarse-grained, with lean clay, gravel is fine to coarse	520		33	4-4-4 (12)			
	Refusal at 16.0 feet. Bottom of borehole at 16.0 feet.							

N_{60} = (Em/60)Nm N_{60} - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
(1) = Assumed, (2) = Actual

Coordinate System: Modified State Plane **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.0000621019
Coordinate Datum: NAD 1983 **Coordinate Units:** U.S. Survey Feet

* Persons using this information are cautioned that the materials shown are determined by the equipment noted and accuracy of the "log of materials" is limited thereby and by judgement of the operator. THIS INFORMATION IS FOR DESIGN PURPOSES ONLY.

LETTER BOREHOLE - MODOT 20150728.GDT - 1/8/25 08:24 - N:\LABORATORY\ACTIVE GINT PROJECTS\2024-0652.12 MODOT SE DISTRICT BRIDGE REPLACEMENT.GPJ

Missouri Department of Transportation
Construction and Materials

BORING NO. B-101
Page 1 of 1

Job No.: J9S3670 (SCI No. 2024-0652.12) **County:** Perry **Route:** T
Design: A9408 **Skew:** N/A **Location:** 0.5 miles E of Rt CC/Rt T intersection
Bent: N/A **Logged By:** Patrick Szopinski **Operator:** Midwest Drilling, Inc.
Station: 411+73.05 **Northing:** 675823.1 **Date of Work:** 07/29/24
Offset: 36.76' RT **Easting:** 969676.3 **Depth to Water:** 14.0
Elevation: 535.2 **Requested Northing:** N/A **Depth Hole Open:** 26.0
Requested Station: N/A **Requested Easting:** N/A **Time Change:** 0
Requested Offset: N/A **Equipment:** CME 750 ,NQ
Requested Elevation: **Location Note:** Drilled on the northbound lane through the bridge deck
Drill No.: 255648 **Hammer Efficiency:** 93.7% **Drilling Method:** Continuous Flight Auger

Depth (ft)	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0	0.0-0.2' 2.5" ASPHALTIC CONCRETE 0.2-0.8' 6.5" CONCRETE 0.8-14.0' AIR	535						
5		530						
10		525						
15	13.8' Water at the surface 14.0-16.0' Sandy Gravel *(estimated from the nearby boring B-201)*	520						
20	16.0-26.0' DOLOMITE: Brown, soft, micritic, massive bedding, moderately weathered, dense 17.0' Becomes light gray, hard, slightly weathered	515		95 (52)		Qu Test Results UCS = 1010 ksf MC = 0% γ_{moist} = 155.1 pcf		
25	22.0' CLAY SEAM 24.0' Some pyrite 25.0' Becomes finely crystalline	510		98 (82)				
	Refusal at 16.0 feet. Bottom of borehole at 26.0 feet.							

N_{60} = (Em/60)Nm N_{60} - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
(1) = Assumed, (2) = Actual

Coordinate System: Modified State Plane **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.0000621019
Coordinate Datum: NAD 1983 **Coordinate Units:** U.S. Survey Feet

* Persons using this information are cautioned that the materials shown are determined by the equipment noted and accuracy of the "log of materials" is limited thereby and by judgement of the operator. THIS INFORMATION IS FOR DESIGN PURPOSES ONLY.

LETTER BOREHOLE - MODOT 20150728.GDT - 1/8/25 08:23 - N:\LABORATORY\ACTIVE GINT PROJECTS\2024-0652.12 MODOT SE DISTRICT BRIDGE REPLACEMENT.GPJ

JASON A. DREYER
NUMBER PE-2013038971
STATE OF MISSOURI
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/18/2025
ROUTE T | STATE MO
DISTRICT BR | SHEET NO. 24
COUNTY PERRY
JOB NO. J9S3670
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9408

DESCRIPTION | DATE

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

OATES ASSOCIATES
MISSOURI DESIGN FIRM PE-001166
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BORING DATA

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

Detailed Mar. 2025
Checked Mar. 2025

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

H:\P\224034 - SE District Bridge Package\003-J9S3670-S0734\Bridge\Final Bridge\Microstation\B_A9408_024_J9S3670_Boring Data.dgn 10:25:03 AM 11/18/2025

Missouri Department of Transportation
Construction and Materials

BORING NO. B-201
Page 1 of 1

Job No.: J9S3670 (SCI No. 2024-0652.12)
Design: A9408
Bent: N/A
Station: 412+11.98
Offset: 32.29' RT
Elevation: 535.4
Requested Station: N/A
Requested Offset: N/A
Requested Elevation:
Drill No.: 255648

County: Perry
Skew: N/A
Logged By: Patrick Szopinski
Northing: 675784.02
Easting: 969679.2
Requested Northing: N/A
Requested Easting: N/A
Equipment: CME 750 ,NQ
Location Note: Drilled on the northbound lane through the bridge deck
Hammer Efficiency: 93.7%

Route: T
Location: 0.5 miles E of Rt CC/Rt T intersection
Operator: Midwest Drilling, Inc.
Date of Work: 07/29/24
Depth to Water: 15.0
Depth Hole Open: 31.5
Time Change: 0
Drilling Method: Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-0.2' 2" ASPHALTIC CONCRETE 0.2-0.8' 7.5" CONCRETE 0.8-15.0' AIR	535						
5			530						
10			525						
15		14.8' Water at the surface 15.0-16.5' SANDY GRAVEL 16.5-31.5' DOLOMITE: Gray, soft, micritic, thin to medium bedding, moderately weathered, fractured 17.3' Becomes hard, slightly weathered, dense	520						
20			515			100 (56)	Qu Test Results UCS = 623 ksf MC = 0% γ_{moist} = 162.8 pcf		
25			510			100 (71)	Qu Test Results UCS = 910 ksf MC = 0% γ_{moist} = 156.3 pcf		
30		Refusal at 16.5 feet. Bottom of borehole at 31.5 feet.	505			97 (91)	Qu Test Results UCS = 1410 ksf MC = 0% γ_{moist} = 167.2 pcf		

N_{60} = (Em/60)Nm N_{60} - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
(1) = Assumed, (2) = Actual

Coordinate System: Modified State Plane **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.0000621019
Coordinate Datum: NAD 1983 **Coordinate Units:** U.S. Survey Feet

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Missouri Department of Transportation
Construction and Materials

BORING NO. B-301
Page 1 of 1

Job No.: J9S3670 (SCI No. 2024-0652.12)
Design: A9408
Bent: Interior Bent
Station: 412+64.13
Offset: 28.23' RT
Elevation: 535.4
Requested Station: N/A
Requested Offset: N/A
Requested Elevation:
Drill No.: 255648

County: Perry
Skew: N/A
Logged By: Patrick Szopinski
Northing: 675731.75
Easting: 969681.16
Requested Northing: N/A
Requested Easting: N/A
Equipment: CME 750 ,NQ
Location Note: Drilled on the northbound lane through the bridge deck
Hammer Efficiency: 93.7%

Route: T
Location: 0.5 miles E of Rt CC/Rt T intersection
Operator: Midwest Drilling, Inc.
Date of Work: 07/30/24
Depth to Water: 15.5
Depth Hole Open: 31.5
Time Change: 0
Drilling Method: Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-0.2' 2" ASPHALTIC CONCRETE 0.2-0.9' 8" CONCRETE 0.9-15.5' AIR	535						
5			530						
10			525						
15		15.3' Water at the surface 15.5-16.5' CLAYEY SAND 16.5-31.5' DOLOMITE: Gray, moderately hard, micritic, thin to medium bedding, slightly weathered, dense 17.0' Becomes hard, thin bedding	520						
20			515			97 (63)	Qu Test Results UCS = 1400 ksf MC = 0% γ_{moist} = 159.4 pcf		
25		24.0' Becomes thin to medium bedding	510			96 (83)	Qu Test Results UCS = 910 ksf MC = 0% γ_{moist} = 157.9 pcf		
30		Refusal at 16.5 feet. Bottom of borehole at 31.5 feet.	505			100 (82)	Qu Test Results UCS = 981 ksf MC = 0% γ_{moist} = 165.5 pcf		

N_{60} = (Em/60)Nm N_{60} - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
(1) = Assumed, (2) = Actual

Coordinate System: Modified State Plane **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.0000621019
Coordinate Datum: NAD 1983 **Coordinate Units:** U.S. Survey Feet

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STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 11/18/2025
ROUTE: T | STATE: MO
DISTRICT: BR | SHEET NO.: 25
COUNTY: PERRY
JOB NO.: J9S3670
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9408

DESCRIPTION | DATE

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

OATES ASSOCIATES
MISSOURI DESIGN FIRM PE-001166
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BORING DATA

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

Detailed Mar. 2025
Checked Mar. 2025

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

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Missouri Department of Transportation
Construction and Materials

BORING NO. B-401
Page 1 of 1

Job No.: J9S3670 (SCI No. 2024-0652.12)
Design: A9408
Bent: N/A
Station: 412+97.21
Offset: 24.63' RT
Elevation: 535.3
Requested Station: N/A
Requested Offset: N/A
Requested Elevation:
Drill No.: 255648

County: Perry
Skew: N/A
Logged By: Patrick Szopinski
Northing: 675698.56
Easting: 969683.43
Requested Northing: N/A
Requested Easting: N/A
Equipment: CME 750 ,NQ
Location Note: Drilled on the northbound lane through the bridge deck
Hammer Efficiency: 93.7%

Route: T
Location: 0.5 miles E of Rt CC/Rt T intersection
Operator: Midwest Drilling, Inc.
Date of Work: 07/30/24
Depth to Water: 16.0
Depth Hole Open: 31.0
Time Change: 0
Drilling Method: Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-0.2' 1.5" ASPHALTIC CONCRETE 0.2-0.8' 7.5" CONCRETE 0.8-16.0' AIR	535						
5			530						
10			525						
15		15.8' Water at the surface 16.0-31.0' DOLOMITE: Gray, hard, micritic, thin to medium bedding, slightly weathered, dense	520				Qu Test Results UCS = 1110 ksf MC = 0% γ_{moist} = 162.9 pcf		
20			515		100 (60)				
25		23.0' Becomes thick bedding	510		100 (89)		Qu Test Results UCS = 608 ksf MC = 0% γ_{moist} = 162.7 pcf Qu Test Results UCS = 973 ksf MC = 0% γ_{moist} = 162.1 pcf		
30		29.0' Becomes finely crystalline, some pyrite	505		99 (94)		Qu Test Results UCS = 458 ksf MC = 0% γ_{moist} = 164.2 pcf Qu Test Results UCS = 996 ksf MC = 0% γ_{moist} = 158.2 pcf		
		Refusal at 16.0 feet. Bottom of borehole at 31.0 feet.							

N_{60} = (Em/60)Nm N_{60} - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
(1) = Assumed, (2) = Actual

Coordinate System: Modified State Plane **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.0000621019
Coordinate Datum: NAD 1983 **Coordinate Units:** U.S. Survey Feet

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Missouri Department of Transportation
Construction and Materials

BORING NO. B-501
Page 1 of 1

Job No.: J9S3670 (SCI No. 2024-0652.12)
Design: A9408
Bent: N/A
Station: 413+39.66
Offset: 19.85' RT
Elevation: 535.0
Requested Station: N/A
Requested Offset: N/A
Requested Elevation:
Drill No.: 255648

County: Perry
Skew: N/A
Logged By: Patrick Szopinski
Northing: 675655.94
Easting: 969686.49
Requested Northing: N/A
Requested Easting: N/A
Equipment: CME 750 ,NQ
Location Note: Drilled on the northbound lane through the bridge deck
Hammer Efficiency: 93.7%

Route: T
Location: 0.5 miles E of Rt CC/Rt T intersection
Operator: Midwest Drilling, Inc.
Date of Work: 07/30/24
Depth to Water: 16.0
Depth Hole Open: 31.0
Time Change: 0
Drilling Method: Continuous Flight Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-0.2' 2" ASPHALTIC CONCRETE 0.2-0.8' 7" CONCRETE 0.8-16.0' AIR	535						
5			530						
10			525						
15		15.8' Water at the surface 16.0-31.0' DOLOMITE: Gray, micritic, thin to medium bedding, slightly weathered, dense	520				Qu Test Results UCS = 377 ksf MC = 0% γ_{moist} = 133.9 pcf		
20			515		93 (43)				
25		22.0' Becomes thick bedding	510		93 (81)		Qu Test Results UCS = 801 ksf MC = 0% γ_{moist} = 156.4 pcf		
30		26.0' Fractured	505		100 (88)		Qu Test Results UCS = 1210 ksf MC = 0% γ_{moist} = 167.6 pcf		
		Refusal at 16.0 feet. Bottom of borehole at 31.0 feet.							

N_{60} = (Em/60)Nm N_{60} - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
(1) = Assumed, (2) = Actual

Coordinate System: Modified State Plane **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.0000621019
Coordinate Datum: NAD 1983 **Coordinate Units:** U.S. Survey Feet

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STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 11/18/2025
ROUTE: T | STATE: MO
DISTRICT: BR | SHEET NO.: 26
COUNTY: PERRY
JOB NO.: J9S3670
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9408

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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JEFFERSON CITY, MO 65102
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BORING DATA

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

Detailed Mar. 2025
Checked Mar. 2025

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

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Missouri Department of Transportation
Construction and Materials

BORING NO. B-601
Page 1 of 1

Job No.: J9S3670 (SCI No. 2024-0652.12)
County: Perry
Route: T
Design: A9408
Skew: N/A
Location: 0.5 miles E of Rt CC/Rt T intersection
Bent: South Abutment
Logged By: Patrick Szopinski
Operator: Midwest Drilling, Inc.
Station: 413+89.37
Northing: 675606.09
Date of Work: 07/31/24
Offset: 15.23' RT
Easting: 969689.11
Depth to Water: None
Elevation: 534.3
Requested Northing: N/A
Depth Hole Open: 26.5
Requested Station: N/A
Requested Easting: N/A
Time Change: 0
Requested Offset: N/A
Equipment: CME 750 ,Split-Spoon Sampler, NQ
Requested Elevation:
Location Note: Drilled on the northbound lane
Drill No.: 255648
Hammer Efficiency: 93.7%
Drilling Method: Hollow Stem Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-0.4' 5" ASPHALTIC CONCRETE 0.4-0.9' 6" CONCRETE 0.9-5.5' (FILL) Brown, LEAN CLAY			61	4-4-4 (12)		PP = 1.50 tsf	MC = 19.2%
5			530		72	2-2-2 (6)		PP = 0.75 tsf	MC = 21.8%
		5.5-8.0' (CL) Brown, LEAN CLAY			72	1-1-2 (5)		PP = 0.25 tsf	LL = 33 PL = 20 MC = 19.9%
10		8.0-14.0' (SC) Brown, CLAYEY SAND, fine- to coarse-grained, with fine to coarse gravel, clay is lean	525		89	3-1-1 (3)			Sieve Analysis Sieve # % Passing 3/4-inch 100.0 1/2-inch 95.8 3/8-inch 91.0 #4 80.0 #10 70.8 #20 65.2 #40 59.0 #60 46.3 #100 35.2 #140 32.4 #200 31.4
15		14.0-16.5' (GP) Brown, SANDY GRAVEL, fine to coarse, sand is fine- to coarse-grained	520		33	9-9-7 (24)			
		16.5-26.5' DOLOMITE: Gray, hard, micritic, thin to medium bedding, moderately weathered, fractured					Qu Test Results UCS = 965 ksf MC = 0% γ_{moist} = 156.1 pcf		
20		17.5' Becomes medium to thick bedding, slightly weathered, dense	515		98 (60)				
			510		90 (80)		Qu Test Results UCS = 1000 ksf MC = 0% γ_{moist} = 166.3 pcf		
25		Refusal at 16.5 feet. Bottom of borehole at 26.5 feet.							

N_{60} = (Em/60)Nm N_{60} - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
(1) = Assumed, (2) = Actual

Coordinate System: Modified State Plane **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.0000621019
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BORING DATA

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

Detailed Mar. 2025
Checked Mar. 2025

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

Sheet No. 27 of 29

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/18/2025
ROUTE T | STATE MO
DISTRICT BR | SHEET NO. 27
COUNTY PERRY
JOB NO. J9S3670
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9408

DESCRIPTION | DATE

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

OATES ASSOCIATES
MISSOURI DESIGN FIRM PE-001166

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Belleville, IL 62220
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SCI ENGINEERING, INC.
130 Point West Boulevard
St. Charles, Missouri 63301
636-949-8200
www.sciengineering.com

BORING LOG LEGEND AND NOMENCLATURE

Depth is in feet below ground surface. **Elevation** is in feet in reference to sea level, site datum, or as otherwise noted.

Sample Type

- **SS** Split-spoon sample, disturbed, obtained by driving a 2-inch-O.D. split-spoon sampler (ASTM D 1586).
- **NX** Diamond core bit, nominal 2-inch-diameter rock sample (ASTM D 2113).
- **NQ** Diamond core bit, nominal 1 7/8-inch diameter rock sample
- **ST** Thin-walled (Shelby) tube sample, relatively undisturbed, obtained by pushing a 3-inch-diameter, tube (ASTM D 1587).
- **CS** Continuous sample tube system, relatively undisturbed, obtained by split-barrel sampler in conjunction with auger advancement.
- **SV** Shear vane, field test to determine strength of cohesive soil by pushing or driving a 2-inch-diameter vane, and then shearing by torquing soil in existing and remolded states (ASTM D 2573).
- **BS** Bag sample, disturbed, obtained from cuttings.
- **MC** Modified California Sampler, disturbed, obtained by driving a 2.5-inch O.D. ring-lined split-barrel sampler (ASTM D 3550).

Recovery is expressed as the sample length recovered / the total length pushed, driven, or cored.

Blows Numbers indicate blows per 6 inches of split-spoon sampler penetration when driven with a 140-pound hammer falling freely 30 inches. The number of total blows obtained for the second and third 6-inch increments is the N value (Standard Penetration Test or SPT) in blows per foot (ASTM D 1586). Practical refusal is considered to be 50 or more blows without achieving 6 inches of penetration and is expressed as a ratio of 50 to actual penetration, e.g., 50/2 (50 blows for 2 inches).

For analysis, the N value is used when obtained by a cathead and rope system. When obtained by an automatic hammer, the N value may be increased by a factor of 1.3.

Vane Shear Strength is expressed as the peak strength (existing state) / the residual strength (remolded state).

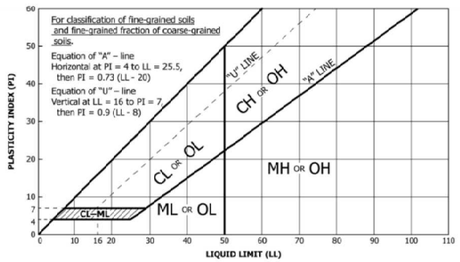
Description indicates soil constituents and other classification characteristics (ASTM D 2488) and the Unified Soil Classification (ASTM D 2487).

SOIL GRAIN SIZE

Soil Component	Particle Size Range
Boulders	> 12 in.
Cobbles	12 in. -3 in.
Gravel	3 in. - #4 sieve (4.75 mm)
Coarse Gravel	3 in. - ¾ in.
Fine Gravel	¾ in. - #4 sieve (4.75 mm)
Sand	#4 sieve (4.75 mm) - #200 sieve (0.075 mm)
Coarse Sand	#4 sieve (4.75 mm) - #10 sieve (2 mm)
Medium Sand	#10 sieve (2 mm) - #40 sieve (0.425 mm)
Fine Sand	#40 sieve (0.425 mm) - #200 sieve (0.075 mm)
Fines (Silt & Clay)	< #200 sieve (0.075 mm)

in – inches
mm – millimeters

PLASTICITY CHART



BORING LOG LEGEND AND NOMENCLATURE

Strength of Cohesive Soils			Density of Granular Soils	
Consistency	*N-Value*	*Unconfined Comp. Strength (ksf)*	*Descriptive Term*	*N-Value*
Very Soft	0 – 2	< 0.50	Very Loose	0 – 4
Soft	3 – 4	0.50 – 1.00	Loose	5 – 10
Medium Stiff	5 – 8	1.0 – 2.0	Medium Dense	11 – 29
Stiff	9 – 15	2.0 – 4.0	Dense	30 – 49
Very Stiff	16 – 30	4.0 – 6.0	Very Dense	Over 50
Hard	Over 30	> 8.0		

ksf – kips per square foot

USCS SOIL CLASSIFICATION

		Major Divisions		Group Symbol	Typical Names
Coarse-Grained Soils (Less than 50% Passing the #200 Sieve)	Gravels	Clean Gravels		GW	Well graded gavels, gravel-sand mixture
				GP	Poorly graded gravels, gravel-sand mixture
		Gravels with fines	Limits plot below "A" line on plasticity chart	GM	Silty gravels, gravel-sand-silt mixture
			Limits plot above "A" line on plasticity chart	GC	Clayey gravels, gravel-sand-clay mixture
	Sands	Clean Sands		SW	Well graded sands, gravelly sands
				SP	Poorly graded sands, gravelly sands
		Sands with fines	Limits plot below "A" line on plasticity chart	SM	Silty sands, sand-silt mixture
			Limits plot above "A" line on plasticity chart	SC	Clayey sands, sand-clay mixture
Fine-Grained Soils (50% or More Passing #200 Sieve)	Silts	Silts of low plasticity (LL<50)		ML	Inorganic silts, clayey silts
		Silts of high plasticity (LL≥50)		MH	Inorganic silts, elastic silts
	Clays	Clays of low plasticity (LL<50)		CL	Inorganic lean clays, sandy and silty clays
		Clays of high plasticity (LL≥50)		CH	Inorganic fat clays, sandy clays
	Organic Silts and Clays	Organic silts and clays of low plasticity (LL<50)		OL	Organic silts and lean clays
		Organic silts and clays of high plasticity (LL≥50)		OH	Organic silts and fat clays
Organic Soils		Primarily organic matter		PT	Peat

*Table per Unified Soil Classification System (USCS)

DATE PREPARED 11/18/2025
ROUTE T | STATE MO
DISTRICT BR | SHEET NO. 28
COUNTY PERRY
JOB NO. J9S3670
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9408

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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Belleville 1 South Church, Suite 200 Belleville, IL 62220 618.416.4488
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MISSOURI DESIGN FIRM PE-001166

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

Detailed Mar. 2025
Checked Mar. 2025

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

H:\P\224034 - SE District Bridge Package\003-J9S3670-S0734\Bridge\Final Bridge\Microstation\B_A9408_028_J9S3670_Boring Data.dgn 10:27:11 AM 11/18/2025

BORING LOG LEGEND AND NOMENCLATURE

SECONDARY SOIL CONSTITUENT RELATIVE COMPOSITION

If Primary Soil Constituent is	Clay or Silt		Sand or Gravel	
	Trace	0-5%	Trace	0-5%
	Few	6-15%	With	6-12%
	With	>15%	Silty/Clayey/Gravelly/Sandy	>12%
	Sandy/Gravelly	>30%		

Stratigraphic Breaks may be observed or interpreted and are indicated by a dashed line (inferred) or solid line (observed). Transition between described materials may be gradual.

Laboratory Test Results

- Natural moisture content (ASTM D 2216) in percent.
- Dry density in pounds per cubic foot (pcf).
- Hand penetrometer value of apparently intact cohesive sample in kips per square foot (ksf).
- Unconfined compressive strength (ASTM D 2166) in ksf.
- Liquid and Plastic Limits (ASTM D 4318) in percent.

Rock Quality Designation (RQD) is the ratio between the total length of core segments 4 inches or more and the total length of core drilled. RQD indicates in-situ rock quality as follows:

Excellent	90 - 100%
Good	75 – 90%
Fair	50 – 75%
Poor	25 – 50%
Very Poor	0 – 25%

SCI ENGINEERING, INC.
130 Point West Boulevard
St. Charles, Missouri 63301
636-949-8200
www.sciengineering.com

ROCK CORE DESCRIPTIONS

Hardness	
Very weak	Easily indented with the thumb
Weak	Broken by hand into pieces
Moderate	Easily scratched with a knife
Strong	Difficult to scratch with a knife
Very Strong	Cannot be scratched with a knife

Voids	
Dense	Usually not discernible with naked eye
Pit (pitted)	Discernible to 1/4 in.
Vug (vuggy)	1/4 in. to diameter of the core
Cavity	Larger than 6 in. in diameter

in. – inch

Mass Bedding	
Parting	Thinner than 0.02 ft (< 0.60 cm)
Band	0.02 ft - 0.2 ft (0.60 - 6.1 cm)
Thin Bed	0.2 ft - 0.5 ft (6.1 - 15.2 cm)
Medium Bed	0.5 ft - 1.0 ft (15.2 - 30.5 cm)
Thick Bed	1.0 ft - 2.0 ft (30.5 - 61.0 cm)
Massive	Thicker than 2.0 ft (> 61.0 cm)

ft – feet
cm – centimeter

Weathering	
Fresh	No visible signs of decompositions or discoloration
Slightly Weathered	Slight discoloration inward from open fractures
Moderately Weathered	Discoloration throughout, some loss of strength, texture intact
Highly Weathered	Specimens easily broken by hand, texture intact

Crystallinity*	
Aphanitic – Igneous Micritic – Carbonates	Crystals cannot be distinguished with naked eye
Very Finely Crystalline	Crystals are barely discernible with naked eye
Finely Crystalline	Crystals are easily discernible with naked eye
Medium Crystalline	Crystals are medium size; up to 1/8 in. in diameter
Coarsely Crystalline	Crystals are 1/8 in. to 1/4 in. in diameter
Very Coarsely Crystalline	Crystals are larger than 1/4 in. in diameter

*Use grain size for Sandstones
in. – inch

Geologic Definitions

Argillaceous – A term applied to all rocks or substances composed of clay minerals or having a notable clay portion (> 30%) in composition.

Fissile– A property of splitting along closely spaced parallel planes.

Calcareous – A term applied to rocks containing calcium carbonate.

Fossiliferous – A rock that contains noticeable quantities of fossils.

STATE OF MISSOURI
JASON A. DREYER
NUMBER PE-2013038971
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/18/2025
ROUTE T | STATE MO
DISTRICT BR | SHEET NO. 29
COUNTY PERRY
JOB NO. J9S3670
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9408

DESCRIPTION | DATE

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

OATES ASSOCIATES
St. Louis: 720 Olive, Suite 700, St. Louis, MO 63101, 314.588.8331
St. Charles: 820 South Main, Suite 309, St. Charles, MO 63301, 636.493.0277
Collinsville: 101 Lamer Court, Suite I, Caseyville, IL 62234, 618.345.2200
Belleville: 1 South Church, Suite 200, Belleville, IL 62220, 618.416.4688
www.oatesassociates.com
MISSOURI DESIGN FIRM PE-001166

Detailed Mar. 2025
Checked Mar. 2025

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

BORING DATA

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

H:\P\224034 - SE District Bridge Package\003-J9S3670-S0734\Bridge\Final Bridge\Microstation\B_A9408_029_J9S3670_Boring Data.dgn 10:28:29 AM 11/18/2025

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

PLANS FOR PROPOSED STATE HIGHWAY

PERRY COUNTY

U.S. SURVEY 858, U.S. SURVEY 3015

DESIGN DESIGNATION

A.A.D.T. - 2025 = 366
A.A.D.T. - 2045 = 404
D.H.V. = 9.6%
T = 9.3%
V = 55 M.P.H.
D = 51%

FUNCTIONAL CLASSIFICATION-MINOR COLLECTOR
MINOR ROUTE

NO RIGHT OF WAY OR EASEMENTS WILL BE ACQUIRED FOR THIS PROJECT.

EXISTING RIGHT OF WAY IS NORMAL ACCESS.

KEY MAP
LOCATION OF PERRY COUNTY

NOT TO SCALE

DISCLAIMER
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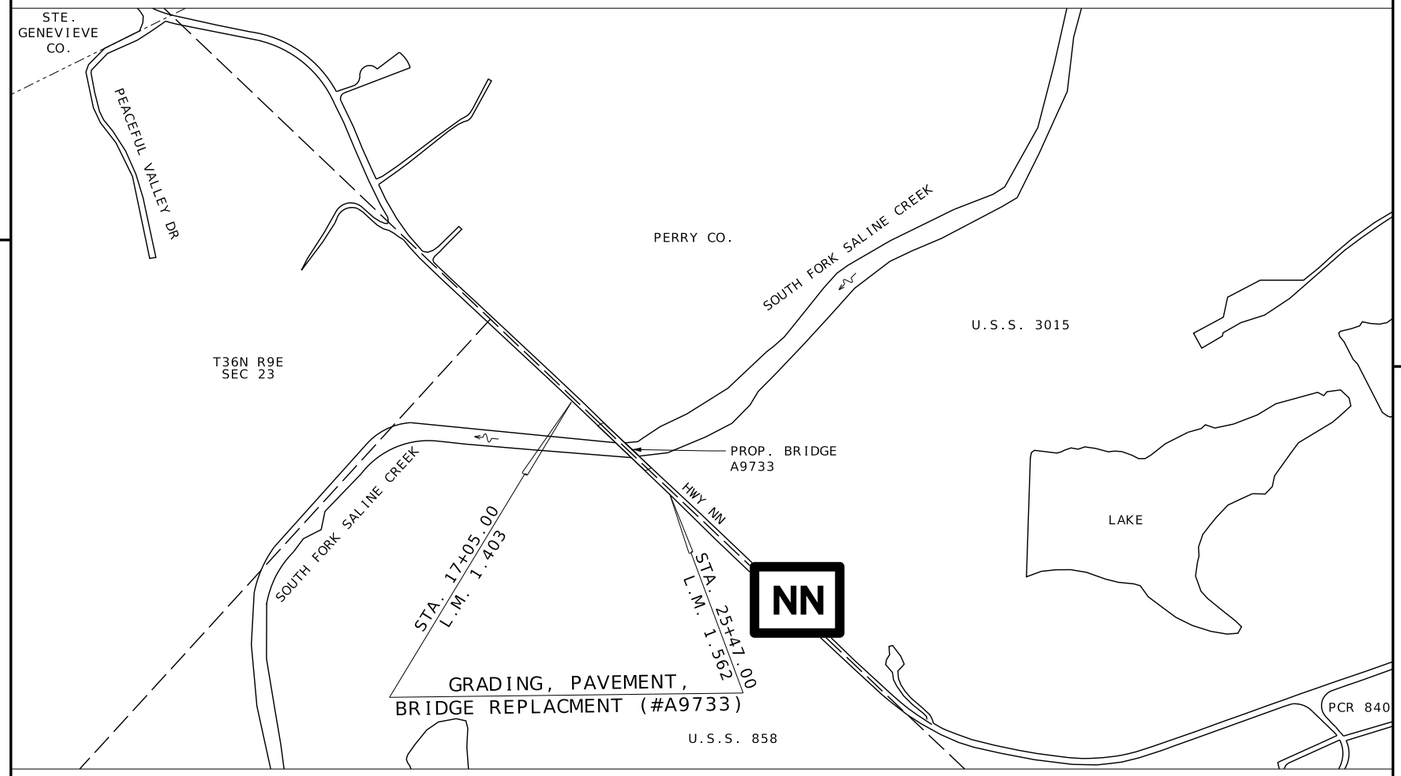


CONVENTIONAL SYMBOLS
(USED IN PLANS)

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

NOTE: DASHED OR OPEN SYMBOLS INDICATE EXISTING FEATURES

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

INDEX OF SHEETS

LENGTH OF PROJECT

BEGINNING OF PROJECT	STA.	17+05.00
END OF PROJECT	STA.	25+47.00
APPARENT LENGTH		842.00 FEET
EQUATIONS AND EXCEPTIONS:		NONE
TOTAL CORRECTIONS		0.00 FEET
NET LENGTH OF PROJECT		842.00 FEET
STATE LENGTH		0.159 MILES
FOR INFORMATION ONLY ESTIMATED DISTURBED ACRES		0.9 ACRES

STATE OF MISSOURI
NICHOLAS MICHAEL CORRENTI
NUMBER PE-2010000809
PROFESSIONAL ENGINEER
10/20/2025 5:30:05 PM
Nicholas Michael Correnti - Civil
MO PE-2010000809

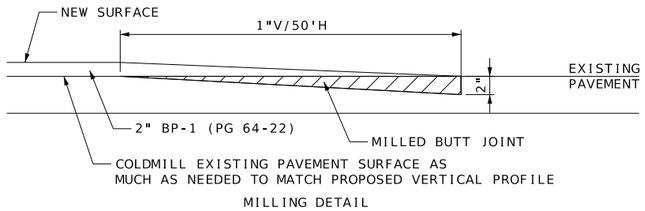
DATE PREPARED: 10/20/2025
ROUTE: NN | STATE: MO
DISTRICT: SE | SHEET NO.: 1
COUNTY: PERRY
JOB NO.: J9S3771
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

DESCRIPTION	DATE

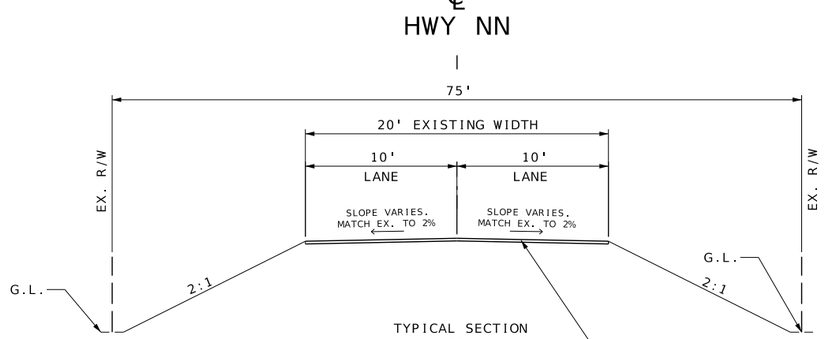
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578

*NEWLY CONSTRUCTED SLOPES STEEPER THAN 3:1 SHALL HAVE A TYPE 2D EROSION CONTROL BLANKET INSTALLED WITH SEEDING AND MULCHING.



MILLING DETAIL



TYPICAL SECTION
HWY NN
EXISTING ROAD OVERLAY
STA. 17+05.00 TO STA. 18+05.00
STA. 24+47.00 TO STA. 25+47.00

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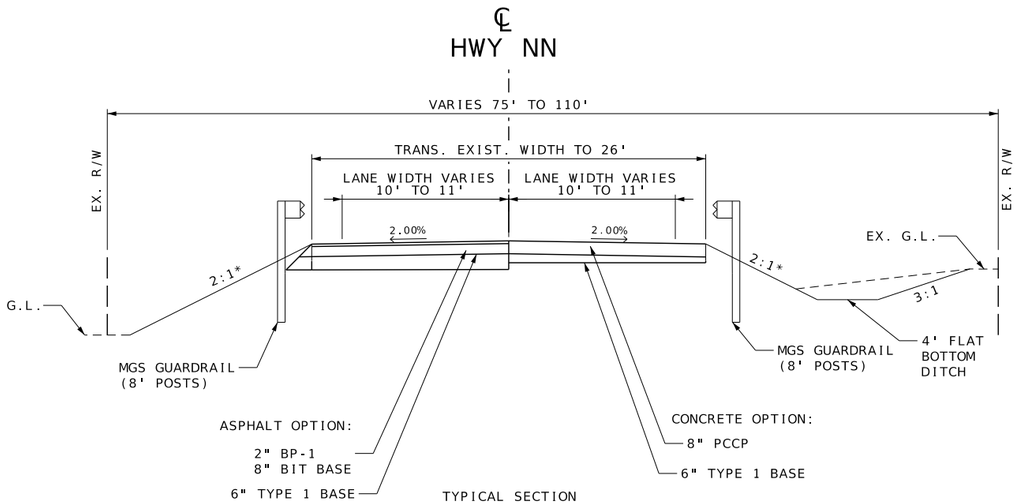
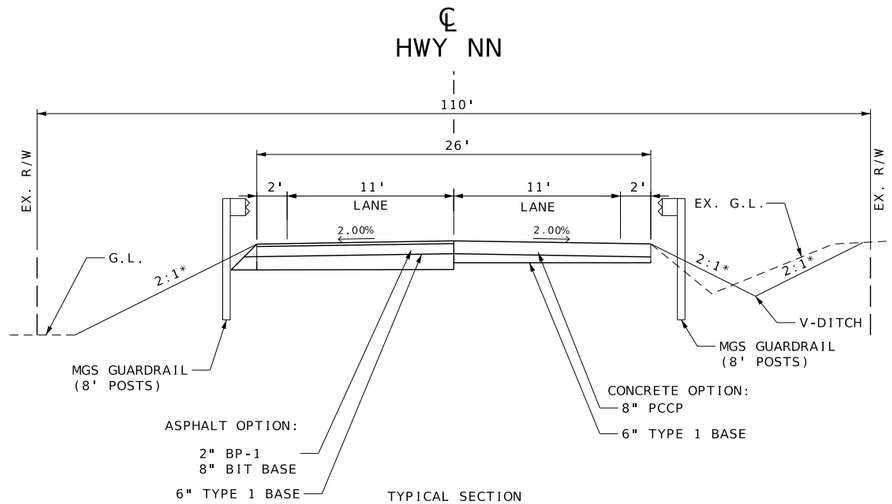


TYPICAL SECTION
HWY NN
PROPOSED ROADWAY WORK
STA. 18+05.00 TO STA. 19+70.00
STA. 22+82.00 TO STA. 24+47.00



TYPICAL SECTION
HWY NN
PROPOSED ROADWAY WORK
STA. 19+70.00 TO STA. 20+18.67
STA. 22+71.84 TO STA. 22+82.00

OPTIONAL PAVEMENT	
ASPHALT OPTION	CONCRETE OPTION
2" BP-1 W/PG 64-22 OVER 8" PMBB W/ PG 64-22	8 IN. CONCRETE PAVEMENT (15 FT. JOINTS AND 1.25" DOWELS)

APPLICATION RATES:

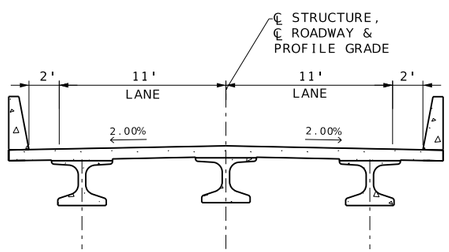
BP-1 PG64-22: 1.948 TON/CY

BIT. BASE PG64-22: 1.943 TON/CY

TACK: 0.05 GAL/SY (NEW ASPHALT)

TACK: 0.08 GAL/SY (EXISTING ASPHALT OR CONCRETE SURFACES)

TACK: 0.10 GAL/SY (COLDMILLED ASPHALTOR CONCRETE SURFACES)



TYPICAL SECTION
BRIDGE A9733
STA. 20+38.14 TO STA. 22+52.37

STANDARD BRIDGE APPROACH SLAB (MINOR)
SEE BRIDGE PLANS
STA. 20+18.67 TO STA. 20+38.67
STA. 22+51.84 TO STA. 22+71.84

NOT TO SCALE

TYPICAL SECTION
SHEET 1 OF 1

STATE OF MISSOURI
NICHOLAS MICHAEL CORRENTI
NUMBER PE-2010000809
PROFESSIONAL ENGINEER
10/20/2025 5:30:24 PM
Nicholas Michael Correnti - Civil
MO PE-2010000809

DATE PREPARED: 10/20/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
SE	2

COUNTY: PERRY

JOB NO.: J9S3771

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.:

DESCRIPTION	DATE

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

EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578

REMOVAL OF IMPROVEMENTS

SHEET NO	STA	STA	LOC	ROADWAY	L.F.	EACH	DESCRIPTIONS
4	12+36		RT	ROUTE NN		1	SIGNS POSTS & FOOTINGS: BRIDGE WEIGHT LIMIT
4	20+02		RT	ROUTE NN		1	SIGNS POSTS & FOOTINGS: OBJECT MARKER
4	20+06		LT	ROUTE NN		1	SIGNS POSTS & FOOTINGS: OBJECT MARKER
4	20+09		LT	ROUTE NN		1	SIGNS POSTS & FOOTINGS: OBJECT MARKER
4	20+24		RT	ROUTE NN		1	SIGNS POSTS & FOOTINGS: OBJECT MARKER
4	20+36		RT	ROUTE NN		1	SIGNS POSTS & FOOTINGS: OBJECT MARKER
4	20+43		LT	ROUTE NN		1	SIGNS POSTS & FOOTINGS: OBJECT MARKER
4	20+45		LT	ROUTE NN		1	SIGNS POSTS & FOOTINGS: CREEK SIGN
4	22+55		LT	ROUTE NN		1	SIGNS POSTS & FOOTINGS: OBJECT MARKER
4	22+68		LT	ROUTE NN		1	SIGNS POSTS & FOOTINGS: OBJECT MARKER
4	22+83		LT	ROUTE NN		1	SIGNS POSTS & FOOTINGS: OBJECT MARKER
4	22+55		RT	ROUTE NN		1	SIGNS POSTS & FOOTINGS: OBJECT MARKER
4	22+68		RT	ROUTE NN		1	SIGNS POSTS & FOOTINGS: OBJECT MARKER
4	22+83		RT	ROUTE NN		1	SIGNS POSTS & FOOTINGS: OBJECT MARKER
4	34+46		LT	ROUTE NN		1	SIGNS POSTS & FOOTINGS: BRIDGE WEIGHT LIMIT
4	18+05		LT/RT	ROUTE NN	20		SAWCUT
4	24+47		LT/RT	ROUTE NN	20		SAWCUT
				PAY TOTAL	1 LUMP SUM		

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MOBILIZATION	1 LUMP SUM
ADDITIONAL MOBILIZATION FOR SEEDING	2 EACH
CONTRACTOR FURNISHED SURVEYING AND STAKING	1 LUMP SUM
SEEDING AND MULCHING - COOL SEASON GRASSES	1 LUMP SUM
LUMP SUM TEMPORARY TRAFFIC CONTROL	1 LUMP SUM

EARTHWORK

XS SHEET NO	ROADWAY	STA	STA	LOC	CLASS A EXCAVATION	FILL	COMPACTING EMBANKMENT	SUBGRADE COMPACTION 6-INCH DEPTH	COMPACTING IN CUT	REMARKS
					C.Y.	C.Y.	C.Y.	STA.	STA.	
1-4	ROUTE NN	17+05.00	20+18.67	LT/RT	306	103	85	2.1	2.1	
4-8	ROUTE NN	22+71.84	25+47.00	LT/RT	465	84	28	1.7	1.7	
				SUBTOTAL	771		113	3.8	3.8	
				PAY TOTAL	771		113	4	3.8	

NOTES: ASSUMING 25% SHRINKAGE
EXISTING PAVEMENT REMOVAL QUANTITY INCLUDED IN CLASS A EXCAVATION

EROSION CONTROL BLANKET

SHEET NO	ROADWAY	STA	STA	LOC	TYPE 2D EROSION CONTROL BLANKET	REMARKS
					S.Y.	
4	ROUTE NN	19+00	20+32	LT	116.2	
4	ROUTE NN	22+66	24+19	LT	94.1	
4	ROUTE NN	18+58	20+22	RT	262.0	
4	ROUTE NN	22+57	24+40	RT	557.2	
				SUBTOTAL	1029.5	
				PAY TOTAL	1030	

PAVEMENT & BASE

SHEET NO	ROADWAY	STA	STA	LOC	AREA	OPTIONAL PAVEMENT	TYPE 1 AGGREGATE FOR BASE 6 - IN.	MODIFIED COLDMILLING (DEPTH TRANSITIONS)	BITUMINOUS PAVEMENT MIXTURE PG64-22, (BP-1)	TACK COAT - LOW TRACKING TACK	REMARKS
					S.F.	S.Y.	S.Y.	S.Y.	TONS	GAL.	
4	ROUTE NN	17+05	18+05	LT/RT	2035.2			226.1	24.6	29.4	
4	ROUTE NN	18+05	20+18.67	LT/RT	4311.4	479.0	479.0				
4	ROUTE NN	22+71.84	24+47	LT/RT	3615.2	401.7	401.7				
4	ROUTE NN	24+47	25+47	LT/RT	2094.8			232.8	25.3	30.3	
				SUBTOTAL		880.7	880.7	458.9	49.9	59.7	
				PAY TOTAL		880.7	881	459	49.9	60	

APPLICATION RATES:
BP-1: 1.96 T/CY
TACK COAT: 0.13 GAL/SY

SUMMARY OF QUANTITIES
SHEET 1 OF 3

STATE OF MISSOURI
NICHOLAS MICHAEL CORRENTI
NUMBER PE-2010000809
PROFESSIONAL ENGINEER
10/20/2025 5:30:24 PM
Nicholas Michael Correnti - Civil
MO PE-2010000809

DATE PREPARED: 10/20/2025
ROUTE: NN | STATE: MO
DISTRICT: SE | SHEET NO.: 3
COUNTY: PERRY
JOB NO.: J9S3771
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

DESCRIPTION | DATE | NO.

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

EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578

GUARDRAIL

SHEET NO	ROADWAY	STA	STA	LOC	MGS GUARDRAIL 8 FT. POSTS 6 FT. - 3 IN. SPACING	BRIDGE APPROACH TRANSITION SECTION (REGULAR / NO CURB)	TYPE A CRASHWORTHY END TERMINAL (MASH)	SHAPING SLOPES CLASS III	REMARKS
					L.F.	EA.	EA.	100 FT.	
4	ROUTE NN	18+34	20+23	RT	100	1	1	1	
4	ROUTE NN	19+06	20+32	LT	37.5	1	1	1	
4	ROUTE NN	22+57	23+84	RT	37.5	1	1	1	
4	ROUTE NN	22+66	24+56	LT	100	1	1	1	
				SUBTOTAL	275	4	4	4	
				PAY TOTAL	275	4	4	4	

PAVEMENT MARKING

SHEET NO	ROADWAY	STA	STA	LOC	CLASS 1 PAVEMENT MARKING PAINT 18-MIL, TYPE P BEADS			REMARKS
					4 IN. SOLID YELLOW	4 IN. INTERM.YELLOW	4 IN. SOLID WHITE	
					L.F.	L.F.	L.F.	
4	ROUTE NN	16+00.00	27+00.00	CTR	1100			RIGHT CENTERLINE STRIPE
4	ROUTE NN	16+00.00	21+95.00	CTR	595			LEFT CENTERLINE STRIPE
4	ROUTE NN	21+95.00	27+00.00	CTR		127		LEFT CENTERLINE STRIPE
4	ROUTE NN	16+00.00	27+00.00	LT			1100	LEFT EDGELINE STRIPE
4	ROUTE NN	16+00.00	27+00.00	RT			1100	RIGHT EDGELINE STRIPE
				SUBTOTAL	1695	127	2200	
				PAY TOTAL	1822		2200	

EROSION CONTROL

SHEET NO	ROADWAY	STA	STA	LOC	ALTERNATE DITCH CHECK	TYPE C BERM	SEDIMENT REMOVAL	REMARKS
					L.F.	L.F.	C.Y.	
10	ROUTE NN	18+67	20+18	RT	51		3.0	
10	ROUTE NN	17+52	19+02	LT	51		3.0	
10	ROUTE NN	19+39	20+54	LT	119		7.0	
10	ROUTE NN	20+40	20+93	LT/RT		152		
10	ROUTE NN	22+38	22+59	LT/RT		85		
10	ROUTE NN	22+56	24+76	RT	192		12.0	
10	ROUTE NN	22+71	24+72	LT	143		11.0	
				SUBTOTAL	556	237	36.0	
				PAY TOTAL	556	237	36	

ROCK BLANKET

SHEET NO	ROADWAY	STA	STA	LOC	AREA	FURNISHING TYPE 2 ROCK BLANKET	PLACING TYPE 2 ROCK BLANKET	PERMANENT EROSION CONTROL GEOTEXTILE	REMARKS
					S.F.	C.Y.	C.Y.	S.Y.	
4	ROUTE NN	20+23	20+83	LT/RT	6791.2	251.5	251.5	754.6	
4	ROUTE NN	22+36	22+66	LT/RT	1832.9	67.9	67.9	203.7	
				SUBTOTAL		319.4	319.4	958.3	
				PAY TOTAL		319	319	958	

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STATE OF MISSOURI
NICHOLAS MICHAEL CORRENTI
NUMBER PE-2010000809
PROFESSIONAL ENGINEER

10/20/2025 5:30:24 PM
Nicholas Michael Correnti - Civil
MO PE-2010000809

DATE PREPARED
10/20/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
SE	3

COUNTY
PERRY

JOB NO.
J9S3771

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

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

EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578

SUMMARY OF QUANTITIES
SHEET 2 OF 3

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL AREA SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NO.	DESCRIPTION
WARNING SIGNS								
WO1-1L	48X48	16.00						TURN (SYMBOL LEFT)
WO1-1R	48X48	16.00						TURN (SYMBOL RIGHT)
WO1-2L	48X48	16.00						CURVE (SYMBOL LEFT)
WO1-2R	48X48	16.00						CURVE (SYMBOL RIGHT)
WO1-3L	48X48	16.00						REVERSE TURN (SYMBOL LEFT)
WO1-3R	48X48	16.00						REVERSE TURN (SYMBOL RIGHT)
WO1-4L	48X48	16.00						REVERSE CURVE (SYMBOL LEFT)
WO1-4R	48X48	16.00						REVERSE CURVE (SYMBOL RIGHT)
WO1-4bL	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL LEFT)
WO1-4bR	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL RIGHT)
WO1-4cL	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL LEFT)
WO1-4cR	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL RIGHT)
WO1-6	60X30	12.50						HORIZONTAL ARROW (SYMBOL)
WO1-6a	72X36	18.00						HORIZ. ARROW (SYMBOL ON PERMANENT BARRICADE)
WO1-7	60X30	12.50						DOUBLE HEAD HORIZONTAL ARROW (SYMBOL)
WO1-7a	72X36	18.00						DOUBLE HEAD HORIZ. ARROW (SYMBOL ON PERM. BARR.)
WO1-8	18X24	3.00						CHEVRON (SYMBOL)
WO1-8a	30X36	7.50						CHEVRON (SYMBOL FOR DIVIDED HIGHWAYS)
WO3-1	48X48	16.00						STOP AHEAD (SYMBOL)
WO3-2	48X48	16.00						YIELD AHEAD (SYMBOL)
WO3-3	48X48	16.00						SIGNAL AHEAD (SYMBOL)
WO3-4	48X48	16.00						BE PREPARED TO STOP
WO3-5	48X48	16.00						SPEED LIMIT AHEAD
WO4-1L	48X48	16.00						MERGE (SYMBOL FROM LEFT)
WO4-1R	48X48	16.00						MERGE (SYMBOL FROM RIGHT)
WO4-1aL	48X48	16.00						MERGE (LEFT)
WO4-1aR	48X48	16.00						MERGE (RIGHT)
WO5-1	48X48	16.00						ROAD/BRIDGE/RAMP NARROWS
WO5-3	48X48	16.00						ONE LANE BRIDGE
WO5-5	48X48	16.00						NARROW LANES
WO6-1	48X48	16.00						DIVIDED HIGHWAY (SYMBOL)
WO6-2	48X48	16.00						DIVIDED HIGHWAY END (SYMBOL)
WO6-3	48X48	16.00						TWO WAY TRAFFIC (SYMBOL)
WO7-3a	30X24	5.00						NEXT XX MILES (PLAQUE)
WO8-1	48X48	16.00						BUMP
WO8-2	48X48	16.00						DIP
WO8-3	48X48	16.00						PAVEMENT ENDS
WO8-4	48X48	16.00						SOFT SHOULDER
WO8-5	48X48	16.00						SLIPPERY WHEN WET (SYMBOL)
WO8-6	48X48	16.00						TRUCK CROSSING
WO8-6c	48X48	16.00						TRUCK ENTRANCE
WO8-7	36X36	9.00						LOOSE GRAVEL
WO8-7a	36X36	9.00						FRESH OIL / LOOSE GRAVEL
WO8-9	48X48	16.00						LOW SHOULDER
WO8-11	48X48	16.00						UNEVEN LANES
WO8-12	48X48	16.00						NO CENTER LINE
WO8-15	48X48	16.00						GROOVED PAVEMENT
WO8-15P	30X24	5.00						MOTORCYCLE (PLAQUE)
WO8-17L	48X48	16.00						SHOULDER DROP-OFF (SYMBOL LEFT)
WO8-17R	48X48	16.00						SHOULDER DROP-OFF (SYMBOL RIGHT)
WO8-17P	30X24	5.00						SHOULDER DROP-OFF (PLAQUE)
W10-1	42RND.	9.62						RAILROAD CROSSING
WO12-1	24X24	4.00						DOUBLE DOWN ARROW (SYMBOL)
WO12-2	48X48	16.00						LOW CLEARANCE (SYMBOL)
WO12-2x	24X18	3.00						LOW CLEARANCE (PLAQUE)
WO12-2a	84X24	14.00						OVERHEAD LOW CLEARANCE (FEET AND INCHES)
WO12-4	120X60	50.00						LOW CLEARANCE XX FT XX IN XX MILES AHEAD
WO12-5	120X60	50.00						WIDTH RESTRICTION XX FT XX IN XX MILES AHEAD
WO13-1	30X30	6.25						ADVISORY SPEED (PLAQUE)
WO16-2	30X24	5.00						XXX FEET (PLAQUE)
WO16-3	30X24	5.00						X MILE (PLAQUE)
WO20-1	48X48	16.00						ROAD/BRIDGE/RAMP WORK AHEAD
WO20-2	48X48	16.00						DETOUR AHEAD
WO20-3	48X48	16.00	2	32.00			20	ROAD CLOSED AHEAD
WO20-4	48X48	16.00	2	32.00			7	ONE LANE ROAD AHEAD
WO20-5	48X48	16.00						RIGHT/CENTER/LEFT LANE CLOSED AHEAD
WO20-5a	48X48	16.00						2 RIGHT/CENTER/LEFT LANES CLOSED AHEAD
WO20-6a	48X48	16.00						RIGHT/CENTER/LEFT LANE CLOSED
WO20-7a	48X48	16.00	2	32.00			8	FLAGGER (SYMBOL)
WO21-2	36X36	9.00						FRESH OIL
WO21-5	48X48	16.00						SHOULDER WORK / SHOULDER WORK AHEAD
WO22-1	48X48	16.00						BLASTING ZONE AHEAD
WO22-2	42X36	10.50						TURN OFF 2-WAY RADIO AND PHONE
WO22-3	42X36	10.50						END BLASTING ZONE
GO22-1	21X15	2.19						WET PAINT (ARROW PIVOTS)

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NO.	DESCRIPTION
GUIDE SIGNS								
E05-1	36X48	12.00						GORE EXIT
E05-2	48X36	12.00						EXIT OPEN
E05-2a	48X36	12.00						EXIT CLOSED
GO20-1	60X24	10.00						ROAD WORK NEXT XX MILES
GO20-2	48X24	8.00						END ROAD WORK
GO20-4	36X18	4.50						PILOT CAR FOLLOW ME
GO20-4a	42X30	8.75						PILOT CAR IN USE WAIT & FOLLOW
GO20-4a	18X12	1.50						PILOT CAR IN USE WAIT & FOLLOW
GO20-5aP	36X24	6.00	2	12.00			54	WORK ZONE (PLAQUE)
MO4-8a	24X18	3.00	2	6.00			52	END DETOUR
MO4-9L	48X36	12.00						DETOUR (LEFT)
MO4-9R	48X36	12.00						DETOUR (RIGHT)
MO4-9P	48X12	4.00						STREET NAME (PLAQUE)
MO4-10L	48X18	6.00						DETOUR ARROW (LEFT)
MO4-10R	48X18	6.00						DETOUR ARROW (RIGHT)
REGULATORY SIGNS								
R1-1	48X48	13.25						STOP
R1-2	48TRI.	6.93						YIELD
R1-2a	36X36	9.00						TO ONCOMING TRAFFIC (PLAQUE)
R1-3P	30X12	2.50						ALL WAY (PLAQUE)
R2-1	36X48	12.00	4	48.00			4, 25	SPEED LIMIT: 2 @ 45, 2 @ 55
R3-1	48X48	16.00						NO RIGHT TURN (SYMBOL)
R3-2	48X48	16.00						NO LEFT TURN (SYMBOL)
R3-3	36X36	9.00						NO TURNS
R3-4	48X48	16.00						NO U-TURN (SYMBOL)
R3-7L	30X30	6.25						LEFT LANE MUST TURN LEFT
R3-7R	30X30	6.25						RIGHT LANE MUST TURN RIGHT
R4-1	36X48	12.00						DO NOT PASS
R4-2	36X48	12.00						PASS WITH CARE
R4-7a	36X48	12.00						KEEP RIGHT (HORIZONTAL ARROW)
R4-8a	36X48	12.00						KEEP LEFT (HORIZONTAL ARROW)
R5-1	30X30	6.25						DO NOT ENTER
R5-1a	36X24	6.00						WRONG WAY
R6-1L	54X18	6.75						ONE WAY ARROW (LEFT)
R6-1R	54X18	6.75						ONE WAY ARROW (RIGHT)
R6-2L	24X30	5.00						ONE WAY (LEFT)
R6-2R	24X30	5.00						ONE WAY (RIGHT)
R9-9	24X12	2.00						SIDEWALK CLOSED
R9-11L	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW LEFT) CROSS HERE
R9-11R	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW RIGHT) CROSS HERE
R10-6	24X36	6.00						STOP HERE ON RED (45^ ARROW)
R11-2	48X30	10.00	2	20.00			29	ROAD CLOSED
							61	ROAD CLOSED XX MILES AHEAD
R11-3a	60X30	12.50	3	37.50			A,B,C	LOCAL TRAFFIC ONLY
R11-4	60X30	12.50	2	25.00			62	ROAD CLOSED TO THRU TRAFFIC
CONST-3A	60X48	20.00						FINE SIGN
CONST-3X	56X12	4.67						SPEEDING/PASSING (PLATE)
MISCELLANEOUS SIGNS								
CONST-5	48X36	12.00						POINT OF PRESENCE
CONST-5	96X48	32.00						POINT OF PRESENCE
CONST-8	48X36	12.00						WORK ZONE NO PHONE ZONE
R10-11A	36X48	12.00						NO TURN ON RED
SPECIAL	36X60	15.00	17	255.00			90A	DETOUR - STR. ARROW
SPECIAL	36X60	15.00	2	30.00			90B	DETOUR - ADV. RIGHT ARROW
SPECIAL	36X60	15.00	2	30.00			90C	DETOUR - ADV. LEFT ARROW
SPECIAL	36X60	15.00	2	30.00			90D	DETOUR - RIGHT ARROW
SPECIAL	36X60	15.00	2	30.00			90E	DETOUR - LEFT ARROW
WO20-3	48X48	16.00	2	32.00			20A	ROAD CLOSED 1000 FT

616-10.05 CONSTRUCTION SIGNS	TOTAL
	652

616-10.10 RELOCATED SIGNS	TOTAL
	*

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NOTES:

ALL TRAFFIC CONTROL ITEMS INCLUDED IN PAY ITEM 616-99.01 TEMPORARY TRAFFIC CONTROL LUMP SUM, UNLESS NOTED OTHERWISE IN THE PLANS. THESE QUANTITIES ARE ONLY AN ESTIMATE AND ARE SUBJECT TO CHANGE BASED ON FIELD CONDITIONS.

SIGN QUANTITIES HAVE BEEN ESTIMATED. TEMPORARY TRAFFIC CONTROL SHALL FOLLOW AT A MINIMUM MUTCD STANDARDS. LATEST EDITION.

ALL WARNING SIGNS SHALL HAVE FLORESCENT SHEETING.

EFFECTIVE: 07-01-2025

ITEM NUMBER	TOTAL QTY	DESCRIPTION
6122008		IMPACT ATTENUATOR 40 MPH (SAND BARRELS)
6122009		IMPACT ATTENUATOR 45 MPH (SAND BARRELS)
6122010		IMPACT ATTENUATOR 50 MPH (SAND BARRELS)
6122012		IMPACT ATTENUATOR 55 MPH (SAND BARRELS)
6122014		IMPACT ATTENUATOR 60 MPH (SAND BARRELS)
6122017		IMPACT ATTENUATOR 65 MPH (SAND BARRELS)
6122019		IMPACT ATTENUATOR 70 MPH (SAND BARRELS)
6122020		REPLACEMENT SAND BARREL
6122030		IMPACT ATTENUATOR (RELOCATION)
6122040		WORK ZONE CRASH CUSHION (NARROW)
6122041		WORK ZONE CRASH CUSHION (RELOCATION)
6123001		TRUCK MOUNTED ATTENUATOR (TMA)
6161012		BUOYS (BOATS KEEP OUT)
6161013		BUOYS (NO WAKE)
6161014		SPECIAL SIGN ASSEMBLY (BOATS KEEP OUT)
6161020		CHANNELIZER (DRUM-LIKE)
6161022		CHANNELIZER (CONE)
6161025	30	CHANNELIZER (TRIM-LINE)
6161026		CHANNELIZER (VERTICAL PANEL)
6161030	12	TYPE 3 MOVEABLE BARRICADE
6161033		DIRECTION INDICATOR BARRICADE
6161040		FLASHING ARROW PANEL
6161047		TYPE 3 OBJECT MARKER
6161055		SEQUENTIAL FLASHING WARNING LIGHT
6161070		TUBULAR MARKER
6161095		RADAR SPEED ADVISORY SYSTEM
6161096		CHANGEABLE MESSAGE SIGN, COMMISSION FURNISHED/RETAINED
6161098A	4**	CHANGEABLE MESSAGE SIGN WITHOUT COMM. INTERFACE, CONTRACTOR FURNISHED/RETAINED
6161099		CHANGEABLE MESSAGE SIGN WITH COMM. INTERFACE, CONTRACTOR FURNISHED/RETAINED
6162000A		WORK ZONE TRAFFIC SIGNAL SYSTEM
6162002		TEMPORARY LONG-TERM RUMBLE STRIPS
6173600D		TEMPORARY TRAFFIC BARRIER, CONTRACTOR FURNISHED/RETAINED
6173700B		TEMP. TRAFFIC BARRIER ANCHORED, CONTRACTOR FURNISHED/RETAINED
6173706		TEMP. TRAFFIC BARRIER STIFFNESS TRANSITION CONTRACTOR FURNISHED/RETAINED
6174000A		TEMP. TRAFFIC BARRIER HEIGHT TRANSITION, CONTRACTOR FURNISHED/RETAINED
6175010A		RELOCATING TEMPORARY TRAFFIC BARRIER
6175011B		RELOCATING TEMP. TRAFFIC BARRIER ANCHORED
6175013		RELOCATING TEMP. TRAFFIC BARRIER STIFFNESS
6175020A		RELOCATING TEMP. TRAFFIC BARRIER HEIGHT
6208064A		TEMPORARY RAISED PAVEMENT MARKER
9029400		TEMPORARY TRAFFIC SIGNALS
9029401		TEMPORARY TRAFFIC SIGNALS AND LIGHTING

* NO DIRECT PAY WILL BE MADE FOR RELOCATION OF CONSTRUCTION SIGNING OR DEVICES.

** NOT INCLUDED IN LUMP SUM TEMPORARY TRAFFIC CONTROL.

SUMMARY OF QUANTITIES
SHEET 3 OF 3

STATE OF MISSOURI
NICHOLAS MICHAEL CORRENTI
NUMBER PE-2010000809
PROFESSIONAL ENGINEER

10/20/2025 5:30:24 PM
Nicholas Michael Correnti - Civil
MO PE-2010000809

DATE PREPARED
10/20/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
SE	3

COUNTY
PERRY

JOB NO.
J9S3771

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

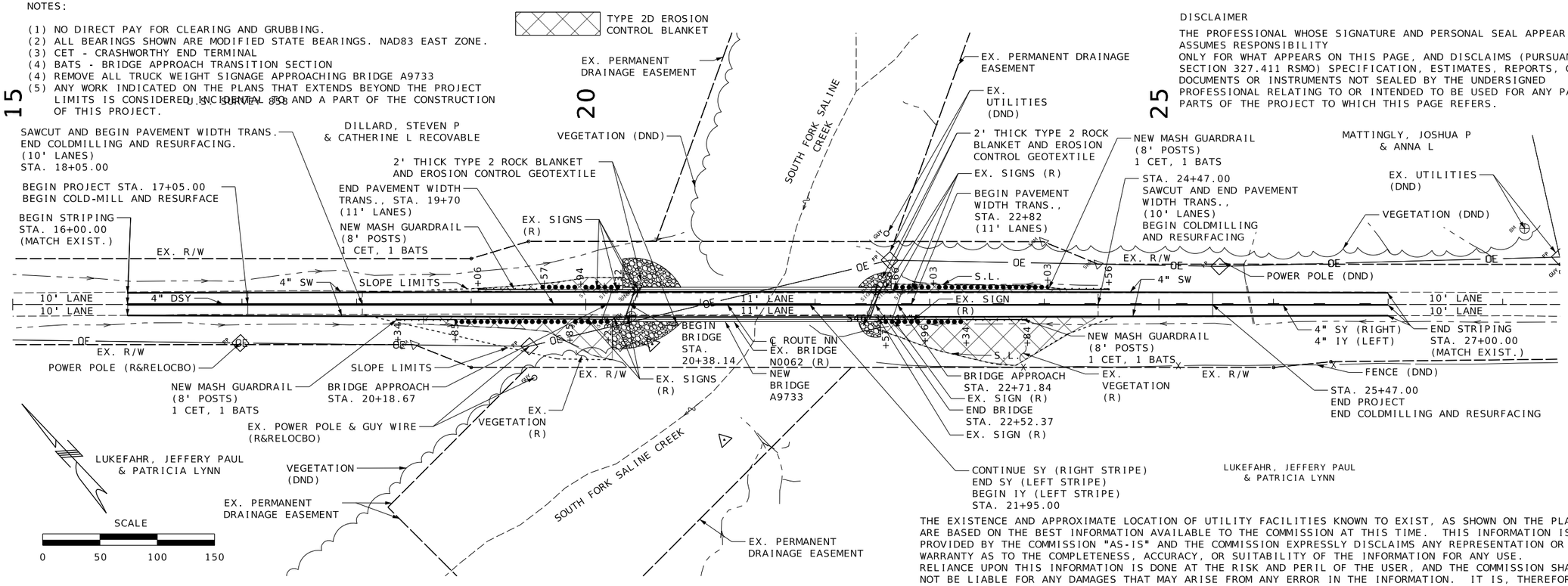
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578

NOTES:

(1) NO DIRECT PAY FOR CLEARING AND GRUBBING.
(2) ALL BEARINGS SHOWN ARE MODIFIED STATE BEARINGS. NAD83 EAST ZONE.
(3) CET - CRASHWORTHY END TERMINAL
(4) BATS - BRIDGE APPROACH TRANSITION SECTION
(4) REMOVE ALL TRUCK WEIGHT SIGNAGE APPROACHING BRIDGE A9733
(5) ANY WORK INDICATED ON THE PLANS THAT EXTENDS BEYOND THE PROJECT LIMITS IS CONSIDERED INCIDENTAL TO AND A PART OF THE CONSTRUCTION OF THIS PROJECT.



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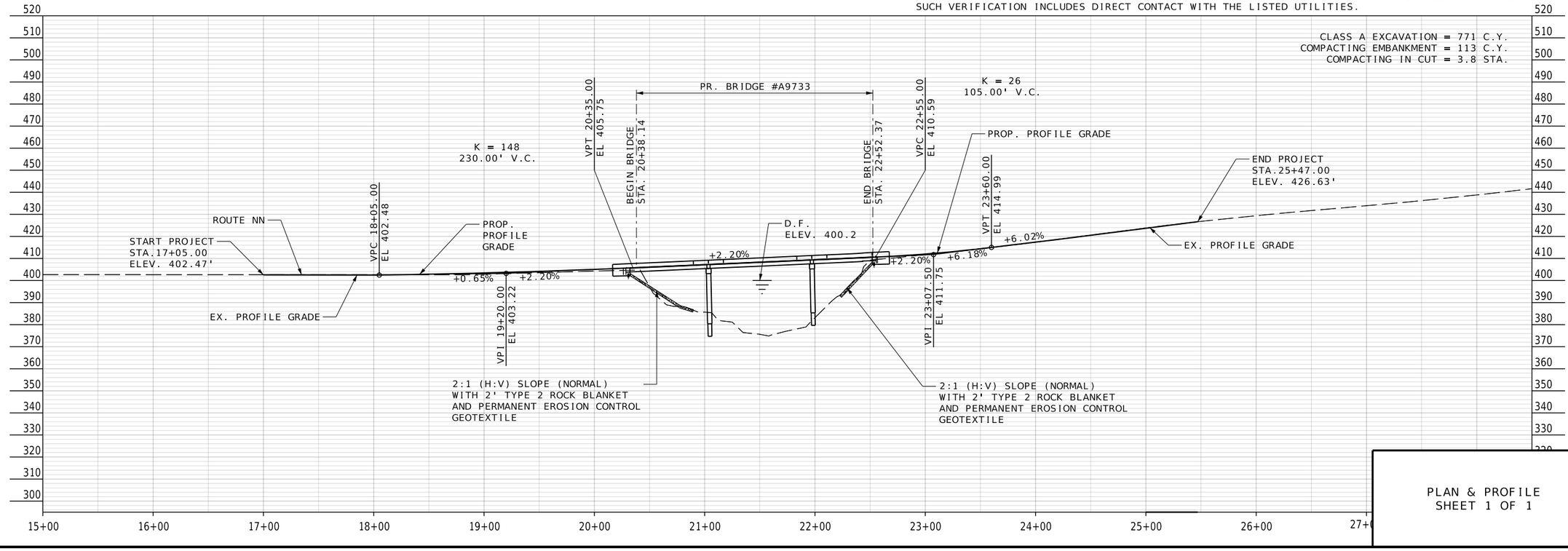
THE EXISTENCE AND APPROXIMATE LOCATION OF UTILITY FACILITIES KNOWN TO EXIST, AS SHOWN ON THE PLANS, ARE BASED ON THE BEST INFORMATION AVAILABLE TO THE COMMISSION AT THIS TIME. THIS INFORMATION IS PROVIDED BY THE COMMISSION "AS-IS" AND THE COMMISSION EXPRESSLY DISCLAIMS ANY REPRESENTATION OR WARRANTY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



PLAN & PROFILE
SHEET 1 OF 1

STATE OF MISSOURI
NICHOLAS MICHAEL CORRENTI
NUMBER PE-2010000809
PROFESSIONAL ENGINEER
10/20/2025 5:30:25 PM
Nicholas Michael Correnti - Civil
MO.PE-2010000809

DATE PREPARED
10/20/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
SE	4

COUNTY
PERRY

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J9S3771

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BRIDGE NO.

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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 314-394-3100
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Missouri Certificate of Authority: 001578

ALL PROJECT COORDINATES HAVE BEEN PROJECTED FROM THE MISSOURI STATE PLANE COORDINATE (SPC) SYSTEM OF 1983 USING AN AVERAGE PROJECT PROJECTION (GRID TO GROUND) FACTOR. TO GET BACK TO STATE PLANE COORDINATES, MULTIPY THE PROJECT COORDINATES BY THE AVERAGE GRID FACTOR AS SHOWN IN THE "REFERENCE CONTROL INFORMATION" PORTION OF THIS TABLE.

PROJECT COORDINATE INFORMATION

COORDINATE SYSTEM	MO SPC
HORIZONTAL DATUM	NAD83(2011)
VERTICAL DATUM	NAVD88
GEOID MODEL	2018
ELEVATIONS DETERMINED BY	DIFFERENTIAL LEVELING
PROJECT PROJECTION FACTOR	1.00000000

REFERENCE CONTROL INFORMATION

COORDINATE SYSTEM	
CONTROL STATION	
DESIGNATION	MODOT STE GENE CORS ARP
CORS_ID	MOSG
PID	DN4502
LATITUDE	37°56'14".95574
LONGITUDE	90°08'08".71530
NORTHING (M)	233556.6540
EASTING (M)	282017.6570
ZONE	EAST
PROJECT AVERAGE GRID FACTOR	1.00000000

EXAMPLE OF PROJECT COORDINATE TO S.P.C.

PROJECT NORTHING X AVERAGE GRID FACTOR
= STATE PLANE NORTHING
PROJECT EASTING X AVERAGE GRID FACTOR
= STATE PLANE EASTING

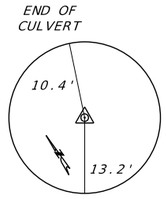
EXAMPLE: CONTROL POINT #100
N 718739.092 X 1.00000000 = N 718739.092
E 962968.556 X 1.00000000 = E 962968.556

LINEAR UNIT CONVERSION

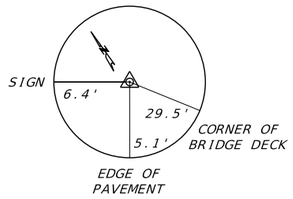
1 METER = 3.280833333 US SURVEY FEET (USFT)

COORDINATE POINT LISTING

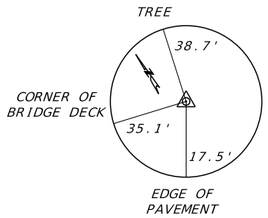
SHEET NO	STATION	LOCATION	OFFSET (USFT)	MODIFIED STATE PLANE (GROUND) NORTHING (US SURVEY FT)	EASTING (US SURVEY FT)	ELEVATION (US SURVEY FT)	DESCRIPTION	GPK POINT ID
PROJECT CONTROL POINTS								
	13+05.98	ROUTE NN	21.55 LT	718,739.092	962,968.556	400.04	5/8" REBAR W/ CAP	CP100
	20+16.27	ROUTE NN	14.96 LT	718,246.077	963,479.929	402.72	5/8" REBAR W/ CAP	CP101
	22+83.38	ROUTE NN	26.97 LT	718,071.202	963,682.187	407.74	5/8" REBAR W/ CAP	CP102
	29+25.07	ROUTE NN	13.33 LT	717,620.225	964,138.888	444.92	5/8" REBAR W/ CAP	CP103
ALIGNMENTS								
	6+88.60	ROUTE NN		719,253.5780	962,650.3359		BEGIN STATION	
	10+25.20	ROUTE NN		718,945.3371	962,785.5656		PC	
	11+42.36	ROUTE NN		718,838.0456	962,832.6360		HPI	
		ROUTE NN		719,177.8270	963,315.5001		CC	
	12+56.40	ROUTE NN		718,757.5131	962,917.7335		PT	
	32+62.10	ROUTE NN		717,378.8809	964,374.5127		PC	
	34+65.89	ROUTE NN		717,238.8048	964,522.5290		HPI	
		ROUTE NN		717,899.4778	964,867.1828		CC	
	36+59.20	ROUTE NN		717,197.5548	964,722.1000		END STATION	



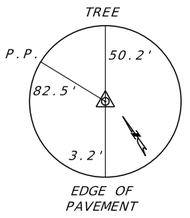
CONTROL POINT NO. 100
5/8" REBAR W/ PINK MODOT CAP
N: 718739.092
E: 962968.556
ELEV: 400.04
HWY NN STA. 13+05.98



CONTROL POINT NO. 101
5/8" REBAR W/ PINK MODOT CAP
N: 718246.077
E: 963479.929
ELEV: 402.72
HWY NN STA. 20+16.27



CONTROL POINT NO. 102
5/8" REBAR W/ PINK MODOT CAP
N: 718071.202
E: 963682.187
ELEV: 407.74
HWY NN STA. 22+83.38



CONTROL POINT NO. 103
5/8" REBAR W/ PINK MODOT CAP
N: 717620.225
E: 964138.888
ELEV: 444.92
HWY NN STA. 29+25.07

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COORDINATE POINT SHEET
SHEET 1 OF 1

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PROFESSIONAL ENGINEER
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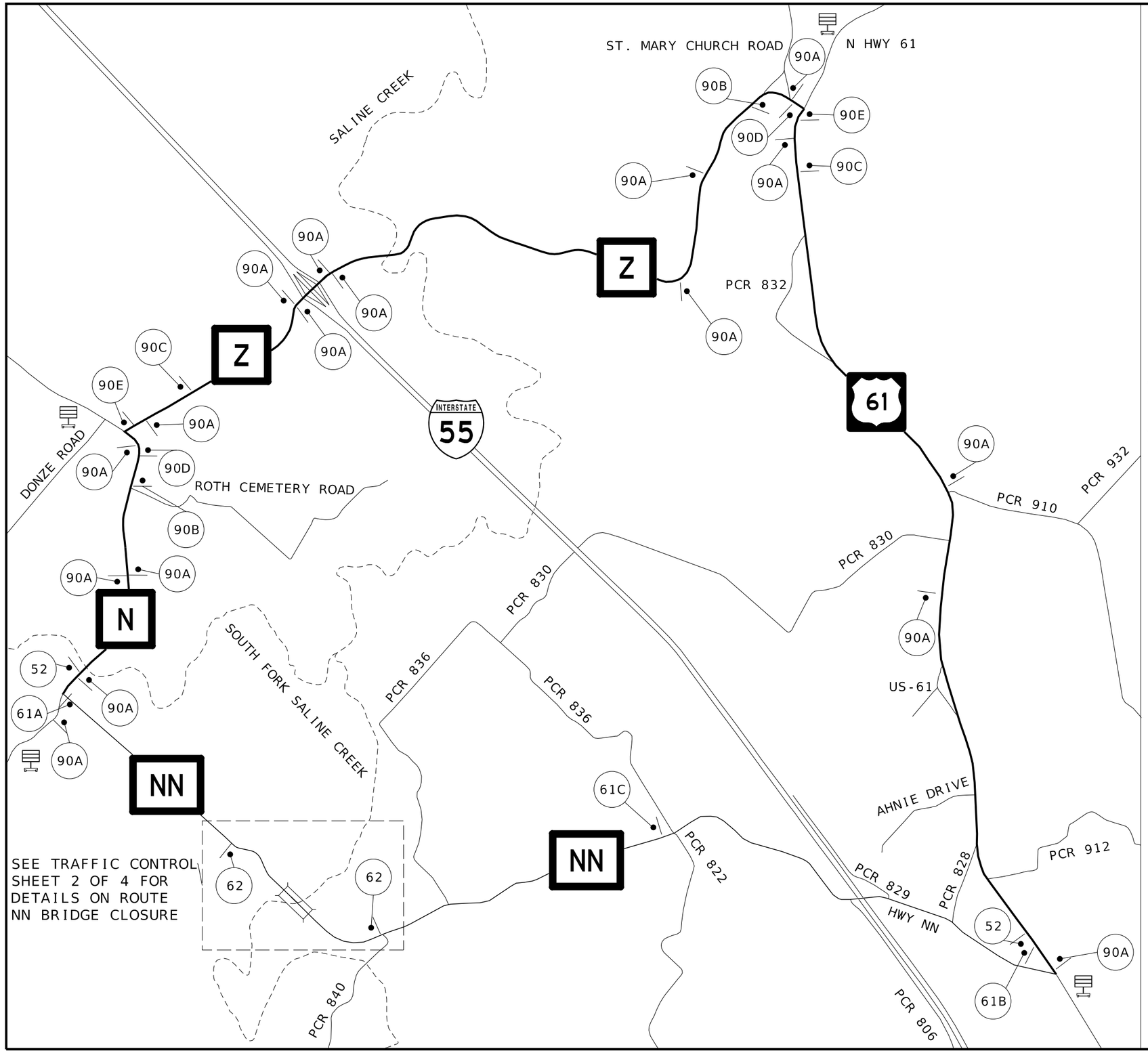
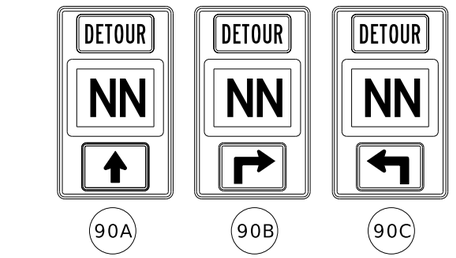
Fax 314-394-3199
Missouri Certificate of Authority: 001578





GENERAL NOTES:

1. BARRICADES AT THE HARD CLOSURES WILL BE MAINTAINED THROUGHOUT THE WORKDAY TO OPEN ONLY FOR CONSTRUCTION INGRESS AND EGRESS.
2. CMS BOARDS TO BE LOCATED AS DIRECTED BY THE ENGINEER.
3. LOCATIONS AND DISTANCES ARE APPROXIMATE AND NOT TO SCALE.
4. ALL SIGN SPACING WILL BE 500 FEET UNLESS OTHERWISE NOTED.
5. ALL CMS BOARDS SHALL HAVE 5 TRIM LINE CHANNELIZERS AT 20-FOOT SPACING FOR DELINEATION.

TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- CHANGEABLE MESSAGE BOARD

NOT TO SCALE

DISCLAIMER
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TRAFFIC CONTROL SHEET 1 OF 4

STATE OF MISSOURI
NICHOLAS MICHAEL CORRENTI
NUMBER PE-2010000809
PROFESSIONAL ENGINEER
10/20/2025 5:30:25 PM
Nicholas Michael Correnti - Civil
MO PE-2010000809

DATE PREPARED
10/20/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
SE	6

COUNTY
PERRY

JOB NO.
J9S3771

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

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

EFK•Moen
Civil Engineering Design
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Suite 250
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Phone 314-394-3100
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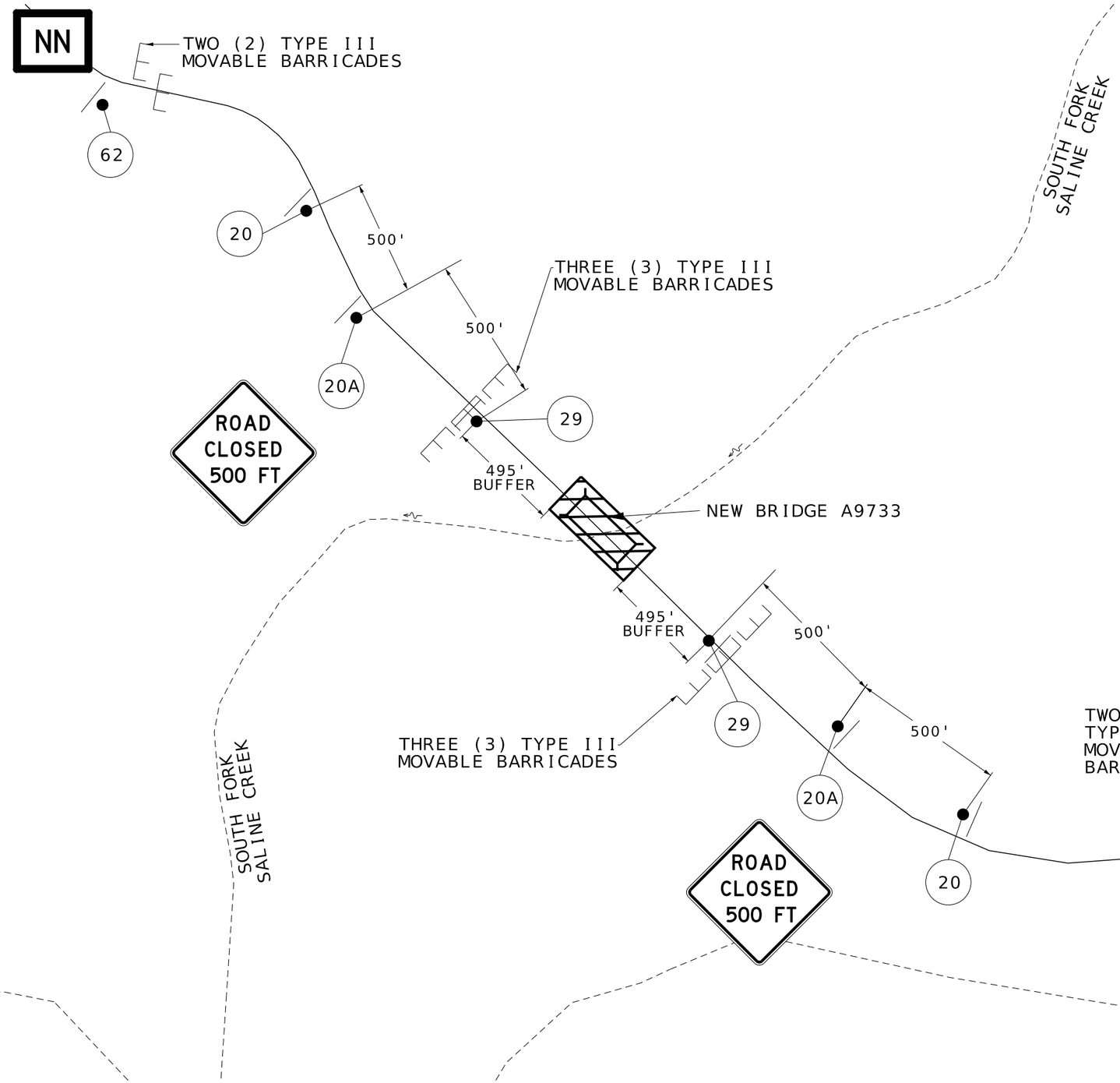
Missouri Certificate of Authority: 001578

ROAD CLOSURE DETAIL



R11-4

62

R11-2

29

WO20-3

20A

WO20-3

20

GENERAL NOTES:

1. BARRICADES AT THE HARD CLOSURES WILL BE MAINTAINED THROUGHOUT THE WORKDAY TO OPEN ONLY FOR CONSTRUCTION INGRESS AND EGRESS.
2. LOCATIONS AND DISTANCES ARE APPROXIMATE AND NOT TO SCALE.
3. ALL SIGN SPACING WILL BE 500 FEET UNLESS OTHERWISE NOTED.

NOT TO SCALE

TRAFFIC CONTROL
SHEET 2 OF 4

STATE OF MISSOURI
NICHOLAS MICHAEL CORRENTI
NUMBER PE-2010000809
PROFESSIONAL ENGINEER

10/20/2025 5:30:25 PM
Nicholas Michael Correnti - Civil
MO PE-2010000809

DATE PREPARED
10/20/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
SE	7

COUNTY
PERRY

JOB NO.
J9S3771

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
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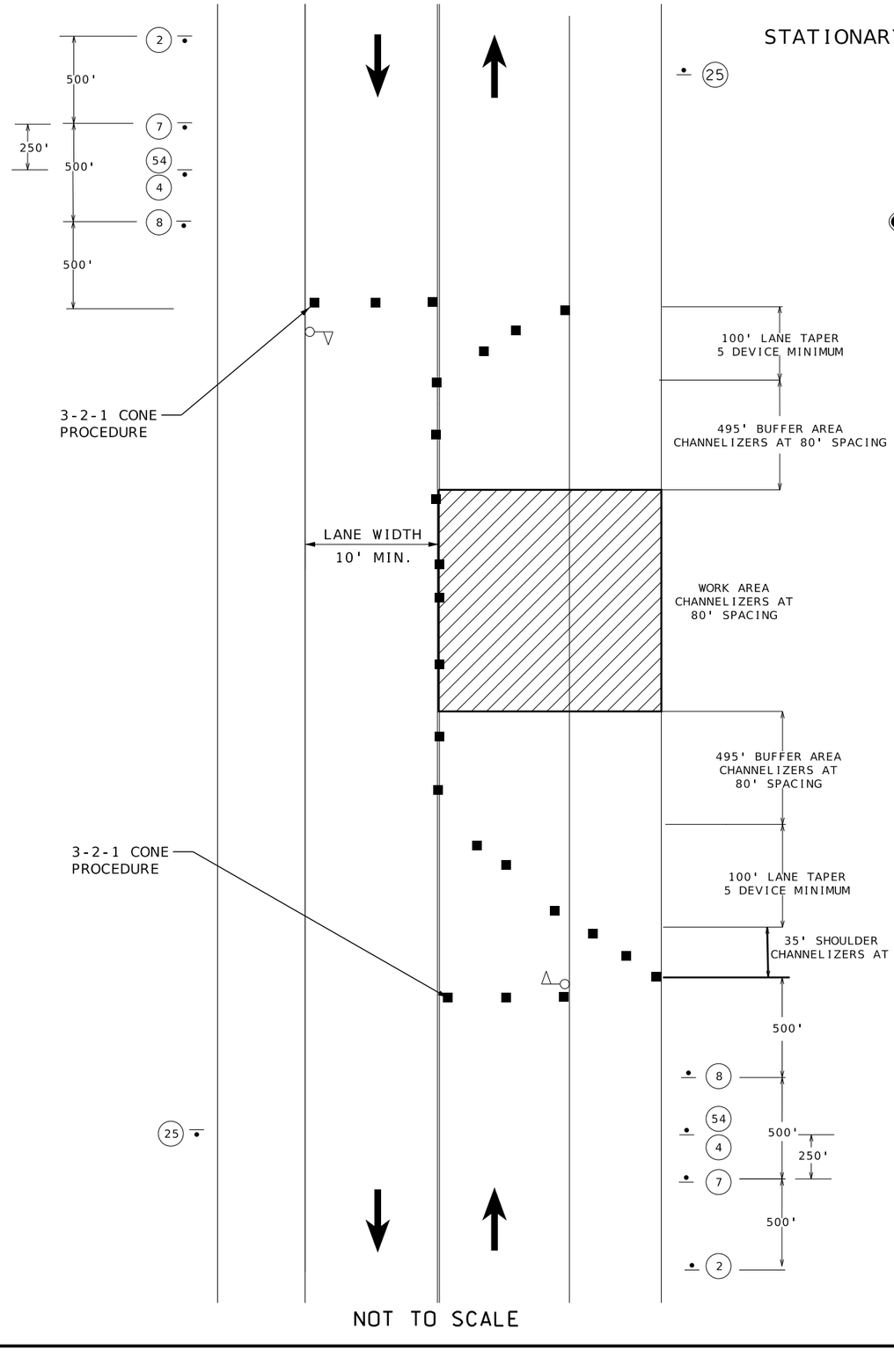
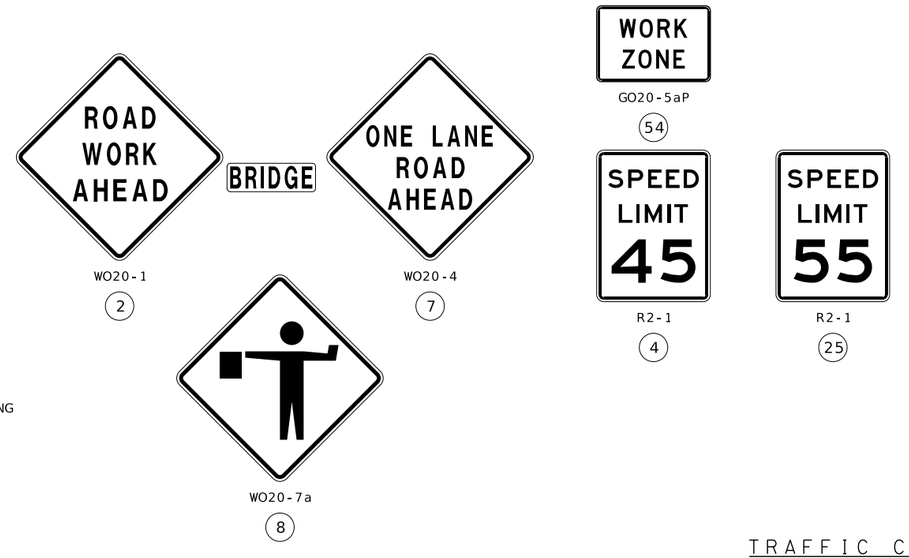
STATIONARY LANE CLOSURE USING FLAGGERS ON TWO-LANE ROAD



NOT TO SCALE



TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- CHANNELIZER
- FLAGGER
- WORK AREA

NOTES:

FLAGGERS MUST MAINTAIN A MINIMUM OF 100 FT FROM EQUIPMENT AND/OR WORKERS.

THE CONTRACTOR SHALL PROVIDE LIGHTING FOR THE FLAGGER STATIONS AT NIGHT AT NO DIRECT PAY. THE STATION SHALL BE ILLUMINATED WITH AN AVERAGE MAINTAINED INTENSITY OF 0.6 FOOTCANDLES.

THE CONTRACTOR SHALL BE RESPONSIBLE WITH PROVIDING AND ENSURING THE FLAGGERS HAVE CURRENT FLAGGER CERTIFICATION TRAINING AS SPECIFIED IN SEC 616.

THE CONTRACTOR SHALL MAKE ADJUSTMENTS TO WORK ZONE TO FIT ACTUAL FIELD CONDITIONS.

ALL EXISTING SIGNS IN CONFLICT WITH TEMPORARY TRAFFIC CONTROL SIGNS SHALL BE COVERED OR REMOVED.

TRAFFIC CONTROL
SHEET 3 OF 4

STATE OF MISSOURI
NICHOLAS MICHAEL CORRENTI
NUMBER PE-2010000809
PROFESSIONAL ENGINEER
10/20/2025 5:30:25 PM
Nicholas Michael Correnti - Civil
MO PE-2010000809

DATE PREPARED: 10/20/2025
ROUTE: NN | STATE: MO
DISTRICT: SE | SHEET NO.: 8
COUNTY: PERRY
JOB NO.: J9S3771
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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Civil Engineering Design
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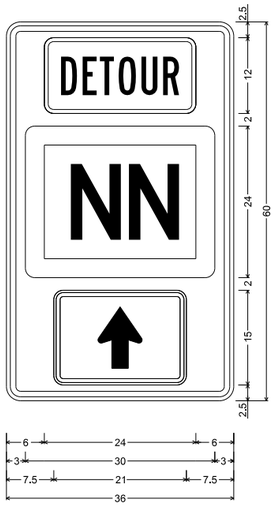
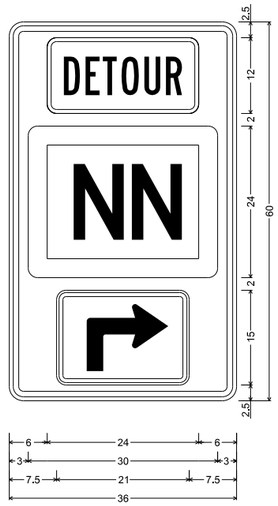


MO4-11 SHF-FLAT SHEET FLUORESCENT;
2.250" Radius, 0.875" Border, 0.625" Indent, Black on, Orange;
Table of letter and object lefts

6.000	
3.000	
7.500	

SIGN NO.	90A
STATION	VARIES
ROADWAY	VARIES



MO4-11 SHF-FLAT SHEET FLUORESCENT;
2.250" Radius, 0.875" Border, 0.625" Indent, Black on, Orange;
Table of letter and object lefts

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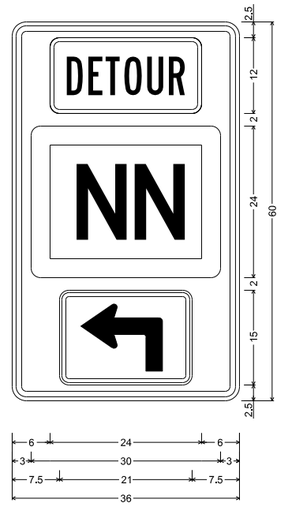
3.000	
7.500	

SIGN NO.	90B
STATION	VARIES
ROADWAY	VARIES



MO4-11 SHF-FLAT SHEET FLUORESCENT;
2.250" Radius, 0.875" Border, 0.625" Indent, Black on, Orange;
Table of letter and object lefts

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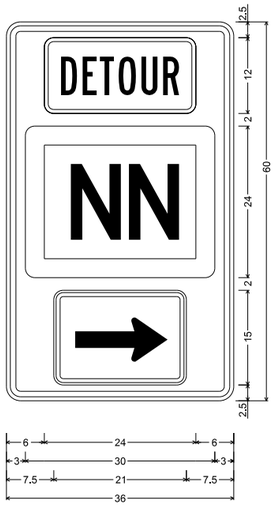
3.000	
7.500	

SIGN NO.	90C
STATION	VARIES
ROADWAY	VARIES



MO4-11 SHF-FLAT SHEET FLUORESCENT;
2.250" Radius, 0.875" Border, 0.625" Indent, Black on, Orange;
Table of letter and object lefts

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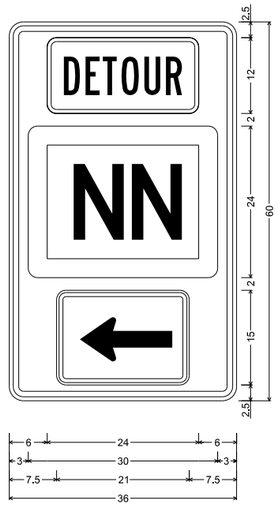
3.000	
7.500	

SIGN NO.	90D
STATION	VARIES
ROADWAY	VARIES



MO4-11 SHF-FLAT SHEET FLUORESCENT;
2.250" Radius, 0.875" Border, 0.625" Indent, Black on, Orange;
Table of letter and object lefts

6.000	
3.000	
7.500	

SIGN NO.	90E
STATION	VARIES
ROADWAY	VARIES

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TRAFFIC CONTROL
SHEET 4 OF 4

STATE OF MISSOURI
NICHOLAS MICHAEL CORRENTI
NUMBER PE-2010000809
PROFESSIONAL ENGINEER

10/20/2025 5:30:25 PM
Nicholas Michael Correnti - Civil
MO PE-2010000809

DATE PREPARED
10/20/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
SE	9

COUNTY
PERRY

JOB NO.
J9S3771

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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Civil Engineering Design
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Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578

PRIMARY RECEIVING WATERS:
SOUTH FORK SALINE CREEK

EROSION CONTROL LEGEND	
ALTERNATE DITCH CHECK	(A)
TYPE C BERM	
SILT FENCE	

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20

25

EX. PERMANENT DRAINAGE EASEMENT

EX. PERMANENT DRAINAGE EASEMENT

7 ALTERNATE DITCH CHECKS @ 19' SPACING

+39

+54

+57

EX. R/W

3 ALTERNATE DITCH CHECKS @ 75' SPACING

+52

+02

EX. R/W

85' TYPE C BERM

+38

+59

+71

11 ALTERNATE DITCH CHECKS @ 20' SPACING

+72

OE

S46°34'43"E

+49

EX. R/W

3 ALTERNATE DITCH CHECKS @ 75' SPACING

+67

+18

+40

+93

152' TYPE C BERM

EX. PERMANENT DRAINAGE EASEMENT

12 ALTERNATE DITCH CHECKS @ 20' SPACING

+56

+76

EX. PERMANENT DRAINAGE EASEMENT

SOUTH FORK SALINE CREEK

SCALE
0 40 80 120

EROSION CONTROL
SHEET 1 OF 1

STATE OF MISSOURI
NICHOLAS MICHAEL CORRENTI
NUMBER PE-2010000809
PROFESSIONAL ENGINEER

10/20/2025 5:30:25 PM
Nicholas Michael Correnti - Civil
MO PE-2010000809

DATE PREPARED
10/20/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
SE	10

COUNTY
PERRY

JOB NO.
J9S3771

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

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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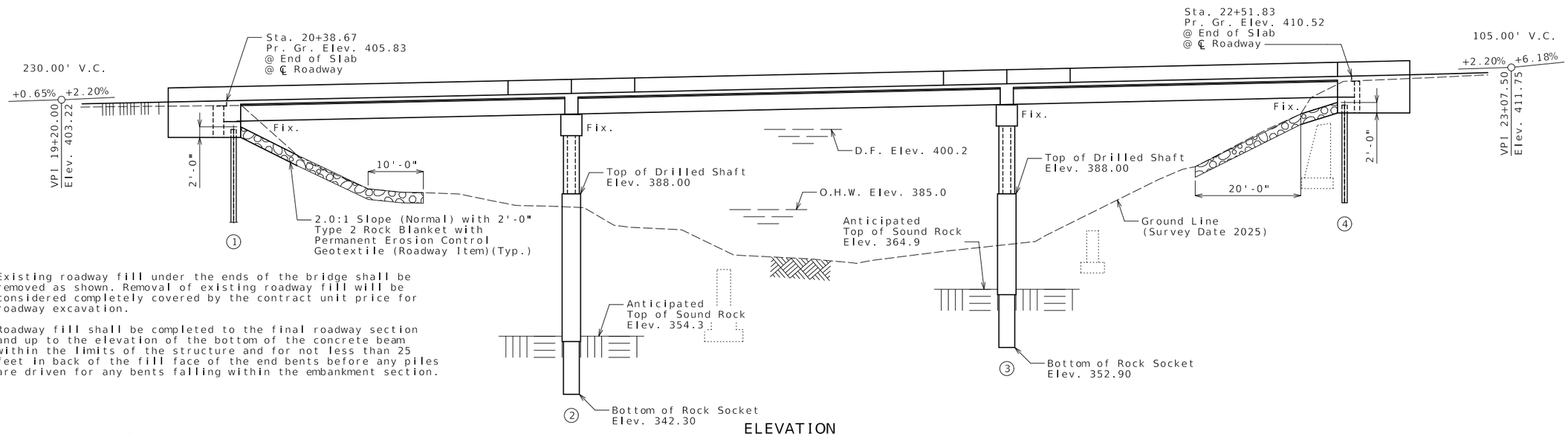
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578

SEC/SUR 3015 TWP 36N RGE 9E

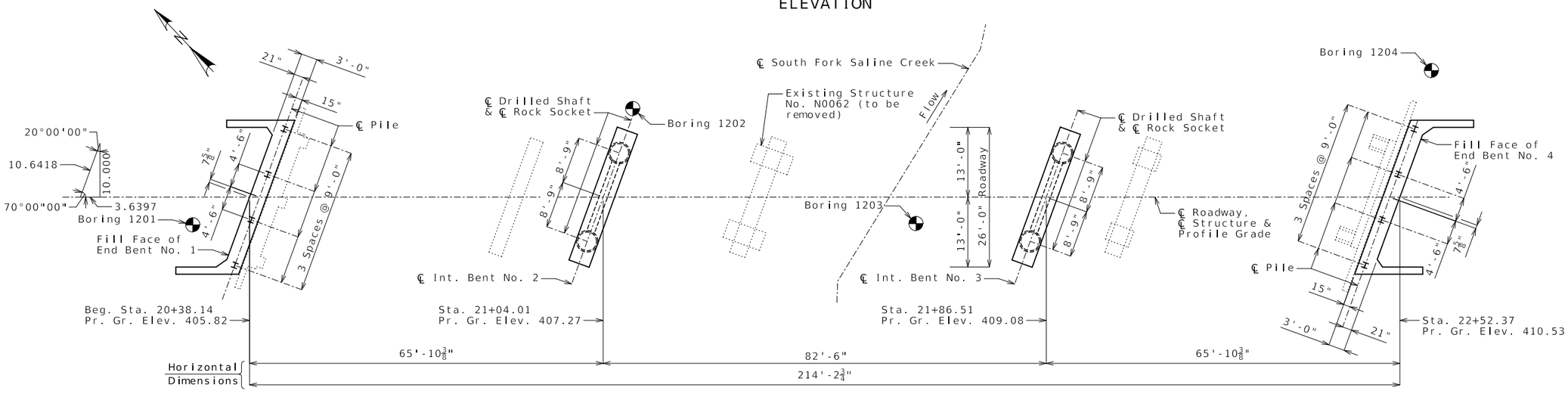
(64'-83'-64') PRESTRESSED CONCRETE NU-GIRDER SPANS



ELEVATION

Existing roadway fill under the ends of the bridge shall be removed as shown. Removal of existing roadway fill will be considered completely covered by the contract unit price for roadway excavation.

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.



SPAN (1-2) SPAN (2-3) SPAN (3-4)

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(s) 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(s) No. 30 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.

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

Sheet No. 1 of 30

BRIDGE: ROUTE NN OVER SOUTH FORK SALINE CREEK

ROUTE NN FROM ROUTE N TO I-55
ABOUT 1.5 MILES SOUTHEAST OF ROUTE N
BEGINNING STATION 20+38.14

Designed Sep. 2025
Detailed Sep. 2025
Checked Sep. 2025

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER

Alex C. Benz
10/21/202512:41:41 PM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED
10/21/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
BR	1

COUNTY
PERRY

JOB NO.
J9S3771

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9733

DESCRIPTION

REV.

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

EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
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Estimated Quantities

Item		Substr.	Superstr.	Total
Class 1 Excavation	cu. yard	130		130
Removal of Bridges (N0062)	lump sum			1
Bridge Approach Slab (Minor)	sq. yard		118	118
Drilled shafts (4 ft. 0 in. Dia.)	linear foot	113.6		113.6
Rock Sockets (3 ft. 6 in. Dia.)	linear foot	48.0		48.0
Video Camera Inspection	each	4		4
Foundation Inspection Holes	linear foot	88		88
Sonic Logging Testing	each	4		4
Galvanized Structural Steel Piles (12 in.)	linear foot	304		304
Pile Point Reinforcement	each	8		8
Class B Concrete (Substructure)	cu. yard	113.4		113.4
Type H Barrier	linear foot		464	464
Slab on Concrete NU-Girder	sq. yard		683	683
NU 35, Prestressed Concrete NU-Girder	linear foot		630	630
Reinforcing Steel (Bridges)	pound	28,120		28,120
Vertical Drain at End Bents	each			2
Laminated Neoprene Bearing Pad (Tapered)	each		18	18

All concrete above the construction joint in the end bents is included in the Estimated Quantities for Slab on Concrete NU-Girder.

All reinforcement in the end bents is included in the Estimated Quantities for Slab on Concrete NU-Girder.

All reinforcement in the intermediate bent concrete diaphragms except reinforcement embedded in the beam cap is included in the Estimated Quantities for Slab on Concrete NU-Girder.

All concrete above the intermediate beam cap is included in the Estimated Quantities for Slab on Concrete NU-Girder.

Estimated Quantities for Slab on Concrete NU-Girder

Item		Total
Class B-2 Concrete	cu. yard	193
Reinforcing Steel (Epoxy Coated)	pound	52,430

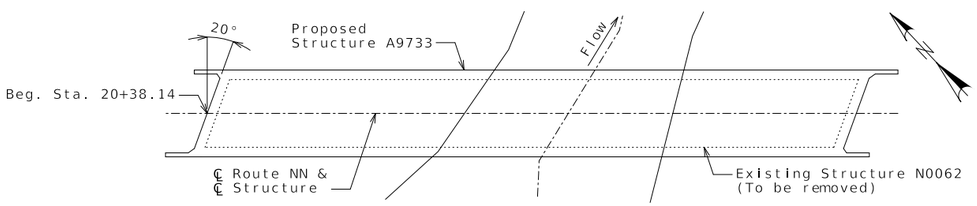
The table of Estimated Quantities for Slab on Concrete NU-Girder represents the quantities used by the State in preparing the cost estimate for concrete slabs. The area of the concrete slab will be measured to the nearest square yard longitudinally from end of slab to end of slab and transversely from out to out of bridge slab (or with the horizontal dimensions as shown on the plan of slab). Payment for precast panels, conventional forms, all concrete and epoxy coated reinforcing steel will be considered completely covered by the contract unit price for the slab. Variations may be encountered in the estimated quantities but the variations cannot be used for an adjustment in the contract unit price.

Method of forming the slab shall be as shown on the plans and in accordance with Sec 703. All hardware for forming the slab to be left in place as a permanent part of the structure shall be coated in accordance with ASTM A123 or ASTM B633 with a thickness class SC 4 and a finish type I, II or III.

The Estimated Quantities for Slab on Concrete NU-Girder are based on skewed precast prestr essed end panels.

The prestressed panel quantities are not included in the table of Estimated Quantities for Slab on Concrete NU-Girder.

Class B-2 Concrete quantity is based on minimum top flange thickness and minimum joint material thickness.



LOCATION SKETCH

General Notes:

Design Specifications:
2020 AASHTO LRFD Bridge Design Specifications (9th Ed.)
2023 AASHTO Guide Specifications for LRFD Seismic Bridge Design (3rd Ed.)
Seismic Design Category = C (Seismic Details)

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 Stresses:

Class B Concrete (Substructure)	f'c = 3,000 psi
Class B-2 Concrete (Drilled Shafts & Rock Sockets)	f'c = 4,000 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 A706 Grade 60)	fy = 60,000 psi
Structural Steel HP Pile (ASTM A709 Grade 50)	fy = 50,000 psi

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.

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

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

Hydrologic Data

Drainage Area = 102 mi²
Design Flood Frequency = 50 years
Design Flood Discharge = 19,200 cfs
Design Flood (D.F.) Elevation = 400.2
Base Flood (100-year)
Base Flood Elevation = 401.3
Base Flood Discharge = 22,400 cfs
Estimated Backwater = 0.4 ft
Average Velocity thru Opening = 7.6 ft/s
Freeboard (50-year)
Freeboard = 2.1 ft
Roadway Overtopping
Overtopping Flood Discharge > 22,400 cfs
Overtopping Flood Frequency > 500 years
Overtopping Flood Elevation = 403.1

Traffic Handling:
Structure to be closed during construction.
Traffic to be maintained on other routes.
See roadway plans for traffic control.

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

Foundation Data

Type	Design Data		Bent Number 1	2	3	4
Load Bearing Pile	Pile Type and Size		HP 12x53	---	---	HP 12x53
	Number	ea	4	---	---	4
	Approximate Length Per Each	ft	52	---	---	24
	Pile Point Reinforcement	ea	All	---	---	All
	Min. Galvanized Penetration (Elev.)	ft	Full Length	---	---	Full Length
	Pile Driving Verification Method		DF	---	---	DF
	Resistance Factor		0.4	---	---	0.4
	Minimum Nominal Axial Compressive Resistance	kip	545	---	---	545
Rock Socket	Layer 1 Foundation Material		---	Rock	Rock	---
	Layer 1 Elevation Range	ft	---	354.3-334.3	364.9-344.9	---
	Layer 1 Minimum Nominal Axial Compressive Resistance (Side Resistance)	ksf	---	14.9	14.9	---
	Minimum Nominal Axial Compressive Resistance (Tip Resistance)	ksf	---	---	---	---

DF = FHWA-modified Gates Dynamic Pile Formula

Minimum Nominal Axial Compressive Resistance = $\frac{\text{Maximum Factored Loads}}{\text{Resistance Factor}}$

Minimum Nominal Axial Compressive Resistance (Side Resistance + Tip Resistance) = $\frac{\text{Maximum Factored Loads}}{\text{Resistance Factor}}$

HP piles are anticipated to be driven to refusal on rock. Review all borings for depth of rock and restrict driving as appropriate to comply with hard rock driving criteria in accordance with Sec 702. When pile refusal on rock occurs, as approved by the engineer, the minimum nominal axial compressive resistance is verified and no additional pile driving verification method is required.

All piles shall be galvanized down to the minimum galvanized penetration (elevation).

Pile point reinforcement need not be galvanized. Shop drawings will not be required for pile point reinforcement.

The contractor shall make every effort to achieve the minimum galvanized penetration (elevation) shown on the plans for all piles. Deviations in penetration less than 5 feet of the minimum will be considered acceptable provided the contractor makes the necessary corrections to ensure the minimum penetrtion is achieved on subsequent piles.

Sonic logging testing shall be performed on all drilled shafts and rock sockets.

GENERAL NOTES AND QUANTITIES

Detailed Sep. 2025
Checked Sep. 2025

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

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
10/21/202512:41:57 PM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED 10/21/2025
ROUTE NN | STATE MO
DISTRICT BR | SHEET NO. 2
COUNTY PERRY
JOB NO. J9S3771
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9733

DESCRIPTION | REV.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
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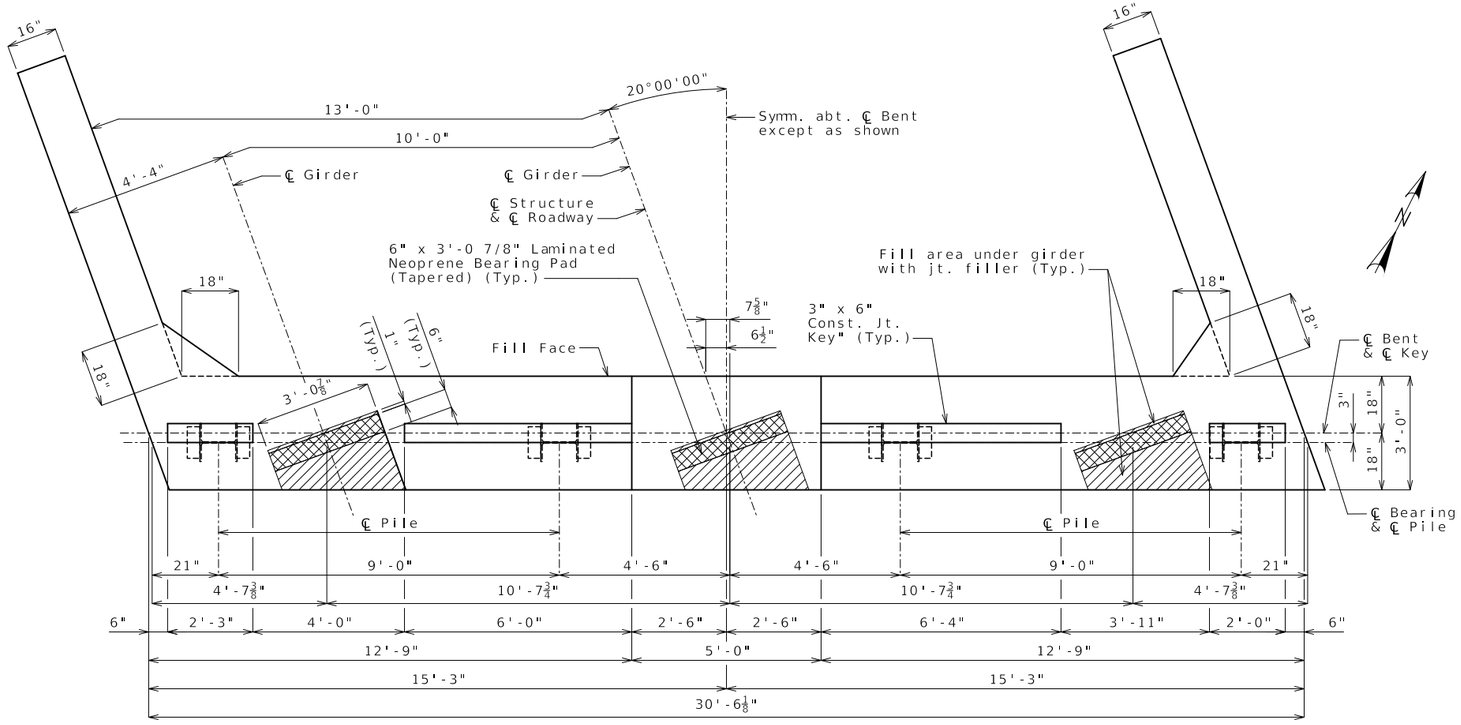
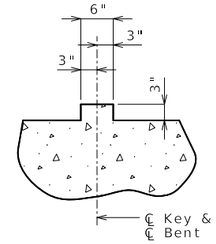
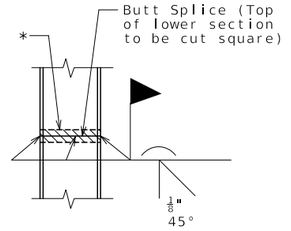
Fax 314-394-3199
Missouri Certificate of Authority: 001578



PLAN OF BEAM

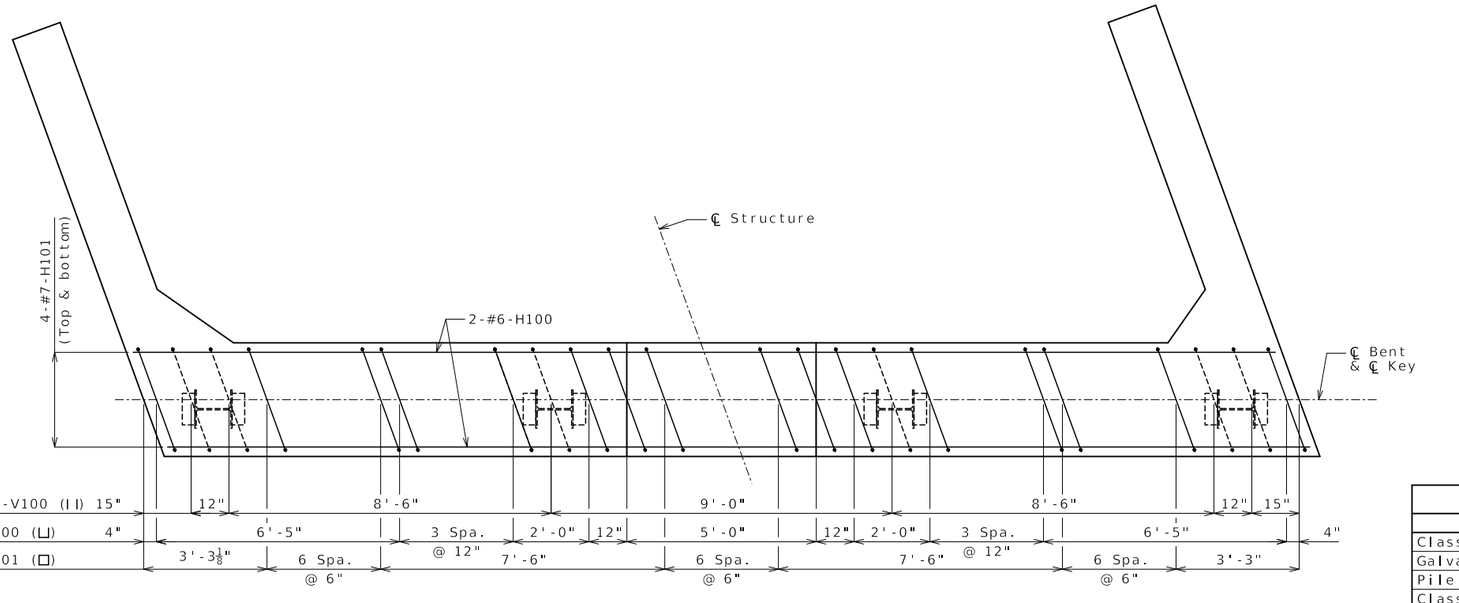


SECTION THRU KEY

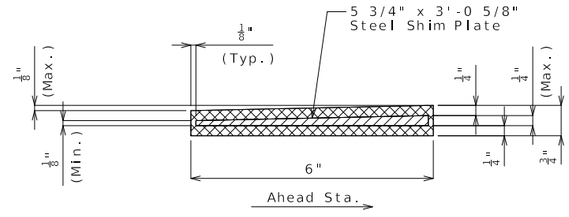


STEEL PILE SPLICE
(If required)

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



PLAN OF BEAM SHOWING REINFORCEMENT
Keys not shown for clarity.



SECTION THRU LAMINATED NEOPRENE BEARING PAD (TAPERED)

General Notes:
Work this sheet with Sheets No. 4 & 5

All U bars and pairs of V bars shall be placed parallel to centerline of roadway.

Reinforcing steel shall be shifted to clear piles. U bars shall clear piles by at least 1 1/2 inches.

Substructure Quantity Table for Bent No. 1		
Item		Quantity
Class 1 Excavation	cu. yard	65
Galvanzied Structural Steel Pile (12 in.)	linear foot	208
Pile Point Reinforcement	each	4
Class B Concrete (Substructure)	cu. yard	13.6

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

END BENT NO. 1

Detailed Sep. 2025
Checked Sep. 2025

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

Sheet No. 3 of 30

ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
STATE OF MISSOURI
Alex C. Benz
10/21/202512:42:08 PM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED 10/21/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
BR	3

COUNTY PERRY

JOB NO. J9S3771

CONTRACT ID.

PROJECT NO.

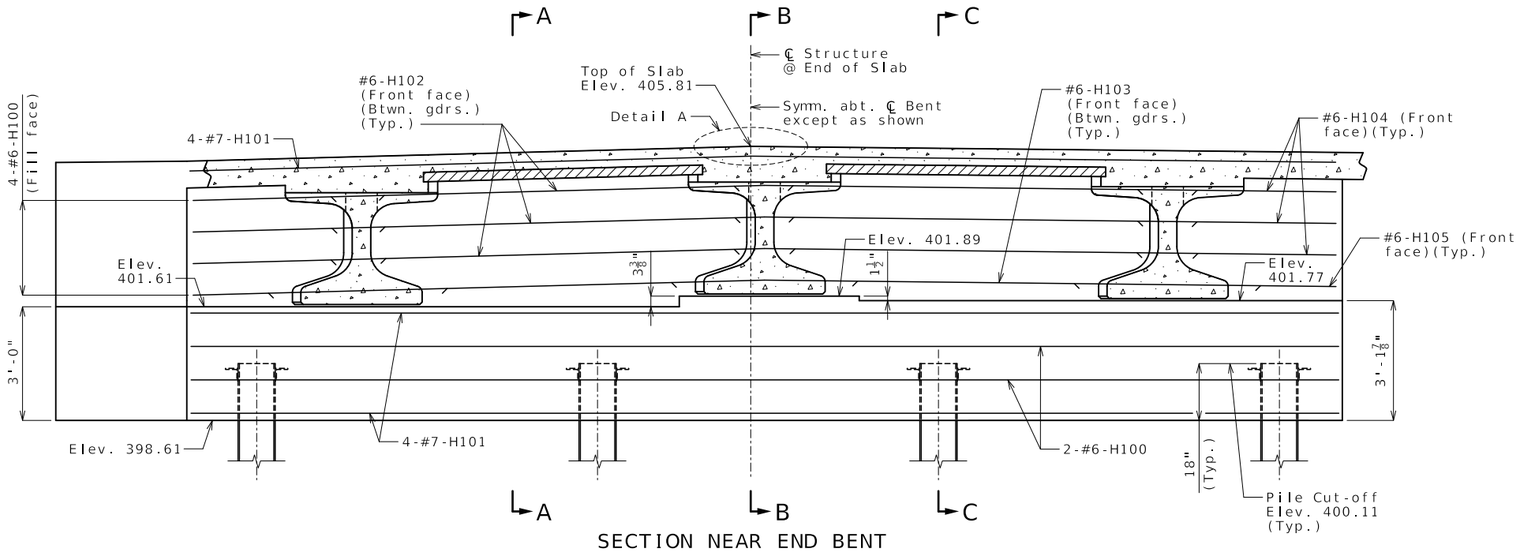
BRIDGE NO. A9733

DESCRIPTION

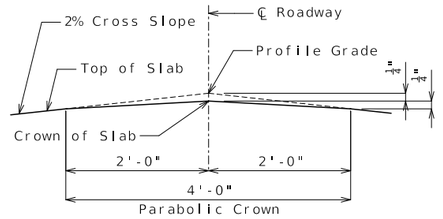
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578

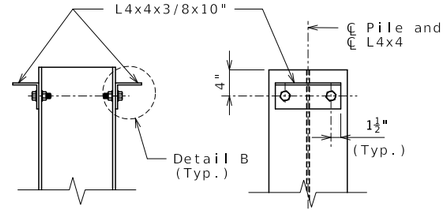
REV.



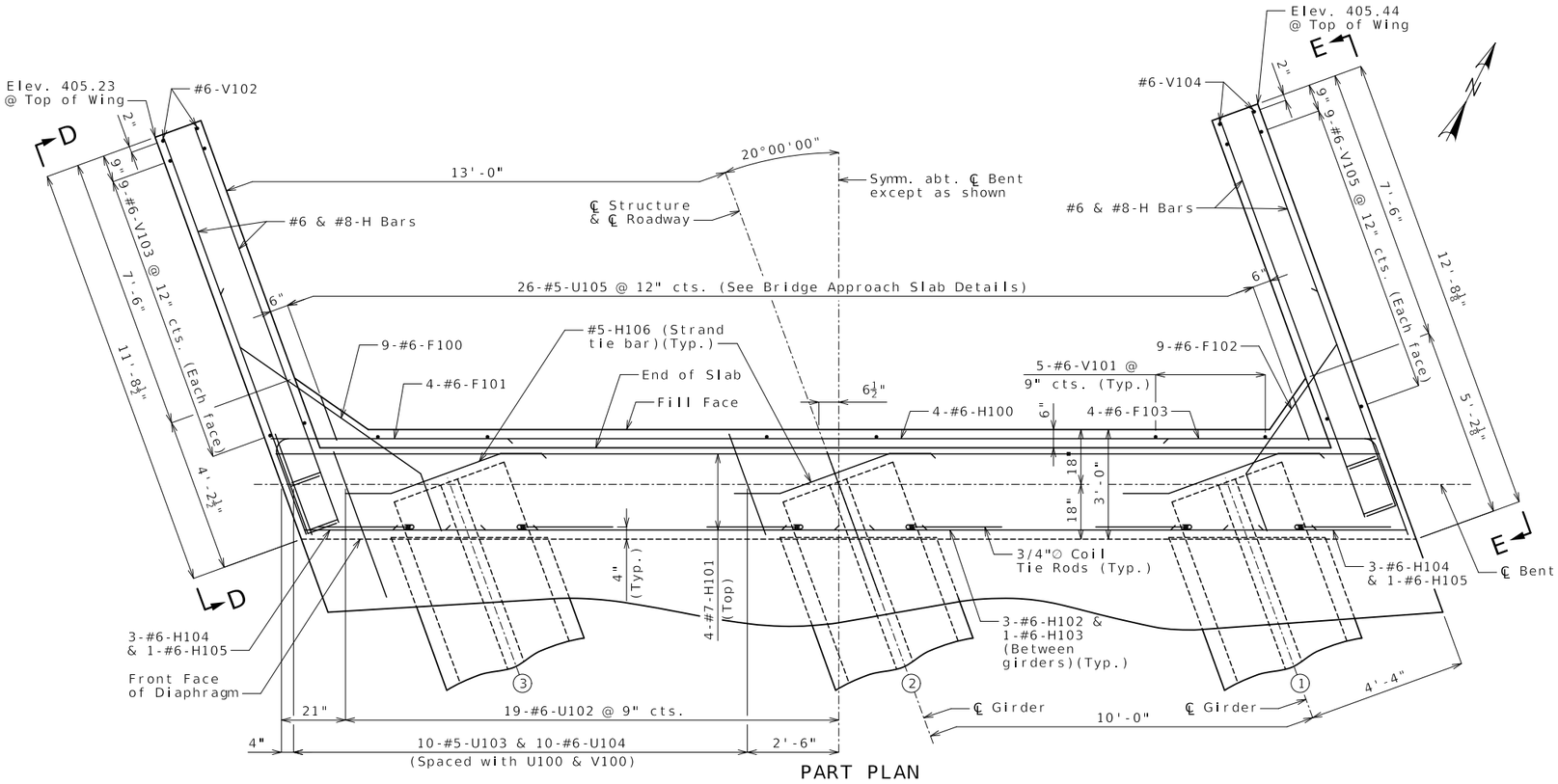
SECTION NEAR END BENT



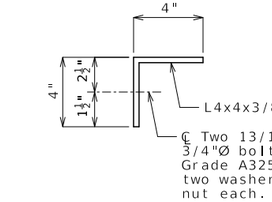
DETAIL A



DETAILS OF HP PILE ANCHORS



PART PLAN



DETAIL B

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.

General Notes:
Work this sheet with Sheets No. 3 & 5.

For Sections A-A, B-B, & C-C and Elevations D-D & E-E, see Sheet No. 5.

The #6-F100 and #6-F102 bars shall be bent in the field to clear girders.

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 girders shall be field bent or, if necessary, cut in field to maintain 1 1/2-inch minimun clearance to fill face of end bent.

For location of coil tie rods and #5-H106 (strand tie bar), see Sheets No. 14 & 15.

For details of vertical drain at end bents, see Sheet No. 6.

For details of bridge approach slab, see Sheet No. 25.

END BENT NO. 1

Detailed Sep. 2025
Checked Sep. 2025

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

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER

Alex C. Benz
10/21/202512:42:21 PM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED
10/21/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
BR	4

COUNTY
PERRY

JOB NO.
J9S3771

CONTRACT ID.

PROJECT NO.

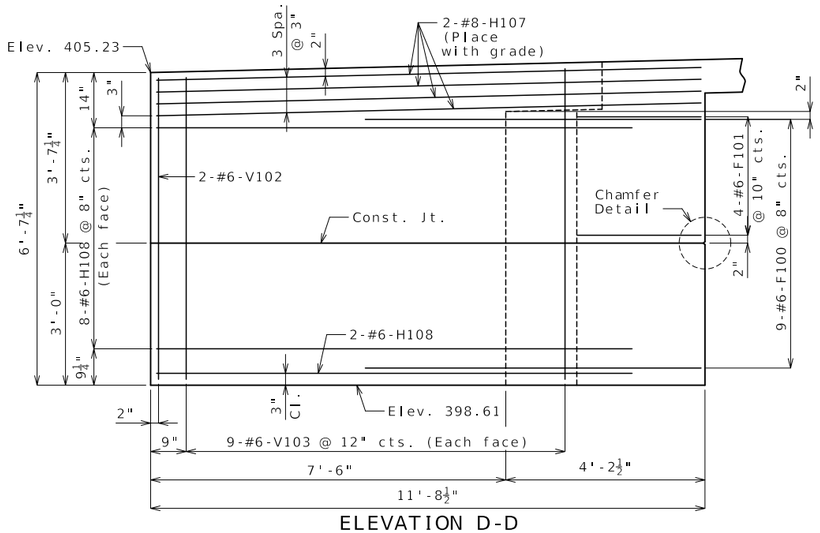
BRIDGE NO.
A9733

DESCRIPTION

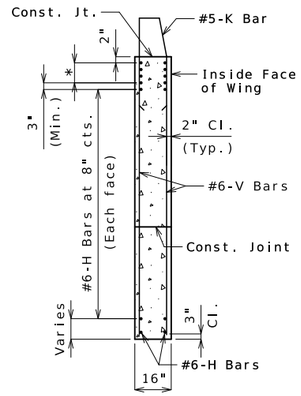
REV.

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

EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578

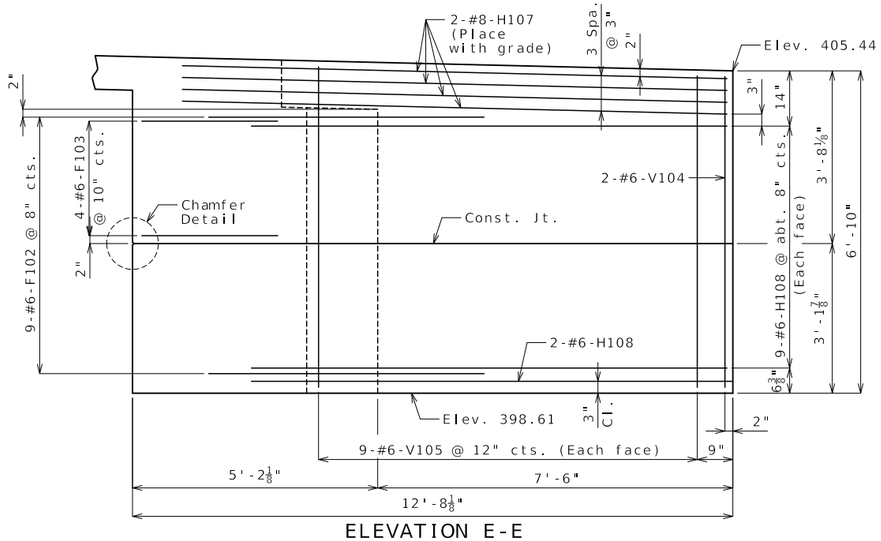


ELEVATION D-D

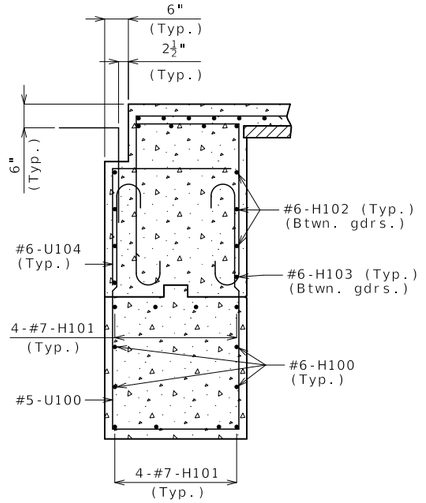


TYPICAL SECTION THRU WING

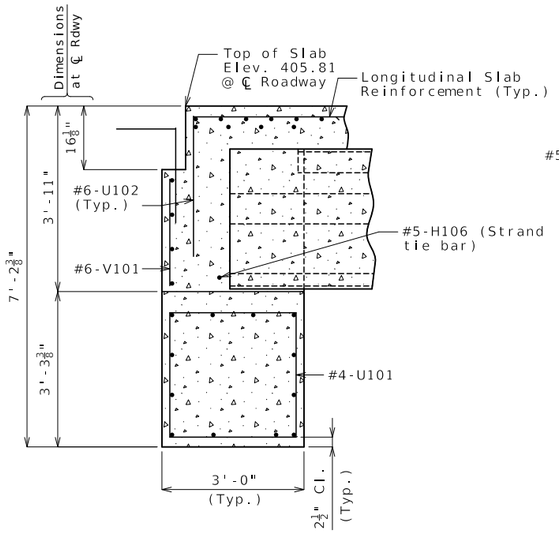
* #8-H Bars at 3" cts. (Each face)(Place with grade)



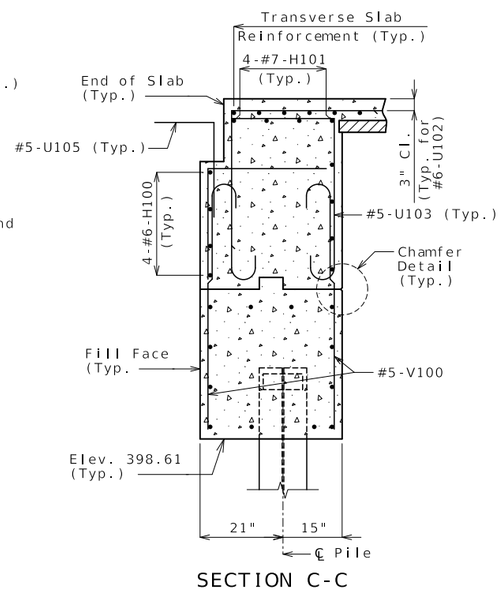
ELEVATION E-E



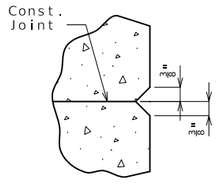
SECTION A-A



SECTION B-B



SECTION C-C



CHAMFER DETAIL

General Notes:
Worth this sheet with Sheets No. 3 & 4.

For reinforcement of the barrier, see Sheet No. 24.

END BENT NO. 1

Detailed Sep. 2025
Checked Sep. 2025

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

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER

Alex C. Benz
10/21/202512:42:31 PM
Alex Benz - Civil
MO PE-2018003121

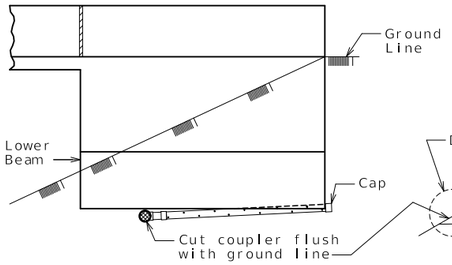
DATE PREPARED 10/21/2025
ROUTE NN | STATE MO
DISTRICT BR | SHEET NO. 5
COUNTY PERRY
JOB NO. J9S3771
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9733

DESCRIPTION | REV.

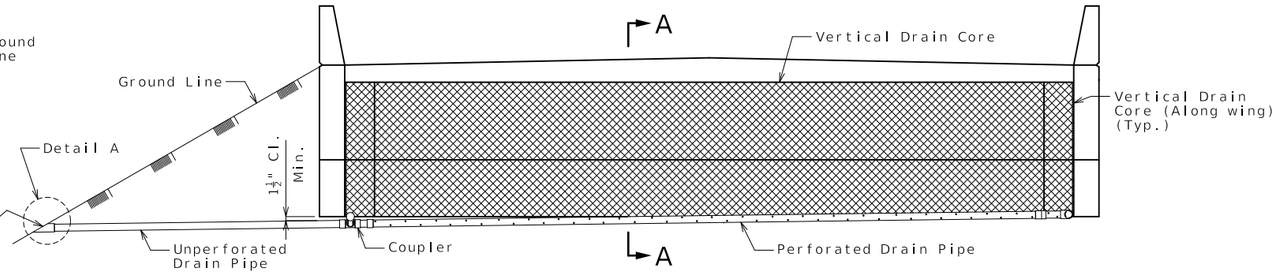
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578

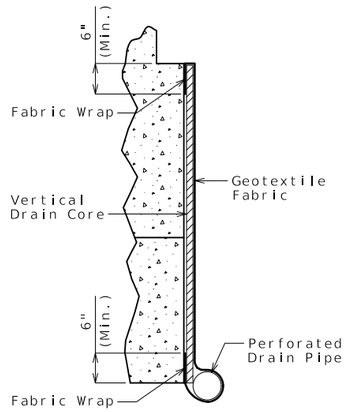
O:\2022R3\MoDOT_ORD_v10.12.02.04\25034 MoDOT BFW J9S3771 Route NN Bridge\DGN\Bridge\Final\Plotsheets\B_A9733_005_J9S3771_End-Bent-1_3.dgn 12:40:36 PM 10/21/2025



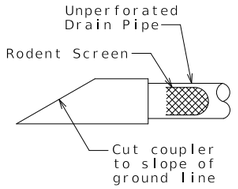
ELEVATION OF WING



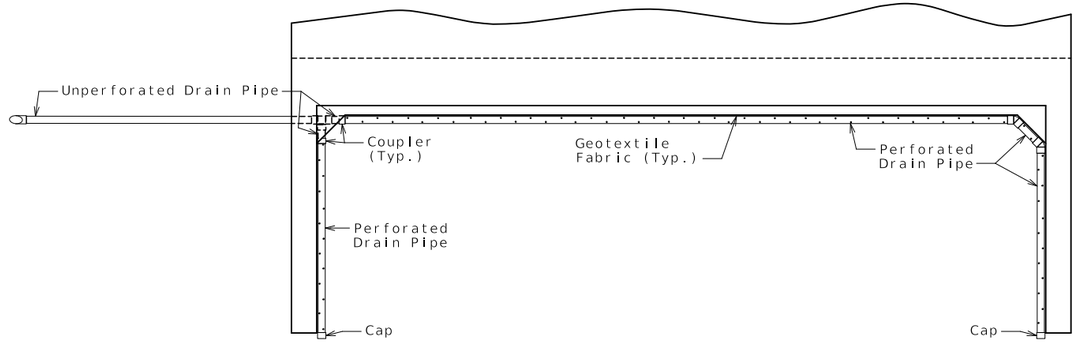
ELEVATION OF END BENT



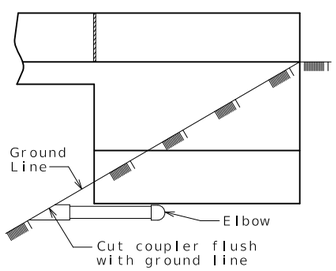
PART SECTION A-A
(Section thru wing similar)



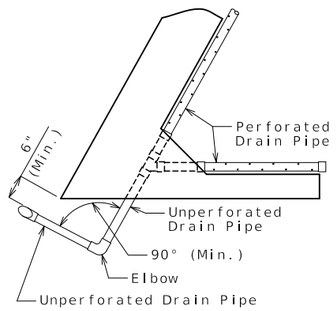
DETAIL A



PLAN OF END BENT



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
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER

Alex C. Benz
10/21/202512:42:41 PM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED
10/21/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
BR	6

COUNTY
PERRY

JOB NO.
J9S3771

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9733

DESCRIPTION

REV.

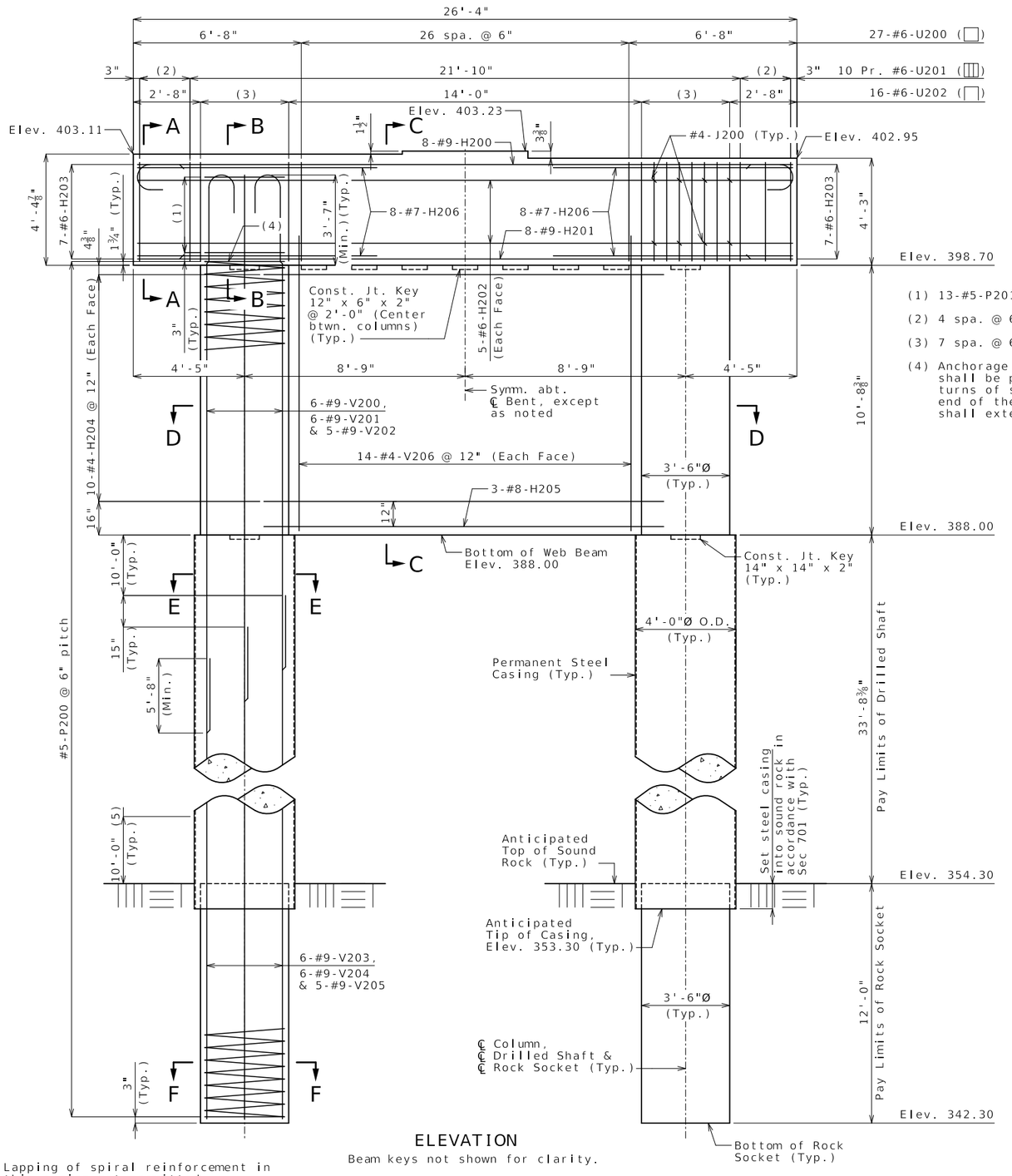
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578

Detailed Sep. 2025
Checked Sep. 2025

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

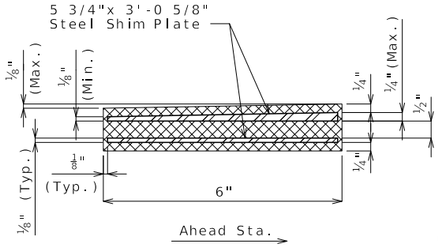
O:\2022R3\MoDOT_ORD_v10.12.02.04\25034 MoDOT BFW J9S3771 Route NN Bridge\DGN\Bridge\Final\Plotsheets\B_A9733_006_J9S3771_Vertical-Drains.dgn 12:40:36 PM 10/21/2025



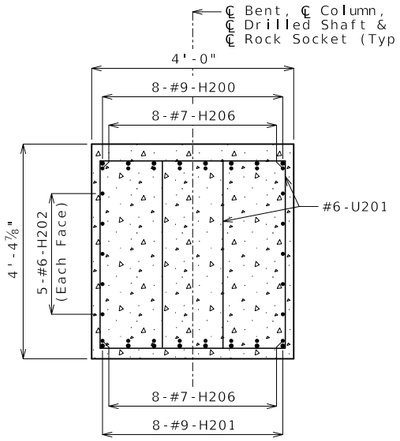
ELEVATION

Beam keys not shown for clarity.

(5) Lapping of spiral reinforcement in this region not permitted.



TYPICAL SECTION
THRU LAMINATED
NEOPRENE BEARING PAD



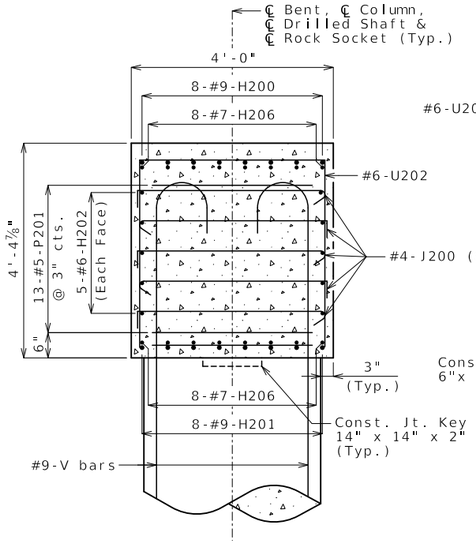
SECTION A-A

(1) 13-#5-P201 @ 3" (Typ.)

(2) 4 spa. @ 6" cts.

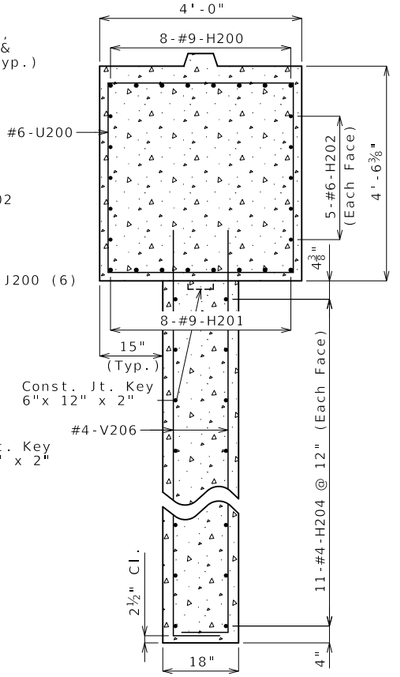
(3) 7 spa. @ 6" cts.

(4) Anchorage of spiral reinforcement shall be provided by 1 1/2 extra turns of spiral reinforcement at end of the spiral unit. Spirals shall extend 1 1/2" into beam cap.



SECTION B-B

(6) Alternate 135° hooked ends between cap faces.



SECTION C-C

General Notes:

Work this sheet with Sheet No. 8.

For Sections D-D, E-E and F-F, see Sheet No. 8.

Thickness of permanent steel casing shall be in accordance with Sec 701.

An additional 4 feet has been added to the V-bar lengths and spiral P200 for possible change in drilled shaft or rock socket length. The additional V-bar length shall be cut off or included in the reinforcement lap if not required. The additional spirals shall be cut off if not required.

Sonic logging testing shall be performed on all drilled shafts and rock sockets.

The cost of any required excavation to to the top of the drilled shafts will be considered completely covered by the contract unit price for other items.

The tip of casing shall not extend into the rock socket elevation range reported in the Foundation Data table without approval by the engineer.

DETAILS OF INTERMEDIATE BENT NO. 2

Detailed Sep. 2025
Checked Sep. 2025

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

Sheet No. 7 of 30

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
10/23/20256:54:06 AM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED 10/23/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
BR	7

COUNTY: PERRY

JOB NO.: J9S3771

CONTRACT ID.:

PROJECT NO.:

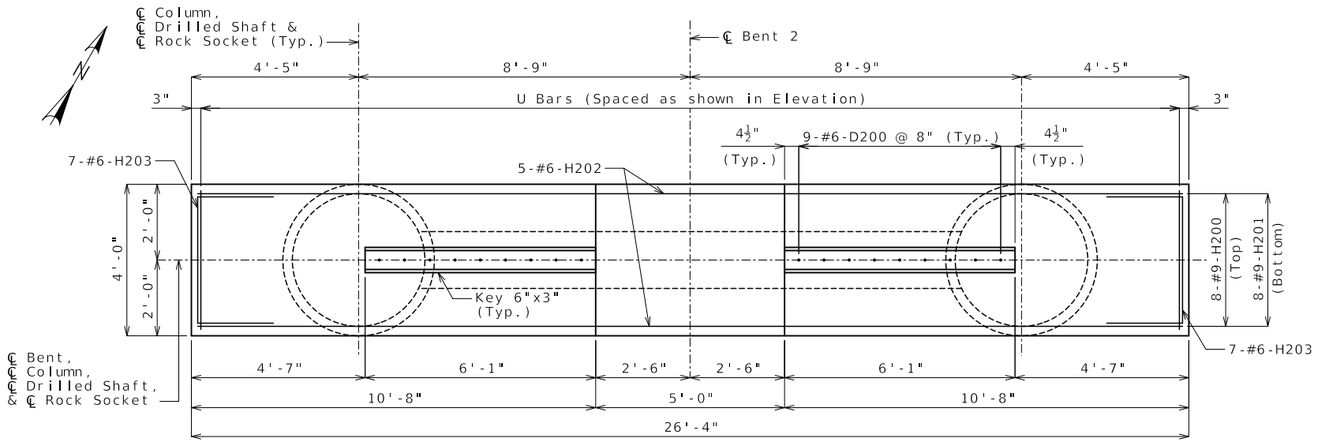
BRIDGE NO.: A9733

DESCRIPTION

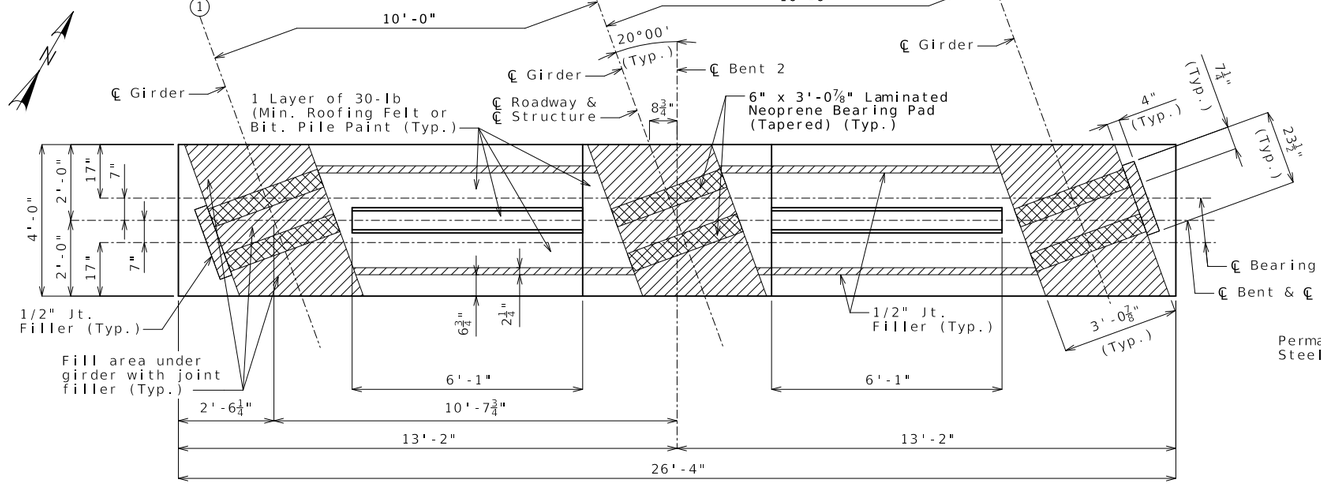
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

EFK·Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578

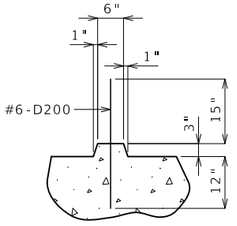
REV.



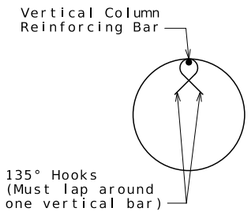
PLAN SHOWING REINFORCEMENT



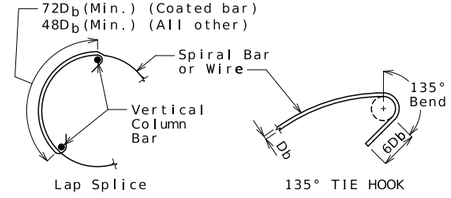
PLAN OF BEAM



SECTION THRU KEY

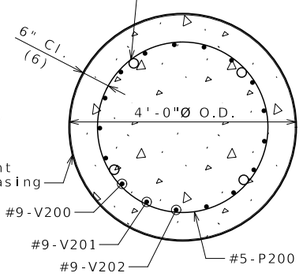


SEISMIC STIRRUP BAR

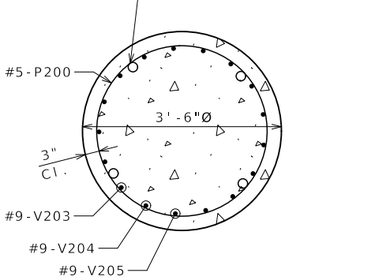


INTERMEDIATE SPLICE OF SPIRALS

Standard 135-degree tie hooks that engage vertical column reinforcing bars shall be provided at each end of splice.

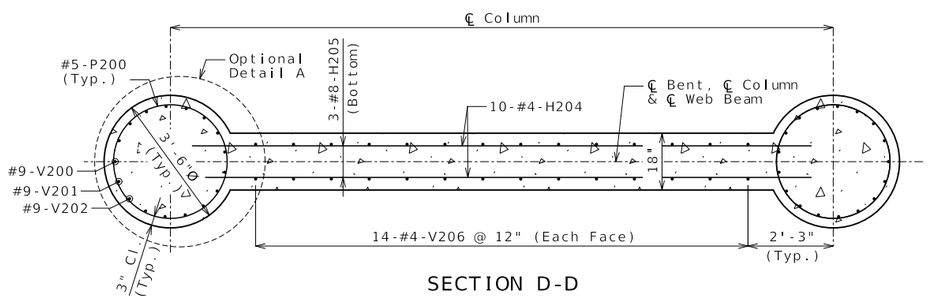


SECTION E-E

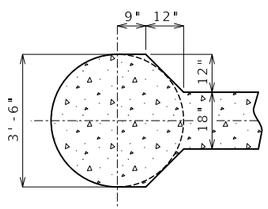


SECTION F-F

(6) To outside of casing



SECTION D-D



OPTIONAL DETAIL A

At the contractor's option, the details shown in Optional Section A-A may be used for Column-Web Beam at Intermediate Bent No. 2. No additional payment will be made for this substitution.

Substructure Quantity Table for Bent No. 2		
Item		Quantity
Drilled Shafts (4 ft. 0. in. Dia)	linear foot	67.4
Rock Sockets (3 ft. 6 in. Dia.)	linear foot	24
Video Camera Inspection	each	2
Foundation Inspection Holes	linear foot	44
Sonic Logging Testing	each	2
Class B Concrete (Substructure)	cu. yard	41.0
Reinforcing Steel (Bridges)	pound	14,890

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

DETAILS OF INTERMEDIATE BENT NO. 2

Detailed Sep. 2025
Checked Sep. 2025

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

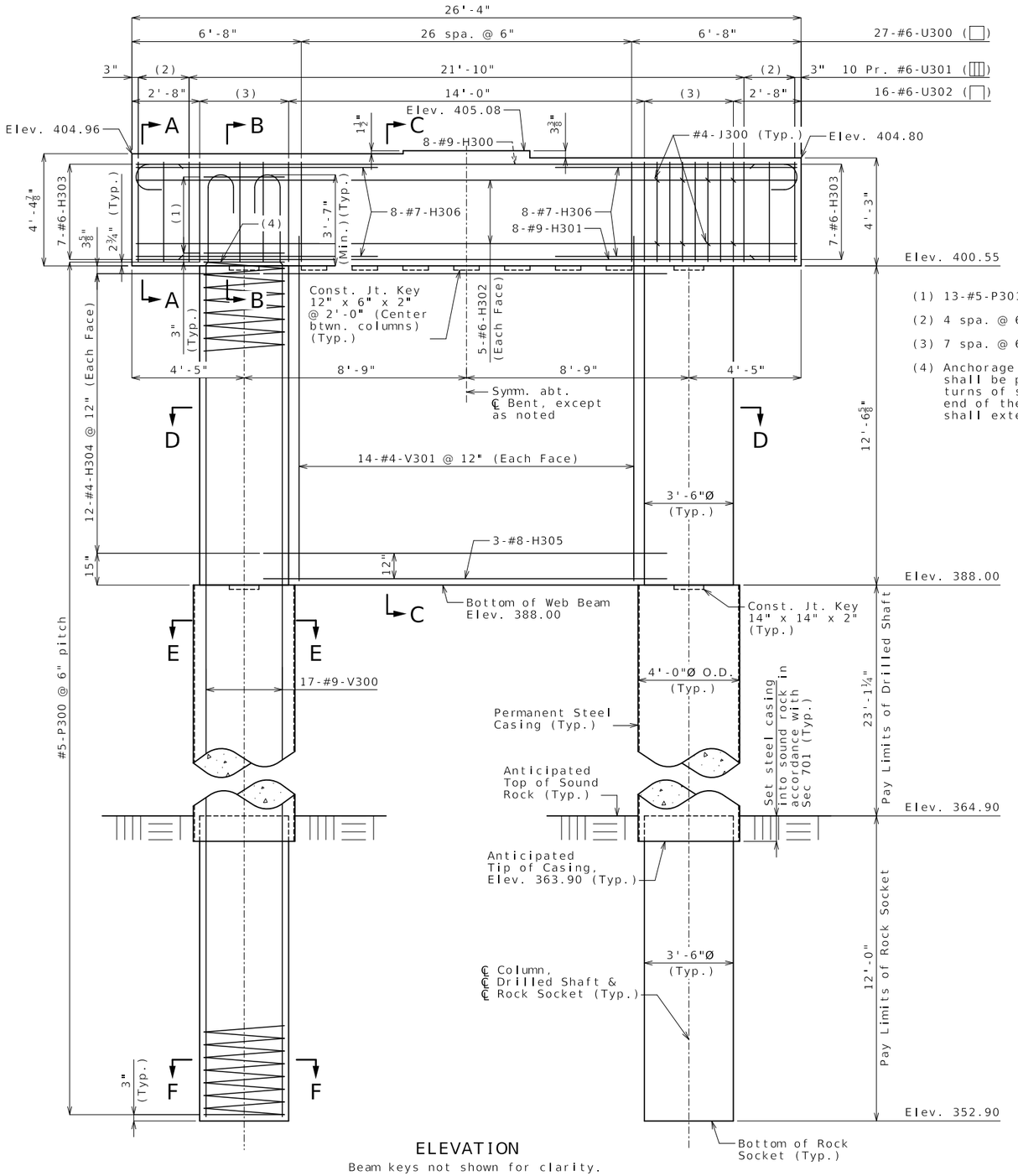
STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
10/21/202512:43:15 PM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED 10/21/2025
ROUTE NN | STATE MO
DISTRICT BR | SHEET NO. 8
COUNTY PERRY
JOB NO. J9S3771
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9733

DESCRIPTION | REV.

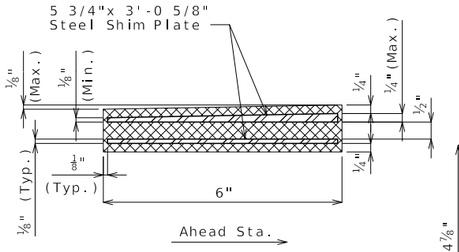
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578

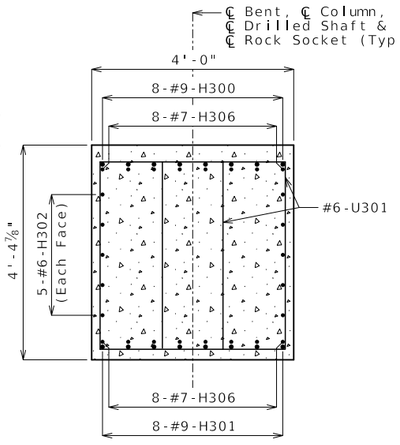


ELEVATION

Beam keys not shown for clarity.



TYPICAL SECTION
THRU LAMINATED
NEOPRENE BEARING PAD



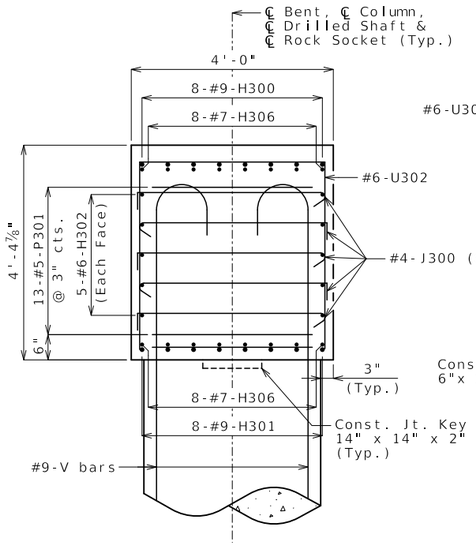
SECTION A-A

(1) 13-#5-P301 @ 3" (Typ.)

(2) 4 spa. @ 6" cts.

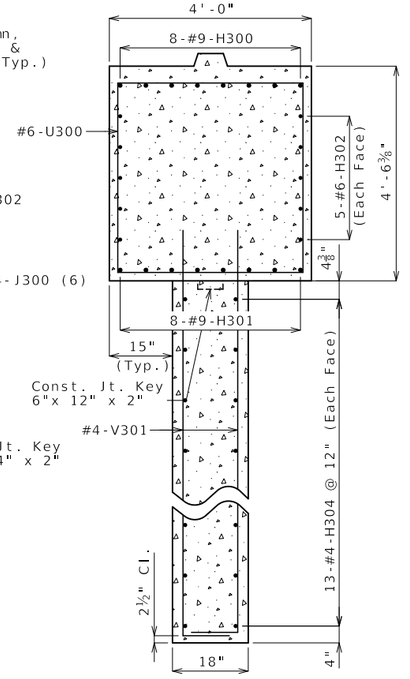
(3) 7 spa. @ 6" cts.

(4) Anchorage of spiral reinforcement shall be provided by 1 1/2 extra turns of spiral reinforcement at end of the spiral unit. Spirals shall extend 1 1/2" into beam cap.



SECTION B-B

(6) Alternate 135° hooked ends between cap faces.



SECTION B-B

General Notes:

Work this sheet with Sheet No. 10.

For Sections D-D, E-E and F-F, see Sheet No. 10.

Thickness of permanent steel casing shall be in accordance with Sec 701.

An additional 4 feet has been added to the V-bar lengths and an additional 8 spirals have been added in the quantities, if required, for possible changes in drilled shaft or rock socket length. The additional V-bar length shall be cut off or included in the reinforcement lap if not required. The additional spirals shall be cut off if not required.

Sonic logging testing shall be performed on all drilled shafts and rock sockets.

The cost of any required excavation to to the top of the drilled shafts will be considered completely covered by the contract unit price for other items.

The tip of casing shall not extend into the rock socket elevation range reported in the Foundation Data table without approval by the engineer.

DETAILS OF INTERMEDIATE BENT NO. 3

Detailed Sep. 2025
Checked Sep. 2025

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

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
10/23/20256:54:19 AM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED
10/23/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
BR	9

COUNTY
PERRY

JOB NO.
J9S3771

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9733

DESCRIPTION

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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Civil Engineering Design
13523 Barrett Parkway Dr
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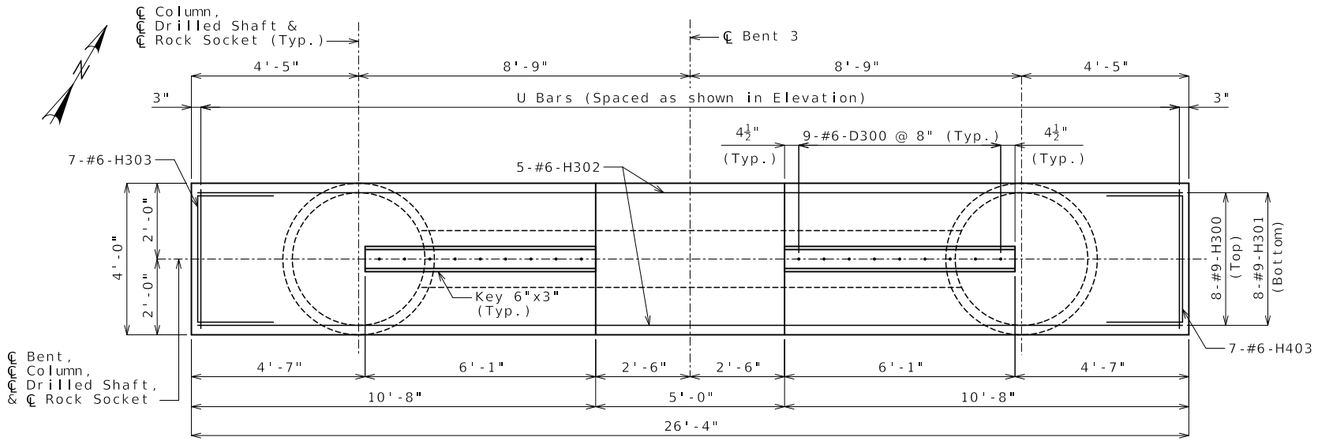
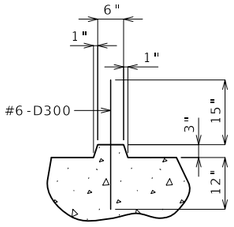
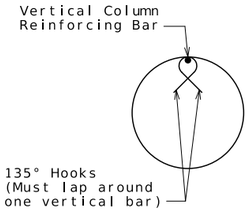
Missouri Certificate of Authority: 001578



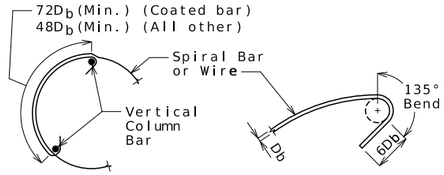
PLAN SHOWING REINFORCEMENT



SECTION THRU KEY

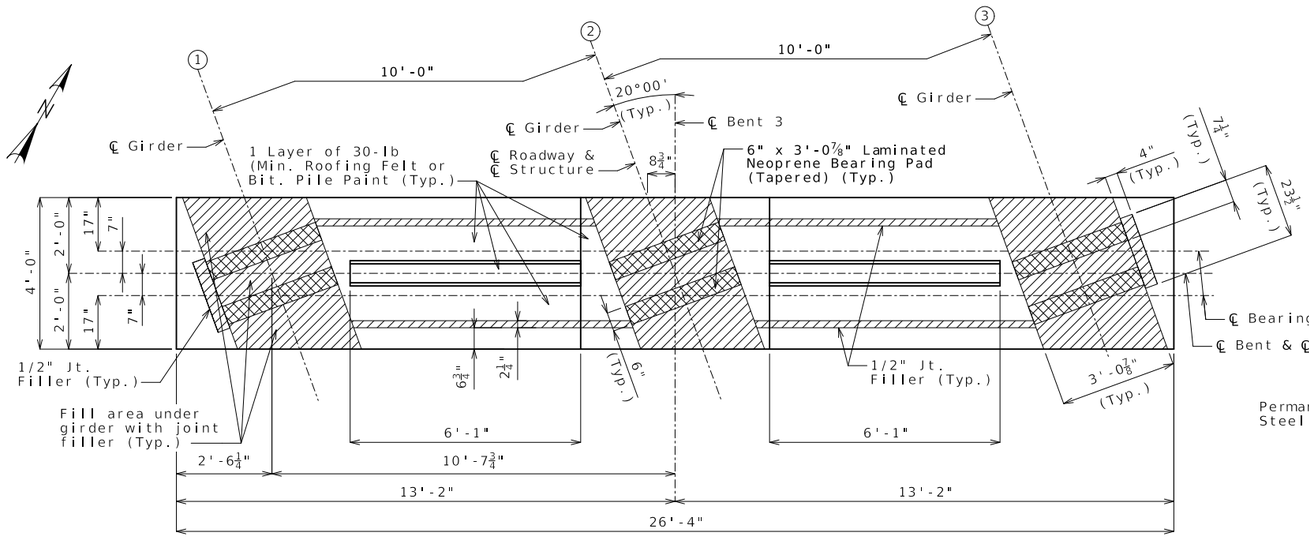


SEISMIC STIRRUP BAR



INTERMEDIATE SPLICE OF SPIRALS

Standard 135-degree tie hooks that engage vertical column reinforcing bars shall be provided at each end of splice.

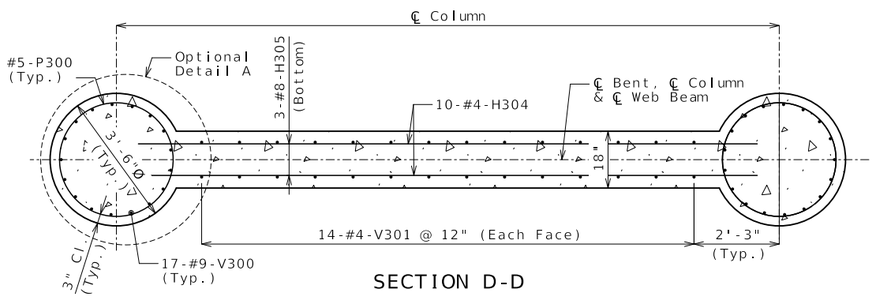


PLAN OF BEAM

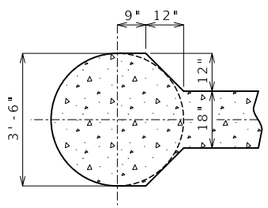
SECTION D-D

(5) To outside of casing

SECTION E-E



SECTION D-D



OPTIONAL DETAIL A

At the contractor's option, the details shown in Optional Section A-A may be used for Column-Web Beam at Intermediate Bent No. 2. No additional payment will be made for this substitution.

Substructure Quantity Table for Bent No. 3		
Item		Quantity
Drilled Shafts (4 ft. 0. in. Dia)	linear foot	46.2
Rock Sockets (3 ft. 6 in. Dia.)	linear foot	24
Video Camera Inspection	each	2
Foundation Inspection Holes	linear foot	44
Sonic Logging Testing	each	2
Class B Concrete (Substructure)	cu. yard	45.2
Reinforcing Steel (Bridges)	pound	13,230

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

DETAILS OF INTERMEDIATE BENT NO. 3

Detailed Sep. 2025
Checked Sep. 2025

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

Sheet No. 10 of 30

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
10/21/202512:43:33 PM
Alex Benz - Civil
MO PE-2018003121

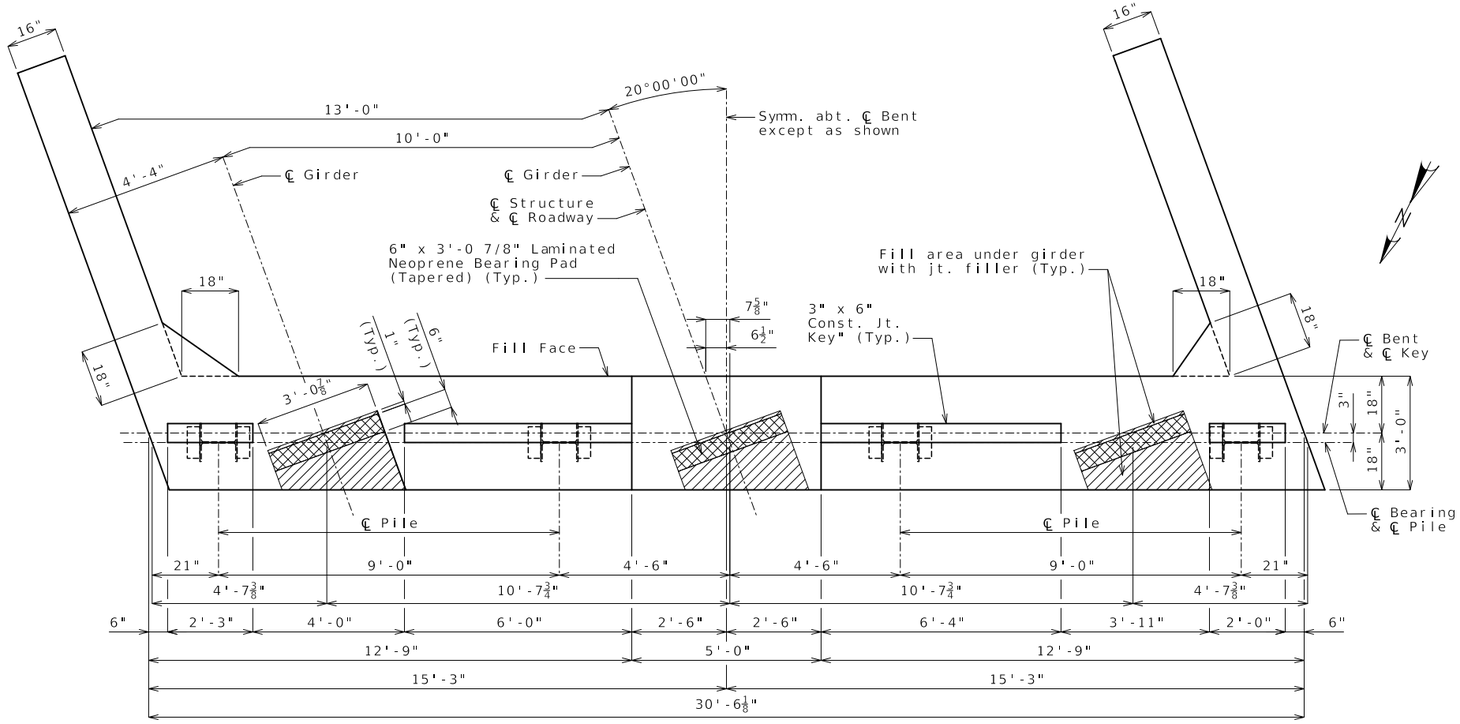
DATE PREPARED 10/21/2025
ROUTE NN | STATE MO
DISTRICT BR | SHEET NO. 10
COUNTY PERRY
JOB NO. J9S3771
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9733

DESCRIPTION

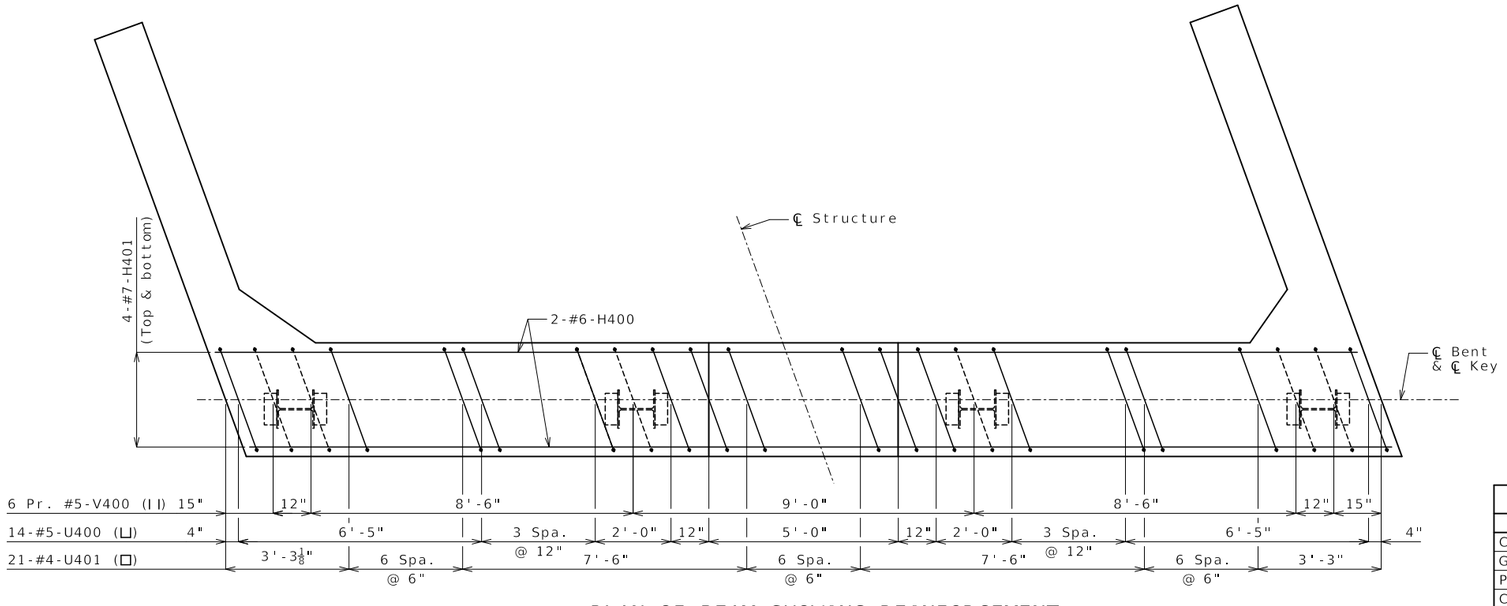
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578

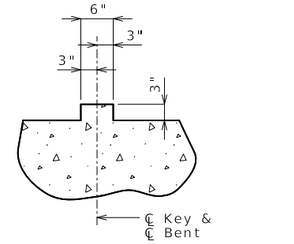
REV.



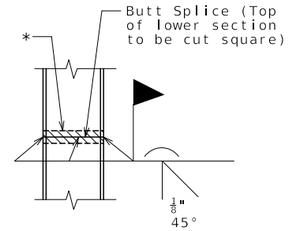
PLAN OF BEAM



PLAN OF BEAM SHOWING REINFORCEMENT
Keys not shown for clarity.

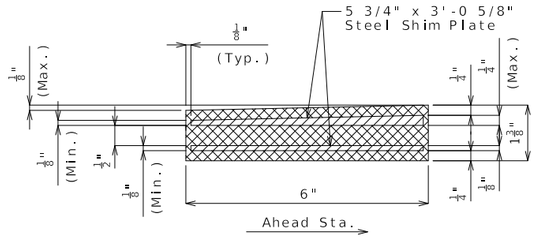


SECTION THRU KEY



STEEL PILE SPLICE
(If required)

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



SECTION THRU LAMINATED NEOPRENE BEARING PAD (TAPERED)

General Notes:
Work this sheet with Sheets No. 12 & 13

All U bars and pairs of V bars shall be placed parallel to centerline of roadway.

Reinforcing steel shall be shifted to clear piles. U bars shall clear piles by at least 1 1/2 inches.

Substructure Quantity Table for Bent No. 4		
Item		Quantity
Class 1 Excavation	cu. yard	65
Galvanzied Structural Steel Pile (12 in.)	linear foot	96
Pile Point Reinforcement	each	4
Class B Concrete (Substructure)	cu. yard	13.6

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

END BENT NO. 4

Detailed Sep. 2025
Checked Sep. 2025

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

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
10/21/202512:43:41 PM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED 10/21/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
BR	11

COUNTY: PERRY
JOB NO.: J9S3771
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9733

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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Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
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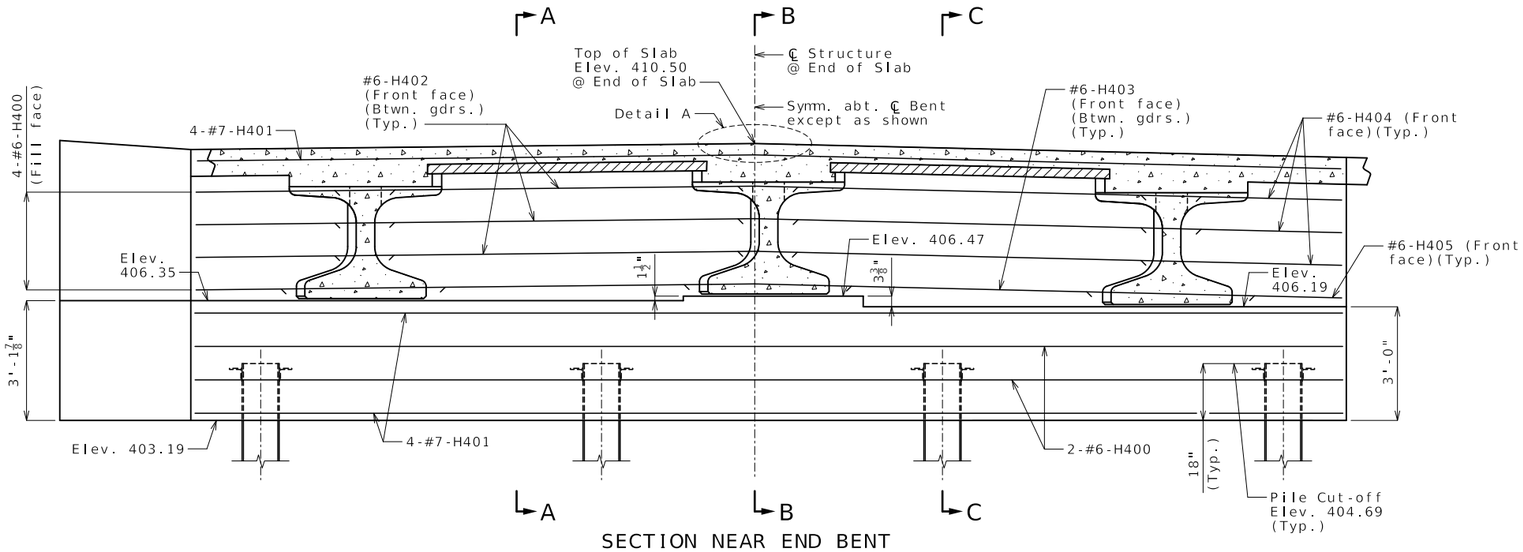
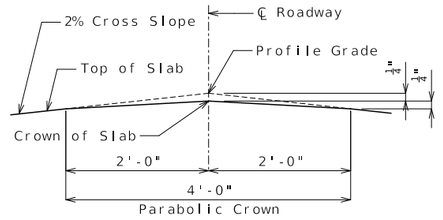
Missouri Certificate of Authority: 001578

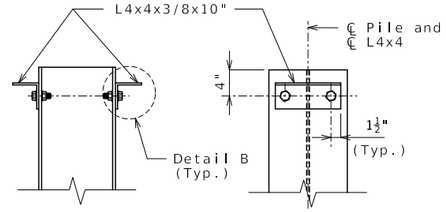
REV.



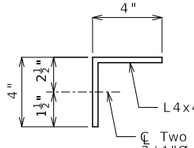
SECTION NEAR END BENT



DETAIL A

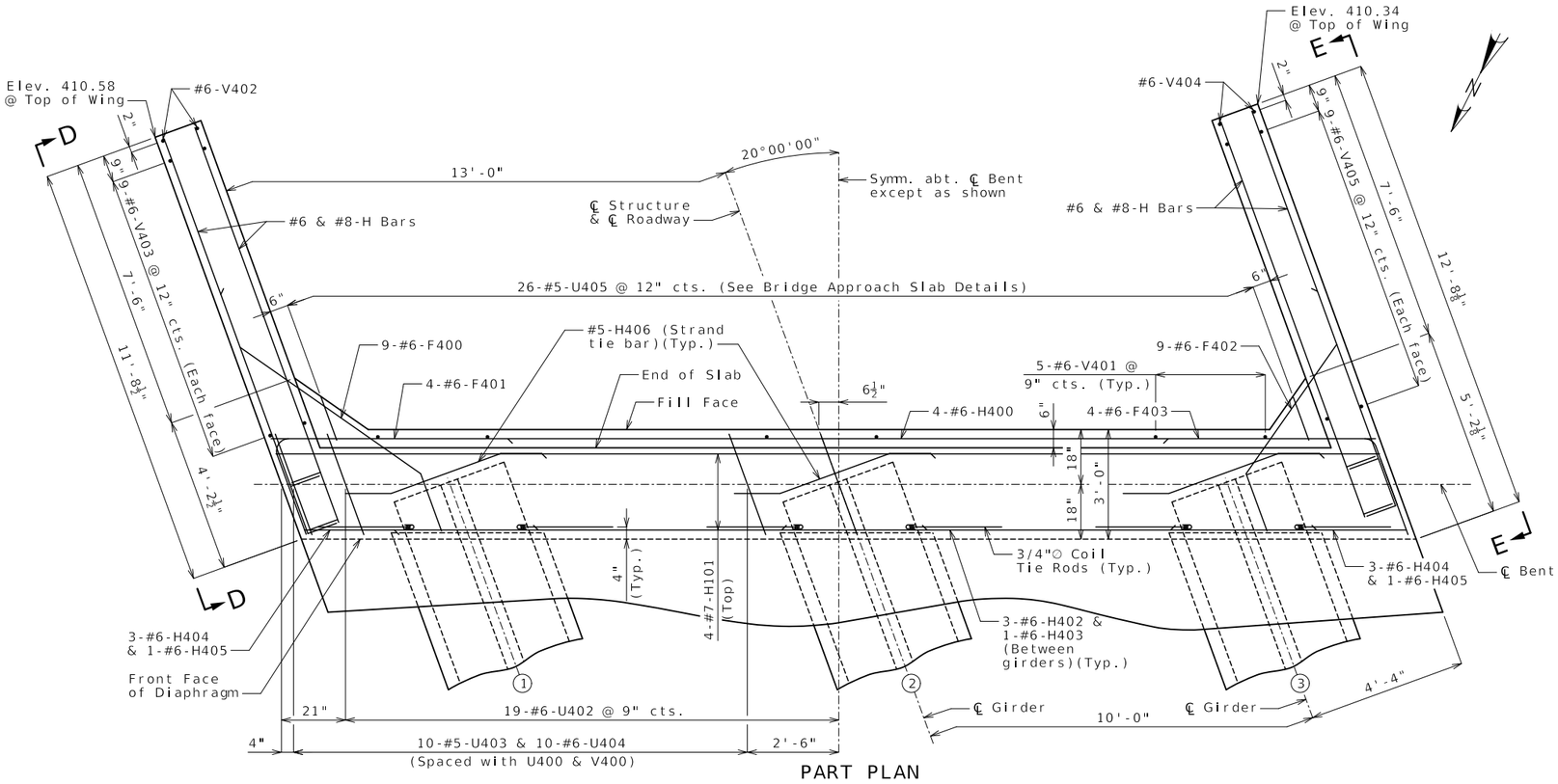


DETAILS OF HP PILE ANCHORS



DETAIL B

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.



PART PLAN

END BENT NO. 4

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

Sheet No. 12 of 30

Detailed Sep. 2025
Checked Sep. 2025

O:\2022R3\MoDOT_ORD_v10.12.02.04\25034 MoDOT BFW J9S3771 Route NN Bridge\DGN\Bridge\Final\Plotsheets\B_A9733_012_J9S3771_End-Bent-4_2.dgn 12:40:40 PM 10/21/2025

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER

Alex C. Benz
10/21/202512:43:51 PM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED
10/21/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
BR	12

COUNTY
PERRY

JOB NO.
J9S3771

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9733

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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Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
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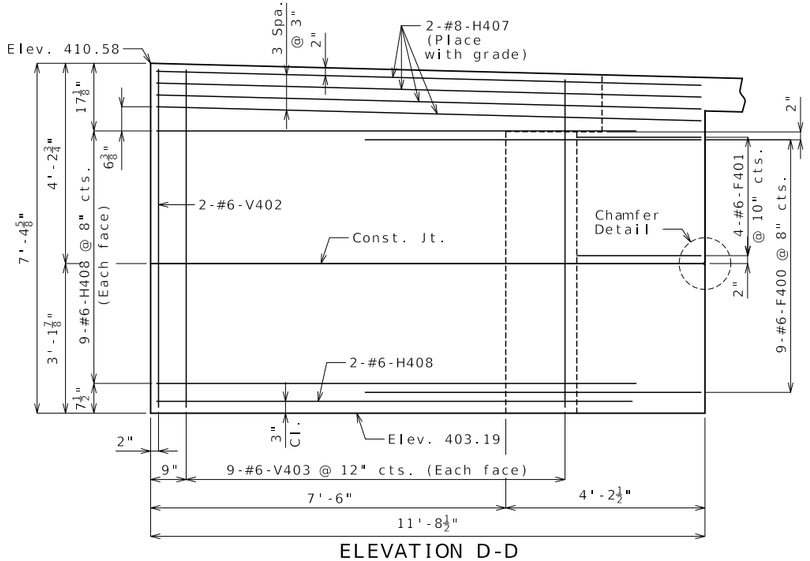
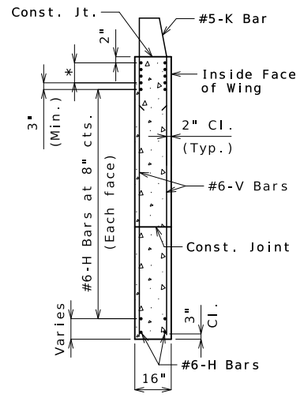
Missouri Certificate of Authority: 001578

REV.

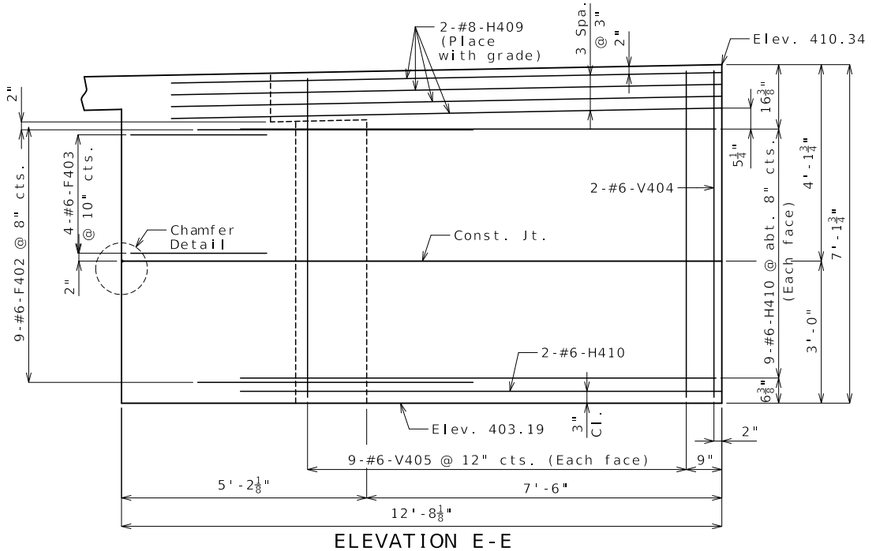


ELEVATION D-D

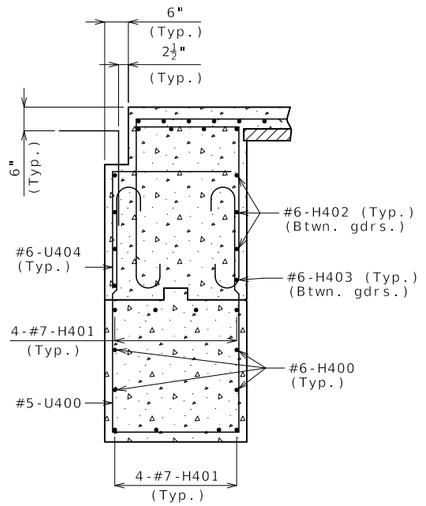


TYPICAL SECTION THRU WING

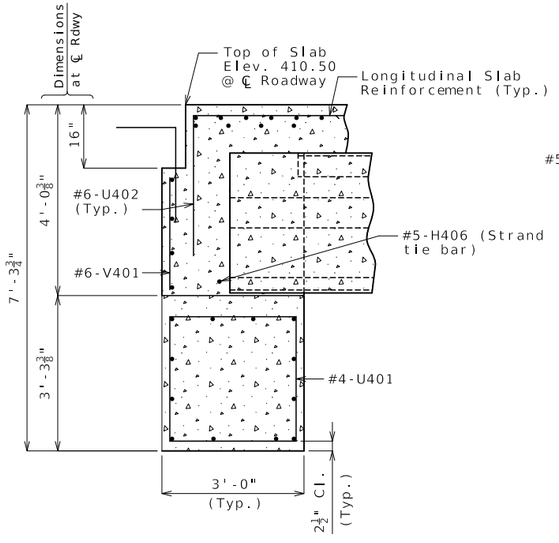
* #8-H Bars at 3" cts. (Each face)(Place with grade)



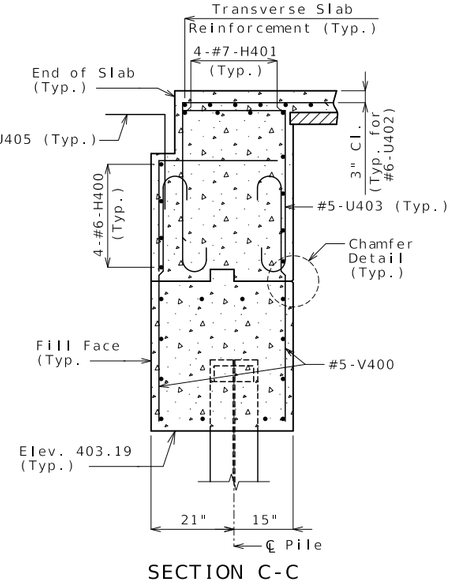
ELEVATION E-E



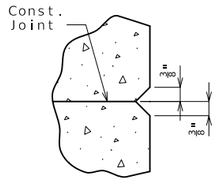
SECTION A-A-



SECTION B-B



SECTION C-C



CHAMFER DETAIL

General Notes:
Worth this sheet with Sheets No. 11 & 12.

For reinforcement of the barrier, see Sheet No. 24.

END BENT NO. 4

Detailed Sep. 2025
Checked Sep. 2025

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

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
10/21/202512:44:01 PM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED	
10/21/2025	
ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
BR	13

COUNTY: PERRY
JOB NO.: J9S3771
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9733

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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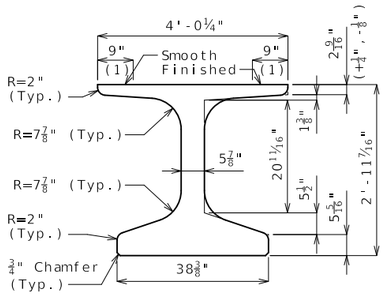
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578

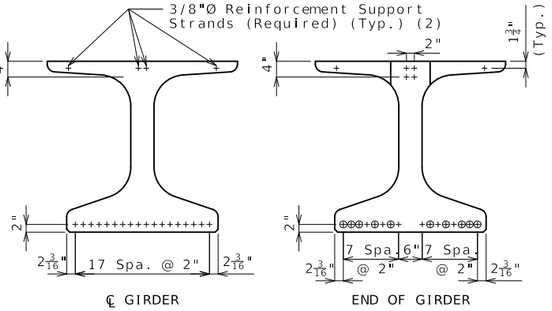
REV.

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



DIMENSIONS

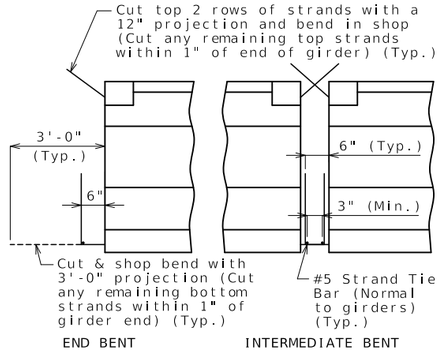
(2) Outer strands tensioned to 2.02 kips/strand and inner strands to 8 kips/strand. Placed symmetrical about ℄ Girder. May be moved laterally in pairs.



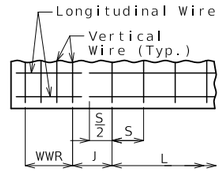
STRAND ARRANGEMENT

+ 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

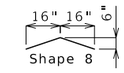
Bars Each Girder

No.	Size/Mark	Length	Shape
85	3 G1	2'-10"	8
2	4 G3	4'-1¼"	20
2	4 G4	2'-3"	20
2	4 G5	2'-10½"	20
4	4 G6	Varies	20

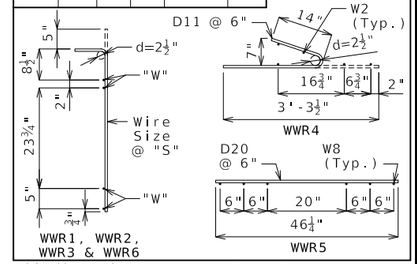
Welded Wire Each Girder

Mark	Size	S	W	L	J
WWR1	D31	4"	W12	9'-4"	8"
WWR2	D31	8"	W12	10'-0"	10½"
WWR3	D31	16"	W12	18'-8"	--
WWR6	D31	2"	W12	16"	4"

Bending Diagrams



Shape 20



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 and G6 not required for exterior girders of intermediate spans. Half no. of G3, G4, G5 and G6 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 18 strands, 0.6"Ø Grade 270, with an initial prestress force of 791 kips.

Pretensioned members shall be in accordance with Sec 1029.

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

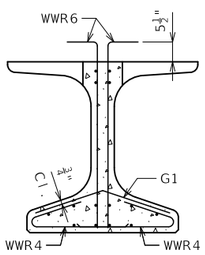
Exterior and interior girders are the same except: coil ties, top flange blockout, application of bond breaker, coil inserts for slab drains, holes for steel intermediate diaphragms.

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. 20.

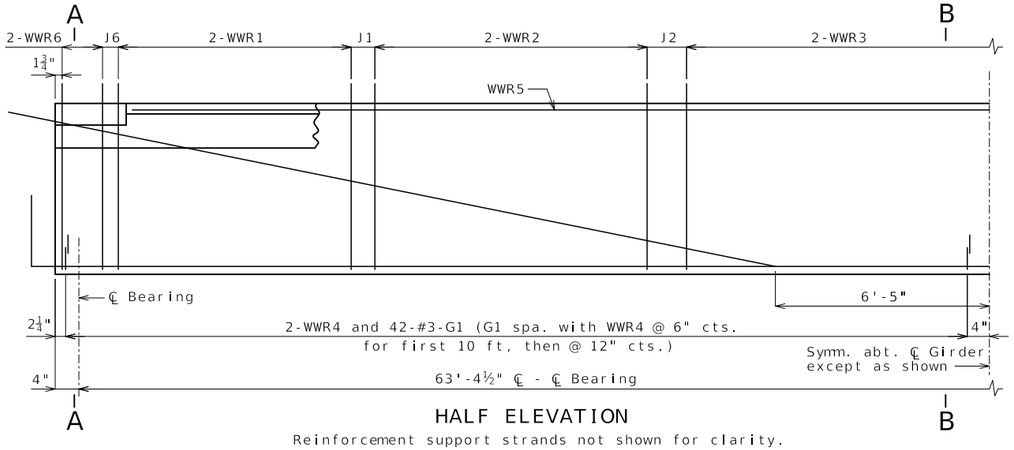
For location of coil ties at concrete diaphragms and integral bents, see Sheets No. 4, 12 and 18.

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.



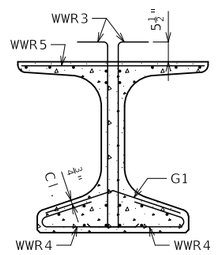
SECTION A-A

Strands not shown for clarity.



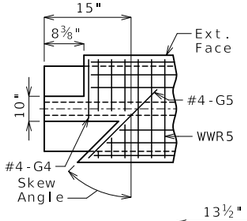
HALF ELEVATION

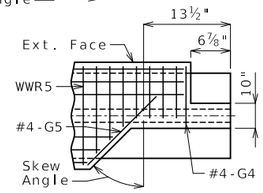
Reinforcement support strands not shown for clarity.



SECTION B-B

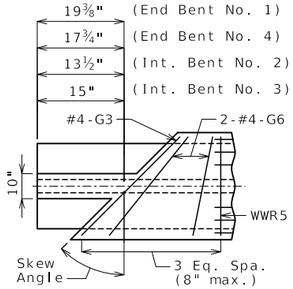
Strands not shown for clarity.





LEFT EXTERIOR GIRDER AT INTERMEDIATE BENT

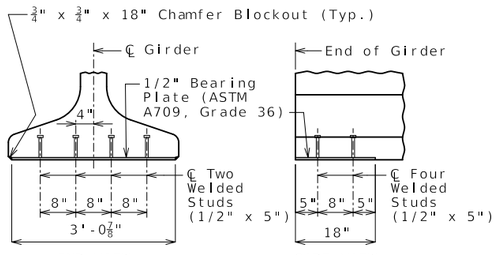
Rotate 180° for right ext.



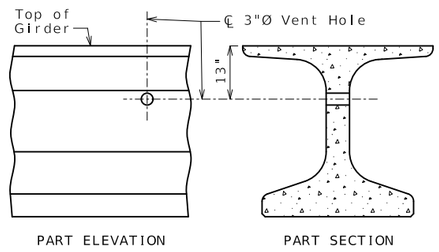
INTERIOR GIRDER AT ALL BENTS & EXTERIOR GIRDER AT END BENT

TOP FLANGE BLOCKOUT

Mirror for right advanced.

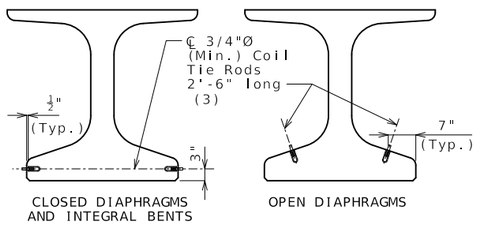


BEARING PLATE



VENT HOLE

Place vent holes at or near upgrade 1/3 point of girders and clear reinforcing steel or strands by 1 1/2" minimum and steel intermediate diaphragm bolt connections by 6" minimum.



COIL TIES

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

(3) 2'-6" at exterior face of exterior girders at end bents

NU-GIRDERS - SPANS (1-2) AND (3-4)

Detailed Sep. 2025
Checked Sep. 2025

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

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
10/21/202512:44:31 PM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED	
10/21/2025	
ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
BR	14
COUNTY	
PERRY	
JOB NO.	
J9S3771	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	
A9733	

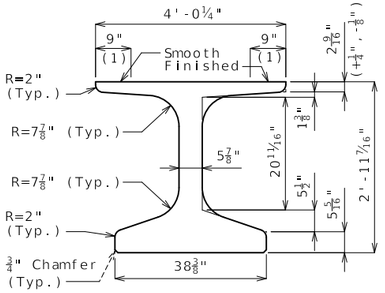
DESCRIPTION

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

EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578

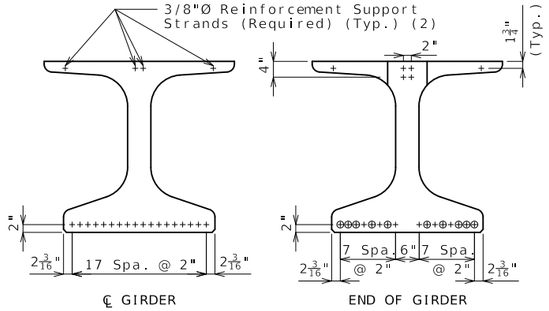
REV.

(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.

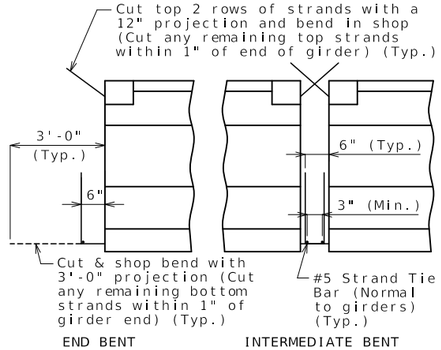


℄ GIRDER END OF GIRDER

STRAND ARRANGEMENT

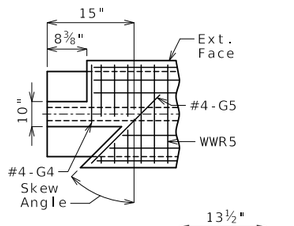
\+ Indicates prestressing strand.

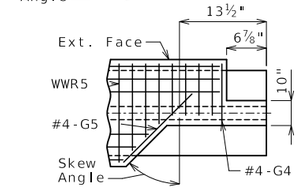
o Indicates cut & shop bend with 3'-0" projection.



END BENT INTERMEDIATE BENT

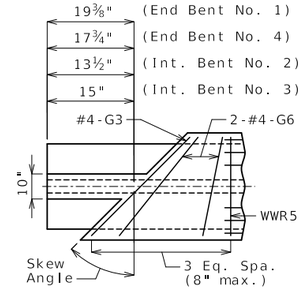
STRANDS AT GIRDER ENDS





LEFT EXTERIOR GIRDER AT INTERMEDIATE BENT

Rotate 180° for right ext.



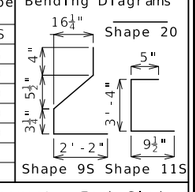
INTERIOR GIRDER AT ALL BENTS & EXTERIOR GIRDER AT END BENT

TOP FLANGE BLOCKOUT

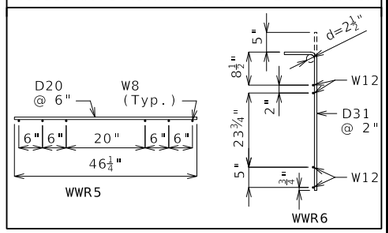
Mirror for right advanced.

Bill of Reinforcing Steel - Each Girder			
No.	Size/ Mark	Length	Shape
202	5 B1	4'-4"	11S
238	4 D1	4'-0"	9S
2	4 G3	4'-1¼"	20
2	4 G4	2'-3"	20
2	4 G5	2'-10⅛"	20
4	4 G6	Varies	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 and G6 not required for exterior girders of intermediate spans. Half no. of G3, G4, G5 and G6 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 18 strands, 0.6"Ø Grade 270, with an initial prestress force of 791 kips.

Pretensioned members shall be in accordance with Sec 1029.

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

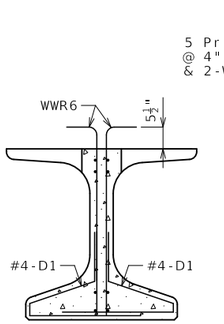
Exterior and interior girders are the same except: coil ties, top flange blockout, application of bond breaker.

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. 20.

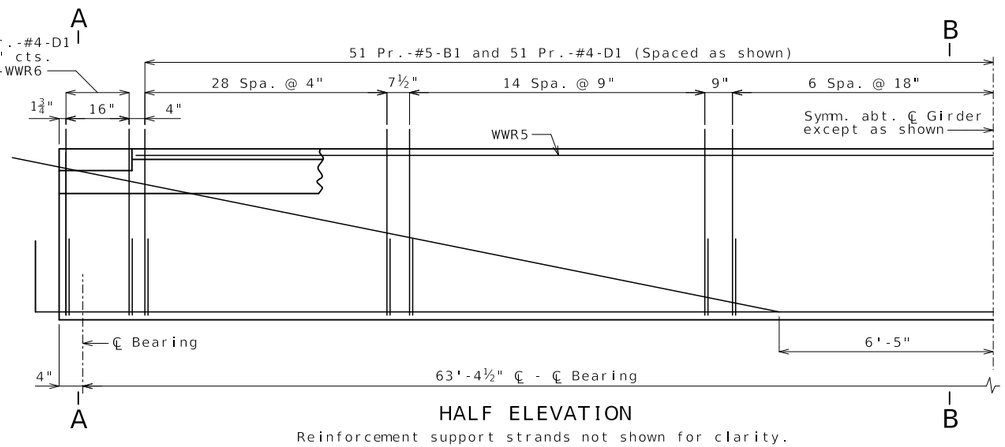
For location of coil ties at concrete diaphragms and integral bents, see Sheets No. 4, 14 and 18.

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.



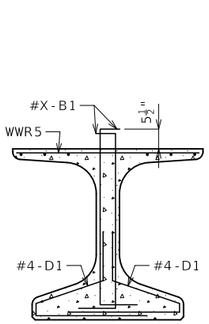
SECTION A-A

Strands not shown for clarity.



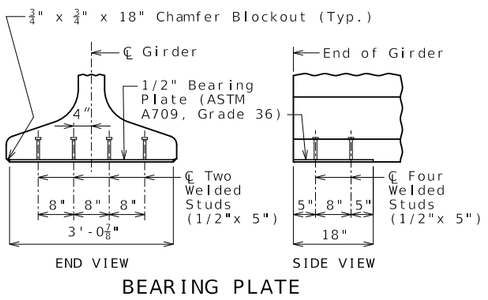
HALF ELEVATION

Reinforcement support strands not shown for clarity.

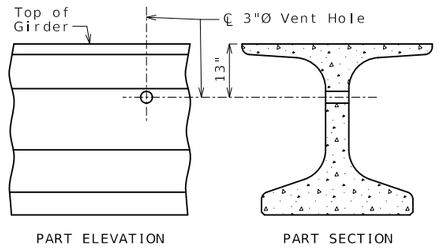


SECTION B-B

Strands not shown for clarity.

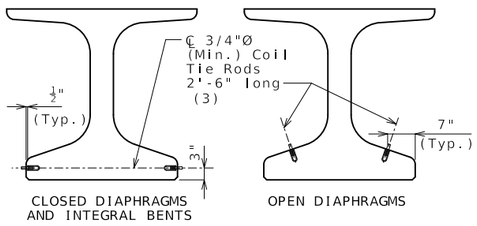


BEARING PLATE



VENT HOLE

Place vent holes at or near upgrade 1/3 point of girders and clear reinforcing steel or strands by 1 1/2" minimum.



COIL TIES

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

(3) 2'-6" at exterior face of exterior girders at end bents

NU-GIRDERS (ALTERNATE REINFORCEMENT) - SPANS (1-2) AND (3-4)

Detailed Sep. 2025
Checked Sep. 2025

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

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER

Alex C. Benz
10/21/202512:44:39 PM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED 10/21/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
BR	15

COUNTY PERRY

JOB NO. J9S3771

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9733

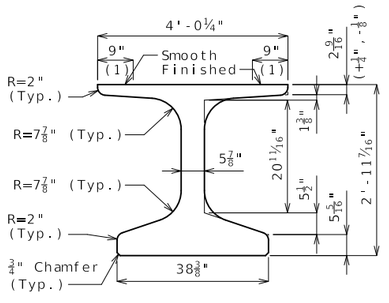
DESCRIPTION

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

EFK·Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578

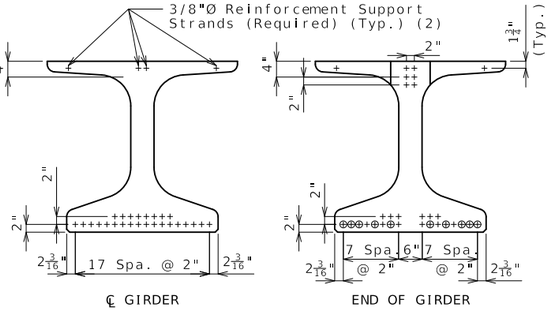
REV.

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



DIMENSIONS

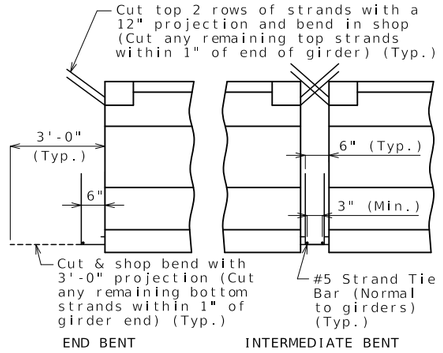
(2) Outer strands tensioned to 2.02 kips/strand and inner strands to 8 kips/strand. Placed symmetrical about ℄ Girder. May be moved laterally in pairs.



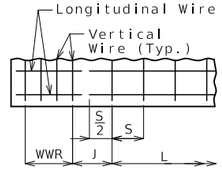
STRAND ARRANGEMENT

+ Indicates prestressing strand.

o 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

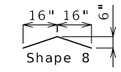
Bars Each Girder

No.	Size/Mark	Length	Shape
105	3 G1	2'-10"	8
2	4 G3	4'-1¼"	20
2	4 G4	2'-3"	20
2	4 G5	2'-10½"	20
4	4 G6	Varies	20

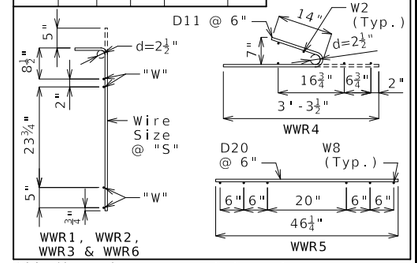
Welded Wire Each Girder

Mark	Size	S	W	L	J
WWR1	D31	4"	W12	9'-4"	8"
WWR2	D31	8"	W12	10'-8"	13¾"
WWR3	D31	16"	W12	34'-8"	--
WWR6	D31	2"	W12	16"	4"

Bending Diagrams



Shape 20



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 and G6 not required for exterior girders of intermediate spans. Half no. of G3, G4, G5 and G6 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 26 strands, 0.6"Ø Grade 270, with an initial prestress force of 1143 kips.

Pretensioned members shall be in accordance with Sec 1029.

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

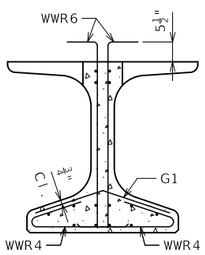
Exterior and interior girders are the same except: coil ties, top flange blockout, application of bond breaker.

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. 20.

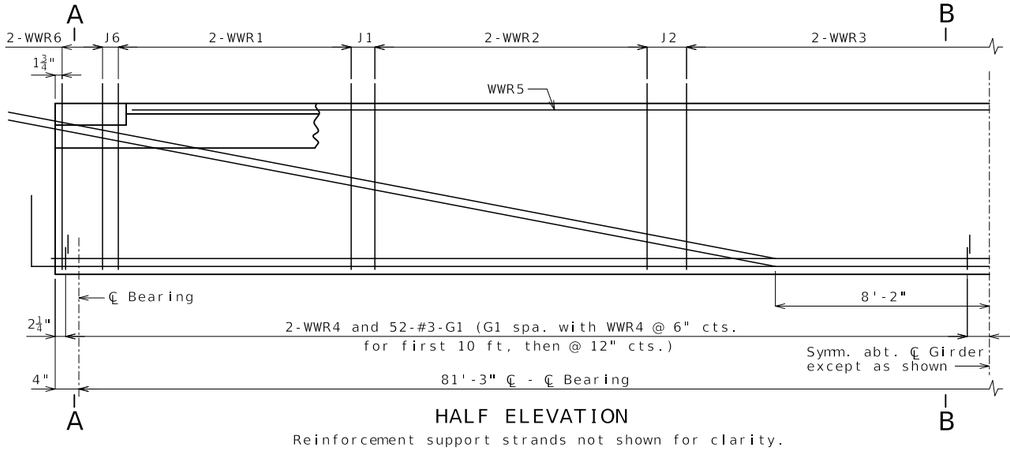
For location of coil ties at concrete diaphragms and integral bents, see Sheet No. 18.

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.



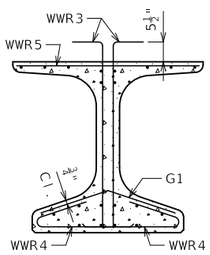
SECTION A-A

Strands not shown for clarity.



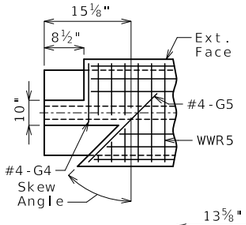
HALF ELEVATION

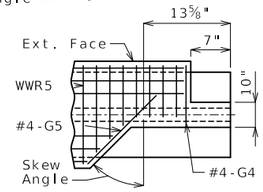
Reinforcement support strands not shown for clarity.



SECTION B-B

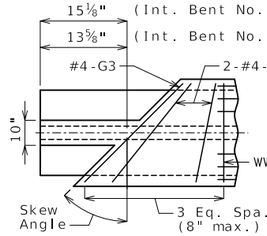
Strands not shown for clarity.





LEFT EXTERIOR GIRDER AT INTERMEDIATE BENT

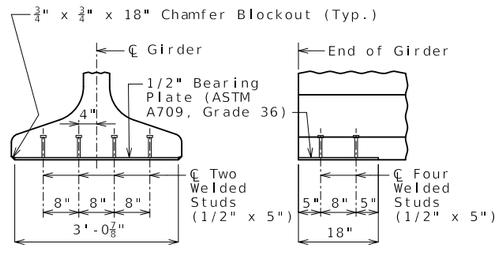
Rotate 180° for right ext.



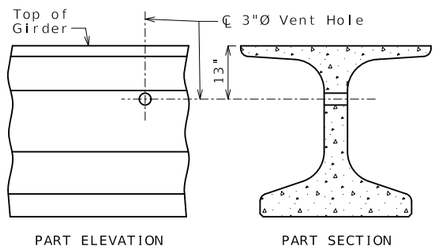
INTERIOR GIRDER AT ALL BENTS

TOP FLANGE BLOCKOUT

Mirror for right advanced.



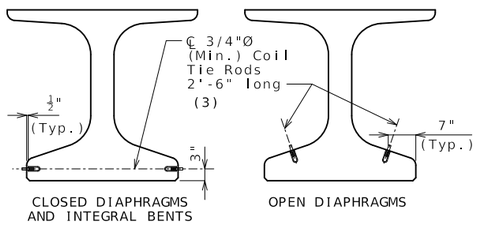
BEARING PLATE



PART ELEVATION PART SECTION

VENT HOLE

Place vent holes at or near upgrade 1/3 point of girders and clear reinforcing steel or strands by 1 1/2" minimum and steel intermediate diaphragm bolt connections by 6" minimum.



CLOSED DIAPHRAGMS AND INTEGRAL BENTS

OPEN DIAPHRAGMS

COIL TIES

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

(3) 1'-4" at exterior face of exterior girders at end bents

NU-GIRDERS - SPAN (2-3)

Detailed Sep. 2025
Checked Sep. 2025

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

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
10/21/202512:44:49 PM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED	
10/21/2025	
ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
BR	16
COUNTY	
PERRY	
JOB NO.	
J9S3771	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	
A9733	

DESCRIPTION

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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Civil Engineering Design
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Suite 250
St. Louis, MO 63021
Phone 314-394-3100
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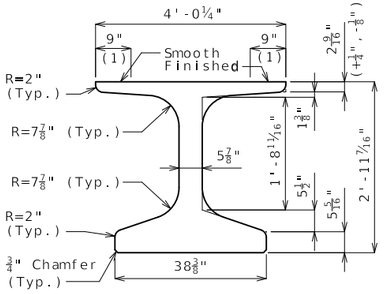
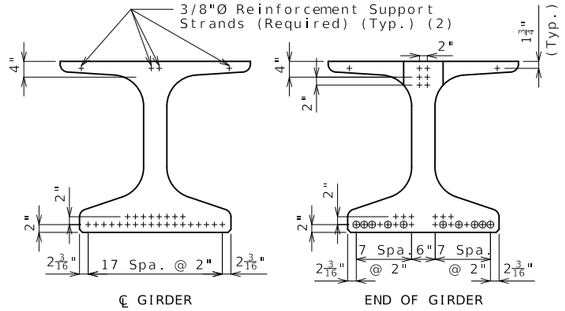
Missouri Certificate of Authority: 001578

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



DIMENSIONS

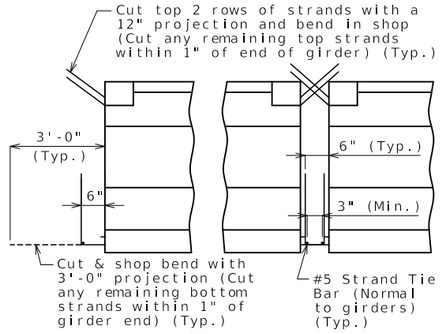
(2) Outer strands tensioned to 2.02 kips/strand and inner strands to 8 kips/strand. Placed symmetrical about ℄ Girder. May be moved laterally in pairs.



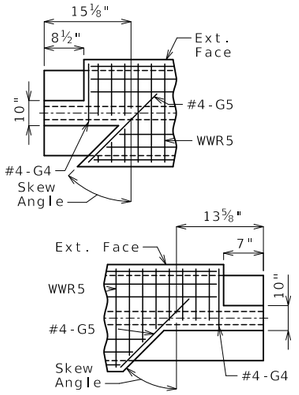
STRAND ARRANGEMENT

\+ Indicates prestressing strand.

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

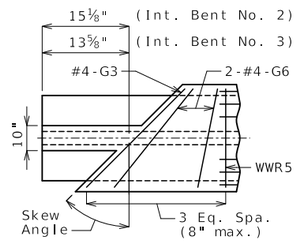


STRANDS AT GIRDER ENDS



LEFT EXTERIOR GIRDER AT INTERMEDIATE BENT

Rotate 180° for right ext.



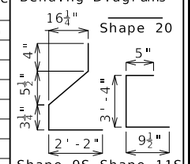
INTERIOR GIRDER AT ALL BENTS & EXTERIOR GIRDER AT END BENT

TOP FLANGE BLOCKOUT

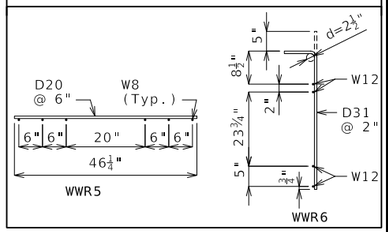
Mirror for right advanced.

Bill of Reinforcing Steel - Each Girder			
No.	Size/ Mark	Length	Shape
226	5 B1	4'-4"	11S
262	4 D1	4'-0"	9S
2	4 G3	4'-1¼"	20
2	4 G4	2'-3"	20
2	4 G5	2'-10⅛"	20
4	4 G6	Varies	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 and G6 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 26 strands, 0.6"Ø Grade 270, with an initial prestress force of 1143 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.

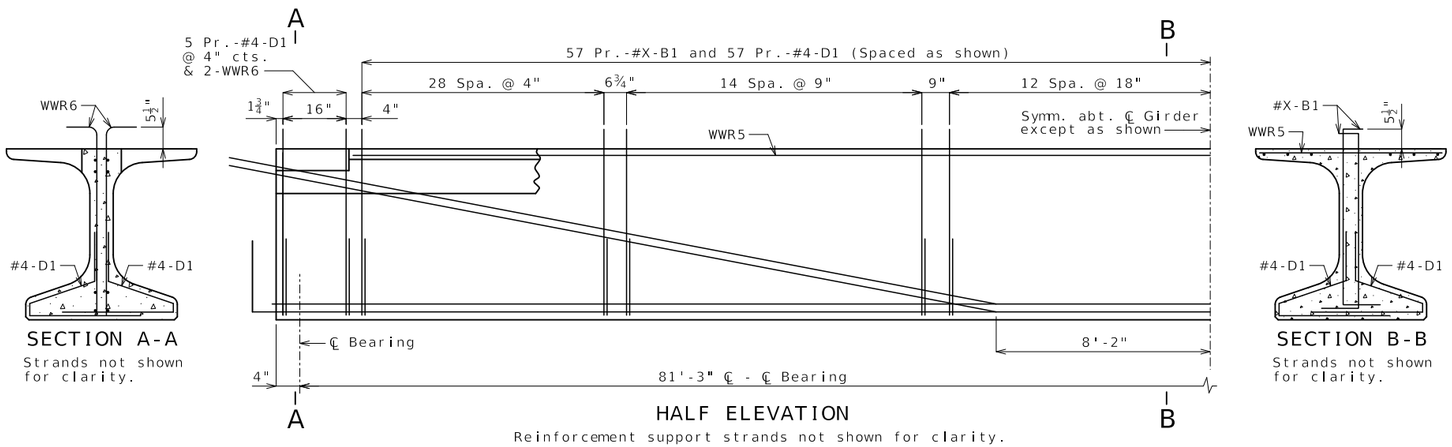
The contractor shall provide bracing necessary for lateral and torsional stability of the girders during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not drill holes in the girders.

For Girder Camber Diagram, see Sheet No. 20.

The 1 1/2"Ø holes shall be cast in the web for steel intermediate diaphragms. Drilling is not allowed. For location of holes and details of steel intermediate diaphragms, see Sheet No. 18.

For location of coil ties at concrete diaphragms and integral bents, see Sheet No. 18.

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

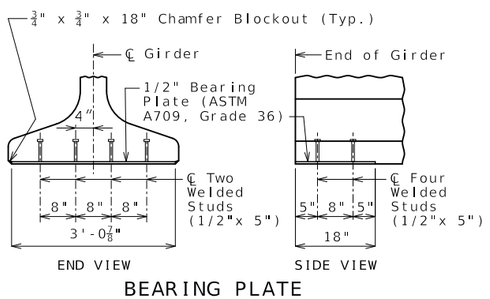
Strands not shown for clarity.

HALF ELEVATION

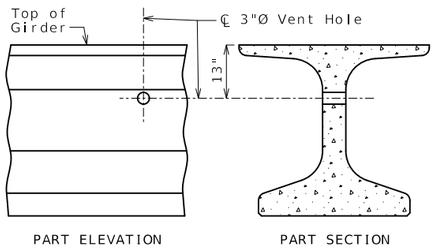
Reinforcement support strands not shown for clarity.

SECTION B-B

Strands not shown for clarity.

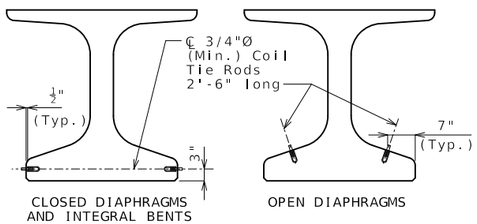


BEARING PLATE



VENT HOLE

Place vent holes at or near upgrade 1/3 point of girders and clear reinforcing steel or strands by 1 1/2" minimum.



COIL TIES

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

NU-GIRDERS (ALTERNATE REINFORCEMENT) - SPAN (2-3)

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Checked Sep. 2025

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

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ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
BR	17

COUNTY
PERRY

JOB NO.
J9S3771

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9733

DESCRIPTION

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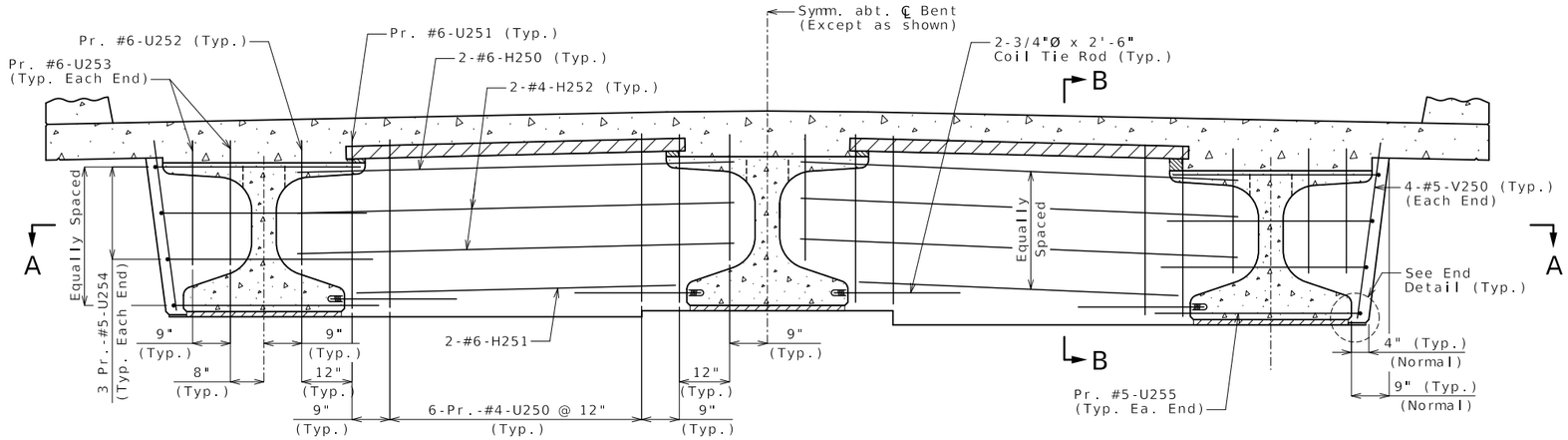
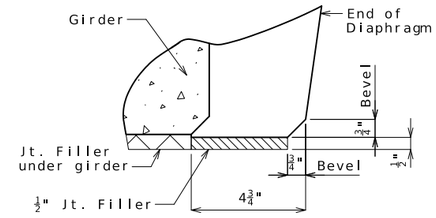
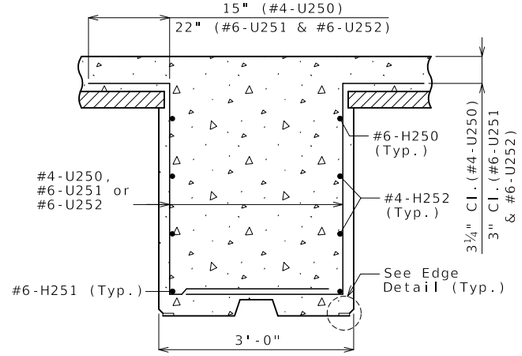


SECTION NEAR INTERMEDIATE BENTS NO. 2 & 3

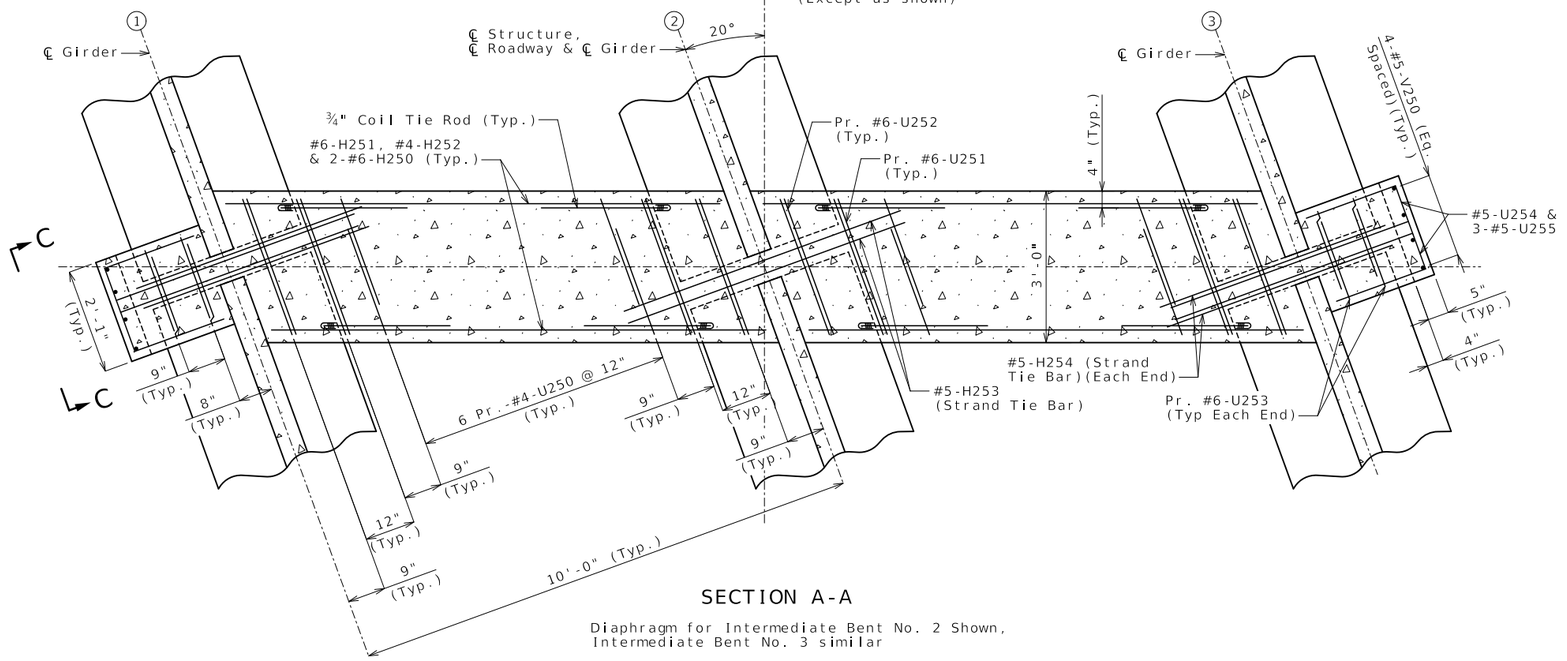
Normal to ℄ Structure



END DETAIL

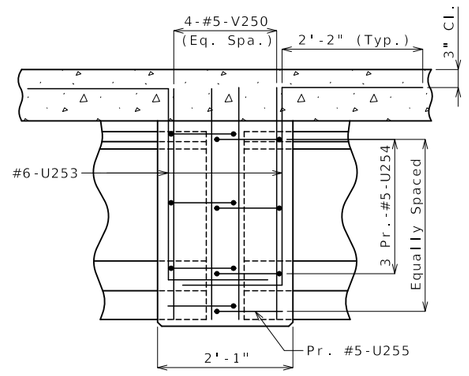


SECTION B-B

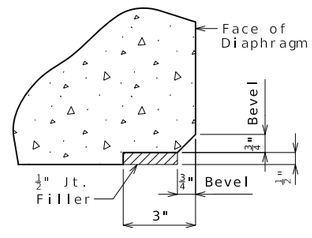


SECTION A-A

Diaphragm for Intermediate Bent No. 2 Shown,
Intermediate Bent No. 3 similar



ELEVATION C-C



EDGE DETAIL

Notes:

For location of Strand Tie Bars and Coil Tie Rods, see Sheets No. 14 thru 17.

All U-Bars in diaphragms are to be placed parallel to ℄ Girders.

Diaphragms at Intermediate Bents shall be built vertical.

CONCRETE DIAPHRAGMS AT INTERMEDIATE BENTS NO. 2 & 3

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DISTRICT	SHEET NO.
BR	18

COUNTY: PERRY

JOB NO.: J9S3771

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.: A9733

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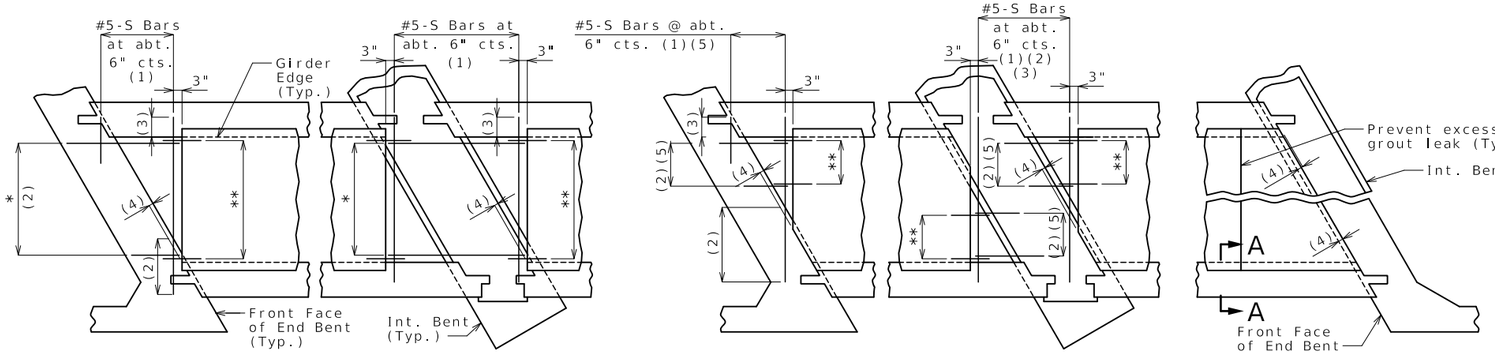
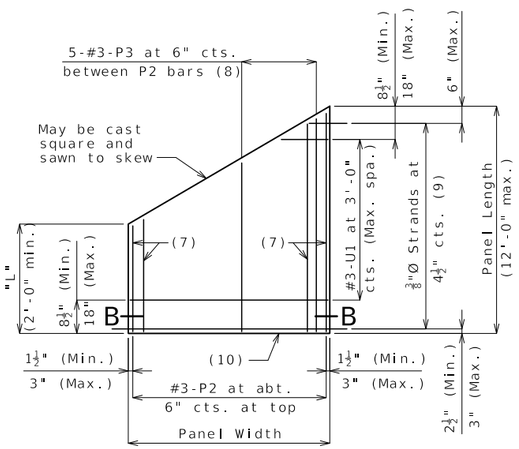


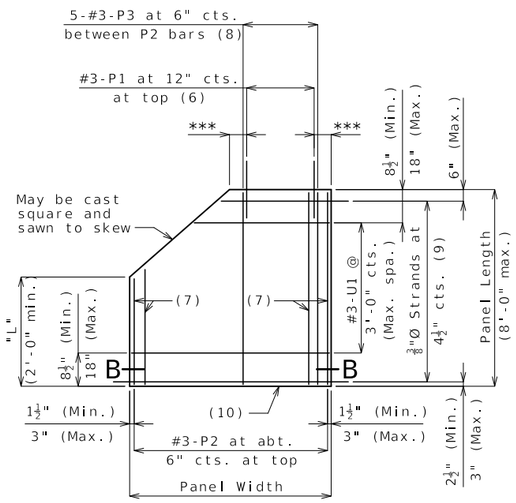
SQUARED END PANELS OR TRUNCATED END PANELS

PLAN SHOWING PANEL PLACEMENT

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

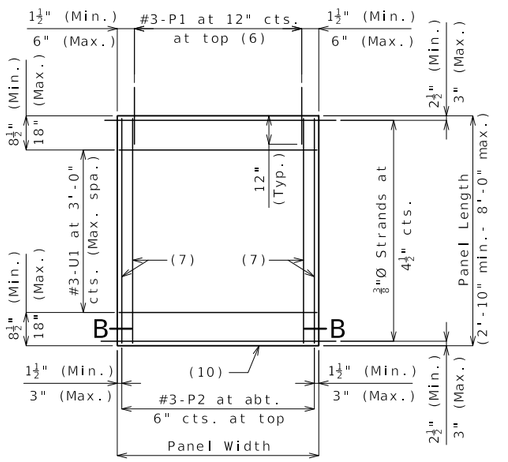


PLAN OF OPTIONAL SKEWED END PANEL

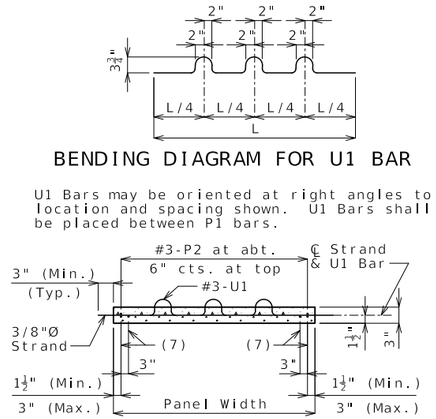


PLAN OF OPTIONAL TRUNCATED END PANEL

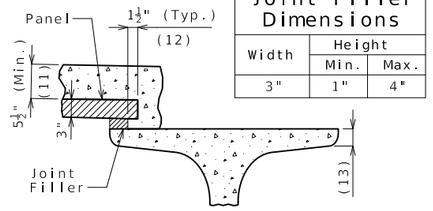
*** 3" (Min.), 6" (Max.)



PLAN OF SQUARED PANEL



SECTION B-B



SECTION A-A

SKEWED END PANELS

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

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. 20 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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COUNTY: PERRY
JOB NO.: J9S3771
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9733

DESCRIPTION | REV.

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PRESTRESSED PANELS

Detailed Sep. 2025
Checked Sep. 2025

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

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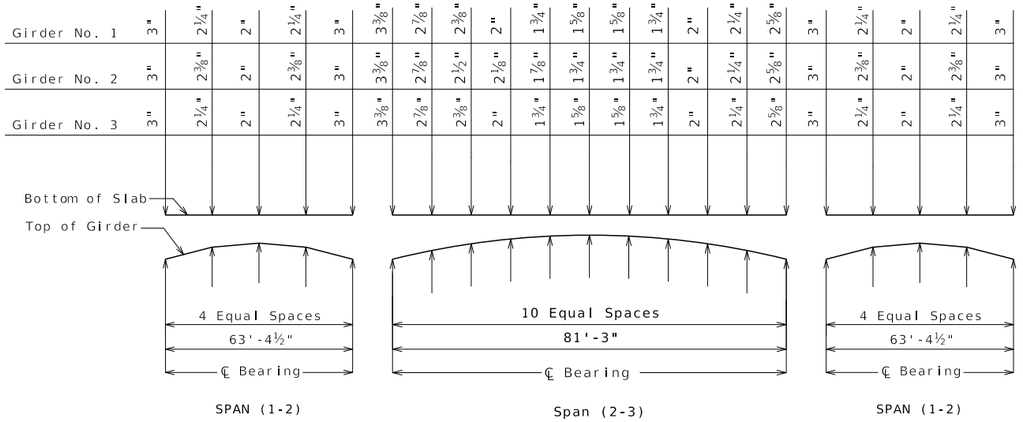
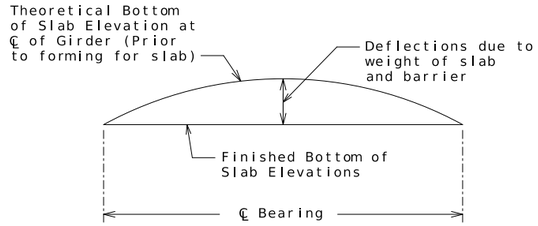


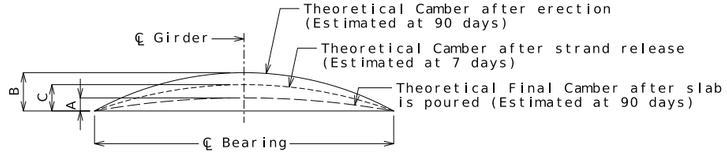
THEORETICAL SLAB HAUNCHING DIAGRAM



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) (63'-4 1/2" ℄ Brg. - ℄ Brg.)										
	℄ Brg.	.25	.50	.75	℄ Brg.						
1	405.03	405.43	405.80	406.12	406.42						
2	405.15	405.55	405.92	406.25	406.54						
3	404.87	405.27	405.64	405.96	406.26						
	Span (2-3) (81'-3" ℄ Brg. - ℄ Brg.)										
	℄ Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	℄ Brg.
1	406.46	406.69	406.91	407.13	407.33	407.52	407.69	407.84	407.99	408.12	408.24
2	406.58	406.81	407.04	407.26	407.46	407.65	407.82	407.97	408.11	408.24	408.36
3	406.30	406.53	406.75	406.97	407.17	407.36	407.53	407.68	407.83	407.96	408.08
	Span (3-4) (63'-4 1/2" ℄ Brg. - ℄ Brg.)										
	℄ Brg.	.25	.50	.75	℄ Brg.						
1	408.27	408.67	409.03	409.36	409.66						
2	408.39	408.79	409.16	409.49	409.78						
3	408.11	408.51	408.87	409.20	409.50						

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.



Girder	Span (1-2)			Span (2-3)			Span (3-4)		
	A	B	C	A	B	C	A	B	C
Exterior	1"	1⅝"	1⅜"	¾"	3⅛"	2¾"	1"	1⅝"	1⅜"
Interior	⅞"			⅝"			⅞"		

GIRDER CAMBER DIAGRAM

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

0.1 pt. = 0.314 x 0.5 pt.
0.2 pt. = 0.593 x 0.5 pt.
0.3 pt. = 0.813 x 0.5 pt.
0.4 pt. = 0.952 x 0.5 pt.

0.25 pt. = 0.7125 x 0.5 pt.

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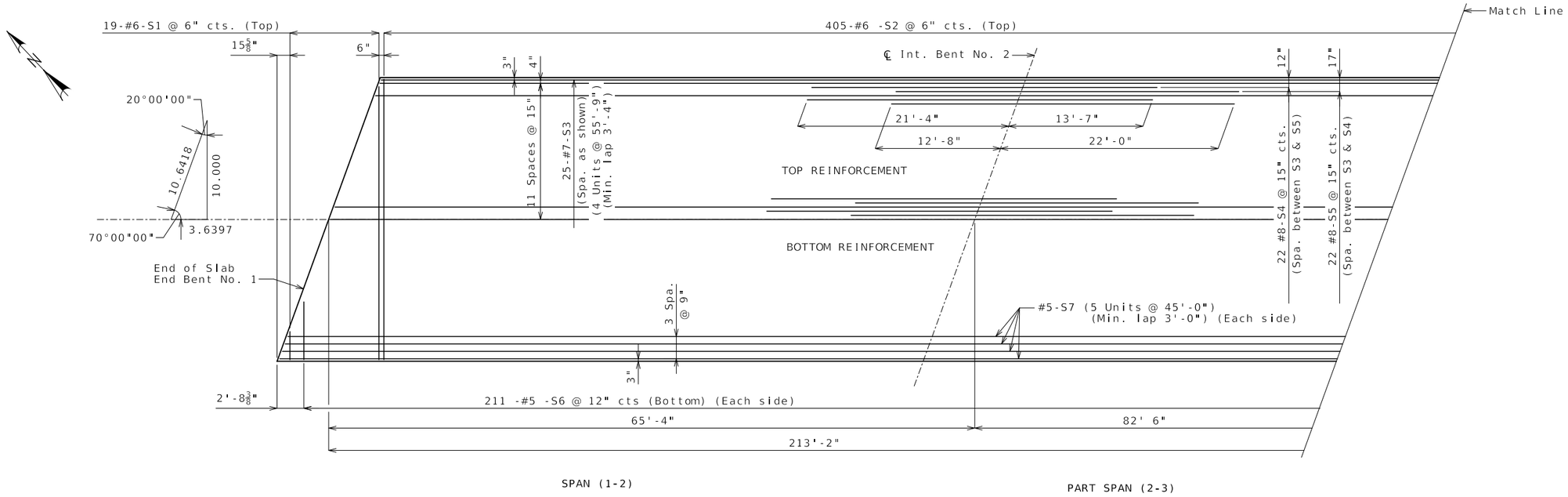
Missouri Certificate of Authority: 001578

REV.



PLAN OF SLAB SHOWING REINFORCEMENT

Detailed Sep. 2025
Checked Sep. 2025

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

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
10/21/202512:46:02 PM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED
10/21/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
BR	21

COUNTY
PERRY

JOB NO.
J9S3771

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9733

DESCRIPTION

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

EFK•Moen
Civil Engineering Design
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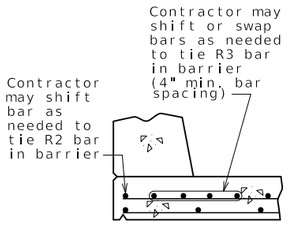
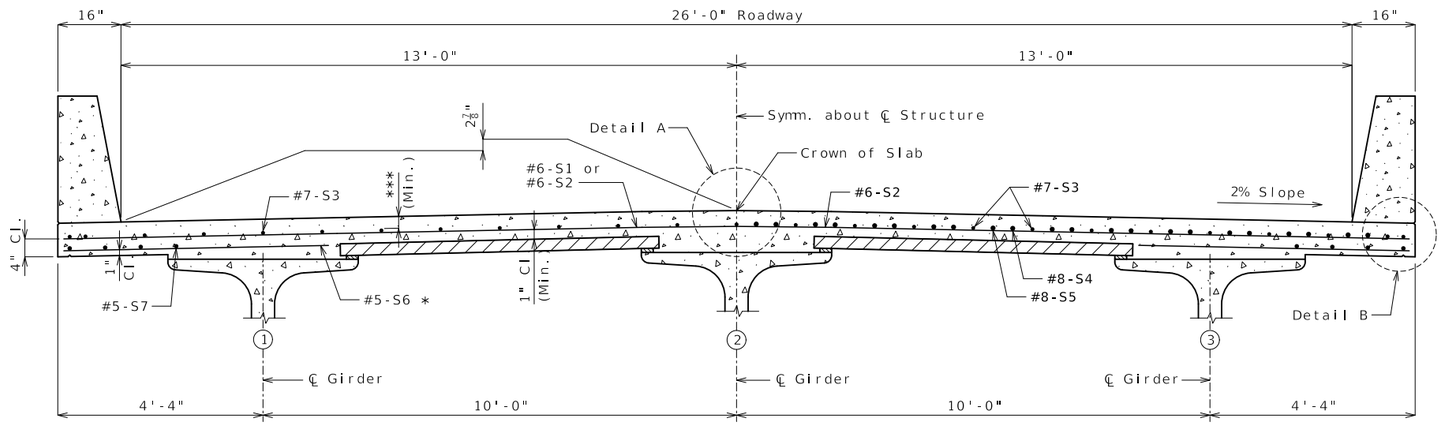
Missouri Certificate of Authority: 001578



OPTIONAL SHIFTING TOP BARS AT BARRIER

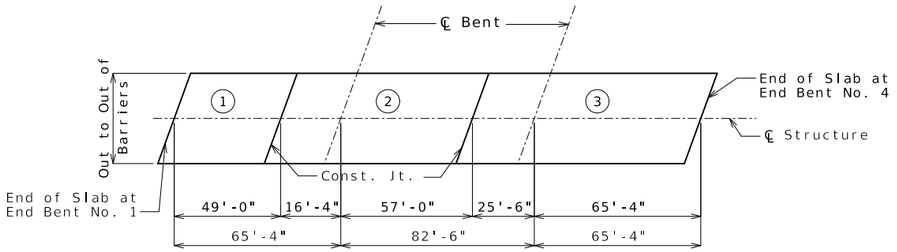


*** $2\frac{7}{8}$" (#7)
$2\frac{3}{4}$" (#8)

HALF SECTION NEAR MIDSPAN HALF SECTION NEAR INTERMEDIATE BENT

SECTION THRU SLAB

* Alternate bar shape available, see barrier sheet.



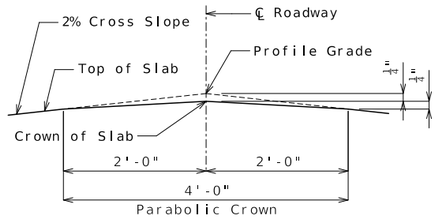
SPAN (1-2) SPAN (2-3) SPAN (3-4)

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

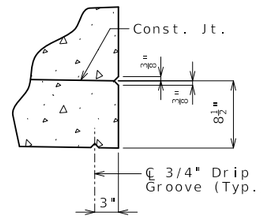
The contractor shall furnish an approved retarder to retard the set of the concrete to 2.5 hours, and shall pour and satisfactorily finish the slab pours at the rate given.

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.

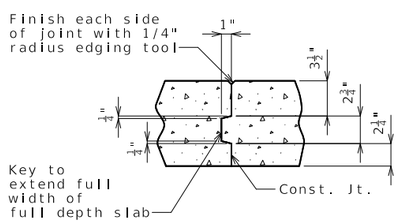
SLAB POURING SEQUENCE



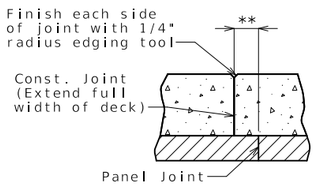
DETAIL A



DETAIL B



FULL DEPTH SLAB



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

SLAB CONSTRUCTION JOINT

Notes:

For details of precast prestressed panels, see Sheet No. 19.

For reinforcement of barrier not shown, see Sheet No. 23.

For Theoretical Bottom of Slab Elevations, Girder Camber Diagram and Theoretical Slab Haunching Diagram, see Sheet No. 20.

For Plan of Slab Showing Reinforcement, see Sheet No. 21.

SLAB DETAILS

Sheet No. 22 of 30

Detailed Sep. 2025
Checked Sep. 2025

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

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER

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DATE PREPARED 10/21/2025
ROUTE NN | STATE MO
DISTRICT BR | SHEET NO. 22
COUNTY PERRY
JOB NO. J9S3771
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9733

DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
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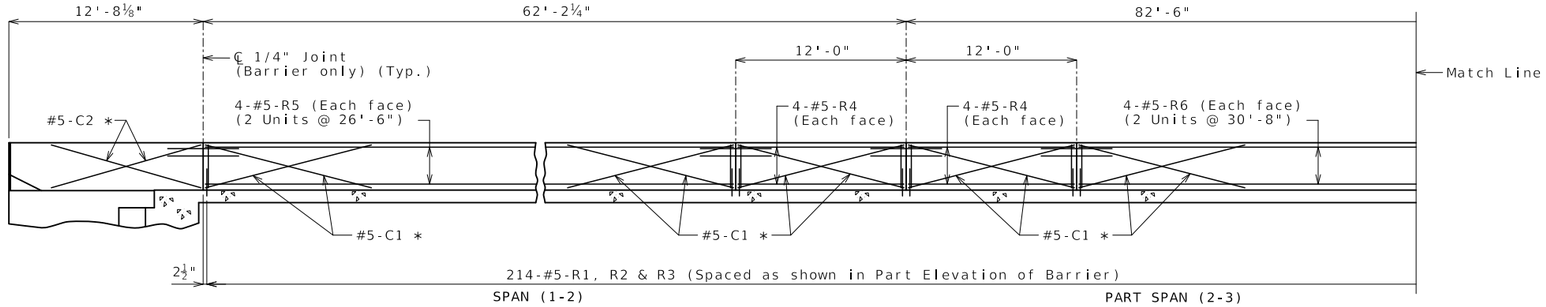
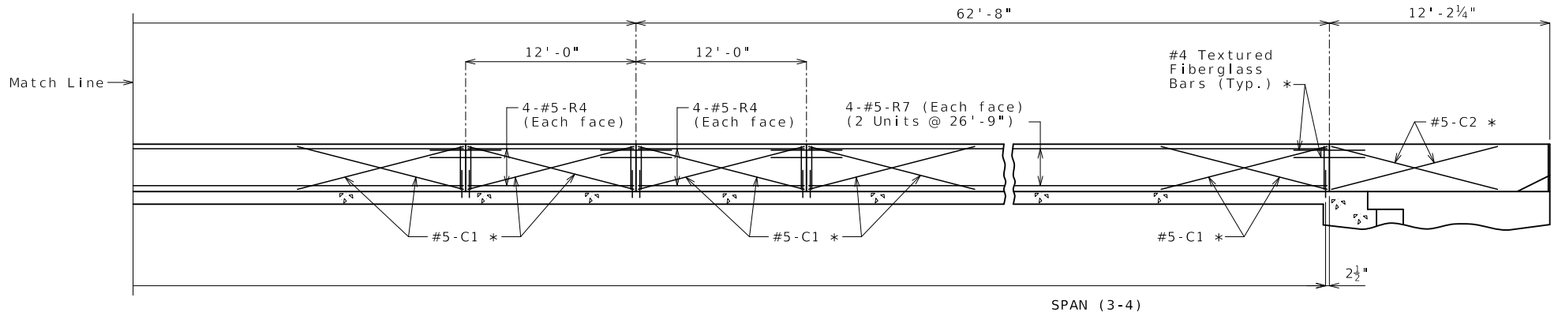
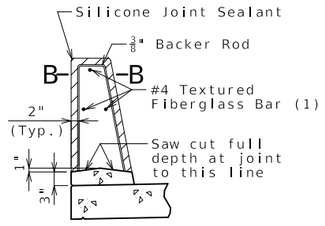




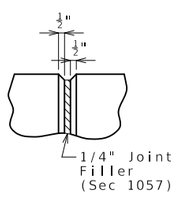
ELEVATION OF BARRIER

(Left barrier shown, right barrier similar)

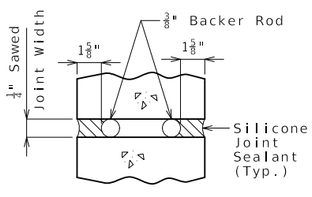
Longitudinal dimensions are horizontal.



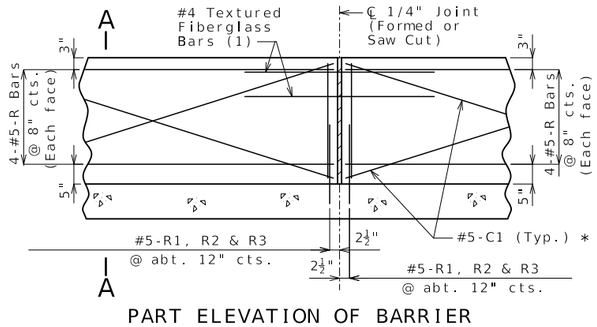
SECTION THRU
SAW CUT JOINT



PART ELEVATION
AT FORMED JOINT

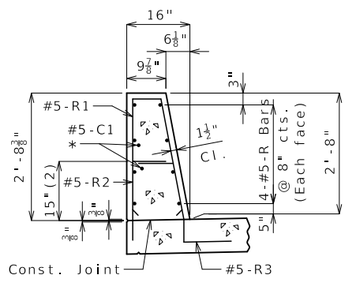


SECTION B-B



PART ELEVATION OF BARRIER

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

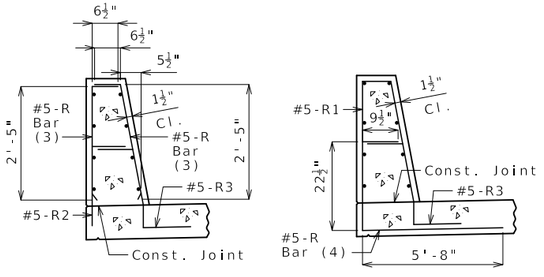


SECTION A-A

Use a minimum lap of 2'-6" for #5 horizontal barrier bars.

The cross-sectional area above the slab is 2.89 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 H 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 H 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.

TYPE H BARRIER

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
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MO PE-2018003121

DATE PREPARED	
10/21/2025	
ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
BR	23
COUNTY	
PERRY	
JOB NO.	
J9S3771	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	
A9733	

DESCRIPTION

REV.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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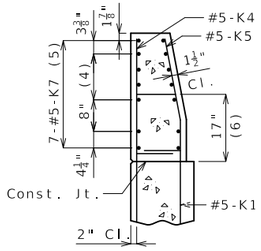
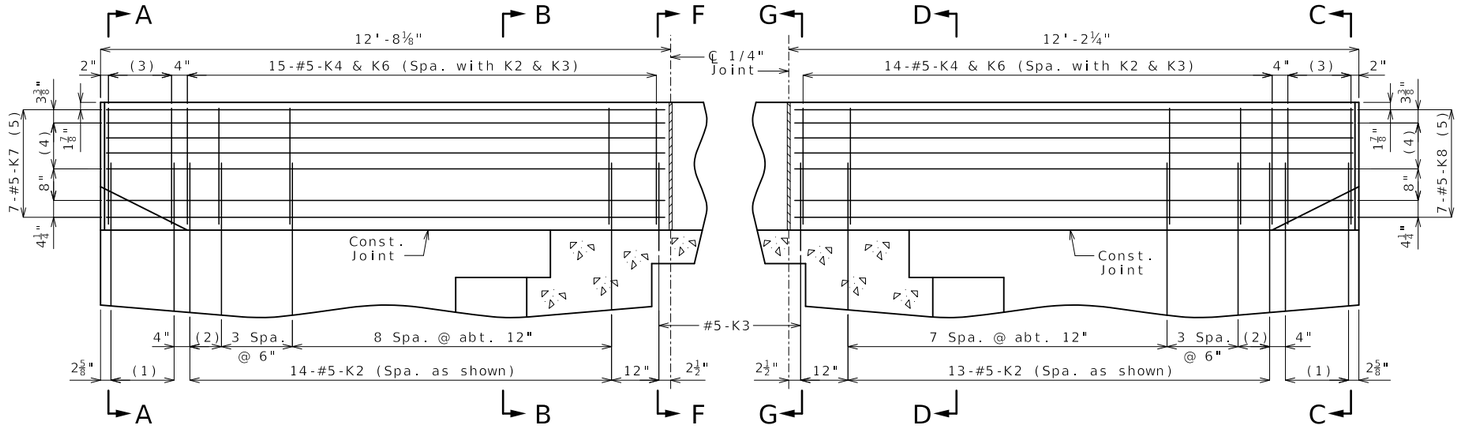
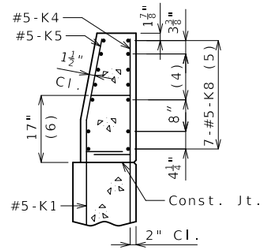
Missouri Certificate of Authority: 001578



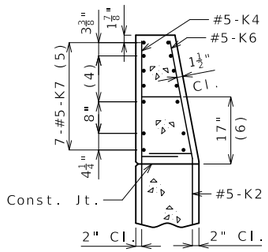
SECTION A-A



PART ELEVATION



SECTION C-C



SECTION B-B

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

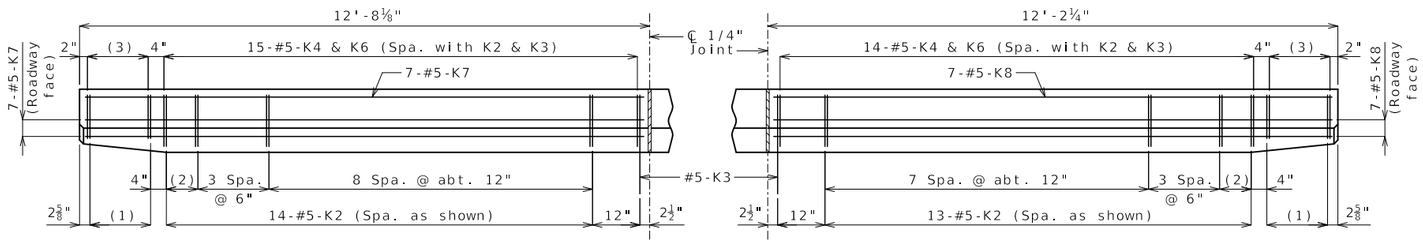
(2) 2 Spaces @ 4"

(3) 5-#5-K4 and 5-#5-K5, spaced with K1

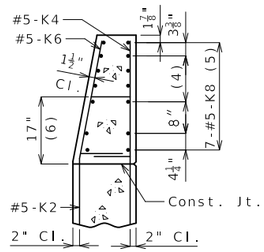
(4) 3 Spaces @ $3\frac{13}{16}$"

(5) Spaced as shown, each face

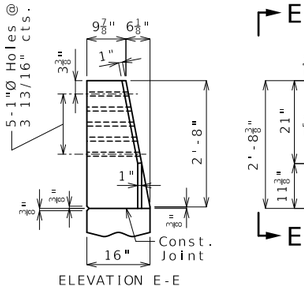
(6) To top of bar



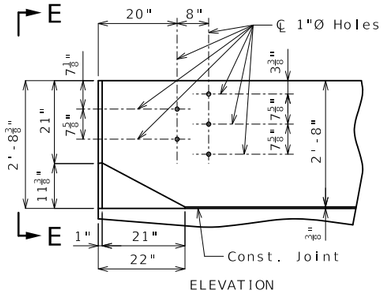
PART PLAN



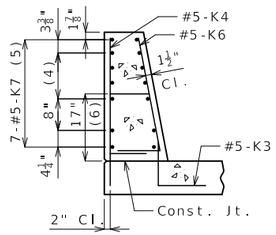
SECTION D-D



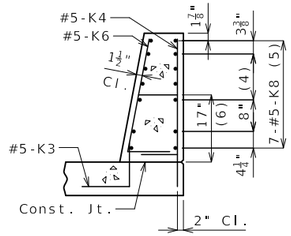
ELEVATION E-E



ELEVATION

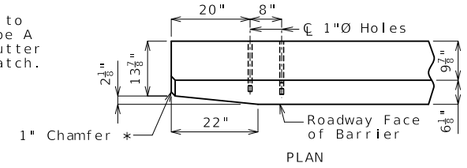


SECTION F-F



SECTION G-G

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



PLAN

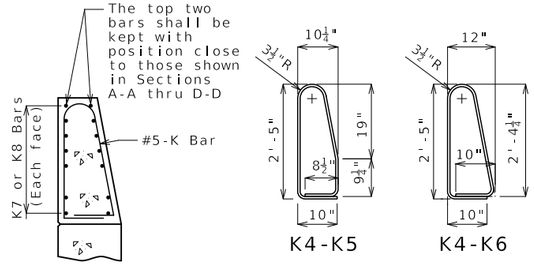
DETAILS OF GUARD RAIL ATTACHMENT

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 H Barrier.

Reinforcing Steel:

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



PERMISSIBLE ALTERNATE SHAPES

(Other K bars not shown for clarity)

The K4-K5 and K4-K6 bar combination may be furnished as one bar as shown, at the contractor's option.

All dimensions are out to out.

TYPE H BARRIER AT END BENTS

(Left barrier shown, right barrier similar)

Detailed Sep. 2025
Checked Sep. 2025

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

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
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Alex Benz - Civil
MO PE-2018003121

DATE PREPARED 10/21/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
BR	24

COUNTY PERRY

JOB NO. J9S3771

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9733

DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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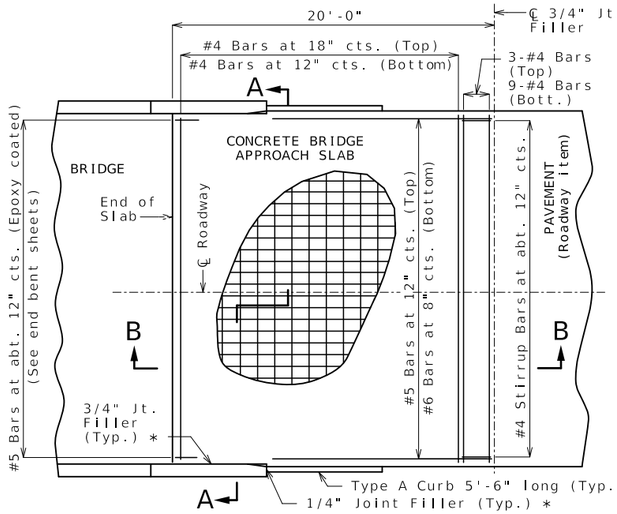
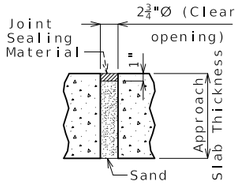
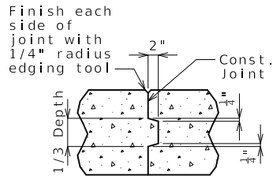


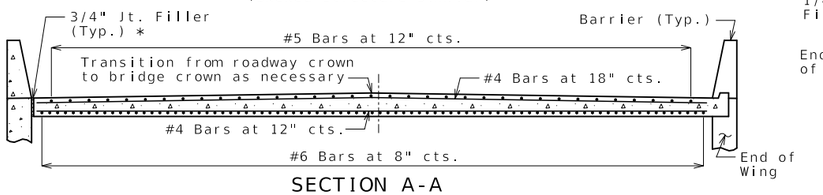
PART PLAN OF SQUARED STRUCTURE
(Skewed structure similar)



UNDERSEAL ACCESS HOLE DETAIL
(If required)

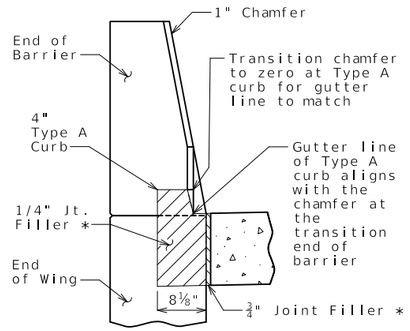


CONSTRUCTION JOINT DETAIL



SECTION A-A

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 BETWEEN CURB AND BARRIER

Notes For Concrete Slab Only:

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

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

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

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

The reinforcing steel in the bridge approach slab shall be continuous. The transverse reinforcing steel may be made continuous by providing a minimum lap splice of 26 inches for #4 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.

Payment for furnishing all materials, labor and excavation necessary to construct the concrete bridge approach slab, including the timber header, 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 (Minor) per square yard.

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

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.

* 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.

General Notes:

Contractor shall have the option to construct either slab except as noted.

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

MoDOT Construction personnel will indicate the bridge approach slab used for this structure:

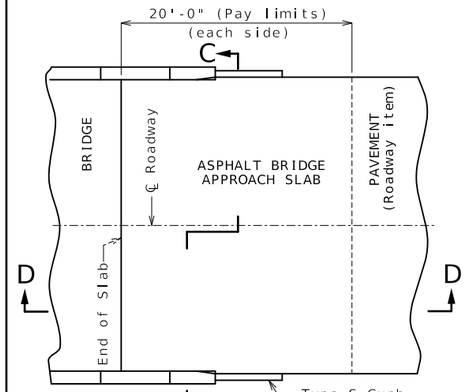
☐ Concrete Bridge Approach Slab

☐ Asphalt Bridge Approach Slab

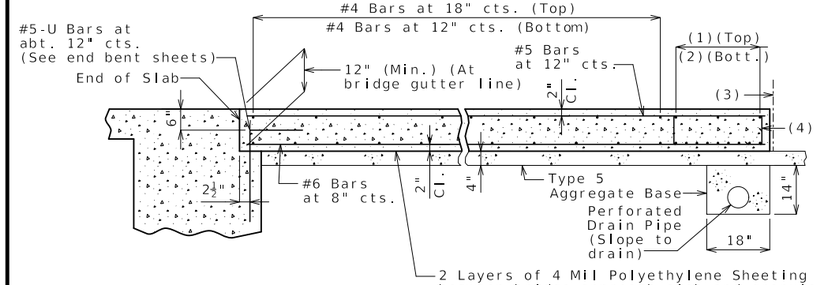
Notes For Asphalt Slab Only:

Payment for furnishing all materials, labor and excavation necessary to construct the asphalt bridge approach slab, including tack, curb, and Type 5 aggregate base within the pay limits shown, complete in place, will be considered completely covered by the contract unit price for Bridge Approach Slab (Minor) per square yard.

Application of tack is required between lifts per Sec 403.



PART PLAN
(Squared structure shown, skewed structure similar)



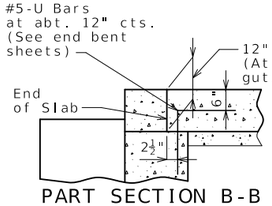
(1) 3-#4 Bars

(2) 9-#4 Bars

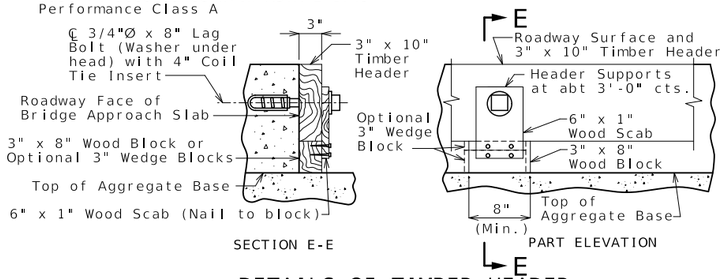
(3) ℄ 3/4" Jt. Filler

(4) #4 Stirrup Bars at abt. 12" cts.; 2'-0"x 8" (Min.) out to out; Actual length = 5'-10" (Min.); 90° stirrup hook at bottom; Stirrup height (8") and actual length vary due to crown.

SECTION B-B
(Integral end bent)



PART SECTION B-B
(Non-integral end bent)

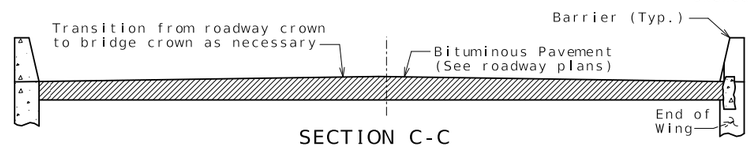


SECTION E-E

PART ELEVATION

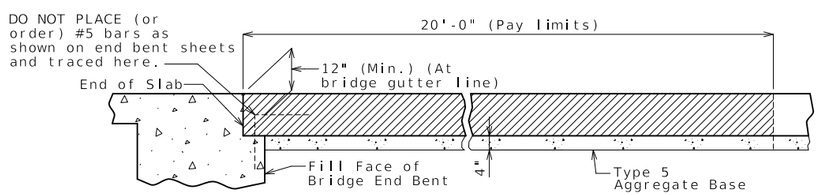
DETAILS OF TIMBER HEADER
Remove timber header when concrete pavement is placed.

OPTIONAL CONCRETE SLAB

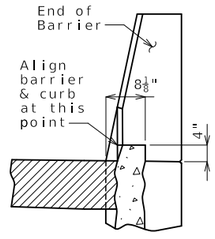


SECTION C-C

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 D-D



4" TYPE S CURB
See Missouri Standard Plan 609.00 for details of Type S curb.

OPTIONAL ASPHALT SLAB (NOT ALLOWED WITH CONCRETE PAVEMENT)

BRIDGE APPROACH SLAB (MINOR)

Integral end bents shown, non-integral end bent similar.

Detailed Sep. 2025
Checked Sep. 2025

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

STATE OF MISSOURI ALEX BENZ NUMBER PE-2018003121 PROFESSIONAL ENGINEER
Alex C. Benz
10/21/202512:46:41 PM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED 10/21/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
BR	25

COUNTY: PERRY

JOB NO.: J9S3771

CONTRACT ID.:

PROJECT NO.:

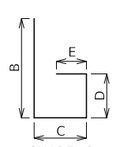
BRIDGE NO.: A9733

DESCRIPTION

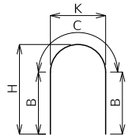
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578

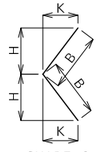
REV.



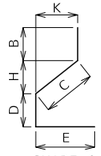
SHAPE 6
or 6S



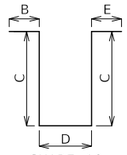
SHAPE 7



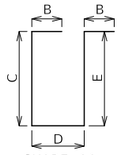
SHAPE 8
or 8S



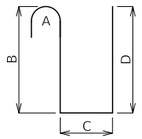
SHAPE 9
or 9S



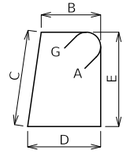
SHAPE 10
or 10S



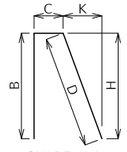
SHAPE 11
or 11S



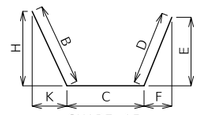
SHAPE 12



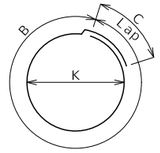
SHAPE 13S



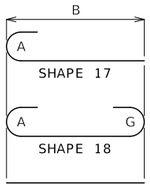
SHAPE 14
or 14S



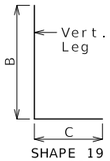
SHAPE 15
or 15S



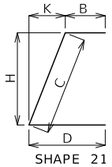
SHAPE 16



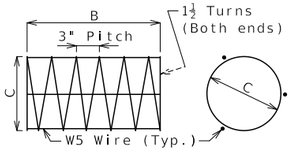
SHAPE 17
SHAPE 18
SHAPE 20



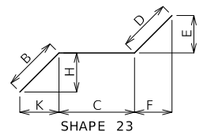
SHAPE 19
or 19S



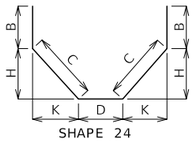
SHAPE 21
or 21S



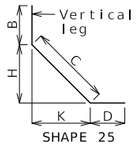
SHAPE 22



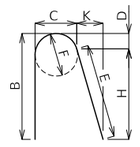
SHAPE 23
or 23S



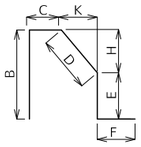
SHAPE 24
or 24S



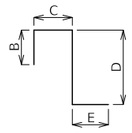
SHAPE 25
or 25S



SHAPE 26



SHAPE 27S



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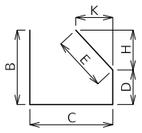
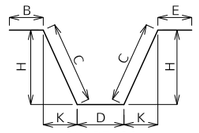
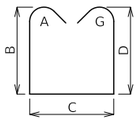
or 28S



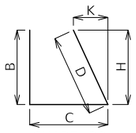
SHAPE 29
or 29S



SHAPE 30
or 30S



SHAPE 31S



SHAPE 32
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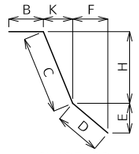
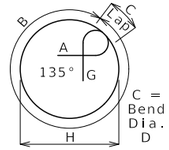
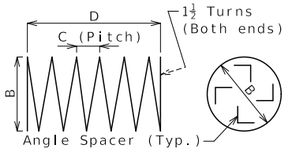


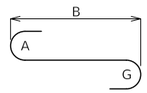
SHAPE 33
or 33S



SHAPE 34S



SHAPE 35 (1)

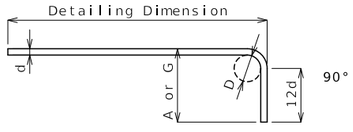


SHAPE 36

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"

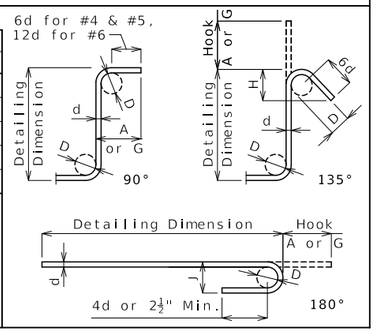


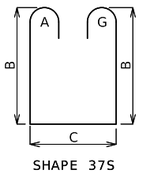
Stirrup Pin Bend Shapes (S)

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"

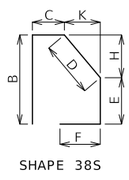
Applicable for all grades of steel.

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)

	Size	Substructure		Superstructure				Entire Bridge	
				Slab			Slip		
		Plain	Epoxy	Plain	Epoxy	Barrier	Form	Plain	Epoxy
By Size	W5	0	0	0	0	0	0	0	0
	4	1,623	0	643	0	0	0	2,266	0
	5	4,865	0	5,901	0	8,849	291	19,906	0
	6	3,470	0	23,805	0	0	0	27,275	0
	7	622	0	12,875	0	0	0	13,497	0
	8	328	0	9,207	0	0	0	9,535	0
	9	17,212	0	0	0	0	0	17,212	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		28,120	0	52,431	0	8,849	291	89,691	0

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

BENDING DIAGRAMS AND REINFORCING STEEL TOTALS

Detailed Sep. 2025
Checked Sep. 2025

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

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
10/21/202512:47:06 PM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED 10/21/2025
ROUTE NN | STATE MO
DISTRICT BR | SHEET NO. 26
COUNTY PERRY
JOB NO. J9S3771
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9733

DESCRIPTION

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

EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578

REV.

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B ft	B in.	C ft	C in.	D ft	D in.	E ft	E in.	F ft	F in.	H ft	H in.	K ft	K in.	Nom. Length ft	Nom. Length in.	Actual Length ft	Actual Length in.	Weight lb
		SUBSTRUCTURE																						
		INT BENT NO. 2																						
18	6 D200	KEY		20		2	6.000													2	6	2	6	68
8	9 H200	BEAM		18		26	0.000													28	7	28	7	777
8	9 H201	BEAM		20		26	0.000													26	0	26	0	707
10	6 H202	BEAM		20		26	0.000													26	0	26	0	391
14	6 H203	BEAM		10 S				12.000	3	7.000										5	7	5	3	110
20	4 H204	WEB BEAM		20		16	6.000													16	6	16	6	220
3	8 H205	WEB BEAM		20		20	6.000													20	6	20	6	164
16	7 H206	BEAM		20		9	6.000													9	6	9	6	311
40	4 J200	BEAM		32 S			4.500	3	9.000		4.000						2.875		2.875	4	6	4	0	116
2	5 P200	DRILLED SHAFT		35		3	0.000		6.000	55	4.000									1066	4	1066	4	2224
26	5 P201	DRILLED SHAFT		34		7	0.875	3	6.000							3	0.000			10	5	10	5	282
27	6 U200	BEAM		13 S		3	9.000	4	0.000	3	9.000	4	0.000							16	9	16	4	662
20	6 U201	BEAM		13 S		2	6.000	4	0.000	2	6.000	4	0.000							14	4	13	10	416
16	6 U202	BEAM		10 S				4	0.000	3	9.000									11	9	11	5	274
12	9 V200	DRILLED SHAFT		17		30	0.000													31	3	31	3	1275
12	9 V201	DRILLED SHAFT		17		31	3.000													32	7	32	7	1329
10	9 V202	DRILLED SHAFT		17		32	6.000													33	10	33	10	1150
12	9 V203	DRILLED SHAFT		20		35	7.000													35	7	35	7	1452
12	9 V204	DRILLED SHAFT		20		34	4.000													34	4	34	4	1401
10	9 V205	DRILLED SHAFT		20		33	1.000													33	1	33	1	1125
56	4 V206	WEB BEAM		20		11	9.000													11	9	11	9	440
		INT BENT NO. 3																						
18	6 D300	KEY		20		2	6.000													2	6	2	6	68
8	9 H300	BEAM		18		26	0.000													28	7	28	7	777
8	9 H301	BEAM		20		26	0.000													26	0	26	0	707
10	6 H302	BEAM		20		26	0.000													26	0	26	0	391
14	6 H303	BEAM		10 S				12.000	3	7.000										5	7	5	3	110
20	4 H304	WEB BEAM		20		16	6.000													16	6	16	6	220
3	8 H305	WEB BEAM		20		20	6.000													20	6	20	6	164
16	7 H306	BEAM		20		9	6.000													9	6	9	6	311
40	4 J300	BEAM		32 S			4.500	3	9.000		4.000						2.875		2.875	4	6	4	0	116
2	5 P300	DRILLED SHAFT		35		3	0.000		6.000	51	7.000									995	11	995	11	2077
26	5 P301	DRILLED SHAFT		34		7	0.875	3	6.000							3	0.000			10	5	10	5	282
18	6 U300	BEAM		13 S		3	9.000	4	0.000	3	9.000	4	0.000							16	9	16	4	442
16	6 U301	BEAM		13 S		2	6.000	4	0.000	2	6.000	4	0.000							14	4	13	10	332
12	6 U302	BEAM		10 S				4	0.000	3	9.000									11	9	11	5	206
34	9 V300	DRILLED SHAFT		17		55	0.000													56	4	56	4	6512
56	4 V301	WEB BEAM		20		13	8.000													13	8	13	8	511
		SUPERSTRUCTURE																						
		END BENT NO. 1																						
9	6 F100	WING BRACE		23 S			20.000	6	0.000		20.000		11.500		16.375		11.500		16.375	9	4	9	3	125
4	6 F101	DIAPHRAGM		21 S				2	9.000	6	7.000					6	2.250	2	3.000	9	4	9	3	56
9	6 F102	WING BRACE		23 S			20.000	4	4.000		20.000		11.500		16.375		11.500		16.375	7	8	7	7	103
4	6 F103	DIAPHRAGM		21 S		5	9.000	2	9.000							2	7.000		11.250	8	6	8	1	49
8	6 H100	BM & DIAPH		20		30	2.000													30	2	30	2	362
12	7 H101	BM & DIAPH		20		30	2.000													30	2	30	2	740
6	6 H102	DIAPHRAGM		20		9	9.000													9	9	9	9	88
2	6 H103	DIAPHRAGM		20		6	11.000													6	11	6	11	21
6	6 H104	DIAPHRAGM		20		4	0.000													4	0	4	0	36
2	6 H105	DIAPHRAGM		20		2	6.000													2	6	2	6	8
3	5 H106	STRAND TIE		23			15.000	3	2.375		15.000		5.125		14.125		5.125		14.125	5	8	5	8	18
16	8 H107	WING		19		11	6.000		10.000											12	4	12	1	516
38	6 H108	WING		19 S		10	1.500		10.000											10	11	10	10	618

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B ft	B in.	C ft	C in.	D ft	D in.	E ft	E in.	F ft	F in.	H ft	H in.	K ft	K in.	Nom. Length ft	Nom. Length in.	Actual Length ft	Actual Length in.	Weight lb
14	5 U100	BEAM		37 S		5	3.000	2	11.000											14	5	14	1	206
21	4 U101	BEAM		13 S		2	11.000	2	8.000	2	11.000	2	8.000							11	11	11	8	164
37	6 U102	DIAPHRAGM		19 S		3	0.000	4	8.000											7	8	7	6	417
20	5 U103	DIAPHRAGM		37 S		3	4.000	2	4.000											9	11	9	8	202
20	6 U104	DIAPHRAGM		19 S		2	3.000	2	10.000											5	1	4	11	148
26	5 U105	DIAPHRAGM		19 S		2	0.000		15.000											3	3	3	2	86
12	5 V100	BEAM		17		5	3.000													5	9	5	9	72
15	6 V101	DIAPHRAGM		20		2	3.000													2	3	2	3	51
2	6 V102	WING		20		6	4.000													6	4	6	4	19
18	6 V103	WING		20	2	6	4.000													6	4	6	4	175
		INCR=0 3/8 IN				6	7.000													6	7	6	7	
2	6 V104	WING		20		6	5.000													6	5	6	5	19
18	6 V105	WING		20	2	6	7.000													6	7	6	7	180
		INCR=0 1/4 IN				6	9.000													6	9	6	9	
		END BENT NO. 4																						
9	6 F400	WING BRACE		23 S			20.000	6	0.000		20.000		11.500		16.375		11.500		16.375	9	4	9	3	125
4	6 F401	DIAPHRAGM		21 S				2	9.000	6	7.000					6	2.250	2	3.000	9	4	8	11	54
9	6 F402	WING BRACE		23 S			20.000	4	4.000		20.000		11.500		16.375		11.500		16.375	7	8	7	7	103
4	6 F403	DIAPHRAGM		21 S		5	9.000	2	9.000							2	7.000		11.250	8	6	8	2	49
8	6 H400	BM & DIAPH		20		30	2.000													30	2	30	2	362
12	7 H401	BM & DIAPH		20		30	2.000													30	2	30	2	740
6	6 H402	DIAPHRAGM		20		9	9.000													9	9	9	9	88
2	6 H403	DIAPHRAGM		20		6	11.000													6	11	6	11	21
6	6 H404	DIAPHRAGM		20		4	0.000													4	0	4	0	36
2	6 H405	DIAPHRAGM		20		2	6.000													2	6	2	6	8
3	5 H406	STRAND TIE		23			15.000	3	2.375		15.000		5.125		14.125		5.125		14.125	5	8	5	8	18
16	8 H407	WING		19		11	6.000		10.000											12	4	12	1	516
38	6 H408	WING		19 S		10	1.500		10.000											10	11	10	10	618
14	5 U400	BEAM		37 S		5	3.000	2	11.000											14	5	14	1	206
21	4 U401	BEAM		13 S		2	11.000	2	8.000	2	11.000	2	8.000							11	11	11	8	164
37	6 U402	DIAPHRAGM		19 S		3	0.000	4	8.000											7	8	7	6	417
20	5 U403	DIAPHRAGM		37 S		3	4.000	2	4.000											9	11	9	8	202
20	6 U404	DIAPHRAGM		19 S		2	3.000	2	10.000											5	1	4	11	148
26	5 U405	DIAPHRAGM		19 S		2	0.000		15.000											3	3	3	2	86
12	5 V400	BEAM		17		5	3.000													5	9	5	9	72
15	6 V401	DIAPHRAGM		20		2	3.000													2	3	2	3	51
2	6 V402	WING		20		6	4.000													6	4	6	4	19
18	6 V403	WING		20	2	6	11.000													6	11	6	11	189
		INCR=0 1/4 IN				7	1.000													7	1	7	1	
2	6 V404	WING		20		6	5.000													6	5	6	5	19
18	6 V405	WING		20	2	6	9.000													6	9	6	9	184
		INCR=0 1/8 IN				6	10.000													6	10	6	10	
		INT DIAPHRAGMS																						
8	6 H250	DIAPHRAGM		20		9	9.000													9	9	9	9	117
8	6 H251	DIAPHRAGM		20		6	10.000													6	10	6	10	82
16	4 H252	DIAPHRAGM		20		9	9.000													9	9	9	9	104
4	5 H253	STRAND TIE		20		5	10.000													5	10	5	10	24
8	5 H254	STRAND TIE		20		4	9.000													4	9	4	9	40
48	4 U250	DIAPHRAGM		28 S				15.000	3	3.000	2	3.000								6	9	6	7	211
16	6 U251	DIAPHRAGM		28 S				22.000	3	3.000	2	10.000								7	11	7	7	182
16	6 U252	DIAPHRAGM		28 S				22.000	2	6.000	2	10.000								7	2	6	10	164
16	6 U253	DIAPHRAGM		28 S				22.000	2	6.000	1	10.000								6	2	5	10	140
24	5 U254	DIAPHRAGM		6 S		5	0.000	12.000		22.500										7	11	7	8	192
8	5 U255	DIAPHRAGM		6 S		5	0.000	12.000												6	0	5	9	48
16	5 V250	DIAPHRAGM		20 S		3	6.000													3	6	3	6	58

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. 26.

All bars shall be ASTM A706 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

Detailed Sep. 2025
Checked Sep. 2025

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

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER

Alex C. Benz
10/23/20256:54:33 AM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED
10/23/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
BR	27

COUNTY
PERRY

JOB NO.
J9S3771

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9733

DESCRIPTION

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

EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578

REV.

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	Codes SH	Codes V	Dimensions B	C	D	E	F	H	K	Nom. Length	Actual Length	Weight
		SLAB													
38	6 S1	SLAB		20	2	27 7.000							27 7	27 7	868
		INCR=16 1/2 IN				2 10.000							2 10	2 10	
405	6 S2	SLAB		20		28 5.000							28 5	28 5	17286
100	7 S3	SLAB		20		55 9.000							55 9	55 9	11395
44	8 S4	SLAB		20		34 11.000							34 11	34 11	4102
44	8 S5	SLAB		20		34 8.000							34 8	34 8	4073
422	5 S6	SLAB		20		5 8.000							5 8	5 8	2494
40	5 S7	SLAB		20		45 0.000							45 0	45 0	1877
		BARRIER													
20	5 K1	BARRIER		27 S		3 5.000	9.250	5.375	2 2.750		14.250	2.750	6 10	6 8	139
54	5 K2	BARRIER		27 S		3 5.000	9.250	14.500	2 2.750		14.250	2.750	7 8	7 5	418
4	5 K3	BARRIER		27 S		22.500	9.250	14.500	7.750	12.000	14.250	2.750	5 6	5 2	22
78	5 K4	BARRIER		19 S		2 5.000	10.000						3 3	3 2	258
20	5 K5	BARRIER		38 S				19.250	9.500	8.250	18.750	4.250	3 1	2 11	61
58	5 K6	BARRIER		21 S			2 4.875	10.000			2 4.250	6.000	3 3	3 2	192
28	5 K7	BARRIER		20		12 4.000							12 4	12 4	360
28	5 K8	BARRIER		20		11 10.000							11 10	11 10	346
428	5 R1	BARRIER		14 S		2 5.000	6.500	2 5.500			2 5.000	5.500	5 5	5 3	2344
428	5 R2	BARRIER		19 S		20.500	9.500						2 6	2 5	1079
428	5 R3	BARRIER		27 S			9.500	15.250	5.000	12.000	15.000	3.000	3 6	3 3	1451
64	5 R4	BARRIER		20		11 8.000							11 8	11 8	779
16	5 R5	BARRIER		20		26 6.000							26 6	26 6	442
16	5 R6	BARRIER		20		30 8.000							30 8	30 8	512
16	5 R7	BARRIER		20		26 9.000							26 9	26 9	446
		SLIP FORM													
20	5 C1	SLIP FORM		20		12 0.000							12 0	12 0	250
4	5 C2	SLIP FORM		20		9 9.000							9 9	9 9	41

Bill of Reinforcing Steel

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

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. 26.

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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

Detailed Sep. 2025
Checked Sep. 2025

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

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER

Alex C. Benz
10/21/202512:47:23 PM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED
10/21/2025

ROUTE	STATE
NN	MO

DISTRICT	SHEET NO.
BR	28

COUNTY
PERRY

JOB NO.
J9S3771

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9733

DESCRIPTION

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

EFK·Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
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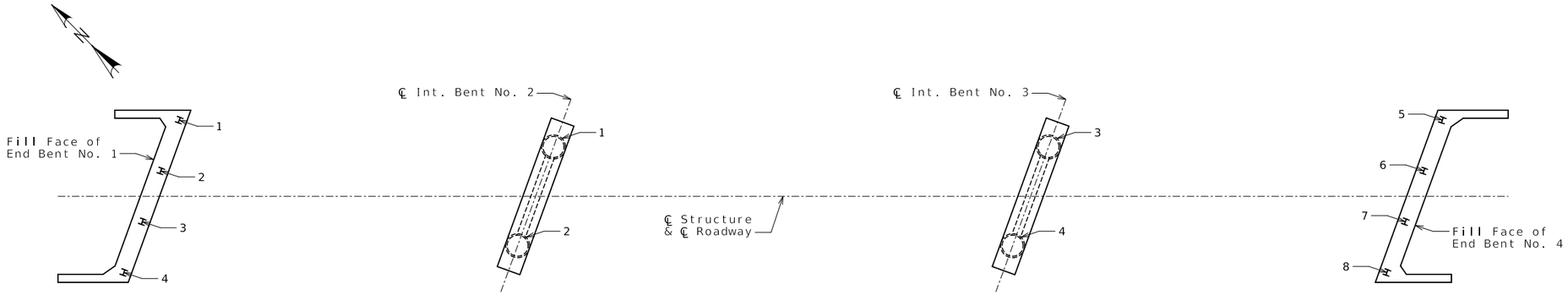
Missouri Certificate of Authority: 001578

REV.



PART PLAN SHOWING PILE NUMBERING FOR RECORDING AS-BUILT PILE DATA & AS-BUILT DRILLED SHAFT DATA

As-Built Pile Data

Pile No.	Length in Place (ft)	Computed Nominal Axial Compressive Resistance (kips)	Remarks
			END BENT NO. 1
1			
2			
3			
4			
			END BENT NO. 4
5			
6			
7			
8			

As-Built Drilled Shaft Data

Shaft No.	Top of Sound Rock (Elev.)	Tip of Casing (Elev.)	Bottom of Rock Socket (Elev.)	Remarks
				INT. BENT NO. 2
1				
2				
				INT. BENT NO. 3
5				
6				

Note:
Indicate in remarks column:
A. Pile type and grade
B. Batter
C. Driven to practical refusal

This sheet to be completed by MoDOT construction personnel.

AS-BUILT PILE AND DRILLED SHAFT DATA

Detailed Sep. 2025
Checked Sep. 2025

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

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
10/21/202512:47:32 PM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED
10/21/2025

ROUTE	STATE
NN	MO
DISTRICT	SHEET NO.
BR	29

COUNTY
PERRY

JOB NO.
J9S3771

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9733

DESCRIPTION

REV.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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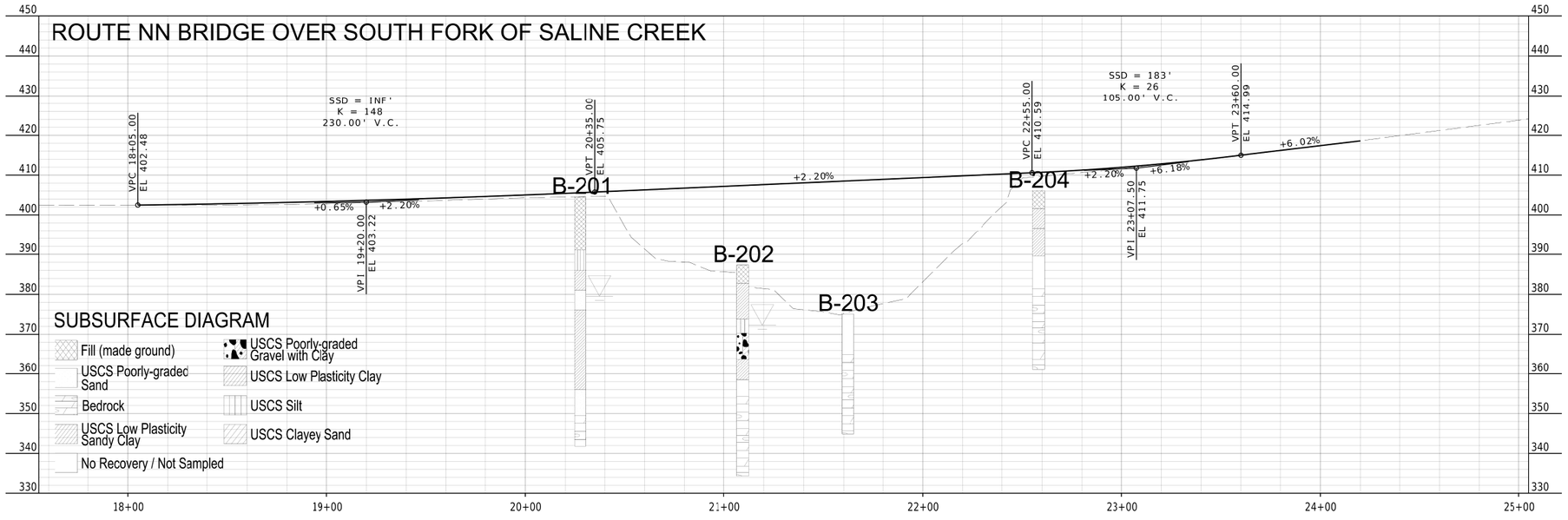

NN_J9S3771_Civil Geometry.dgn 4:01:44 PM 9/18/2025

BORING DATA

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

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

Sheet No. 30 of 30

Detailed Sep. 2025
Checked Sep. 2025

O:\2022R3\MoDOT_ORD_v10.12.02.04\25034 MoDOT BFW J9S3771 Route NN Bridge\DGN\Bridge\Final\Plotsheets\B_A9733_030_J9S3771_Boring-Data.dgn 12:40:52 PM 10/21/2025

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER

Alex C. Benz
10/21/202512:47:42 PM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED	10/21/2025
ROUTE	NN
STATE	MO
DISTRICT	BR
SHEET NO.	30
COUNTY	PERRY
JOB NO.	J9S3771
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A9733

DESCRIPTION

DATE PREPARED	09/18/2025
ROUTE	NN
STATE	MO
DISTRICT	SE
SHEET NO.	
COUNTY	PERRY
JOB NO.	J9S3771
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A9733

DESCRIPTION DATE

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

Cape Girardeau, MO Office
3437 William St. Cape Girardeau, MO 63701
Certificate of Authority: F2007038644
Phone: 573-222-5322 / BFWengineers.com

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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JEFFERSON CITY, MO 65102
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REV.